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Letter to Editor

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Disability, Rehabilitation & Society

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Disability: In ancient India there had been available descriptions of learned persons like ASHTAVAKRA. Even after deformities at 8 places in his body he lived gracefully and competed with all learned able bodied contemporary personalities of his time with his sharp knowledge. Insightful thinking and foreseeable nature. There are several such examples. Which signifies that limitations arising out of any disability is only in thinking as a mental barrier .But the moment a person with disability realises that he/she has several remaining positive potentials to move ahead ; that generates the feeling …. " I can do , successfully move ahead & I can achieve."

There had always been a major concern about severely mentally and physically challenged persons with disability requiring custodial care. In the ancient Indian Society they were respected and regarded and looked after by the families and community .Parents of Shravan Kumar were confined due to mobility restrictions of old age but Shravan Kumar carried them on his shoulder for pilgrimage.

In the late 18th century and beginning of 19th century also known to be a period of political awareness in India; Christian Missionaries of Europe established Institutional Care for the persons with disability/ies slowly with gradual passage of time as per need and demand these centres turned out to be Special Schools and Rehabilitation Centres for the persons with disability. By this time the public and state both began to pay attention to Visually Challenged persons and persons with Hearing Disability. As these two categories were distinctly known to the people as compared to Locomotor & Intellectual disability. At that point of time there was no clear cut differentiation between Mental Retardation (now known as Intellectual disability) and Mental Illness.

'Sharp Memorial for the Blind'was the first school for the Visually challenged children established in the year 1887 at Amritsar. Around the same time services for other categories of disability, especially Hearing disability, were also established in the country. Which has led to the drawing up of an uniform Indian Braille Code and Sign Language around the beginning of 1940s. This is known to be the beginning of services for the persons with Disability in India.

'International Year for the disabled-1981' emerged as a great impetus to the services or persons with disability in India. As per the details available in the literature; Country celebrated the Centenary of Services to the Visually Challenged persons in the year 1987 (AICB & CBM, 1987). During 1980s national institutes were established to serve different categories of Persons with disability i.e Ali Yavar Jung National Institute for Speech & Hearing Disabilities (AYJNISHD: Mumbai), National Institute for Locomotor Disabilities (NILD: Kolkata), National Institute for the Empowerment of Persons with Visual Disabilities (NIEPVD: Dehradun) , National Institute for the Empowerment of Persons with Intellectual Disabilities (NIEPID: Secunderabad) & Swami Vivekanand National Institute of Rehabilitation , Training & Research (SVNIRTAR: Cuttack).

One Institute existed prior to the establishment of these National Institutes in Delhi i.e. erstwhile I.P.H. is now known as Pandit DeenDayal Upadhyaya National Institute for the Persons with Physical Disabilities (PDUNIPPD).

Another two National Institutes set up in the recent past are National Institute for the Empowerment of Persons with Multiple Disabilities (NIEPMD: Chennai) and National Institute of Mental Health & Rehabilitation (NIMHR: Sehore). Main role of these National Institutes is to function as an apex body in the country with the objectives i.e. 1/. Service Delivery and developing replicable service models 2/. Man power Development, to cater to the needs and to ensure quality service delivery to this population; 3/.Research and 4/. Community oriented services to assist persons with disabilities in the community.

Apart from these National Institutes , through a network of Non Governmental Organizations throughout the country, services to the persons with disability/ies were also expedited ; successfully and pervasively. By the mid1990s there was a realisation that the categorical disability wise institutional care should be merged into the composite nature of service delivery to help persons with different categories of disability/ies at one place. This was the time when Regional Rehabilitation and training centres were established in different regions of the country supported with District Rehabilitation Centers on an experimental basis.

At the time of nearly one and half decade after completion of the International Year for the Persons with Disabilities; there was a growing realisation about needs and requirements of new facilities and provision of services. Most significant and urgent need of the time was 'A Legislation'. Thus in 1995 'Person with Disability Act' (MOSJ&E, 1995) ensuring equal opportunities ,protection of rights,& full participation of persons with disability came into being . Which included seven categories of Disabilities; i.e. Blindness , Low Vision, Leprosy Cured , Hearing Impairment, Locomotor Disability & Mental Illness. The Rights of

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Persons with Disabilities (RPwD) Act 2016 was an updated version which covered 21 different disabilities (MOSJ&E, 2016)

PWD Act 1995 had significant bearing on two very important issues 1/. Care of parentless and homeless severely disabled persons and such persons requiring custodial care and 2/. Addressing the grievances of these persons by way of protecting their rights as per provisions of the PWD Act 1995.

Which anticipated the establishment of two more National Organizations as per act passed by the Parliament.

1/. National Trust for the welfare of Persons with Autism, Cerebral Palsy. Mental Retardation and Multiple Disabilities Act-1999a.

2/. Chief Commissioner for Persons with Disabilities Act -1999 b. Manpower development as one of their primary objectives was taken up by NIs and several NGOs to fulfil this need. For the purpose of preparing a National Register of Rehabilitation professionals and accreditation of various training courses; 'Rehabilitation Council of India' was established in the mid 1990s, passed as an act by Parliament. Clinical Psychologists were identified as Rehabilitation Professionals by RCI. This was the entry point of Clinical Psychologists into the world of Rehabilitation not by chance rather by choice. As the association (IACP) was looking for an agency/ council to bring all the members under one umbrella organisation to register for licensing to practise as professionals.

Surprisingly till September, 1993 as per Gazette notification of Govt. of India (1993) Clinical Psychologists were listed as professionals under Ministry of Health & Family Welfare with the qualification of 'Diploma in Medical Psychology'. The first nomenclature of the course which was awarded to first few batches, who qualified from NIMHANS (erstwhile Institute of Mental Health) in the initial years.

About the size of this population; i.e. Persons with disability in India; figures reported by NSS (2018) and Statistical Profile provided by Census (Govt. of India 2016) are considered reliable figures and the same is being used in policy planning and implementation by GOI and by the States all over the country. Incidence reported was 86 per one Lakh population.

According to NSS (2018) 2.2% of the total population of the country are the victims of Disability (Rural 2.3%, Urban 2.0%, Male 2.4% and Female 1.9%).

GOI; Census (2016) reports that there are 2.68 Crore persons with disability in the country; which constitutes 2.21% of the total population. Out of which 69% persons with disability resided in rural areas.

Rehabilitation: Rehabilitation was known earlier basically as a matter of charity .Providing food grains and distribution of clothes and woollen clothes to persons with disability, especially during winter was seen usually on a routine basis or mostly on social occasions. In the current scenario rehabilitation is known as process which begins from the day of commencement of disability in the form of an incurable ailment or nonreversible condition by a medical doctor and till the time person is well integrated in his society after completion of his schooling, education, vocational training and gainfully employed in a job to look after himself and his family.

Across all the categories of disability some of the priority areas which needs to be compulsorily looked into, and thoroughly addressed are:

- Early detection and Early intervention/home based training in the lower age group including
- preschool age to minimise developmental lag,
- Schooling of Children with special needs and higher education as per need and preference,
- Care of children who needs custodial care,
- Crisis Intervention services for the victims of accidental and acquired disability as immediate help to cope up with the crisis/loss of limb or function,
- Deciding trade for vocational training of a person with disability as per one's abilities based on his/her psychological assessment of attention, memory , intelligence, psycho-motor coordination and personality,
- Pre Discharge counselling before leaving the institutional training setup with details of job and employment opportunities,
- Placement in a job for gainful employment to integrate the person into his family and society,
- Looking into the Disability and Sexuality aspect and resolving the issues related to sexuality as significant component of Rehabilitation if Person with disability is married or planning to mary or in any other situation when person with disability if facing complexities on account of his /her problem/s in sex life,
- Community oriented services for wider coverage, cost effectiveness and without compromising with the quality of service delivery , including generation of awareness leading to change in attitude of people in the community , highlighting the remaining positive potentials of the persons with disability,
- Preparation and production of multilingual awareness material, guidelines and manuals to be used by rehabilitation professionals and special educators working at different levels in different settings.

After a journey of 4 decades from 1981(IYDP) to 2023 (after excluding the disasterous phase of COVID 19

Pandemic) a remarkable change is distinctly visible in the area of education , rehabilitation , job placement and community oriented services.

Persons with disability/ies are seen today studying in Universities, they are employed by Banks, Railways, as teachers in schools and several other such organisations in the public and private sector. A few of them have entered into the country's top level administrative services. In sports they have also proved their competence. Generation of awareness about disability, rehabilitation using them as main themes and success stories has been done sufficiently and significantly by mass media especially Indian Films in the last four decades.

Two more service provisions made by the Government of India are worth mentioning as they have facilitated rehabilitation of disabled in India by way of placement of persons with disability in jobs and promotion of self-employment .

'Vocational Rehabilitation centres' on experimental basis were established at two places initially at Mumbai & Hyderabad in 1968 in collaboration with the US government under the Ministry of Labour and Employment. Intention in establishing these centres was to look into the vocational & psychological needs of the person with disability and to render rehabilitation assistance to them with a focus on skill acquisition through vocational training and subsequently placing them in jobs including self-employment .

These initial efforts of two VRCs were noted to be gratifying which led to the establishment of VRCs under the same Ministry. Currently 21 VRCs are functional in the country and helping persons with disability (Narasimham,2017; Singh 2005).

National Handicapped Finance & Development Corporation' is another service provision (1997) made by the Government of India to pay loans to the persons with disability above the age of 18 years with at least 40% of disability. This helps persons with disability in setting up a work environment or a small business to keep them involved as self-employed persons.

Last but not the least is ALIMCO (Artificial Limb Manufacturing Corporation):

Under MOSJ&E is manufacturing state of the art technology based aids and appliances and making these high quality devices to the people with disability/ies all over the country through its network.

Like TeleMedicine/ Telemental health; there has been a mention of the Tele-Rehabilitation system mainly for empowering parents and their children with disabilities in India (Moorthy et.al.2021) . Strength and weakness analysis of the system needs to be kept in mind to ensure quality service delivery to the children with disability.

Further system helps in filling up the gaps between access to sustainable rehabilitation services and non sustainable patchy temporary solutions . Only time will tell the success of this system. During Pandemic followed by s lockdown advantages of the telemental health/ telemedicine was seen worldwide. But that was the only option available at that time.

Provision of equal educational opportunity to children with disability in the last 40 years moved from special schooling to integrated education and now entered into a phase of inclusive education. Another important area 'Easy access to public places ' there has seen facilitative improvement but considering the need and vast population of the country still further substantial work is needed for wider coverage nationwide (Krishna 2021). Now pathways of progress to promote further work are distinctly visible.

To cater to the service needs of this population manpower development programmes were launched by the mid-1980s ; and these programmes moved successfully , with additions as per need and requirements . In mid - 1990s RCI became the monitoring agency of the manpower development programmes with a provision of accreditation of these training programmes. Clinical Psychologists were identified and categorised by RCI as Rehabilitation professionals with all ups and downs and controversies of that time. Thus by the mid 1980s a good number of clinical psychologists joined the posts under MOSJE in NIs, RRTCs, Regional centres of NIs and DRCs; this trend continued nearly for a decade. Even VRCs attracted Clinical Psychologists and for their significant contribution to the area of Disability & Rehabilitation they have been honoured by the Honourable President of India.

The Erwadi Fire Incident on 6th August, 2002 has been proved to be a significant event in inclusion of the country's severely mentally ill as a potential significant group in need of Psychosocial Rehabilitation with a serious consideration under a service provision to provide health insurance to the mentally ill.

In the recent past (last two decades) in the name of increasing demand and limited supply of Clinical Psychologists as rehabilitation professionals, more training centres were granted permission by RCI to train clinical psychologists. Doubts have been raised about the resources, facilities, infrastructure and availability of sufficient clinical material at these recognized training centres for Clinical Psychologists. Which shows that RCI as an accreditation body miserably failed in exercising quality control while granting permission to the training centres in the last 15 years and justifying the same in the name of demand and supply.

Another important issue currently under consideration of the Government of India is the nomenclature of the training curriculum of clinical Psychologists. As UGC has abolished M.Phil. Course all over the country after implementation of New Education Policy. The only apprehension of the Clinical Psychologists in the country is that there is likelihood of diluting the course by making this " Full time Practical, Clinical, Residential supervised training " of two years into postgraduate (M.A) level University degree, irrespective of the concern of international trend . We should not forget that a good number of Clinical Psychologists are employed in mental health service centres and universities of the western countries and there, they are not earning only their livelihood, rather they have been able to extend their remarkable thoughtful leadership to enrich the discipline of Clinical Psychology in the west. This is the continuing trend which should not be interrupted.

The regard and respect given to the profession of Clinical Psychology in the west is not available to the profession in India; although clinical Psychologist has been defined as Mental Health Professional by The Mental Health Care Act (2017). Clinical Psychologists working in India have not been given a status which they deserve and the profession is still in search of its Identity even when the country is celebrating 'Amrit Mahotsava' of freedom in the country. It has already been recorded in the history of mental health service delivery that Training of Clinical Psychologists in India has successfully completed more than 6 decades successfully, with all prescribed norms and standards. This fact is still verifiable in ground reality, which cannot be suppressed.

Apart from all these issues under discussion; Clinical Psychologists have significantly contributed to the area of disability and rehabilitation applying multidisciplinary team approach in service delivery, manpower development, research and community oriented services. Now a precise account with better description is available about guidelines, manuals and resource books (Relekar et.al., 2021, AYJNISHD, 2023; NIEPID, 1989 & 1990; NIEPVD,2017 & 2018; Singh,1989;1990), on Education, Rehabilitation, and Community Oriented Services. The work done is much more than what is described here.

Society: Social aspect of Disability & Rehabilitation is linked to Parents of children with disability, care givers in the family, village leaders/workers, agencies serving this population in the community and overall integration of a person with disability into his family and society.

Community Oriented services also known as Community Based Rehabilitation and in the field of mental health the same is known as Community Mental Health. Entry of Community Mental Health was much earlier than Community Based Rehabilitation. The Community Mental Health Movement began in the US in the 1960s and reached India in the beginning of 1970s. Raipur Rani run by PGIMER, Chandigarh & Sakalwara run by NIMHANS were best known Community Mental Health service models in those earlier days. Lack of financial support interrupted functioning of these projects, however in the recent past with the sustained financial support of MOHFW; GOI these programmes have revived in the name of District mental Health Programme. Which will be taken over by the different State Governments of the country in due course of time.

Community Based Rehabilitation Services for persons with disability in India are known prominently under 4 major service modalities as under:

1/. Rehabilitation Experts train persons with disability in their home environment in rural areas as their need and age (Jain, 1983),

2/. Rehabilitation Experts train field workers raised from the community itself where the person/s with disability resided. These trained field workers provide training in their home environment, according to client's age and need (Punani & Rawal, 1987; Jaekle, 1977),

3/. Rehabilitation experts train field workers raised from the community itself at training centres equipped with all kinds of training facilities. These trained field workers enrol parents or any other family member (of person with disability) to extend desired training to him or her according to client's age and need (Mathur, Choksi & Singh 1984, 1985, 1986).

4/. Early detection. Prompt referral and introduction of preliminary rehabilitation services through composite rehabilitation camps (NIVH, 1991).

Benefits of the "Composite Rehabilitation Camp" approach are still available to persons with disability throughout the country under the AIP Scheme of MOSJ&E. Initially the service model was tried out on an experimental basis as per instruction of the MOSJ&E in the remote rural hilly area of Uttarakhand through 14 composite rehabilitation camps organised at different parts of the region (now a state) i.e. Srinagar (Garhwal), Kotdwar, Gwaldam, Joshimath and Pithoragarh, from 1988 to 1991. Total beneficiaries were 3012 under 4 categories Locomotor, Hearing and Speech, Intellectual and Visual disability. The CBR model was proved to be cost effective for which all 4 national institutes provided manpower to render the services.

Recently during COVID 19, Clinical Psychologists through their association, IACP extended the facility of nationwide multilingual helpline to help the victims. A good number of Clinical Psychologists are working now in the District Mental Health centre which is a community set up. There is a need to generate data based on the work of Clinical Psychologists in DMHPs.

As far as care of persons with disability, severely mentally ill or even elderly persons is concerned; as per our Indian cultural tradition and well integrated sociocultural living this population has been well taken care of by the family members in the society . Hence they are well integrated in the community.

Generation of awareness about disability and rehabilitation more specifically to minimise pathways of care, stigma and to promote early early detection and early intervention, people in the community are now sensitised and thoroughly aware. This was not the situation three decades back. Worldwide spread message of Disease Burden & investment by the Government in generation of awareness supplemented with contribution of mass media and films have played significant role in bringing out this positive change in the the attitude of people in the community. Clinical Psychologists irrespective of their work place and affiliation had been sincerely part & parcel of these programmes.

What needs to be done to promote the profession of Clinical Psychology & Status of Clinical Psychologists in the country to utilise their services effectively

1/. Current trend to produce a large number of Clinical Psychologists in the name of demand and supply should stop. As this is resulting in producing a standardised labour force to work like technicians in place of adding more Mental Health professionals. Demand is hardly 50 Clinical Psychologists per year whereas the country is producing 500 Clinical Psychologists every year being trained at 50 centres in different parts of the country, duly recognized by concerned accreditation body/ies.

There is a need to exercise control in granting permission to the institutes -GOs & NGOs highly aspirant to run the course for training Clinical Psychologists. Example of ‘Medical Council of India’ is there which ultimately turned out to be ‘National Medical Commission’. Why? Reasons are best known to all concerned. In Rajasthan 12 posts are vacant for a long time; however in this state permission has been granted to 12 centres in the last two years, to train Clinical Psychologists.

2/. Training of Rehabilitation Psychologists commenced in the country much earlier but their scope is diminishing. Employment opportunities available to Rehabilitation Psychologists are interchanging being filled up by Clinical Psychologists irrespective of the concern of eligibility, roles & responsibilities. This needs to be looked into seriously.

3/. ‘Continuing Rehabilitation Education’ for Clinical Psychologists is not adequate and is being done as a ritual where trainers are seen as less qualified than trainees. CRE should be organised and leading mental health service centres like NIMHANS, CIP or at National Institutes in 4 regions of the country to uniformly cater to the needs of updating the knowledge and skills of Clinical psychologists nationwide.

4/. Admission to Ph.D. Clinical Psychology Course should be permissible only to the applicants with qualifying degree to practise as Clinical Psychologists in the country. Just like M.B.B.S is the well accepted degree and only qualified M.B.B.S. doctors are eligible to apply for P.G.courses (M.D.).

5/. The National Medical Commission has prescribed only one post of Clinical Psychologists per medical college, which is also under the category of technician and not as professional. This needs to be looked into by the commission because status given to the Clinical Psychologists puts them back in the early post-independence era.

Apart from all these issues, there has been a mention of discrimination in employing Clinical Psychologists under DMHP scheme with regard to their payable remuneration based on their qualification. This should be avoided in future.

Let us hope that training of Clinical Psychologists with introduction of new nomenclature will be more encouraging and gratifying.

This Special issue depicts the kind of work currently going on in the country and addresses issues related to Disability, Rehabilitation & Society.

Editor

*With inputs from Presidential Address of the author (2009), which could not be published due to transition phase of Change in IJCP: Editorship, either the manuscript was skipped or lost, as an error.

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Original Research Article

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Unveiling the Overlooked: A Comprehensive Review of Deafblindness in India

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ABSTRACT

Deafblindness, characterized by dual sensory impairment in both hearing and vision, presents significant challenges to affected individuals and is considered a highly vulnerable condition. This study focuses on the status of Deafblindness, particularly in India, where it has only recently been recognized as a distinct disability under the RPWD Act, 2016. However, there remains a scarcity of research and development efforts in this field. Multiple studies indicate the presence of mental health issues like depression and perceived lack of social support among individuals with Deafblindness. In India, deafblind individuals face discrimination and limited access to essential resources and services. The study emphasizes the need for rehabilitation in various areas, including communication, mobility, information access, and psychological adaptation. Protactile communication has emerged as a promising approach, but there is a lack of training modules and research in India. There are significant inventions globally, including some in India, designed to enhance mobility and learning for deafblind individuals. However, these products suffer from a lack of promotion and information dissemination. Additionally, challenges persist in providing adequate counseling due to existing communication barriers. The study highlights critical areas that require attention to better rehabilitate deafblind individuals and create a more inclusive world for them in the future.

Keywords**:** *Deafblindness, Disability, Protactile, Rehabilitation*

INTRODUCTION

Disability refers to a state in which an individual experiences challenges in performing specific activities due to impairments in their body or mind. It also involves difficulties in engaging with the surrounding world, leading to limitations in participation (Centers for Disease Control and Prevention, 2019). The World Health Organization explains that disability encompasses three dimensions for a comprehensive understanding. These dimensions include physical impairments in specific body structures or parts, restrictions in carrying out activities, and limitations in participation.

Having a disability related to a single sensory impairment can significantly affect an individual's life. However, the challenges become even more profound when someone experiences sensory deficits in multiple areas. Deafblindness is an example of a dual sensory impairment that involves different levels of hearing loss and limited vision. The impact of Deafblindness goes beyond a simple combination of the effects of the two disabilities; it is significantly multiplied (Shetye, 2019). A child with Deafblindness faces considerable difficulties in processing both visual and auditory information, which adversely affects their communication, learning, mobility, socialization, and daily living skills (Jaiswal et al., 2019). As a result, not only do their overall functioning and activities become compromised, but their ability to actively participate in society is also significantly limited. Deafblindness is a lifelong condition, and the severity can vary along a spectrum based on the extent of visual and auditory impairments.

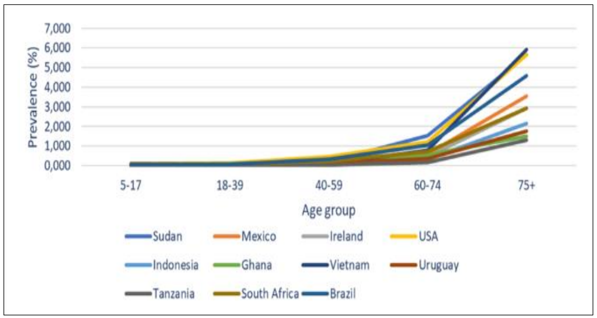

Figure 1: Late-onset Deafblindness is more prevalent across countries

Source: World Federation of the Deafblind Report (2018)

Deafblindness can be congenital as well as acquired and the latter is the most prevalent one among the two (Minhas *et al.*, 2022). Down syndrome, hydrocephaly, congenital rubella syndrome, and microcephaly are common causes of congenital deafblindness while later acquired Deafblindness to postnatal meningitis, usher syndrome, asphyxia, and head injury (Sundqvist *et al.*, 2022). Deafblindness is also classified as prelingual (usually congenital or acquired during infancy before language development) and post-lingual (acquired during childhood or adolescence after language development) and this has significant implications on the later communication training processes. We usually learn things through our eyes and ears and express them through our speech. People without visual and auditory functioning are disabled in terms of learning and

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acquiring information about the world and eventually, do not learn ways to express their needs. Deafblindness is not just a state of dual sensory impairment but is a lot beyond that.

Status of Deafblindness in India

Despite the existence of Deafblindness in India since the early 1800s, there is a significant dearth of research in this field. Imchen (2022) reports that an estimated 500,000 individuals in India have Deafblindness, and currently, Sense International India is the only organization providing national-level education and rehabilitation services for the deafblind community for the past 26 years. The prevalence of congenital Deafblindness is high in India due to a considerable number of diagnosed cases of congenital rubella syndrome each year. However, there is a notable scarcity of published research and established rehabilitation programs focused on Deafblindness in the country, resulting in persistent life dissatisfaction and marginalization (Jaiswal et al., 2019). Paul et al. (2020) further state that although Deafblindness is not a rare condition in India, a majority of children and adults with Deafblindness receive late diagnoses and lack access to necessary services. Additionally, there is a lack of assessment tools and educational frameworks tailored for the deafblind population. Until 2016, Deafblindness was not officially recognized as a distinct disability at the national level, leading to limited accessibility to social welfare services. However, through the advocacy efforts of Sense International India, Deafblindness has now been recognized as a separate disability under the Rehabilitation of Persons with Disabilities Act of 2016 (Imchen, 2022).

Currently, Sense International India is actively engaged in enhancing research, interventions, and policies concerning individuals with deafblindness and their families. They operate three national networks, namely UDAAN, PRAYAS, and ABHI-PRERNA, with a focus on increasing and improving support for the deafblind community. Specialized communication methods and therapies are being utilized for education and rehabilitation purposes. However, there remains a pressing requirement for extensive research and development efforts in this field.

Psychosocial Issues in Deafblindness

"Blindness separates us from things but deafness separates us from people"- Helen Keller

When an individual experience a single sensory impairment, the remaining senses often compensate to some extent, helping them cope with the situation. However, in the case of Deafblindness, where both major senses involved in perceiving the world are impaired, the challenges can lead to unimaginable distress. Unfortunately, there is a shortage of competent researchers in this field, resulting in a lack of psychological studies on Deafblindness. Nevertheless, the existing research indicates that individuals with Deafblindness often report feeling socially isolated and lonely. Despite their strong desire to contribute to society, they often feel insignificant due to communication barriers (Hersh, 2013). Some studies have highlighted that Deafblindness is one of the most vulnerable conditions, associated with significant levels of depression, perceived stigma, and a lack of social support among those affected (Bodsworth et al., 2011; Simcock, 2016).

Khil et al. (2015) discovered that in individuals with Deafblindness, there is a significant correlation between depression and various factors, such as limited mobility, difficulties in social interactions, and restrictions in participation, all of which ultimately contribute to a lower quality of life. Deafness itself plays a significant role in their feelings of isolation, as it prevents them from connecting with others, leading to increased loneliness (Hersh, 2013). Additionally, the perception of social support plays a crucial role in the psychological well-being of distressed individuals with Deafblindness. Research has shown that those who lack social support are more prone to experiencing clinical depression and having an overall poorer quality of life (Santini et al., 2016).

Deafblindness does not just impact the individual but also extends to their family members. The person's dependence on family members is often high due to the challenges in acquiring knowledge and daily living skills (Dean et al., 2017). Unfortunately, the lack of caregiver training in handling Deafblindness leads to communication difficulties and frustration on both sides. Sometimes, caregivers become overwhelmed with their responsibilities and identify solely with the caregiver role, which can strain their relationship with the deafblind person. This frustration might also get displaced onto the deafblind individual, leading to unwarranted blame and abuse for their disability, for which they bear no responsibility.

Society significantly impacts the quality of life of individuals with Deafblindness. According to Raghavan (2021), deafblind persons in India face daily challenges of discrimination and lack of access to essential services and aids. Eminent deafblind individuals have reported that on social media, many people doubt the credibility of successful deafblind individuals, as they find it hard to believe that someone with dual sensory impairment can work on par with someone without disabilities. These stereotypes and lack of awareness hinder the development of crucial tools like alternative communication devices and mobility aids, pushing deafblind individuals further into distress, hopelessness, depression, and poverty.

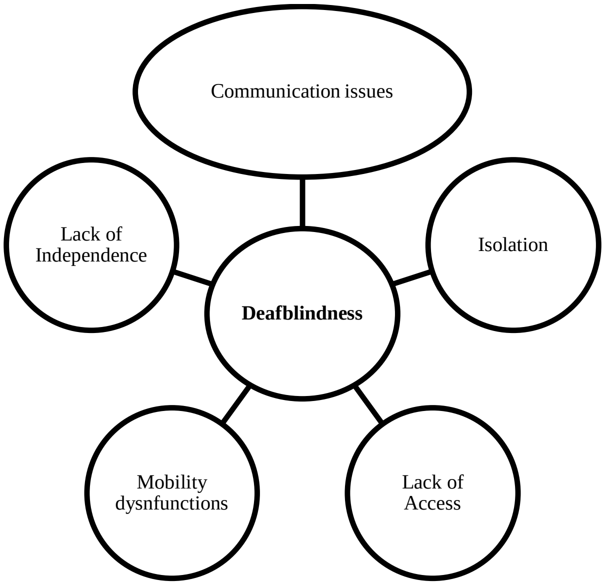

Figure 2: Psychosocial issues in Deafblindness
Source: Hersh (2013)

While Deafblindness is more commonly associated with old age, its impact on children with early onset or congenital Deafblindness is particularly severe. This condition hinders their education, learning of daily living skills, language development, communication, and cognitive growth, making it challenging for them to learn sign languages, which could aid in their intervention later. Clinical studies have shown that mild cases of Deafblindness in children are often misdiagnosed as autism spectrum disorder due to similarities in communication abnormalities and sensory processing challenges (deVann et al., 2019). These misdiagnoses also highlight the importance of raising awareness and conducting further research on Deafblindness to facilitate early identification and intervention. Recognizing and addressing Deafblindness promptly becomes crucial to providing the necessary support and care for affected individuals (Moroe*et al*., 2022).

Psychosocial Rehabilitation

An effective rehabilitation program plays a crucial role in addressing the disparity between an individual's capabilities and societal expectations. For individuals with Deafblindness, a specialized psychosocial rehabilitation program is of utmost importance. Despite gradual progress in research and development, several rehabilitation techniques and intervention programs have emerged to cater to the unique needs of deafblind individuals. Extensive literature reviews indicate that these rehabilitation efforts are designed to focus on specific areas of functioning, aiming to optimize the person's abilities and enable them to lead a fulfilling life in the broader community (Warnicke *et al*., 2022).

In the initial stages of deafblind rehabilitation, Nelipovich & Naegele (1985) introduced a rehabilitation model in their research. They suggested that due to the limited understanding of the condition and the available support services, the rehabilitation process should commence with establishing strong relationships and connections with various institutions like schools, hospitals, etc. This would help identify individuals in need and facilitate their referral for psychosocial rehabilitation. Subsequently, a thorough intake process, diagnosis, evaluation, and comprehensive adjustment training would be implemented. The adjustment training services provided in deafblind rehabilitation focus on enhancing the individual's personal and interpersonal functionality while also aiming to improve their employability through pre-vocational and vocational training. Rehabilitation counseling played a significant role during this period, with counselors assisting individuals with Deafblindness in effectively utilizing their personal and environmental resources (Hammer & Edwin, 1974). It was widely recognized at that time that learning effective communication methods with deafblind individuals was an essential initial step in the rehabilitation process, regardless of having good intentions and a well-structured model. Although communication methods such as "Braille hand speech," "Talking disc," and "Tell a touch machine" showed success with some individuals who had mild deafness or blindness, they often struggled to maintain a consistent flow of communication in many cases (Nelipovich & Naegele, 1985).

In the current scenario, psychosocial rehabilitation programs usually focus on improving functioning in the areas of communication, learning information, mobility and psychologically adapting to the condition of Deafblindness. Certain developments in these areas have been mentioned below:

- ***Communication:*** Recent research has highlighted tactile communication as the most effective modality for deafblind individuals. Advancements in technology have led to the development of innovative products, such as Vibrotactile gloves, designed to convert messages from smartphones and computers into vibrations felt on the fingers. These vibrations, varying in frequencies, require decoding for understanding the information (Shivakumar & Rajasenathipathi, 2014). Studies indicate that with sufficient practice, approximately 97% of deafblind individuals accurately decoded these messages (Carrera et al., 2017). Additionally, Hussain et al. (2019) designed a mobile app called Smart Prayer Aid, which converts spoken prayers into vibrations and delivers them through a smartphone or smartwatch via voice recognition. Participants placed the smartphone in their front pocket or wore the smartwatch on their right wrist. This technology not only facilitated easier concentration on religious spirituality but also allowed participants to synchronize their movements with the Imam without external assistance.

Some other studies were also conducted on the effectiveness of aromatherapy and therapeutic massage on self-confidence, communication, and well-being of deafblind persons. It was found that post intervention the participants seemed more sociable, outgoing, and more comfortable with tactile contact, and their communication skills and confidence also increased. One of the most current techniques being used for Deafblindness is Protactile language which is based on the recognition that Deafblind individuals possess more pronounced intuitions regarding tactile communication compared to the intuitions of sighted people (Granda & Nuccio, 2018). Protactile communication utilizes the sense of touch (haptic system) to convey and receive visual, environmental, and social information through tactile signals on the body. Wing (2022) emphasized that many deafblind individuals attempted to use variations of sign languages for communication, but these languages were designed primarily for a single sensory impairment, resulting in them only understanding half of the world. Even iconic figures like Helen Keller utilized finger spelling, a modification of American Sign Language and Braille, which still had significant limitations.

In response to this challenge, Fidrocki (2018) noted that the deafblind community came together and initiated a language revolution, led by Lard and Dwyer, two deafblind individuals. They created a new language that broke away from the traditional concept of language expressed through sounds and sight, focusing instead on the linguistic qualities of touch. This innovative approach, known as protactile, involves people holding each other's hands to interpret learned American signs through touch, utilizing tapping for backchanneling and responding with signing.

Nuccio (2018) highlighted that this protactile communication, also referred to as Protactile American Sign Language or Protactile ASL, is gradually gaining traction among deafblind communities, and in India, the efforts of organizations like Sense International India are also making deafblind people learn the same.[11] Additionally, an app called Good Vibes has been introduced in India, combining Morse code and smartphone vibrations to assist deafblind individuals in communicating through protactile means (Mitter, 2019). While the app may still have some imperfections, such innovative endeavours offer hope for making communication slightly easier for the deafblind community.

Mobility: The impairment in sight and hearing also limits the ability to move around freely, especially outside the house. Bourquin and Moon (2008) conducted research on deafblind individuals and discovered that using a large card with text and illustrations of a person assisting another to cross the road is an effective way to seek social assistance for them. To aid with directions both inside and outside their homes, Lancioni et al. (2010) found that the use of vibrotactile boxes and eyeglasses equipped with vibrators can help deafblind individuals understand the correct directions by signaling through vibrations.

In another study by Vincent et al. (2013), a new device called Miniguide was identified as beneficial for deafblindness. This device utilizes an Eco localization system to detect obstacles and communicates through vibrations to alert the individual. Furthermore, Nadal and Iglesius (2018) conducted research on rehabilitation programs for deafblind individuals and found that comprehensive programs including support groups, vocational training, assistive technologies, and mobility & orientation training significantly contribute to improving the well-being, independence, and adaptiveness of deafblind persons.

Accessibility to information: The dual sensory impairment in deafblindness makes information comprehension and access challenging. Not only it affects their knowledge acquisition and vocational skills but also affects their quality of daily activities. Rehabilitation is this regard must focus on planning educational models that can bridge the sound-sight barrier and make information accessible for deafblind persons. Batanero et al. (2019) documented a successful case of an inclusive educational platform called Moodle. This platform provided detailed image descriptions, audio support, screen readers, and device integration to translate text into Braille, thereby enhancing accessibility for deafblind individuals.

Another device named GoAll is also being used frequently globally and through this device, the texts and captions from Television or mobile can be read through a braille device (García-Crespo *et al*., 2020). It has been reported that these devices mainly aid persons with acquired Deafblindness as a basic knowledge of braille is necessary to decode the converted information. After understanding the information through braille, these people can respond through protactile signing.

Psychological adaptation to the condition: It is tough to accept and adapt to such a disabling condition as Deafblindness. Various research shows the presence of psychiatric morbidity in deafblind individuals despite a lack of proper assessment due to a lack of trained clinicians. The role of a Clinical Psychologist is high in this area due to its sensitivity and the necessity of a specialized mental health professional. Cote *et al*. (2013) reported that specialized psychological group intervention focusing on personal goal fulfillment has been found to be effective in increasing well-being, resilience, self-determination, and ability to plan & pursue a goal.

However, providing psychological intervention in Deafblindness faces significant obstacles, primarily due to the language barrier and a lack of training in protactile communication. Molander et al. (2017) noted that while internet-based Acceptance and Commitment therapy has shown effectiveness in increasing acceptance and well-being for those with hearing impairment, the lack of knowledge in tactile communication hinders similar intervention-based research for deafblind individuals.

Despite various rehabilitation programs and innovations being developed in different countries, India still faces a significant shortage of research and interventions for deafblindness. Currently, Sense International India is the sole organization officially conducting diverse rehabilitation programs that focus on communication, vocational skills, social support, awareness enhancement, and education. However, a major challenge in India is the lack of research and awareness concerning this disability. Consequently, a large portion of the population remains unaware of its existence, let alone the available rehabilitation measures (Senseintindia, 2023).

CONCLUSION

Deafblindness refers to the condition where individuals experience a combination of hearing and vision loss, posing considerable difficulties for those affected. Communication, learning, mobility, and psychological adaptation are severely impacted, leading to social isolation and marginalization. Despite some developments in rehabilitation programs and interventions globally, India faces a significant scarcity of research and awareness on deafblindness. Sense International India is the only organization in the country officially conducting rehabilitation programs, but the lack of resources hinders widespread support. The psychosocial issues related to deafblindness are profound, with individuals experiencing depression, loneliness, and a lack of social support. Caregivers also face challenges in understanding and supporting the deafblind person. However, some advancements have been made in communication techniques, mobility aids, and psychosocial interventions, providing hope for improved rehabilitation. Nevertheless, there is an urgent need for extensive research and development efforts to enhance the quality of life and well-being of individuals with deafblindness in India.

The current study highlights several crucial issues that demand attention. Firstly, there is a need for extensive state and national campaigns and awareness programs to educate people about deafblindness and the specific challenges faced by individuals with this condition. These initiatives should emphasize the collective responsibility of all Indians in providing support and aim to eliminate the existing stigma associated with Deafblindness.

Secondly, it is essential to encourage medical and mental health professionals to learn protactile sign language. By doing so, they can conduct more effective research and offer appropriate interventions for deafblind individuals without being hindered by communication barriers. Establishing additional organizations similar to Sense International India would further contribute to the advancement of Deafblindness-related initiatives. These organizations should also provide courses to train people in protactile sign language, enabling deafblind individuals to communicate beyond their immediate community.

Furthermore, the present research has predominantly focused on individuals with acquired deafblindness, who had the opportunity to gradually adapt to their condition and learn various communication techniques over time. However, there is a lack of information concerning how individuals with congenital deafblindness acquire tactile-based language skills since they may not have the same opportunity to learn sign language. Therefore, further research is imperative to encompass the entire spectrum of both congenital and acquired deafblindness.

Moreover, it is worth noting that India has seen some innovations, like Good Vibes, aiming to assist deafblind individuals in their rehabilitation process. However, the lack of sufficient media exposure for such inventions results in a lack of awareness among the general public. To address this, it is essential for prominent media outlets to take the initiative in promoting these inventions and developments, ensuring that deafblind individuals and their caregivers can access the available support.

Lastly, the rehabilitation of a deafblind person requires a multidisciplinary approach with involvement from various stakeholders. This includes social workers, entrepreneurs, medical and mental health professionals, media representatives, and government officials. Each of these parties has a significant role to play in creating an inclusive and harmonious world for individuals with deafblindness, taking on their respective responsibilities to facilitate a better quality of life for them.

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Stress, Coping and Family Functioning in Parents of Children with Specific Learning Disability and Borderline Intellectual Functioning

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ABSTRACT

Background: Specific Learning Disability (SLD) and Borderline Intellectual Functioning (BIF) are disorders of neuro-developmental arrest and dysfunctions. Due to the interaction between heredity and environment that affect the brain's ability to accurately perceive verbal and non- verbal information, both conditions impose significant challenges on parents in the form of increased stress to care, family functioning and coping. Aim: The aim of the present study was to explore and compare stress, coping and family functioning between parents of children with SLD and BIF. Methods: A total of 80 parents, 40 of whom had children (8-16 years) diagnosed with specific learning disability and 40 of whom had children with borderline intellectual functioning of similar age, were recruited for the study. The Perceived Stress Scale, COPE Inventory, and Family Functioning tools were administered on parents. Result: The results of the study have found significant differences between the groups in terms of mental disengagement ($p<0.01$), denial ($p<0.01$), intimacy (family functioning) ($p<0.05$), and parenting style (family functioning) ($p<0.01$). There were no significant differences found in the levels of perceived stress between parents of children with SLD and BIF. Conclusion: Parents of children with BIF use mental disengagement coping style, while parents of children with SLD use denial coping style to deal with stress. Parents of children with SLD showed intimacy, closeness, expressiveness and openness in communication. Their parenting style was inclusive, involving others members to voice their preferences and opinion in the decision making process. Despite the difference in the family functioning and coping styles, they have perceived similar levels of stress.

Keywords: Specific Learning Disability, Borderline Intellectual Functioning, Stress, Coping, Parents, Family Functioning.

INTRODUCTION

Specific learning disability (SLD) is a neuro-development disorder and occurs due to atypical development of the brain. It is caused by heredity and environmental factors and affects the brain's ability to accurately perceive verbal and non-verbal information (APA, 2013). According to International Classification of Diseases tenth edition "SLD are defined as disorders in which normal pattern of skill acquisition are disturbed from the early stages of development. They are not simply consequences of a lack of opportunity to learn, nor are due to any form of acquired brain trauma or disease (WHO, 1993). On the other hand borderline intellectual functioning is a categorization of intellectual functioning wherein person have below average cognitive ability which is not a condition of benchmark disability of 40% nor it is a condition of typical development of a child. According to Rights of Persons with Disability Act, 2016 an IQ range of 70-84 is indicative of borderline intellectual functioning (Balakrishnan et al., 2019). Children with BIF are subjected to poor educational and social performance due to their low levels of cognitive capacities. Their life imposes the greater levels of distress when the expectations and ambitions of the parents are not met as the typically developed children do. When a child is unable to perform at a level considered developmentally appropriate for his/her age and as per the expectations of the parents despite extra efforts, it leads to dissatisfaction, frustration and increased level of stress in parents. Parents of child with disabilities are prone to chronic sorrow which is described by periodic recurrence of guilt, shock, sadness and pain (Wikler et al., 1981). Parents of children with developmental and behavioral disabilities experience higher parenting stress than parents of children with medical disability (Gupta, 2007). A child with disability may affect the family dynamics adversely. Additionally, mothers often experience higher level of stress as they undertake a larger share of the responsibility in rearing the child, compared to fathers; however, there are inconsistencies in the findings of these studies (Dervishaliaj, 2013). In rearing children with disabilities, mothers go through a wide range of emotions such as sadness, anger, crying and grief. Parental stress of children with learning disability is associated with family cohesion. It has been observed that higher levels of stress predict a lower level of family cohesion. Studies show that healthy family functioning is important for the well being of the family and practitioner should also assist the needs of the entire family rather than just the needs of the child with disability (Hidangmayum & Khadi, 2012). Therefore, present study was conducted to explore stress, coping and family functioning in parents of children with specific learning and borderline intellectual functioning in the Indian context. This exploration may improve our understanding of mental health and well-being and help

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design better intervention programs and therapies for parents and caregivers.

Materials and Methods:

Sample consisted of 80 parents, 40 of whom had children (8-16 years) diagnosed with specific learning disability on NIMHANS SLD Index (Kapur et al., 1991) and 40 of whom had children of similar age and diagnosed with borderline intellectual functioning as per RPWD Act 2016, were recruited using a convenient sampling method from the outpatient tertiary care institute in Chandigarh. Written consent was obtained from the participants in the study. Parents having any significant medical and psychiatric illness, on treatment, undergoing psychotherapy, single parent, having another child with a disability were excluded from the study. Socio-demographic details of the eligible parents and children were recorded in the socio-demographic data sheet prepared for the study. Both parents, were administered the Perceived Stress Scale (Cohen & Gordon, 1997), Coping Inventory (Carver et al., 1989), and Family Functioning Scale (Noller et al. 1992). The obtained scores were analyzed statistically using SPSS version 16. Frequencies, percentages, mean, and standard deviation and independent sample t-test were used to describe and compare the stress, coping, and family functioning of the parents of Children with BIF and SLD.

RESULTS

Table 1: Demographic characteristic of parents of children with SLD and BIF.

Variables	Categories	Parents of children with SLD n=40, Frequency (%)	Parents of children with BIF n=40 Frequency (%)	Chi-square value
Education	10th	26(65.00)	25(62.50)	4.924
	12th	05(12.50)	05(12.50)	
	Graduation	08(20.00)	04(10.00)	
	Post Graduation	01(2.50)	06(15.00)	
Occupation	Skilled	04(10.00)	06(15.00)	7.481
	Semi-Skilled	12(30.00)	08(20.00)	
	Others	22(55.00)	16(40.00)	
	Non-skilled	02(05.00)	10(25.00)	
Monthly Income	0-3500	00(00.00)	01(02.50)	**8.109***
	3501-7000	00(00.00)	02(05.00)	
	7000 & above	07(17.50)	15(37.50)	
	Others	33(82.50)	22(55.00)	
Religion	Hindu	24(60.00)	26(65.00)	0.223
	Sikh	15(37.50)	13(32.50)	
	Muslim	01(2.50)	01(02.50)	
Family type	Nuclear	31(77.50)	32(80.00)	1.266
	Joint	09(22.50)	07(17.50)	
	Extended	00(00.00)	01(02.50)	
Domicile	Urban	35(87.50)	24(60.00)	**7.813****
	Rural	05(12.50)	16(40.00)	
Language	Hindi	24(60.00)	26(65.00)	0.213
	Punjabi	16(40.00)	14(35.00)	
Age in years	Mean±SD	40.45±4.42	38.12±4.74	t value**2.267***

*Significant at 0.05 level **Significant at 0.01 level

Table 2: Mean, SD and t tests findings between parents of children with SLD and BIF on Perceived Stress Scale

Variable	Parents of children with SLD n=40 Mean±SD	Parents of children with BIF n=40 Mean±SD	t test	p value
Perceived Stress Scale	18.17±3.06	18.90±3.54	-0.97	0.33
Coping				
Positive Reinterpretation	8.65±.86	8.52±.90	0.63	0.52
Mental Disengagement	5.37±1.00	6.35±1.33	-3.69	**0.000****
Focus On & Venting Of Emotions	7.80±1.06	8.07±1.40	-0.98	0.32
Use Of Instrumental Social Support	8.35±1.68	8.30±2.44	0.10	0.91
Active Coping	8.60±1.21	8.62±1.00	-1.00	0.92
Denial	5.62±1.44	4.88±.939	3.02	**0.003****
Religious Coping	6.62±1.53	5.70±2.68	1.89	0.06
Humor	4.10±.303	4.05±.220	0.84	0.40
Behavioral Disengagement	5.97±1.57	5.45±1.39	1.57	0.11
Restraint	7.90±.900	7.90±.496	0.00	1.000
Use Of Emotional Social Support	8.07±1.80	8.37±2.26	-0.65	0.51
Substance Use	4.30±.790	4.32±.971	-0.12	0.90
Acceptance	8.00±.640	7.92±.572	0.55	0.58
Suppression Of Combating Activities	7.77±.973	7.90±.871	-0.60	0.54
Planning	8.70±1.41	8.52±1.21	0.59	0.55
Family Functioning:	48.5±2.02	47.5±2.06	2.18	**0.032***
Intimacy				
Parenting Style	31.3±1.42	30.07±1.83	3.47	**0.001****
Conflict	35.2±1.99	34.3±2.43	1.85	0.06

*Significant at 0.05 level **Significant at 0.01 level

DISCUSSION

The study compared perceived stress, coping strategies and family functioning between parents of children with SLD and parents of children with BIF. No significant difference was found between the two groups on level of education, occupation, religion, family type and language. There was significant difference between the two groups on level of income (Chi Square =8.10, P< 0.05), and domicile (Chi Square =7.81, P< 0.01) and age (t= 2.2, P<0.05).

No significant difference was observed in domain of perceived stress between the parents of children with SLD and BIF (t=-.97, P< 0.33) (Table 2) suggests that similar levels of stress is perceived by the parents of children with SLD and BIF. It may be due to the fact that both conditions are neuro-developmental and parents of both groups experience similar challenges in caring and rearing of their children. The studies conducted on other neuro-developmental disorder comparing perceived stress between parents of children with intellectual disability and typically developing children found more stress in the former when compared to latter (Fenning et al., 2007). But, present study has taken SLD where children display problems in educational spares with average intellectual functioning and BIF where children are perceived nearly normal and sometimes attributed to have behavioral disorders rather low cognitive functions until assessed. Both conditions are imposing a similar level of difficulties and issues faced by their children, hence may have similar perception of expectations among parents which are unmet. However, the authors could not find studies comparing the level of "perceived stress" between parents of children with SLD and BIF. These findings may have clinical implications and help therapists in planning treatment and developing intervention strategies to help parents cope with stress irrespective of condition of their children.

Further, to cope up with stress, parents of children with SLD and BIF used different coping strategies such as positive reinterpretation, focus on venting emotions, use of instrumental social support, active coping, religious coping, humor, behavioral disengagement, restraint, emotional social support, substance use, acceptance, suppression of combating activities and planning. On comparison between the parents of children SLD and BIF, significant differences were found in using mental disengagement ($p<0.01$) ($t=-3.69$) and denial ($p<0.01$) ($t=3.02$) coping strategies. There were no significant differences were found between the two groups on using other coping strategies. This suggests that parents of children with BIF use more mental disengagement coping style compared to parents of children with SLD (Table 2). Parents of children with SLD use denial coping style more compared to parents of children with BIF. How parents cope up with stress depends on way they process the information, level of education as well as occupation. In present study 90% parents of children with SLD belonged to the urban area (Table 1), may be more knowledgeable about the condition of the child and had better resources to educate themselves about SLD, compared to parents of children with BIF. Nearly, 60 % parents of children with BIF belonged to the urban area, while the rest came from rural background with fewer resources to obtain information about the BIF. Therefore, it can be inferred that parents of children with BIF used mental disengagement coping strategies more compared to parents of children with SLD. No research studies are available which suggests the type of coping strategies used by parents of children with BIF. Research to determine how parents of children with learning disabilities cope, show that parents high on hope and optimism, they tend to cope better since they process the information cognitively as opposed to disengagement. These parents use problem focused coping strategies. Additionally, studies show that people who hold strong religious beliefs benefit using spiritual coping strategies. Religious practices such as prayer and belief in a higher power help to cope with the stress and encourage a positive outlook towards the child and the daily challenges of rearing. Taking help of spiritual or religious community also helps. How parents cope with the challenges depends also on their level of knowledge about the condition of their child as well as other proposed protective factors such as social status, biological sex, gender, and educational level (Chukwu et al., 2019).

In regards to the family functioning, findings suggest a significant difference in family functioning of parents of children with SLD and BIF. There was significant differences between the groups on intimacy ($p<0.05$) ($t= 2.18$) and parenting style ($p<0.01$) ($t=3.47$) (Table 2) on the family functioning scale, however no significant difference in conflicts sub domain were found. This suggests that parents of children with SLD show intimacy in sharing, closeness, expressiveness and openness in communication. Use of parenting styles by the mothers is significantly different to the extent that family members have a say in the rules and decision of the family. Members are encouraged to be autonomous and think independently. Some studies have compared the family functioning in parents of children with SLD and parents of typically developing children. Findings of these studies suggest that families with a child with learning disabilities emphasize on control, orderliness, and personal achievement but allow less free expression of feelings than families of typically developing children (Hidangmayum & Khadi, 2012). Present study, however, suggest that the parents of children with SLD allow their child to have a say in rules and decisions and are encouraged to think independently. Parents of children with SLD allow their child to think and make up their mind. This may be due to intact cognitive ability to take decisions. Some studies, however, suggest that families of children with learning disabilities are similar to families of typically developing children. There is no difference between families in home conditions, family organization, parental support and parental expectations for education (Hidangmayum & Khadi, 2012). These findings support the finding of our study that parents of children with SLD encourage their children to think independently. Previous studies to access family functioning of parents of children with BIF showed that mothers and fathers of children with BIF displayed negative controlling parenting behavior in comparison to typically developing children (Fenning et al., 2007). This finding is consistent with the findings of our study. Current study also shows that parents of children with BIF show less intimacy, openness and closeness in communication. This may be due to fact that children with BIF showed more problematic behaviors compared to children with SLD.

CONCLUSION

On the basis of the present study it can be concluded that parents of children with SLD and BIF perceived similar level of stress. Parents of children with BIF use mental disengagement coping in times of stress compared to parents of children with SLD uses denial coping style more often. Parents of children with SLD show intimacy in terms of sharing, closeness, expressiveness and openness in communication whereas parents of BIF do not allow level of freedom in the decision making process in context to the family.

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Original Research Article

Readiness for e-Learning as a New Strategies for Children with Communication Disorders –A Survey in South India

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ABSTRACT

Introduction: COVID-19 pandemic has not only affected lives and livelihood, but also life enhancing and enriching aspects like education and entertainment. Constraints arising from the presence of disabilities and disadvantages faced by individuals further aggravate these difficulties. Humankind has to adopt new strategies to reinstate sufficient and sustainable means of living. In the educational context, this implies embracing e-learning through online dissemination. In special needs arising from communication disorders, these demands complicate already convoluted instructional transactions. In developing communities like India, inadequacies in accessibility and capability further impede optimal utilisation of e-technology. Hence, it is vital to gauge preparedness for such initiatives, so as to recognise and recommend further needful. Aim: The reported investigation aspired to appraise readiness for e-learning endeavours among caregivers and mainstream teachers managing children with communication disorders. Method: It involved a survey covering 67 caregivers and mainstream teachers using a 29-item, five-pronged questionnaire developed by the investigators. Results: It revealed sufficient availability of basic facilities necessary for e-learning and satisfactory ability to make use of them. However, practical awareness and positive attitudes to support and sustain profitable use were lacking. Implication: The findings imply the scope of e-learning as an effective tool for tiding over the encumbrances encountered by mainstream children with communication disorders. Nevertheless, empowering caregivers and educators with advantageous awareness and attitudes is prerequisite for its optimal utilization.

Keywords: *Special needs education, Changing normal, Online instruction, Caregiver readiness, Teacher preparedness*

INTRODUCTION

Special educational services have been progressively evolving over the ages. Beginning from exclusion, moving through segregation to integration, it has currently culminated in inclusion. Over the years, they have been expanding their reach, diversifying their manifestations, and adapting their scope according to the rising requirements and changing circumstances. The current thrust is on access and utilisation of mainstream educational services, so that children with special needs (henceforth referred to as CwSN) can grow and thrive like any other child without disability evolving into empowered individuals (Tremblay, 2007; UNESCO, 1994).

COVID-19 Consequences for Children with Special Needs

The unforeseen contemporary adversity in the form of COVID-19 challenges educational service delivery in inexplicable ways. Comprehensive, concrete evidence of fallout derived thorough researches is yet to transpire. However, early bird explorations point to possible implications. Even developed, economically thriving countries such as the USA have not been spared. Existing gaps in rendering equitable education are reported to have further widened, while creating new baffling barriers (Office of Civil Rights, 2021). Already adverse circumstances in developing communities have been further aggravated by degeneration within and beyond the learning context. Psycho-somatic-social health of CwSN is reportedly failing, threatening their personal wellbeing and social security (Mbazzi et al., 2021).

In this backdrop, assimilation of contemporary technology in educational service delivery has lent help in countering the adverse effects of the pandemic. E-learning, especially its online dissemination, has reached out to children, both with and without special needs, overcoming curbed access and resources amidst lockdown curtails. Even before the advent of the pandemic, technological innovations have augmented disability rehabilitation by opening access to resources like information, public spaces/utilities that the differently/specially-abled were previously excluded from. Consequently, they have been enabled to execute functions which were otherwise impracticable. Assistive technology has also facilitated effective interpersonal interaction and social participation in whatever context they lived, worked or were placed in. Thus, empowering conduct of life activities as when unhindered by disabilities or better than otherwise (Kelker, 1997; Wehmeyer, Palmer and Smith, 2004).

Technology in Educating Children with Special Needs amid COVID-19 Pandemic

As a consequence to the pandemic, CwSN are found facing extreme difficulties and disadvantages. These

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children who are in need of added attention and assistance during these adverse times have been denied even of existing services and supports for sustenance (Tenywa, 2020). With regards to its effect in the field of education, a worldwide review conducted by the Organisation for Economic Cooperation and Development (henceforth referred to as OECD) reports certain key consequences (Schleicher, 2020). To start with, relapse in health and restrictions to the movement of teachers and students have subsequently affected their school attendance. Further upshot is the severe curtailment of in-person instruction delivered within school bounds, thus making it necessary to switch over to e-learning mode. These deprivations and digressions are found to permeate delivery of special educational services as well, both in the segregated and mainstreams of education. The foremost among the fallout is the withdrawal of interactive, in-person and individualised instruction. Several CwSN have found the process of transition to the new normal involving remote learning modes like e-learning impassable (Hanover Research, 2020; Oluka, 2020; Mendes, 2020; The Office of Civil Rights, 2021).

With regards to special education, technology infused instruction such as e-learning primarily manifests through two means, virtual multimedia instruction and its digital dissemination online. Diverse versions of e-learning such as offline/online, asynchronous/ synchronous, blended/ flipped, etc. have been recommended with research backing, even prior to the COVID-19 influx. The form and functions of these various means and modes may be diversified. But they are unified in their motive to establish equity and empowerment of CwSN. In the inclusive educational context, this implies unhindered and/or enhanced instructional and social accessibility, participation and outcomes in the learning environment (Adebisi, Liman and Longpoe, 2015; Ahmad, 2015; Akpan and Beard, 2013).

In spite of its proficiency and prospects, technology is not a cure-all panacea to the myriad malaises, past and present, encountered in rendering relevant and resourceful special education. Evidence based propagation of its practice has not resulted in full fledged reciprocation as anticipated. Primary among the varied deterrents is economic deprivations in developing communities which constitute the bulk of the general world population. Prevailing impoverishment makes even basic schooling, leave alone technological addendums, next to impossible (Filmer, 2008; Mitra, Posarac and Vick, 2013). Another persuasive cause is lack of teacher preparedness for effective production, processing and propagation of e-learning elements. Caregiver readiness to monitor and support, which is crucial for such exercises, is also not forthcoming (COLSD, 2016; Pugach, 2005).

These several factors continue complicating and compounding the impediments to e-learning endeavours in the midst of the pandemic. Herein as well, the foremost hurdle is in the form of restricted access to necessary technological facilities due to economic constraints. Then follows inadequacies and inhibitions among caregivers and teachers in the form of exposure, enthusiasm, experience and expertise to participate and promote its practice. Added to these are insulated disposition and indifferent interactions that are characteristic of the transactions between caregivers and educators of children with special needs. These in turn are found to adversely permeate the attitude and aptitude of these children to face changes and challenges (Yazcayir and Gurgur, 2021).

Organisational support to overcome these impediments are not forthcoming, as evident from global reports. This implies both the macro and micro-level educational machinery responsible for policies, provisions and practice of general and special education. The deficiencies in proactive planning and productive implementation of online education are reported to be major limitations encumbering the course of action (UNESCO, 2020; World Bank, 2020).

Educational curricula and instructional strategies are yet to be adapted for apt incorporation into e-learning designs. Both the caregivers and teachers bear grievances of being deprived of management, material, mentoring and moral supports essential to facilitate their participation. Available e-infrastructure is neither robust to support uninterrupted conduct of e-learning exercises, nor enabling equitable and optimal participation of all concerned. In instances of affected online access, alternate arrangements for distance learning such as didactic materials for home-training and/or self-learning have been scarcely developed. Solutions to resolve these predicaments have been haphazard in development and erratic in dissemination (UNESCO, 2020; World Bank, 2020).

Such digital divide and deficits exist right from the emerging phases of e-learning endeavours. Nevertheless, new imperatives arising from COVID-19 crisis render them more pronounced and acutely felt. Consequently, CwSN are increasingly isolated, lacking necessary facilities and/or support for advantageous engagement in e-learning. Their lukewarm participation is marked with diminished inner motivation and deprived external stimulation resulting in ineffective learning outcomes. Teachers and caregivers who are to help them out are themselves feeling hindered and helpless (De la Varre et al., 2014; Salmon, 2020; Schleicher; 2020; The Office of Civil Rights, 2021).

The various policy directives of the United Nations Organisation (henceforth referred to as UN/O) regarding

COVID-19 management explicitly stress on addressing the differently/specially-abled. The Office of the UN High Commissioner for Human Rights (henceforth referred to as OHCHR) specifically emphasises on their right to education amidst the pandemic. While the World Health Organisation (henceforth referred to as WHO) sheds light on the practical mechanisms involved in the realisation of this right. The organisation insists that processes of community utilities, including education, should ensure access to necessary information, facilities and services. This for the purpose of securing inclusion embodied with effectual and equitable participation (OHCHR, 2020; UNO, 2020; WHO, 2020). The realisation of these provisos commences with examining the existing state of affairs before embarking on further needful. Foremost being preparation of human resources, which are pivotal in mobilising all other means and mechanisms towards the ultimate purpose.

Need for Research with Relevance to Children with Communication Disorders

Contemporary general education, encompassing meaningful inclusion of CwSN, with the advent of COVID-19 pandemic is swerving towards the new normal of e-learning. Diverse psycho-physical debilities, along with socio-economic disadvantages are hindering many school children in their transition to this new mode of instruction. The presence of disabling conditions such as communication disorders is one such hindering factor. Communication disorders could involve a gamut of conditions brought about by diverse causes, in turn resulting in an array of problematic implications. The comparative characteristic of the varied conditions is their challenging effect on human communication functions in the primary verbal mode, secondary written mode, and/or other augmentative visual gestural forms. Causative conditions predominantly fall into four categories as impairments in – sensory reception and perception as in hearing impairment, cognitive perception and processing as in intellectual disability or learning disabilities, emotional behavioural regulation and interaction as in attention deficits and hyperactivity or autism spectrum disorders, and motor production as in cerebral palsy or stuttering among others. The consequent impact on human life is wide-ranging affecting most activities for existence and evolution, and far-reaching along entire its lifespan. The adverse impact is severe, especially when congenital or occurring early in childhood during the prelinguistic phase of development. Communication disorders affect the communication and interaction skills crucial for basic survival, educational and employment prospects essential for sustenance, as well as personal entertainment, social engagement and other vitalities for enhancing the quality of life (Fogle, 2013; Owens and Farinella, 2019; Prelock and Hutchins 2018; Weismer and Brown, 2021).

Specifically with reference to education, children with communication disorders have difficulty with conventional interpersonal transactions which form the crux of instruction. They predominantly transpire through courses of listening-speaking and reading-writing. These transactions had to be processed through remote virtual mode when e-learning substituted in-person instruction with the advent of COVID-19 pandemic. This made learning yet more challenging for these children. Even while gradually returning to pre-pandemic processes amidst persisting scare of recurring waves; it seems that digital form and online mode of instruction have come to stay as an integral aspect of mainstream education. The extensive access and expansive use of these facilities, made inevitable during the peak of pandemic, led to the practical realisation of its comprehensive competences and conveniences. Thus it becomes imperative that children with communication disorders are helped to prevail over impediments and participate interactively to derive optimal benefits out of this new normal in instruction. Rendering online instruction accessible and perceptible within the realms of differential abilities could ensure their gainful participation and progress. Endeavours to bring about these commence with taking stock of prerequisite preparedness, especially in the resource constrained educational milieu as in India (Ahmad, 2015; Limaye, 2016; Nelson, 2006; Owens and Farinella, 2019; Weismer and Brown, 2021). Such efforts appraising preparedness for e-learning should survey and scrutinise both the aptitude and attitude of human resources, as well as sufficiency and sustainability of technological resources.

In the context of inclusive education, mainstream teachers bear the onus of ensuring equitable educational opportunities with active involvement of caregivers. It is even so with COVID-19 imposed remote learning. Thus, both the caregivers and mainstream teachers should essentially be the addressees of such appraisals. Their awareness, attitudes and ability, as well as the technological facilities at their disposal are vital for the successful accomplishment of e-learning endeavours (Chmiliar, 2007, 2009; Jobling et al., 2003; Ludlow, 2001; Paju et al., 2018).

Aims and Objectives

The primary purpose of this investigation was to survey preparedness for e-learning, the evolving educational normal, among general-education teachers and caregivers of mainstreamed children with communication disorders from selected south Indian states. This overarching target was realised through constituent objectives of determining caregivers and teacher-participants' awareness about appropriate e-learning modalities for children with communication disorders; attitudes concerning adopting e-learning practices; ability for executing e-learning exercises; and the availability of facilities to carry out e-learning endeavours. Added to these, was a secondary objective to distinguish independent factors that might influence these variables, if any.

METHODOLOGY

Research Model

The investigation entailed a survey appraising readiness among human resources for advantageous utilisation of e-learning in inclusive education of children with communication disorders. The ambit of e-learning in the context of this investigation encompassed both employment of digitised as well as online instruction. The communication disorders specifically considered were those resulting from significant sensory, motor, cognitive, social and/or emotional-behavioural disabilities, namely, attention deficit and hyperactivity disorder, autism spectrum disorders, cerebral palsy, hearing impairment, intellectual disability and learning disabilities. Readiness among caregivers of children with these diverse communication disorders and mainstream teachers managing them in mainstream schools was probed. Prevalent awareness, attitudes, abilities and the availability of facilities for exercising e-learning, and their dependence on independent personal and professional variables were explored.

Research Sample

Following development of the tool for collecting data, as many as possible prospective participants were approached through purposive sampling. The minimal target set was a statistically recommended minimum of 100 participants for surveys. Predominantly they were from the south Indian states of Karnataka and Kerala considering the convenience of in-person reach suggested for eliciting optimal, authentic responses (Glasow, 2005; National Research Council, 2013). These two states from south-west peninsular India are representative of a country deeply rooted in traditions while also making notable educational and technological advancements. Among the 36 states and union territories in India, Karnataka has maintained its rank among the top three for e-readiness in the past two decades. Kerala has been an emerging state mostly placed among the first ten. In the educational context, Kerala and Karnataka are ranked number one and thirteen, among the 28 states and 8 union territories in India. However, only 29.93% and 8.66% of schools are reported to have computers/digital facilities, respectively (DIT, 2003, 2004, 2005, 2006; Indicus Analytics, 2016, 2019; Portulans Institute, 2019; NITI Aayog, 2021).

The field for the survey was mainstream schools which included children with communication disorders in these two south Indian states. The survey drew 67 respondents in all, comprising 30 caregiver-participants and 37 teacher-participants. The selection criterion for caregiver-participants was that they should be primarily responsible for the domestic educational management of mainstreamed children with communication disorders. The inclusion criterion for teacher-participants was employment in mainstream schools which included children with communication disorders.

Amidst existing exigencies, the investigators could not realise the originally set minimum target of 100 participants including 50 each of caregivers and teachers. However, there was 100% positive response from all the 30 caregivers who could be reached in-person. Data was gathered from them through semi structured interviews using a questionnaire-based schedule. Seventy-four percent, that is, 37 out of the 50 mainstream teachers who were approached consented to participate. The questionnaires were self-administered either in printed form to 22 of them, or as e-forms to 15 of them, according to their choice/convenience.

At the onset of data collection, investigators assumed that all teachers would have had experience teaching children with communication disorders enrolled in their respective schools. However, at the time of compiling data, it became evident that not all had direct instructional exposure. Nevertheless, the data collected from these teacher-participants were included in the analysis taking into consideration the future prospects of managing special educational needs arising out of communication disorders, and the eventual necessity for e-learning related competence and convenience.

An eagle's preview of the participant profile indicates equivalent numbers of male (49%) and female (51%) participants. A majority of nearly 60% of them were running between 41 to 60 years of age. An overwhelming number of more than 95% came from urban/semi urban locales. While there were no illiterates or school dropouts among the caregiver-participants, not less than 70% had post-school and/or higher education. Among the teacher-participants, not less than half of them had more than 10 years of work experience (51%) and experience managing special educational needs of children with communication disorders (54%). Table 1 provides details about the participants.

Table 1: The profile of the participants

Participant Attributes		**Category-wise Number of Participants**				
Caregiver & Teacher-Participants (inclusive) N = 67	**Age**	**21 to 30 years N = 10**	**31 to 40 years N = 9**	**41 to 50 years N = 22**	**51 to 60 years N = 18**	**61 years & more N = 8**
	Gender	Male N = 33		Female N = 34		
	Education	Secondary School Education N = 20	Post-Secondary Education/ Training N =11	Graduate Degrees N = 13	Post-Graduate/ Professional Degrees N = 16	Research Degrees N = 7
	Habitation	Urban N = 39		Semi Urban N = 25	Rural N = 3	
Teacher-Participants (exclusive) N = 37	Work Experience	10 years or less N = 18		11 to 20 years N = 14	21 years & more N = 5	
	Exposure to Special Educational Needs	With experience managing special educational needs of children with communication disorders N = 20		With no experience managing special educational needs of children with communication disorders N = 17		

2.3. Data Collection Tools

After determining the purpose of research and designing an apt course for ensuing investigation, preparations commenced with constructing the tool for collecting data. A comprehensive structure with minimalistic span was construed to accumulate essential information without taxing the participants with excessive items. A questionnaire with five sections was constructed based on the five-pronged objectives of the investigation. The four core sections dealt with relevant awareness, attitudes, ability among participants, and availability of facilities for e-learning. These were preceded by an opening section recording personal and professional details pertaining to the participants. From among which the investigators intended to distinguish factors influencing the prime variables related to preparedness of the caregiver and teacher-participants.

The four core sections for collecting data on awareness, attitudes, ability and availability comprised five items each. The section on awareness tested knowledge about e-learning and its educational application through multiple-choice items with scores of 1 and 0, respectively for correct and nil/incorrect responses. The succeeding section on attitudes included five statements to be rated on a Likert 5-point ordinal scale. It extended from strong agreement to strong disagreement with scores ranging from +2 to -2 according to the extent of positivity, negativity or neutrality of the participants' perspective. The next section gauged ability to exercise basic e-learning tasks on a 3-point competence scale with scores of 0, 1 and 2 for incompetence, partial competence and adept competence, respectively. The final section on availability of essential facilities for implementing e-learning was a 3-point checklist recording adequate availability, limited availability and non-availability with corresponding scores of 2, 1 and 0.

Ten expert rehabilitators, namely, two each of audiologists, clinical psychologists and speech-language pathologists, besides four special-education teachers dealing with diverse communication disorders verified the validity of the tool. They appraised the aptness of structure, adequacy of content, and appropriateness of language used. Apart from endorsing the originally construed aspects of the questionnaire, they had suggested supplementation of details and improvement of linguistic structuring. These were promptly incorporated. The final questionnaire was dispensed both as printed and e-forms constructed using Google Forms application to enable expedient dissemination. Figure 1 outlines the composition of the final questionnaire employed for collecting data.

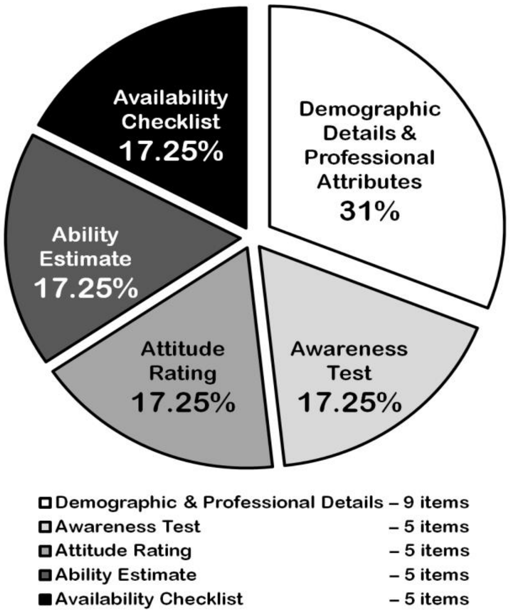

Figure 1: The composition of the tool for data collection

Procedures of Data Collection and Analysis

After explaining the purpose of the investigation and the process of responding, questionnaires were distributed either in-person or online for self-administration, or used as an interview schedule according to the expressed preference of the participants. One of the investigators was accessible in-person, over the telephone and/or online for providing necessary clarifications and/or explanations sought by the participants. The data thus collected and compiled was treated with relevant descriptive and inferential statistical measures essential for realising the objectives of the investigation. Data was compiled with the Microsoft Excel application and analysed using the online statistical applications available at https://www.socscistatistics.com/. The website has three statistical calculators for descriptive, inferential and p-value computations. The results of which are reportedly audited for accuracy against output from established statistical packages like SPSS and Minitab (Stangroom, 2021).

Ethical Considerations

On account of ethical considerations, preliminary permission and clearance had been obtained from the administrators of the institutions where the participants were engaged in providing or receiving educational services. Consequently, the prospective participants were approached in-person explaining the purpose and the process of investigation. Their consent for voluntary participation was sought without coercion or compulsion, involving neither incentives nor inducements. Confidentiality of participants' identities was ensured with personal identification details relating only to their age and gender being included in the data collection exercise. The projection of data and presentation of the results tried to avoid any subjective or detrimental references that may harm or hurt individuals/institutions. Research ethics stipulated at the affiliate institute of the investigators served as the standard reference with regards to the routines alluded to (Venkatesan and Basavaraj, 2009).

FINDINGS AND DISCUSSIONS

The preliminary step in data analysis involved verifying typical distribution applying the Shapiro-Wilk test for normality. A total of eight sets of quantitative data were examined. These related to the four-pronged attributes of awareness, attitude, ability and availability; separately for the two groups of caregiver and teacher-participants. In the instance of seven variables, except the one related to the ability of the caregiver-participants, the data significantly deviated from normal distribution with p-value < 0.05. Hence, they were further subjected to nonparametric statistical measures to arrive at the tentative findings discussed henceforth. The preliminary leg of data analysis focused on reviewing the prevailing possibilities for promoting e-learning endeavours. This included scrutiny of both, the sufficiency of competence among the caregiver and teacher-participants to undertake e-learning endeavours, as well as the availability of infrastructure facilities to support and sustain their efforts. Nonparametric median scores were computed to gauge these variables.

Adequacy of Awareness about e-Learning

Analysis commenced with the assessment of the caregiver and teacher-participants' understanding about employing e-learning for gainful education of their ward with special needs. This was probed with a knowledge test on the nature of e-learning exercises and applications valuable and viable for children with diverse communication disorders. Figure 2 is a succinct representation of the findings.

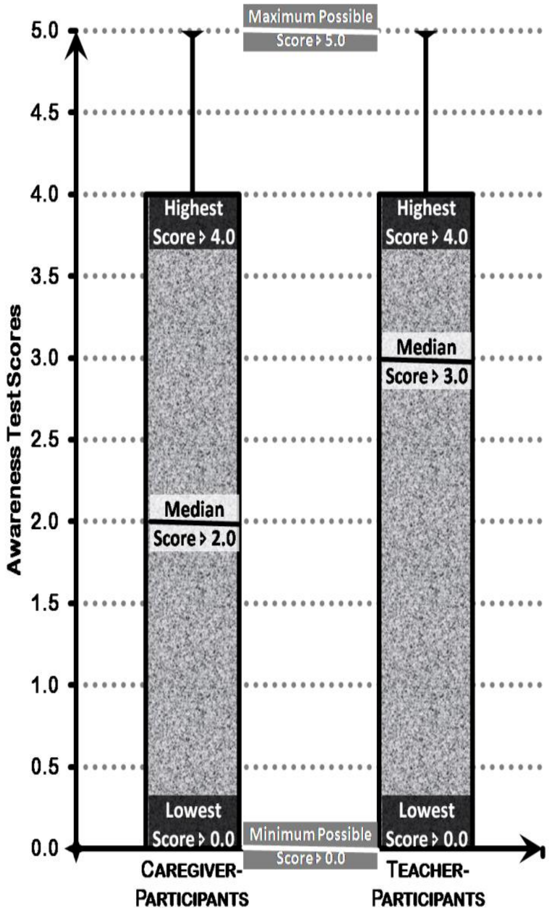

Figure 2: Participants' awareness about e-learning

Against a maximum possible score of 5, the median score of 2 and 3 among the caregiver and teacher-participants reveals 40% and 60% awareness, respectively. The low and moderate levels of acquaintance with e-learning may be insufficient to have optimal bearing on mainstreamed children with communication disorders.

Agreement of Attitudes towards e-Learning

Even though participants displayed less than appreciable levels of awareness, there is scope for improvement if only they had positive attitudes towards e-learning endeavours. Ensuing scrutiny of their perspective about e-learning potentials and possibilities amid Indian conditions revealed dissuading disposition. The median scores were -0.5 and -1.0 for the caregiver and teacher-participants, respectively against the possible range of -10 to 10. Figure 3 presenting participants' attitudinal profile reflects pessimistic tendencies in general, and caregivers seemed to be less disinclined in comparison to teachers.

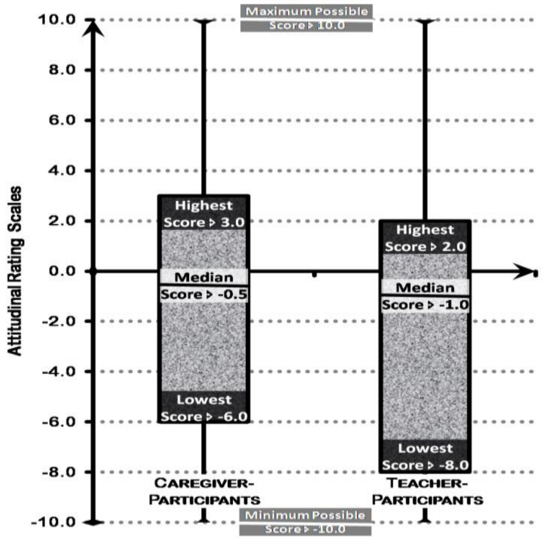

Figure 3: Participants' attitudes towards e-learning

Ability for Accomplishing e-Learning

Further analysis involved appraisal of participants' ability to perform basic tasks necessary for exercising e-learning. This included use of online connectivity through email, internet, video conferencing, et cetera, as well as educational software applications which were pertinent to children with communication disorders. Self-appraisal of the caregiver and teacher-participants reported considerable competence with median scores of 6 and 7, respectively against a maximum possible score of 10. The ability profile portrayed in Figure 4 implies that in spite of lack of adequate awareness or affirmative attitudes, a majority of the participants were equipped with basic skill sets necessary to engage their wards with communication disorders in e-learning exercises. This could be attributed to recent rampant technological advancements along with pressing exigencies of the pervasive pandemic.

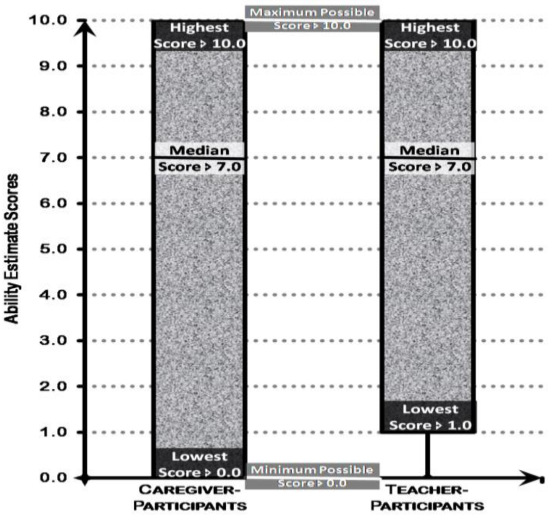

Figure 4: Participants' ability for exercising e-learning

Availability of Facilities for Executing e-Learning

Subsequent to the participants' self-reported possession of practical competence for e-learning, the availability of infrastructure necessary to exercise this ability was explored. This included equipment such as smart phones or personal computers with audio and video interface, as well as facilities such as internet connectivity. The median score of 7 against a maximum of 10, in both the groups of participants, indicated the substantial availability of facilities necessary for practising e-learning. However, the availability seems unevenly distributed with the lowest count being 0 and 4, respectively among the caregiver and teacher-participants as indicated in Figure 5.

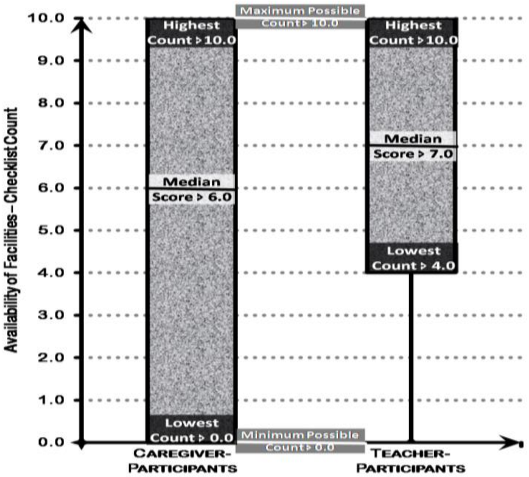

Figure 5: The availability of e-learning facilities to participants

Altogether, the findings of the investigation reiterate prior evidences drawn from diverse geo-political, socio-cultural and economic milieu around the globe, that underscore existing lacunae in optimally utilising e-learning potentials for education (De la Varre et al., 2014; Salmon, 2020; The Office of Civil Rights, 2021). Especially, caregivers and teachers of both children with and without disabilities are yet to develop competence necessary for its effective engagement. Pedagogical experts insisted on gearing up manpower and material resources in this front since decades before the arrival of COVID-19 (Chmiliar, 2007, 2009; Jobling et al., 2003; Ludlow, 2001; Paju et al., 2018). It is high time that policy makers and practitioners responded positively.

The survey of the participants' status quo pertaining to e-learning was wrapped up with verification of internal consistency between the four-pronged attributes of awareness, attitudes, ability and availability employing the nonparametric measure of Spearman correlation (rho). Uniform, positive correlation between these variables confirmed the unidirectional nature of the data collection exercise as well as the consistency in participants' responses. Especially standing of ability and availability, though with moderate intensity, concurred with statistical significance both among caregiver-participants ($r_s = 0.454$, $p < 0.01$) and teacher-participants ($r_s = 0.348$, $p < 0.05$) reiterating the conviction that provision of essential conveniences was indispensable to infuse commendable competence.

Factors Influencing Facilitation of e-Learning

Data analysis concluded with exploration of extraneous factors influencing participants' awareness, attitudes, ability and availability of facilities for exercising e-learning. At first, the demographic traits of the caregiver and teacher-participants such as age, gender, and educational and economic status were considered. Age in terms of years completed and economic status in terms of average annual income in Indian rupees were recorded numerically as it were. Whereas, their educational status was assigned ascending ranks of 1 to 5 respectively for completion of schooling, post-school diploma/vocational training, graduation, post-graduation/relevant professional education, and research studies beyond post-graduation. The nonparametric measure of **Spearman's rho** was employed to correlate these values with the participants' scores for the four-pronged factors that represented their e-learning status quo.

The results indicated that the variable of age positively influenced the awareness levels and attitudes of both the caregiver and teacher-participants, that is, an increase in age evinced better informed, positive inclinations towards e-learning. However, the relationships were statistically insignificant in most instances, except for the attitudes of teacher-participants ($r_s = 0.77$, $p < 0.01$). Conversely, growing age implied relapsing ability and restrained availability of facilities for mobilising e-learning as understood from the negative but insignificant correlations drawn in both the groups. On the other hand, educational and economic status of both the caregiver and teacher-participants seemed to evince uniform positive relationship with awareness, attitudes, ability and availability, although statistically insignificant.

In order to determine the influence of gender, scores of the male and female caregiver and teacher-participants were compared using the nonparametric Mann-Whitney U test. The results drew no significant differences, even though male-participants demonstrated slight advantage in awareness, ability and availability (mean differences in ranks = 3.86, 1.71 & 4.18 respectively, $p > 0.05$ for U-values & Z-scores); while their female counterparts displayed more conducive attitudes (mean difference in rank = 2.30, $p > 0.05$ for U-value & Z-scores).

The influence of the area of habitation, from rural through semi-urban to urban could not be discerned statistically. As there were less than the necessary minimum of five numbers among the rural participants to apply the nonparametric Kruskal-Wallis H statistic for comparing between ranks of more than two groups. However, the participants were predominantly living and/or working in urban/semi urban locales with access to technological facilities. The statistical insignificance of the best part of the findings corroborate with the report of Yalman and co investigators (2016) that advancing technological developments are progressively invalidating discrepant effects of demographics.

Apart from these demographic traits, the correlation of professional traits of the teacher-participants with their competence and convenience for e-learning were also probed. Level of work assigned ascending rank from 1 to 4 from primary through higher/upper primary and secondary to higher/senior secondary schooling elicited positive but insignificant correlation, implying that teacher-participants who taught to higher classes had a slight advantage in terms of competence and convenience to engage in e-learning exercises. Conversely, the years of work experience had drawn mixed indications. Teacher-participants with longer tenures had more positive attitudes and better technological access necessary for e-learning endeavours. In spite of this, there was notable negative correspondence with their awareness ($r_s = -0.59$, $p < 0.01$) and ability ($r_s = -0.77$, $p < 0.01$) that were essential for gainful engagement of favourable attitudes and optimal accessibility.

Twenty out of 37 teacher-participants had experience handling children with communication disorders in mainstream classrooms, which in turn extended opportunity for close observation, understanding and catering to the special educational needs of these children. This prior exposure had lent insignificant advantage in terms of awareness and ability to the concerned teacher-participants (respective mean difference in ranks = 3.53 & 1.20, $p > 0.05$ for U-values & Z-scores). The availability of related facilities also corroborated with this benefit (mean difference in rank = 3.37, $p > 0.05$ for U-value & Z-scores). However, teacher-participants without direct instructional experience handling children with communication disorders were more positively disposed to exercise e-learning with these children (mean difference in rank = 1.34, $p > 0.05$ for U-value & Z-scores). This one off instance of positivity also leads to speculations whether it stemmed from ignorance due to lack of acquaintance with the complexity or intensity of the task.

CONCLUSIONS AND RECOMMENDATIONS

Inadequate awareness about useful e-learning modalities and unhelpful attitudes towards the feasibility of using those facilities for the gain of children with communication disorders are not reassuring, especially amid persisting repercussions of the pandemic. But these findings did not come as a surprise as several previous researches even before the pandemic period reported lukewarm acceptance, adoption and adaptation involving technology among caregivers and mainstream teachers of the CwSN. These evidences were drawn from developing as well as developed communities around the world (Chmiliar, 2009; Jobling et al., 2003; Nelson, 2006; Prabhu, Olivier and Uplane, 2017); particularly through researches related to children with communication disorders (Gangadharan and Malar, 2010; Kanaga Subramaniyam and Malar, 2015). In spite of being relatively uninformed and disinclined to engage in e-learning, contemporary duress such as the COVID-19 pandemic seems to have induced the participants to acquire skills and access facilities required for exercising it. This upturn of developments amidst downbeat circumstances should be astutely made use for further promotion of e-learning for the benefit of children with and without special needs. Research reviews undertaken by policy makers indicate the need for preparing teachers for supporting digital and e-learning even in the case of returning to in-person instruction in classes of altered sizes following social distancing norms (Schleicher, 2020).

Appreciable ability and availability unsubstantiated with adequate awareness and attitudes as implied in the findings of this research might result in inconsistent and unproductive results in the long run. Making up for the lacunae requires taking up a long-term perspective followed by long-standing overtures. Experiential training in assistive educational technology, including digital instruction and e-learning should become an integral aspect of pre-service teacher education. Regular upgrading with relevant developments should follow through in-service professional development programmes, particularly focusing on teachers advanced in age and experience. Both pre and in-service exercises should include instructional accommodations and modifications for children with communication disorders as an integral aspect. Any inclusive education effort cannot thrive through one-sided efforts of service providers, but requires active reciprocation from service receivers as well, so do e-learning endeavours. Hence, educational habilitation programmes should include practical exposure to technological advancements as an essential facet of efforts to empower caregivers (Chmiliar and Cheung, 2007; Chmiliar, 2009; COLSD, 2016; Hanover Research, 2020; Ludlow, 2001; Mendes, 2020; NEPC, 2020).

Contemporary statutes concerning the rights of children as well as the right to education emphasise that every child with special educational needs arising out of disabilities/disorders, disadvantages, or other diversities should have technological advancements proactively used for their advantage and advancement of learning (Ahmad, 2015; Alper and Goggin, 2017). As a prerequisite every caregiver and teacher in the inclusive educational scenario should be empowered to realise this object. Hassle-free access to requisite information and communication technology among children with communication disorders, their caregivers and teachers is indispensable; if the new normal involving digitised, e-learning mode of instructional transactions is to be successfully adopted (COLSD, 2016; Mendes, 2020; NEPC, 2020).

In spite of socially restricted reach and constrained operations amid the pandemic, the findings of the investigation divulged useful pointers for strengthening e-learning endeavours among CwSN. The resultant measures may extend beyond children with communication disorders and COVID-19 consequences, benefiting a vast number of learners with diverse personal and pedagogical attributes in the inclusive learning context. Particularly, those prevented from receiving gainful education either due to intrinsic limitations or external barriers.

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Original Research Article

The Mediating Role of Cognitive Flexibility in the Buffering Effect of Resilience against the Symptoms of Depression in Caregivers of Children with Intellectual Disability

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ABSTRACT

Background: The prevalence of intellectual disability (ID) in India is significantly higher compared to the average global prevalence. Parents and family members are generally the primary caregivers for children with ID. Studies have found that caregivers experience significant burden and are vulnerable to psychiatric morbidity, including symptoms of anxiety and depression. It becomes important to understand if psychological factors viz., cognitive flexibility and resilience can buffer the negative impact of caregiving in this population and foster positive mental health. Method: The objective of this study was to explore the relationship among cognitive flexibility, resilience, caregiver burden and symptoms of depression and anxiety in parents of children with ID. It was conducted using a cross-sectional single-group research design. Data from 49 such caregivers, recruited through purposive sampling method, was collected using standardized self-report questionnaires. Results: Descriptive and inferential analyses of the data was done using SPSS version 28 with the significance level considered at 0.05. Cognitive flexibility, resilience, caregiver burden, and symptoms depression and anxiety, were significantly correlated among each other in parents of children with intellectual disability. Outcomes on these primary variables did not differ significantly by sex or family type. However, socioeconomic status was found to be positively correlated with cognitive flexibility, with higher household income being associated with greater flexibility. Furthermore, the child's IQ was found to be negatively correlated with symptoms of depression, with milder deficits being related to less severe symptoms. Notably, the protective effect of resilience on symptoms of depression is partially mediated by cognitive flexibility. Conclusions: Thus, cognitive flexibility and resilience emerge as protective factors against the negative outcomes of caregiver burden and symptoms of depression and anxiety in parents of children with ID. Cognitive flexibility is a significant partial mediating factor in the effect of resilience on symptoms of depression (but not anxiety), shedding light on potential targets for interventions to support this vulnerable population engaged in long-term caregiving.

Keywords: *Cognitive Flexibility, Resilience, Caregiver Burden, Person with Intellectual Disability, Caregivers*

INTRODUCTION

The prevalence of Intellectual disability (ID) in India is significantly higher compared to the average global prevalence. ID impacts an exceptional number of caregivers and families, making it a public health issue of significance (Bunga et al. 2020; Girimaji, 2011). It is well-established that caregivers in this role experience significant burden, and they are also vulnerable to psychiatric morbidity, including symptoms of anxiety and depression. Exploring predictors of positive mental health, such as cognitive flexibility and resilience, can help identify the factors that attenuate the negative impact of caregiving in this population.

Caregivers of Children with Intellectual Disability

Around 31 million people in India are estimated to have intellectual disability (Singh, 2014) and over 35% among this population are children, i.e., under the age of 18 years (Singh, 2014). Parents and family members tend to undertake the caregiving activities for children with ID (Girimaji, 2011; Karabekiroğlu, 2018). Caregivers tend to deal with immense hardship, evidenced in the domains of physical, economical, emotional, and personal burdens, as they tend to the child with ID throughout their life (Bhatia et al., 2015; Singh et al, 2020). Furthermore, this population is also at-risk of developing psychiatric disorders. For example, Bhatia and colleagues (2015) found in their study that 16% of parents looking after their children with ID were suffering from severe-to-extremely severe depressive symptoms, 23% with mild-to-moderate depressive symptoms, 19% with severe-to-extremely severe anxiety symptoms, and 19% with mild-tomoderate anxiety symptoms. Addressing caregiver burnout and psychiatric symptoms among this community is undoubtedly an important need.

Mental Health Outcomes among Caregivers

The mental health impact, including psychological distress, of caregiving has been extensively studied in past research. Caregivers tend to experience a deterioration in psychological health, and may be

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susceptible to feeling depressed, angry, worried, guilty and anxious (Liu et al., 2020). Higher rates of anxiety and depression in caregivers as compared to the general population, has emerged as a robust finding across a variety of populations (Bhatia et al., 2015; Liu et al., 2020; Song et al., 2011). Thus, symptoms of anxiety and depression can be considered an important outcome measure among this population.

It is of note that positive outcomes of caregiving for children with ID remains an understudied area. Nonetheless, Bunga and colleagues (2020), revealed that parents reported a positive impact of their role as caregivers to their children with intellectual disability; specifically, developing more patience, tolerance, empathy, sensitivity, and better enduring relationships. Studying resilience in this population can pave the way to move away from an illness model and towards a holistic health perspective.

Looking at caregivers tending to cancer patients, low cognitive flexibility predicts higher rates of depression and anxiety (Karabekiroglu et al., 2018). Cognitive flexibility is the capacity to adapt cognitive processing strategies in the face of novel, unexpected conditions in the environment. It consists of the following three components – an awareness of other alternatives and options in a situation, the willingness to be flexible and to adapt to a situation, and the belief that one has this capacity to be flexible (Martin & Rubin, 1995).

Resilience can be understood as successful adaptation in response to encountering adverse circumstances. In essence, it refers to recovery or return to previous functioning subsequent to encountering stressful conditions. Psychological factors that underlie resilience responses are an important area of study in clinical psychology. Cognitive flexibility is one such factor examined in past research. The aim of this study was to explore the impact of cognitive flexibility on the relationship between resilience and symptoms of depression and anxiety.

METHODS

Research Design

This study employed a cross-sectional, single-group research design. Sample size estimation was carried out using a-priori sample size estimation method, with an anticipated effect size of 0.3, desired statistical power level of 0.8, and a probability level of error at 0.05; the minimum required sample was revealed to be 35. Purposive sampling was used to select participants. Data was eventually collected from 49 parents of children with intellectual disability, to rely on a more conservative approach in data analysis. The inclusion and exclusion criteria are in the following table: -

Inclusion Criteria	Exclusion Criteria
Parents aged between 24 years and 45 years	Participants with chronic physical or severe mental illness
They should be living with their child with intellectual disability currently and at least for the past 6 months	Parents of a child with IQ more than 70 (based on latest valid assessment)
Their child with intellectual disability should be of the age 6-17 years	Parents of a child with comorbid psychological conditions such as autism spectrum disorder or attention deficit hyperactivity disorder
The child with intellectual disability should have been previously assessed by a registered clinical psychologist based on ICD-10 criteria for mental retardation	

Instruments/Tools/Measure

Informed Consent Form. This consisted of information about the study, including the researcher’s aim, procedures involved and an assurance of the participant’s confidentiality and free will throughout the research process.

Personal Information Sheet. This was a proforma to guide collection of demographic information from the participants.

Cognitive Flexibility Index (CFI) (Dennis & Vander Wal, 2010). The CFI was constructed to assess cognitive flexibility, and contains items designed to measure adaptive functioning and coping in response to difficult life experiences, as well as rigidity in thinking styles. It is a 20-item self-report scale that measures aspects of cognitive flexibility a 7-point Likert scale (that ranges from *‘strongly disagree’* to *‘strongly agree’*). A two-factor structure emerges among the items, namely, the *Alternatives* and *Control* Subscales. However, the subscale scores were not used in this study, with a reliance on the total score as reflective of the participant’s cognitive flexibility. The CFI has been found to have high internal consistency (Cronbach’s α = 0.84–0.91), good convergent construct validity, and high test-retest reliability (r=.81).

Brief Resilience Scale (BRS) (Smith et al., 2008). This is a 6-item self-report scale that uses a 5point Likert scale ranging from *‘strongly disagree’* to *‘strongly agree’*, to measure resilience. The possible score on the BRS ranges from 1 (low resilience) to 5 (high resilience). The BRS has been reported to have good internal consistency reliability (Cronbach’s α = 0.80—0.91), as well as satisfactory convergent, discriminant and concurrent validity, estimated using other established measures of resilience and personal characteristics (Kyriazos et al., 2018)

Depression Anxiety Stress Scale – 21 items (DASS-21) (Antony et al., 1998). This is a 21-item self-report scale derived from the original Depression Anxiety Stress Scale (DASS) which consisted of 42 items. This particular tool has 7 items for each domain, designed to assess depression, anxiety and stress in adults. It consists of response options ranging from 0 *'Did not apply to me at all'*, to 3 *'Applied to me very much or most of the time'*. The scale has been found to have good internal consistency across several studies (Cronbach's α = 0.74—0.93) (Ahmed et al., 2022). Satisfactory concurrent and convergent validity have also been established (Antony et al., 1998).

Procedure

A sample of parents of 49 children with intellectual disability were selected for the study. Children referred for the associated certification were screened for potential eligibility. Informed consent was obtained from the parents who met the study's inclusion criteria. Demographic details were filled in using an Information Profile Sheet. The next phase comprised of data collection from the parents of the children with intellectual disability participating in the study, by administration of the psychological measures (to assess cognitive flexibility, resilience, and symptoms of depression and anxiety).

Data was entered and coded in a Microsoft Excel spreadsheet and analysed using Statistical Package for Social Sciences (SPSS) version 28 (IBM, 2021). Descriptive analyses of the data was done by using mean, standard deviation, frequency and proportion. The Jarque-Bera statistic was applied, suggesting the assumption of normally distributed data across all key variables. Thus, parametric statistics were used. Inferential analyses of the data was done by using Pearson correlation method and mediational analysis based on multiple linear regression. The significance level was considered at 0.05.

RESULTS

A total 49 participants met the inclusion criteria and were included for the study. The sociodemographic profile of the participants was analysed using descriptive statistics for the domains of age, sex, highest educational qualification, employment status, socioeconomic status, marital status, family type, number of children, and with regards to the child, the child's IQ, severity of ID, age and sex. The results of the same are presented in Table 1.

Table 1: ***Sociodemographic profile of the participants (N=49)***

	N	Percent (%)	Mean	SD
Age (in years)	49		36.92	6.06
Sex Male	16	32.7		
Female	33	67.3		
Highest Educational Qualification				
Below 10th standard	21	42.9		
Up to 10th standard	20	40.8		
Up to 12th standard	3	6.1		
Up to Graduation or higher	5	10.2		
Employment Status Homemaker	25	51.0		
Self-employed	3	6.1		
Private Job	20	40.8		
Government Job	0	0		
Unemployed	1	2.0		
Other	0	0		
Socioeconomic Status				
Lower	31	63.3		
Lower Middle	17	34.7		
Upper Middle	1	2		
Upper	0	0		
Marital Status Unmarried	0	0		
Married	49	100		
Divorced	0	0		
Separated	0	0		
Family Type Nuclear	33	67.3		
Joint	16	32.7		
Extended	0	0		
Number of Children			2.59	1.02
Child's Age (in years)			11.12	3.516
Child's Sex				
Male	29	59.2		
Female	20	40.8		

The average age of the participants was found to be approximately 36.92 (SD = ± 6.06; range = 18-45). A majority of the sample was female, specifically, 67.3% (N = 33), while 32.7 (n = 16) was male. Most of the people interviewed had attained an educational qualification below the 12th standard, with 42.9% (N = 21) having studied less than 10th standard, and 40.8% (N = 20) having achieved the 10th standard qualification. Of the remaining sample, 6.1% (N = 3) attained education up till 12th standard and 10.2% (N = 5) had studied up till graduation or higher. Furthermore, more than half the sample, i.e., 51% (N = 25) identified as home-makers, 40.8% (N = 20) held a private job, 6.1% (N = 3) were self-employed, and 2% (N = 1) were unemployed. Looking more closely at socioeconomic status, the analysis revealed that majority of the people in this study, 63.3% (N = 31) belonged to the lower socioeconomic status, indicating a household income of less than 1 lakh per annum. 34.7% (N = 17) of the sample belonged to the lower middle socioeconomic status with a household income of 1 to 2.5 lakh per annum, and 2% (N = 1) belonged to the upper middle socioeconomic status, as indicated by a household income of 2.5 and 5 lakh per annum. The entire sample (100%, N = 49) consisted of parents who were married. With regards to family type, most of the participants, i.e., 67.3% (N = 33) lived in nuclear families, while 32.7% (N = 16) lived in a joint family setup.

The sociodemographic profile of the participants also included factors related to their children. On an average, this sample had 2.59 (SD = ± 1.02) children in total. The mean age of the children was 11.12 years (SD = ± 3.516). Furthermore, 59.2% (N = 29) of the children were male, and 40.8% (N = 20) were female. Furthermore, the profile of the children's severity of intellectual disability was also recorded, the results of which are presented in Table 2.

Table 2: ***Mean and Standard Deviation of the Child's IQ and Severity of Intellectual Disability (N=49)***

	N	Percent (%)	Mean	SD
Child's IQ			44.90	16.82
Severity of Child's Intellectual Disability				
Mild	23	46.9		
Moderate	10	20.4		
Severe	10	20.4		
Profound	6	12.2		

The mean IQ of the child with ID was found to be 44.90 (SD = ± 16.82). Among this sample, 46.9% (N = 23) of children fell into the category of mild ID, 20.4% (N = 10) fell in into the categories of moderate and severe ID each, and 12.2% (N = 6) fell into the category of profound ID.

Cognitive flexibility and resilience were found to be significantly correlated with each other, sharing a positive association with a large effect size (r = .749**, p < .01) (Table 3). Cognitive flexibility was significantly correlated with symptoms of depression (r = .672**, p < .01) and anxiety (r = .618**, p < .01) (Table 3). This was characterized by a negative relationship and large effect size. In addition, resilience was also found to have a negative correlation with symptoms of depression (r = .704**, p < .01) as well as anxiety (r = .707**, p < .01) (Table 3). The effect size was large in both cases.

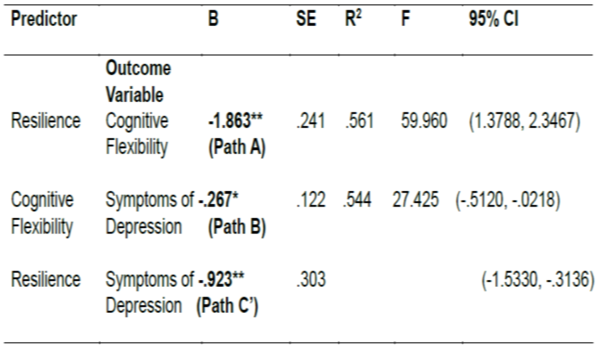
Table 3: ***Correlation Coefficient Among Cognitive Flexibility, Resilience, and Symptoms of Depression and Anxiety***

Construct	Cognitive Flexibility	Resilience	Symptoms of Depression	Symptoms of Anxiety
Cognitive Flexibility	-			
Resilience	.749**	-		
Symptoms of Depression	-.672**	-.704**	-	
Symptoms of Anxiety	-.618**	-.707**	.767**	-

Cognitive flexibility was examined as a mediational factor in the relationship between resilience and symptoms of depression and anxiety, analysed using PROCESS Macro version 4.1 with SPSS version 28.0 (Hayes, 2022; IBM, 2021). Specifically, the mediational model was significant for symptoms of depression as an outcome measure, but not for symptoms of anxiety.

It was inferred from Table 4.1 that the regression of the direct effect of resilience on cognitive flexibility, i.e., Path A of the mediational analysis, was significant, B= -1.863, SE = .241, 95% CI (1.3788, 2.3467), p<.01. On fitting a series of multiple linear regression models as a part of the mediation analysis, the direct effect of cognitive flexibility, while controlling for the effect of resilience on symptoms of depression, i.e., Path B of the mediation analysis, was found to be significant, B = -.267, SE = .122, 95% CI [-.5120, -.218], p<.01. At the same time, the direct effect of resilience while controlling for cognitive flexibility, i.e., Path C' of the mediation analysis, was found to be significant, B=-.923, SE = .303, 95% CI (-1.5330, -.3136), p<.01. These findings of the multiple linear regression analysis have been summarized in Table 4.1 below.

Table 4.1: ***Mediation Analysis of Resilience as independent variable, Cognitive Flexibility as mediator variable***



Predictor		B	SE	R^2	F	95% CI
	Outcome Variable					
Resilience	Cognitive Flexibility	**-1.863** **(Path A)**	.241	.561	59.960	(1.3788, 2.3467)
Cognitive Flexibility	Symptoms of Depression	**-.267*** **(Path B)**	.122	.544	27.425	(-.5120, -.0218)
Resilience	Symptoms of Depression	**-.923**** **(Path C')**	.303			(-1.5330, -.3136)

Outcome Variable: Symptoms of Depression

Note. B: Unstandardized Beta Coefficient; SE: Standard Error; R^2: R squared; F: F Ratio; CI: Confidence

**p<0.01, *p<0.05

Thus, as highlighted in Table 4.1 and Table 4.2, and graphically in Figure 1, cognitive flexibility was found to be a significant partial mediator of the impact of resilience on symptoms of depression (R^2 = .544, p<.01) (Table 4.1).

Further to the multiple linear regression models, the total effect, i.e., the sum of the direct and the indirect effects of resilience was significant at 0.01 level, B = -1.421, SE = .209, 95% CI (-1.8404, -1.0005). The indirect effect of resilience, mediated by cognitive flexibility on symptoms of depression, i.e., Path C of the mediation analysis, was tested using a percentile bootstrap estimation approach with 5000 samples (Shrout & Bolger, 2002), implemented with the PROCESS Macro version 4.1 (Hayes, 2022). The results indicated that the indirect coefficient was significant, with B = -.497, SE = .208, 95% CI (-.9190, -.1212), as shown in Table 4.2 below.

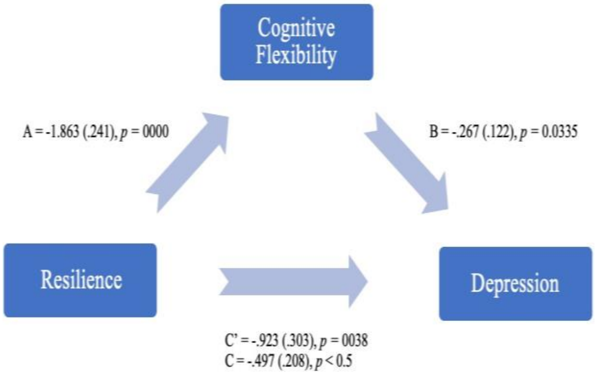
Table 4.2: ***Mediation Analysis showing the Total and Indirect Effects of Resilience on Symptoms of Depression as Mediated by Cognitive Flexibility***

Predictor	ß	SE	95% CI
Total Effect of Resilience	-1.421**	.209	(-1.8404, -1.0005)
Indirect Effect of Resilience (Path C)	-.497*	.208	(-.9190, -.1212)

Resilience (Path C)
Outcome Variable: Symptoms of Depression
Note. B: Unstandardized Beta Coefficient; SE: Standard Error; CI: Confidence
**p<0.01, *p<0.05

Therefore, the findings support a partial mediation by cognitive flexibility in the relationship between resilience and symptoms of depression parents of children with intellectual disability. The mediation analysis has also been diagrammatically conceptualized with the paths of mediation and their unstandardized coefficients of regression in Figure 1 below.

Figure 1: *Mediation Analysis showing the Effects of Resilience on Symptoms of Depression as Mediated by Cognitive Flexibility*



DISCUSSION

Cognitive flexibility is understood as the capacity generate alternatives to respond to situations in the environment. Resilience, in contrast, is simply the capacity to bounce back when faced with adversity. Thus, cognitive flexibility can be conceptualized as a factor enhancing resilient responses. This study, to the best of our knowledge, is the first one to investigate this association among a population engaged in caregiving.

Resilience shared a significant negative correlation of large strength with symptoms of depression, and also with symptoms of anxiety. This is consistent with previous findings that have highlighted the protective role of resilience against both anxiety and depressive psychopathology (Ran et al., 2020; Wu et al., 2020). Resilience, as the capacity to adjust positively to adverse circumstances, naturally buffers against negative outcomes. It was hypothesized that cognitive flexibility would significantly impact the relationship between these variables. A mediational analysis based on multiple linear regression modeling was carried out separately for anxiety and depression as outcome variables. While cognitive flexibility did not seem to mediate the impact of resilience on symptoms of anxiety, it was a significant factor partially mediating the impact of resilience on symptoms of depression. Thus, the buffering effect of resilience against psychopathology was partially attributable to the mediating role of cognitive flexibility. Cognitive flexibility has emerged as an important factor in mental health research in last couple of decades, and studies in the past have examined its protective role among caregivers for family members with psychosis (Jansen et al., 2017) and end-stage cancer (Karabekiroğlu et al., 2018). Furthermore, this is consistent with the cognitive model of depression (Beck, 1967) that posits an inflexible, negative world view towards self, others and the future, in its conceptualization of depression. Thus, while resilience is protective against depression, this study indicates that its effect is partially driven by the ability to adapt cognitive processing strategies when grappling with novel situations. Findings on the role of cognitive flexibility in the prevention of anxiety are less robust. Cognitive flexibility has been investigated as a mediating factor in the relationship of resilience with psychopathology (Soltani et al., 2013; Arici-Ozcan et al., 2019). It has not, however, been conceptualized as such in the context of caregiving. To the best of our knowledge, this study is the first one to demonstrate the mediating role of cognitive flexibility between resilience and depression among parents providing long-term caregiving to children.

With regards to limitations of the study, the social stigma associated with the condition of intellectual disability was seen to impact the willingness of parents of participate. Reliance on use of self-report measures can be a source of bias, especially among parents providing caregiving, where desirability can potentially impact disclosure. Lack of longitudinal data makes causal inferences less reliable. It is of note that paucity of Indian tools, specifically to measure cognitive flexibility, and resilience can impact reliability of the findings.

CONCLUSIONS

Cognitive flexibility, resilience, and symptoms of anxiety and depression are significantly correlated among each other in parents of children with intellectual disability, with cognitive flexibility and resilience found to buffer against the negative outcomes. Interventions to enhance resilience can help this population cope better with their life circumstances, and protect against caregiver burden and psychopathology, such as symptoms of depression and anxiety. Specifically, strategies to enhance cognitive flexibility can support resilient outcomes, and can be especially protective against the development of depressive symptoms.

Parents of Children with intellectual disability represent a large and vulnerable population in India, and experience significant burden and high rates of depression and anxiety. While the need for interventions to support their coping is well-established, there is a paucity of literature on factors that support their mental health. Research has also highlighted that many parents caregiving for children with ID have been found to show resilience despite the exposure to challenging circumstances within their parenting role. Identifying factors that promote such resilience becomes valuable to better support such parents exposed to this adversity. This study in particular identifies cognitive flexibility as a target for intervention to enhance resilience and protect against negative mental health outcomes among this group.

Cognitive flexibility emerged as a partial mediator in the role of resilience as a buffer against symptoms of depression, among the participants of this study, i.e., parents caregiving for children with ID. Thus, the findings imply that therapeutic techniques to enhance cognitive flexibility can support the mental health of such parents. Acceptance and commitment therapy (ACT) can be a promising approach in this context, since it particularly strengthens psychological flexibility (Hayes, 2005), which is closely related to cognitive flexibility (Grant & Cassidy, 2022). In addition, ACT has been found to be an effective intervention in the treatment of both depression and anxiety, further highlighting its suitability for this population of parents. Application of this research as discussed has implications for guiding effective interventions with caregivers of children with ID.

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Post Pandemic Literacy Scores among Learning Disabled Adolescents

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ABSTRACT

A study was conducted among Learning Disabled Adolescents (N=51) with age ranging from 11 to 16 years by administering Raven's Standard Progressive Matrices, Schonell's Reading Test and Schonell's Spelling Test. The study aimed to test whether IQ score is dependent on reading score and spelling score. The hypothesis of the study is that there is no significant difference between IQ score and reading and spelling score. A regression analysis was performed and the result proved that the IQ score is dependent on reading score and spelling score with a p value at 0.01 level ; thus hypothesis was rejected. Observations of the study concluded that reading score and spelling score act as a predictor to measure intelligence among Learning Disabled Adolescents. Though learning disabled adolescents are intellectually average, there is likelyhood that the pandemic has reduced their literacy level leading to poor intelligence quotient and hence, contributing to the Matthew effect that poor readers get poorer. Further studies are required to analyze the pattern of scores before covid and post covid situations.

Keywords: *Intelligence Test, Learning Disability, Schonell's Reading Test, Adolescents*

INTRODUCTION

Learning Disabilities Association of Canada, 2015 defines Learning Disabilities as a disorder resulting due to impairment in one or more processes related to perceiving, thinking, remembering or learning. These include, but are not limited to language processing; phonological processing; visual spatial processing; processing speed; memory and attention; and executive functions (e.g., planning and decision making).

With covid 19 outbreak, a massive increase in virtual online classes happened during the past 2 years from 2020 to 2022. As a part of the new norms, new behaviors have emerged like work from home, virtual classes among people in every part of the world.

In India, the entire education turned to online classes during pandemic (Mishra et al., 2020). Students with learning disabilities faced problems pertaining to attention, distractions, lack of physical development during the pandemic (Khanna & Kareem, 2021).

But, a question needs to be answered i.e. the effectiveness of virtual classes in improving the basic skills like reading (Spector, 2021) ? As we are treading towards an era under the influence of technology, the impact of the same in academics is an issue of concern. The question to be addressed is the influence of virtual classes on reading and spelling areas of academics especially among learning disabled adolescents. The concern is on the learning outcome of the curriculum due to pandemic and virtual classes (Navaneeth & Siddiqui, 2022).

Adolescents with learning disabilities have trouble in reading and spelling which contributes to poor performance in academics. With remote learning, the standard of education faced a reduced reach to cater to the needs of learning disabled adolescents. During the covid 19 pandemic, the education system has seen an increase in the number of learning disabled adolescents as well (Angode & Ressa, 2021). It can be related to the surge to remote learning for the significant increase in the troubled reading and spelling activities.

The core of academic success rely greatly on reading and spelling activities. Reading and spelling contributes to the overall literacy, academic writing and a good communication. Online learning has affected the areas of concentration especially among learning disabled secondary school students (Walters et al., 2022).

Poor reading and spelling scores could also affect the intellectual level of a child (Thomson, 2003). Though intellectual level is not dependent on the literacy level, the ability to communicate, solve a problem and make a decision might get hampered if literacy level is poor leading to poor socio-psychometrics (Stanovich, 1999).

OBJECTIVES

Aim of the current study was to find out whether reading and spelling could predict intelligence among learning disabled adolescents. Adolescents with learning disabilities are identified with normal intelligence but with a troubled academic background. Thus with the virtual classes and two years of study pattern at home, the ability to communicate, solve problems and make a decision have been challenged. This is a major concern to predict intelligence among both normal and learning disabled adolescents. Since learning disabled adolescents are poor in academics in general, the covid 19 situation has worsened their intellectual level as well. Hence their intellectual level could be predicted with reading and spelling scores.

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Theory and Need for the Study

In Sri Lanka, students with dyslexia are on the verge of becoming poor readers further, thus contributing to the Matthew Effect (Hettiarachchi, 2021). The Matthew effect was first coined by Walberg and Tsai in 1983 but it was first used by Stanovich in 1986. Stanovich said that those who read well will continue to do so and those who do not read well are unlikely to continue to become good readers (Hempenstall, 2022). Reading and literacy variances relate much to the cognitive differences especially verbal intelligence (Stanovich, 1993). The Matthew effect is strongly with learning disability (Tzouriadou & Tzivinikou, 2021).

With the pandemic and virtual classes, one can be apprehensive over the development of this Matthew effect affecting adolescents with learning disability in becoming poorer in reading and spelling which is affecting their intellectual level as well.

HYPOTHESIS

There is no significant relationship between reading and spelling scores and intelligence score.

Al-Qadri et al (2021) summed up the classification of learning difficulties such as reading difficulties, writing difficulties, expression difficulties, calculation difficulties, and general study difficulties among the school students at primary level in Sana'a City, Yemen accounting to be prevalence factors for various academic learning difficulties.

Peterson et al (2021) identified learning disabled faced difficulties in 5 academic domains such as basic reading, reading comprehension, basic math, math problem solving and written expression.

Capin et al (2021) analyzed the reading comprehension levels of fourth grade students who also experienced cognitive difficulties. The results showed that poor performance on reading factors could be a predictor for cognitive attributes.

Soriano-Ferrer et al (2021) examined the psychoeducational impact of Covid 19 quarantine in Spain among learning disabled children and it was identified that the children had less reading activity and less reading motivation during quarantine.

According to Stanovich (1986), the Matthew effect is the ability of a child, who reads well will read more and they obtain higher IQ scores whereas poor readers score low in reading and in IQ. Stanovich has also specified that IQ scores reduce overtime for reading disabled children. There are possibilities that children with learning disabilities score low in intelligence but perform well in reading tests (Siegel, 1999).

METHOD

The aim of this study was to identify whether reading and spelling scores predict intelligence among learning disabled adolescents.

TOOLS USED

The tools used for the study were Raven's Standard Progressive Matrices (Raven, 1936), Schonell Reading Test (Schonell, 1942) and Schonell Spelling Test (Schonell & Goodacre, 1971).

Study was conducted at Wisdomms Special School and Learning Centre, Chennai and Saraswathi Kendra Learning Centre for Children, Chennai. Students with Learning disability of these two schools were selected for the action research for the following reasons

1. Availability of the participants.
2. Permission and Cooperation provided by School's authorities.

Sample

Fifty-one Learning Disabled adolescents (34 from Saraswathi Kendra Learning Centre for Children, Chennai and 17 from Wisdomms Special School and Learning Centre, Chennai) were selected and screened for reading score, spelling score and intelligence score. The age range of the participants were 11 to 16 years. Purposive sampling method was used to select the sample.

PROCEDURE

Fifty-one adolescents with learning disability were assessed using Raven's Standard Progressive Matrices, Schonell Reading Test and Schonell Spelling Test to test their Intelligence Quotient, reading score and spelling score.

Student Ss were asked to sit comfortably in a classroom with individual chairs. Each student was given a questionnaire. Since the participants were students in the age group of 11 to 16 years, the items in the questionnaire were instructed in a student friendly manner. The students showed great interest in answering the questionnaire.

RESULTS AND DISCUSSION

Table I presents the descriptive and inferential statistics for assessing the reading score, spelling score and intelligence score using explanatory survey design.

Table 1: Mean and Standard Deviation for Age, Intelligence Score, Reading Score and Spelling Score

Variables	N	Mean	Standard Deviation
Age	51	13.35	1.60
Intelligence Score	51	28.94	8.47
Spelling Score	51	7.98	2.08
Reading Score	51	8.49	2.06

Table 1 shows that the mean IQ score is 28.94 which indicates that the participants were intellectually impaired with the mean age of 13.35' the mean reading age is 8.49 and mean spelling age is 7.98 respectively. It implies that the participants were very poor in reading, spelling and intelligence.

Table 2: shows the regression analysis with intelligence score as the dependent variable and reading score, spelling score as independent variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.519[a]	.269	.239	7.39287

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	967.405	2	483.703	8.850	.001**
	Residual	2623.418	48	54.655		
	Total	3590.824	50			
**= Significant at .01 level						

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	READING SCORE	3.153	1.721	.765	1.831	.073
	SPELLING SCORE	-1.074	1.702	-.263	-.631	.531

Table II shows a simple regression that predicts the reading score and spelling score from intelligence score. Reading score and spelling score indicates a significant relation between intelligence score with F (2,48) 8.850, p 0.001, R^2 0.27, R^2_{adjusted} = 0.24. The regression coefficient (B -1.07) for spelling score indicates that for an increase in intelligence score, there is a decrease in spelling score. The regression coefficient (B 3.15) for reading score indicates that for an increase in reading score, there is an increase in intelligence score.

Thus, the hypothesis that there is no significant relationship between reading and spelling scores and intelligence score is rejected. The reading score and spelling score predicts intelligence score. The poor reading and spelling leading to intellectual impairment among learning disabled adolescents are displaying Matthew effect. The learning gap has widened between low achievers and high achievers during pandemic due to online classes (Grewenig et al., 2020). Thus, the participants with learning disability are affected due to pandemic although further studies are required to analyze the pattern of scores pre covid and post covid situation.

CONCLUSION

The results imply that the learning disabled adolescents had a mean age of 13 and indicates that they are intellectually inferior (mean IQ score 28.94), had poor reading score (mean 8.49) and poor spelling score (mean 7.98). The regression analysis demonstrated that there was a significant relationship between intelligence and reading and spelling score. Thus, for every increase in reading score, there was an increase in intelligence score (B 3.15) and for every decrease in spelling score, there was increase in intelligence score (B -1.074).

From the explanatory survey design with learning disabled adolescents, we can understand that post pandemic phase has influenced the intellectual level of adolescents

As per the criteria for learning disability, the adolescents with learning disability possess normal intelligence but poor literacy levels (Frye, 2016). Through the study, observed that adolescents with learning disabilities are having poor reading, spelling scores and intelligence scores. This can be due to the pandemic situation that has divided the gap between low achievers and high achievers and hence, priority to facilitate literacy among learning disabled adolescents is vital now, otherwise it might lead to Matthew effect by making poor readers poorer.

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Original Research Article

Study to Identify Factors Responsible for Adjustment Problems among Students with Dyslexia

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ABSTRACT

Dyslexia is the most significant disability category in schools. RPwD, 2016, included Specific Learning Disability in benchmark disability. Dyslexia is a major type of SLD. During adolescence, students with dyslexia face various difficulties in educational, social and emotional areas. This study emphasized the exploration of adjustment problems among students with dyslexia and to identify the factors underlying adjustment pattern among students with dyslexia. This qualitative research included the detailed interview of twelve parents of dyslexic students from various schools from Delhi/NCR. Data was collected with the help of sixteen items of semi-structured interview from parents. Thematic analysis was done to analyze the data. Results revealed that students with dyslexia face adjustment problems in emotional, educational and social areas. There are identified five themes and fifteen subthemes in qualitative analysis. Results demonstrated that the students were facing social adjustment problems due to rejection, social stigma, denial and over expectations of teachers, parents and peers. Results further indicated that there are many factors, which influence their emotional adjustment and behavioral issues that pose as hurdles in adjustment among students with dyslexia. Results were indicative of the fact that students with dyslexia face educational difficulties in reading, writing, arithmetic, completing assignments, lack of interest in the study, get poor attention from others in school and lack of reinforcement leads to educational adjustment problems among students with dyslexia. Observations of this study will be helpful in designing intervention plans and guidelines for dyslexic students, peers, teachers, counselors, parents and policy makers.

INTRODUCTION

Adolescents lead a more complicated life if they have some disability or disorder, their needs and demands increase, followed by stress and frustration level, which leads to maladjustment. This study highlights the adjustment pattern of adolescents with dyslexia. An adolescent with a dyslexia faces difficulty in educational settings and are more likely to show signs of stress, frustration, and anxiety which leads to maladjustment in the personal and emotional area (McGuire & Shaw, 1993).

In recent times, the number of students with Dyslexia has increased in India.

Identification and awareness about learning disabilities have also increased at the school level. Dyslexia is the most significant disability category in schools. The exact measure of the population in this category is not mentioned in the Disability Census in India 2011. As per CBSE, about 15 % of school students have a learning disability. However, government-run schools lack trained professionals; which makes the job difficult in identifying dyslexic students in these schools. Therefore, these students are not provided with proper intervention, training and exposure in early classes. In public schools 2.4 million students were identified as victims of specific learning disabilities under the IDEA Act (2004).

A dyslexia is caused because of neurological dysfunction in some areas of the brain. Which results in average intellectual functioning and difficulties in reading & language comprehension. Dyslexia is one of the types of Specific Learning Disability (SLD).

According to The Right of Person with Disability Act (RPWD Act 2016) **-** ″SLD means a heterogeneous group of conditions. Which includes a deficit in processing language, spoken or written, that may manifest itself as a difficulty to comprehend, speak, read, write, spell, or to do mathematical calculations and includes such conditions as perceptual disabilities, dyslexia, dysgraphia, dyscalculia, dyspraxia, and developmental aphasia".

According to DSM –5, the diagnostic characteristics of dyslexia are identified when the individual's performance on psychological or educational tests in reading skills is considerably low for his/her age, grade, school and intellectual level. As per "International Classification of Disease" (ICD-10)- deficits in academic skills are called dyslexia. It also explicitly mentioned that these are different from diseases, mental retardation, accidents or trauma.

Dyslexia- Reading Disorder

Dyslexia is a difficulty in reading, writing and spelling with average intellectual ability (Cullis, 1992). In the UK, dyslexia is registered as a disability under the Disability Discrimination Act (DDA) 1995 and Education Act 1993. Dyslexics have a problem with reading, writing, short-term memory, number work, visual processing, and hand control. Other skills such as

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interpersonal skills, sense of direction and timekeeping can be affected. These difficulties create a lot of stress and frustration in children because dyslexics possess high or above average intelligence.

1. Reading achievement is substantially low when measured through standardized tests of reading accuracy or comprehension, considering the person's chronological age, age-appropriate education, and measured intelligence,
2. Disturbed daily routine where reading skill is required,
3. Reading difficulty is affected by sensory issues usually associated with it.

Types of Reading Disability (Dyslexia)

1. Auditory Dyslexia: children face difficulty in grasping the meaning of the sound of the word,
2. Visual Dyslexia: students face difficulty in translating letters in sounds,
3. Sound Blending: Students face difficulty in synthesizing sounds,
4. Sound Blending: children who have this may have difficulty in sound synthesizing,
5. Memory: Students face difficulty in recalling the information eg. difficulty in remembering the order of letters in the word, the sequence of sound within a word and sequence of the word within a sentence,
6. Letter and Word Reversal: children with a learning disability make these types of mistakes like m as w, p as q, u as n, d, as g.
7. Critical Reading Skills: children who have this may have difficulty in judging, accuracy, drawing conclusions, and evaluating the author’s intentions.

Prevalence: The prevalence of the reading disorder among school-age children in the United States of America is estimated at 4 %. Lower incidence and low prevalence figures for reading disorder could be found in other countries in which strict criteria is used. From the study carried out by National Council for Education, Research and Training (NCERT), it was found that 10% of school-going children have S.L.D., but they are not correctly diagnosed, and because of the lack of diagnosis their problem is generally confused with learning problems.

General importance of the topic in the Indian context

Considering the dearth of exploratory qualitative studies in India, this study was planned, aimed at finding the factors underlying the adjustment among these students. Review of literature and theoretical principle indicated that these students face emotional issues that are responsible for maladjustment with self and environment. An intervention plan can be executed for these students to enhance their self-esteem and motivation. Provision of counseling is required for parents, peers, siblings, and teachers for identifying factors, which are responsible for social and emotional adjustment problems among these students. These interventions can be enhanced by social support and encourage social relationships among students with a learning disability, which make a positive impact on their adjustment.

In a qualitative study by the school, the psychologist found that parents avoid the learning disability, make an excuse, and try finding an alternate description of the exact problem. Parents think that everything is satisfactory without any management. This denial creates more adjustment problems for learning disabled people (Logsdon, 2018). Social support would contribute to developing a positive environment for people with a learning disability, and it enhances academic achievement and adjustment (Krisher & Sechatman, 2015).

Social support from peers, teachers, and parents can help identify positive factors, which can increase developmental outcomes while the absence of social support may lead to adjustment problems among students with learning problems (Sarason & Sarason, 2009). In other qualitative research, results indicated that a lower level of social support is the primary cause of low self-efficacy and poor adjustment (Heiman, 2006). Other studies found that social support is, directly and indirectly, related to adjustment and psychological well-being among students with SLD. Poor social support may result in failure and maladjustment (Murry et al., 2013). Lack of awareness of parents and teachers misleads the intervention plan to enhance their academic and social skills (Sawhney & Bansal, 2014).

The over expectation, excessive instructions, overload, etc. make them more frustrated. Comparison with other students or siblings may lead to increased stress in students with a learning disability (Marshal, 2016). Students with a learning disability who experience loneliness face real social difficulties, which include poor social networking, poor social support, and rejection from others (Asher et al., 1990). Mohammadi (2008) reported that students with dyscalculia and failure in arithmetic face emotional adjustment problems such as disruptive behaviour with tantrums, delinquent and antisocial behavior, isolation and loneliness. They are likely to be hyperactive and face mental distress. This also emphasized that adolescents with a learning disability have less awareness to deal with these issues , due to poor emotional intelligence. Crocker & Major suggested that negative thoughts of a student with learning disability decrease self-esteem due to social stigma among them.

Low self-esteem can be a cause for poor academic, social and emotional adjustment. Accariya & Khalil (2016) conducted qualitative research and examined learning disabled students' subjective interpretation of their social and cultural reality during their transition into secondary classes. In-depth interview was conducted on a sample of 12 adolescents with learning disabilities. This study included intervention. The result signified that students with learning disabilities are liable to have social, emotional and psychological problems. They are prone to depression, behavioral problems, and anxiety and face low self-esteem and social isolation. It was found that students have a poor relationship with their teachers and peers with lack of adaptation and social skills. The research advocated that it is challenging to develop social and educational skills during the adolescent phase. Martínez & Semrud (2004) confirmed that adolescents with multiple learning disabilities have school maladjustment, emotional issues, negative attitude for school, and face psychological problems.

In a Study Michal & Miklincer (2004) observed that these children experience a high level of peer rejection and loneliness, a deficit in their sense of coherence, and multiple emotional problems (Culbertson, 1998; Margalit & Levin-Al-Yagon, 1994; Morrison & Cosden, 1997) . Many studies emphasized that these students face social, emotional adjustment issues due to various psychological factors (Hamilton, 1994).

Aladwin & Shaye (2013) reported in their study, that the lack of knowledge about learning disability among teachers particularly the early sign/s of dyslexia and their poor awareness further adds to the difficulties of these students. The results concluded that; many times, teachers have awareness but due to lack of time, overloaded schedules of work and responsibilities, prevent them from helping and identifying students with a learning disability. Which compromises with the crucial job of "Early Identification". Fajardo & Haubrich (2000) collected data of twenty students with Learning disability and measured their adjustment to explore how these children adjust to this phase of life. The results revealed that most of the students were facing adjustment problems. The findings also indicated that these students required educational, familial and social support for better adjustment in their life. Bakker & Euwema (2005) investigated that social support is the most important factor for adjustment of a student with dyslexia in educational settings. Further a good number of researches suggested that social support and peer support is positively correlated with psycho-social adjustment as well as low levels of anxiety, depression, and loneliness among students with learning disabilities (Bakker et al., 2005; Karatepe, 2009; Yalcin, 2011). Many researchers found a lower level of social support among students with learning disabilities (Heiman, 2006b). Another study showed that social support is related directly or indirectly to adjustment among students with Learning disabilities (Murray et al., 2013).

METHODOLOGY

Aim of the Study

This study was aimed to see the adjustment of students diagnosed with dyslexia. This study emphasized the factors, which are responsible for adjustment problems among students with dyslexia.

Objectives of the Study:

The present study's primary objective was to study the adjustment problem among students with dyslexia. Specified objectives are listed as follows:

1. To study adjustment problems among students with dyslexia.
2. To identify the factors underlying adjustment pattern among students with dyslexia.

Research Question: The following research questions were kept in mind while conducting this research to achieve the research objectives:

- What are the factors responsible for the adjustment of students who are diagnosed with dyslexia?
- What is the role of peers, parents, siblings, school and home environment, gender, age, class in the adjustment of students?
- How does social support help to maintain their adjustment within their environment and with people?
- What are the factors which influence emotional, social and educational adjustment?

This study helped in exploring various factors which influence the adjustment of students with dyslexia in the social, emotional and educational setting. A qualitative method was used**.** It was designed to understand the factors which influenced the adjustment of students in school and family in the emotional, social and educational areas. It was also helpful in knowing the factors that played a role in the adjustment of these students with peers, family members, school environment, classroom adjustment, curriculum adaptation, emotional support, peer groups, and personal satisfaction.

Previous researchers and theories emphasized many of these factors that influence students and their adjustment, particularly in the social, emotional and educational areas. In this study, the Qualitative Research method was applied, which helped in providing an in-depth understanding of the factors responsible for adjustment among students with dyslexia. The primary approach of this exploratory research was to understand the reality behind the facts, with the help of a detailed interview of parents/guardians of students having dyslexia.

S**ample-** A group of 12 parents (Father= 5, mother=7) formed the sample group of this study. This sample was collected based on the availability and willingness of the parents. Proper consent was obtained from the parents.

The size of the sample for qualitative data was limited due to data saturation and repetition of responses. Data should be limited in qualitative research to avoid repetition of same responses and to save time. More data does not necessarily lead to more information (Mason, 2010).

Data Collection- For data collection, a semi-structured interview was designed. The semi-structured interview was a data collection strategy for qualitative research where the researcher collects the information through pre-determined but open-ended questions (Ayres, 2008). A semi-structured interview provides the collection of information about the subject's opinions, perceptions, and experiences of a particular aspect of the study (Ghuangpeng, 2011).

ANALYSIS OF RESULTS

In the present study, the results were analyzed by using thematic analysis. Factors of adjustment pattern were identified among students with dyslexia by thematic analysis. Various themes were analyzed based on the interviews of parents. The information regarding these themes were collected in the context of adjustment of students with dyslexia. Interviews were recorded and transcribed verbatim. Initial themes were developed by analysis of some interviews and validated with the help of experts and coders. Experts are those who are experienced in research and are working in the field of psychology and disability rehabilitation. Then templates of a priori code were analyzed in detail.

Table-1 Show the Themes and Sub-themes based on Qualitative Data

Theme	Sub-theme
Attitudinal Barrier	Over expectation Stigma Rejection Denial
Social Factors	Lack of encouragement Lack of Social Support Lack of Participation
Lack of Awareness	Awareness about diagnosis Perception Lack of awareness about Management
Emotional and Behavioral issues	Poor self-regulation Loneliness Behavioral Changes
Educational Factors	Academic Difficulties Lack of Interest

The themes were identified to see the connection within and between participants. Cross analyses were done, and frequency and various categories of themes were collected. The global themes and sub-themes were analyzed. Sub-themes were linked and grouped under one main theme. Five global themes were analyzed from the data to ascertain. These were the attitudinal barriers, social factors, lack of awareness, behavioral, emotional and educational issues. There were various sub-themes that were identified which reflected the global themes. These themes indicate the factors related to adjustment among students with dyslexia.

The above table reveals five global themes and fifteen sub themes, which were analyzed, based on the interview of parents and collected review of literature. These themes indicate significant factors underlying adjustment problems in educational, social and emotional areas.

DISCUSSION

Study was designed to understand the factors, which influenced the adjustment of students in school and family setting in the emotional, social and educational area. It was helpful to know the factors that played a role in the adjustment of dyslexic students with peers, family members, school environment, classroom adjustment, curriculum adaptation, emotional support, and personal satisfaction.

Previous researchers and theories emphasized many of these factors, which influence students and their adjustment, particularly in the social, emotional and educational area.

The following sub-themes were identified based on the interviews with parents:

Attitudinal Barrier: The negative attitude towards dyslexic students of non-dyslexic students make a negative influence on their adjustment, personality, and motivation (Liasidou, 2014). It was derived from analyses; which indicated that parents and teachers have over expectations from students. These expectations were high and not at par with the abilities of students with dyslexia. Teachers expect that they will perform all his class work and homework up to mark. Students and parents both were noted to be conscious about the stigma as dyslexia. Students also do not like extra attention to overcome their difficulties in schools due to stigma. Parents and students had a feeling that they have a mental disability due to the stigma regarding learning disability (Scorgie & Wilgosh, 2012). Parents are worried after the diagnosis that they will be labeled as disabled for their whole life. The following statements of parents indicated this factor, which leads to emotional and social adjustment issues among students with dyslexia.

Social Factors- The theme 'social factors' was derived from the interviews with parents which influenced the adjustment of students with dyslexia. The students lack support from teachers, peers, parents and siblings. Seven parents reported that teachers did not support them, they should give 'special attention' to these students and they should appreciate them for their success in performing an assigned task. Dyslexic students should be integrated with their able-bodied counterparts as far as participation in social activities and programs of the school. Teachers overlook this crucial fact.

Social support contributes in developing a positive environment for people with a learning disability and it enhances academic achievement and adjustment (Krisher & Sechatman, 2015). Social support from peers, teachers and parents have been identified as a positive factor, which can increase developmental outcomes. The absence of social support may lead to adjustment problems among students with learning problems (Sarason & Sarason, 2009). In other qualitative research, results indicated that a lower level of social support is the primary cause of low self-efficacy and poor adjustment (Heiman, 2006). Other studies found that social support is directly and indirectly, related to adjustment and psychological well-being among students with SLD. Poor social support leads towards failure and maladjustment (Murry et al., 2013).

Lack of Awareness: This main theme is also misinterpreted by parents, teachers, and peers. Nobody understands the antecedent factors of his or her behavior. Consequently, this leads to developing anxiety and stress in students with dyslexia. The parents did not have a proper understanding of the student's abilities and limitations. Teachers also expected a lot from the students. The teachers were not able to ascertain their capabilities to perform in the given context. Lack of awareness among teachers demotivated the students and did not provide support to students with learning disability, i.e. not providing class notes in advance, relaxation in writing and home tasks, opportunity to speak in class, or making friends in class and other such activities. These became bigger barriers and were converted into adjustment problems (Redpath et al., 2013).

Emotional and Behavioral Issues- Parents discussed that their wards had developed many behavioral and emotional issues. They reported that their children with dyslexia faced emotional & behavioral disturbances as they tell lies, always escape from situations, become impulsive, do not follow instructions, and they remain frustrated, and irritated. They hesitated and felt insecure in performing a new task. Teachers complained that these students disturb others; they are distracted easily, and used to exhibit attention seeking behavior.

Educational factors- Students with learning disabilities are thought to be a burden in an educational set up; as they need and demand more time and effort from their teachers . Further, they were not fully able to cope up with educational expectations demanded by their teachers and parents. The educational pressure led to adjustment issues among students with learning disabilities. In place of making these students relaxed, adults promoted the dictum of "try harder" and kept them more pressurized. Apart from the social and emotional issues, they had to struggle with educational difficulties too. They faced difficulty with the educational system, which led to educational adjustment problems. Parents expressed their needs and expectations from students with dyslexia and compared them with other siblings. Further parents of dyslexia students exerted more pressure on the students for completing the task rather than telling them how to complete the tasks.

The following sub-themes were identified:

Social Adjustment among Students with Dyslexia

One Global theme was attitudinal barriers of parents, teachers and peers who had a different attitude towards these students. In this Global theme, there four sub-themes emerged such as over expectations, stigma, rejection and denial. These sub-themes were associated with social adjustment among dyslexic students.

Parents and guardians on face value denied their problem. All these statements indicated that students face social adjustment issues. They are less involved in the social group due to over expectations by peers and teachers. Added to this, it is the anxiety of sigma as a 'special child'. Parents were also concerned about the sigma and denied actual problems faced by students with dyslexia.

It was observed that there were many social factors responsible for adjustment. These social factors included lack of encouragement, lack of social support by peers and teachers and lack of participation. A student with dyslexia did not get the opportunity to participate with other students in classroom activities as well as in extra co-curricular activities.

During the interaction of the data collection, process students responded saying that most of us did not have cooperative association with their fellow students. Other students are not involved with them in activities and games. The students did not get social support from the school and home environment. Some parents reported that they pay proper attention to them. They support them to participate in various activities outside the school. In this study, results showed that parents and teachers were not aware of learning disabilities. Parents and teachers pressurized students because they do not understand the actual problem of the students with learning disabilities. School does not provide them with relaxation and concessions until they have a severe problem in reading, writing and arithmetic. Perception about student learning disability was not very encouraging from teachers and parents' side. Some parents requested that it must be explained to the teachers that their ward is facing problems related to learning. However, some teachers expressed an inability in providing extra attention to the students.

Parents reported about the teacher's opinion as they have a negative perception of their child. Most of the teachers responded to parents saying that these students do not want to study and they want to disturb the whole class.

Some parents reported that teachers suggested sending their wards in a special school. A student with SLD also feels negatively about the attitude and perception of their teachers about them, which leads to emotional adjustment issues at school. According to qualitative analysis, it was found that parents are also not much aware about the management of dyslexia. Some parents have financial issues. Some parents reported that they received information related to learning disabilities in early classes, but they did not take any initiative or did not provide any intervention to the students. Parents are not much aware of the proper treatment of learning disabilities. They have a different view that says that since these students passed early classes without intervention, also they can cope up with educational difficulties.

Emotional Adjustment among Students with Dyslexia

Results obtained under this sub theme revealed that dyslexic students face emotional adjustment issues. As per the responses of students, it was found that they have a fear of other students bullying them at school. The students get angry quickly when a teacher scolds them for their mistakes, becomes very irritated when teachers are praising another student in class, they feel insecure when other students are talking separately. They expressed their anger when they are not asked to come forward to participate in any program organized by school, they felt stress and anxiety in simple class tests, always avoided checking the notebooks, the students tried to rationalize their mistakes and most of the students got frustrated when other classmates cracked jokes at them. The teachers sometimes also make fun and they feel insulted and insecure. Parents reported in an interview that their ward gets angry easily without any reason. They also reported that dyslexic students like to interact with students younger than them.

In qualitative answers, the Global theme was analyzed for emotional and behavioral issues. It included three sub-themes - self-regulation, behavior changes and loneliness. Parents reported that their ward with dyslexia is not able to control their emotions. They get angry and frustrated quickly, not able to handle educational and social pressures, which leads to emotional disturbances. Parents further reported that if students faced any problem at school, they would show anger at home too. Sometimes they feel uncomfortable when some students bully or tease them. Some parents reported that they felt more uncomfortable when teachers called them in front of all the students. It was reported in the qualitative answers that these students face some behavioral issues. Complaints of teachers to the parents included i.e. students with a learning disability distract the whole class, argue with teachers, fight with other students and tell lies. Findings concluded that these students face emotional adjustment problems in school and home environment.

Educational Adjustment among Students with Dyslexia

The students with dyslexia are faced with problems in the educational area as well. As parents reported while interacting with the researcher during the interview, their wards did not like to study more, they have difficulty in reading and writing, they do not understand English (language) that is why they face difficulty in all subjects. Parents also reported that they did not face as many problems in primary classes, but when the difficulty level of the syllabus increased; their problems were manifested and became distinctly visible.

SUMMARY AND CONCLUSION

In this qualitative research, data was collected, transcribed, coded and themes were identified. This was followed by thorough reviews of the whole process of this study to ensure the reliability and validity of the analysis. Thematic analysis was used to analyze the data. The findings indicated that there are many factors, which influence the adjustment of students with dyslexia. Findings concluded that students face problems in adjustment within the setup of school as well as in the home environment. These students were facing social adjustment problems due to rejection, social stigma, denial and over expectations of teachers, parents and peers. Lack of social support, poor encouragement and participation leads to social adjustment problems among dyslexic students.

Several factors which influence their emotional adjustment, behavioral and emotional issues; known as hurdles in adjustment among students with dyslexia. Aggression, frustration, insecurity, temper tantrum and stubbornness make them emotionally disturbed, which leads to emotional adjustment problems too. Results also indicated that students with dyslexia face educational difficulties in reading, writing, arithmetic, completing assignments, lack of interest in the study, get poor attention from others in school, followed by lack of reinforcement, which leads to educational problems among students with dyslexia.

IMPLICATIONS

Based on the findings proposed, implications are as follows:

1. Awareness generation about this disabling condition among parents, teachers and significant others is an important need of the time. Observations of the study are suggestive of the fact that with whatever input of information about this disability, we are living in the society that is not sufficient to facilitate the education of these children,
2. Provision to make Packages available to enhance their capabilities i.e. Life skill training, Social skill training, Cognitive intervention, Role-play, and Counseling sessions with peers.
3. A flexible curriculum with modification is required to help these children.

LIMITATIONS

The present study was conducted on students with dyslexia from an urban area. Significant rural population was not represented in this study.

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Original Research Article

Self-esteem and Adaptive Behavior in Children with Specific Learning Disability

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ABSTRACT

Objective: In this study, an attempt has been made to examine self-esteem and adaptive behaviors in school-going children (8-11 years) with specific learning disabilities (SLD) in comparison to their healthy counterparts. Method: A sample of 100 children with specific learning disabilities and their matched cohort of children with no specific learning disabilities were drawn from schools of Bihar state. Self-report measures of Indian Adaptation Battle's Self-Esteem Inventory for Childre (Kumar, 2005), child and youth resilience measure (Unger, 2016), and Vineland Adaptive Behaviour Scale (Doll, 2005) were used to assess the relevant variables. Results: The two groups significantly ($p<0.01$) differed in academic and paternal domains of self-esteem. On adaptive behavior, SLD children were significantly poor ($p<0.05$) than their non-SLD counterparts. SLD children scored significantly ($p<0.01$) higher on the maladaptive behavior domain, internalizing sub-domain, and other sub-domains. SLD children were also found to be significantly poor ($p<0.01$) on the following sub-domains of adaptive behavior: personal sub-domain (daily living skills domain), socialization domain, interpersonal relationship sub-domain (socialization domain), and coping skills sub-domain (socialization domain). On the expressive sub-domain (communication domain) and gross sub-domain (motor skills domain), SLD children scored significantly lower ($p<0.05$) than their non-SLD counterparts. Conclusions: The self-esteem of children with SLD is lower and they have poor adaptive behaviour when compared to children without SLD. Implication: Findings have implications for parents, teachers, and policymakers in the early identification of psychological issues in children with SLD as well as for introducing timely intervention programs to prevent adverse clinical outcomes.

Keywords: *Self-esteem, Adaptive Behaviour, Children, Specific Learning Disability*

INTRODUCTION

The term "specific learning disability" (SLD) refers to a dysfunction in one or more of the fundamental cognitive functions necessary to comprehend or use language, whether it be spoken or written. This disorder may cause problems with listening, speaking, thinking, reading, writing, spelling, or performing mathematical calculations. Dyslexia, executive function problems, perceptual difficulties, brain injury, minimal brain malfunction, and developmental aphasia are a few examples of specific learning disability categories.

Learning issues caused by physical challenges (visual, hearing, motor skills), emotional disturbance, cultural influences, or environmental or economic adversity are not considered to be part of SLD.

The notion (Individuals with Disabilities Education Act, 2004) makes reference to Specific Learning Disability, with the notion being that a specific disability must be determined in accordance with Federal rules in order to qualify for an IEP (Individual Education Plan).

The Rights of Persons with Disabilities Act of 2016 states that "Specific learning disabilities mean a heterogeneous group of conditions wherein there is a deficit in processing language, spoken or written, that may manifest itself as a difficulty to comprehend, speak, read, write, spell, or do mathematical calculations, and includes such conditions as perceptual disabilities, dyslexia, dysgraphia, dyscalculia, dyspraxia, and developmental aphasia" (Jahan, Singh, Kishore & Tom, 2019).

According to Sparrow, Balla, and Cicchetti (1984), adaptive behavior is the ability to carry out routine tasks that are necessary for social and personal self-sufficiency. In other words, adaptive abilities are the qualities that help a person eventually lead an independent life, retain social connections, and integrate into society. Adaptive abilities are highly correlated with age and are measured by effectiveness rather than aptitude.

Children who struggle with learning have low self-esteem, a sense of powerlessness when learning, problems making decisions, a low threshold for frustration, and difficulties adjusting to peers (Brook, 2001). Children who struggle academically also experience challenges in their personal and social lives (Rozario, 1991).

Individuals with learning disorders frequently display maladjustment, clinical maladjustment, emotional symptoms, and depression, which leads to behavioral issues (Martinez & Semrud-Clikeman, 2004; Kempe, Gustafson, & Samuelsson, 2011). Low levels of self-esteem and adjustment issues also have an impact on interpersonal relationships (Patil & Padakannaya, 2009).

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Researchers discovered the essence of resilience in infants exposed to numerous stresses during a longitudinal study (Luthar, 2003). Resilience is the ability to adjust to one's surroundings or circumstances, especially when they are challenging (Luthar, 2003). According to Panicker and Chelliah (2016), children and adolescents with specific learning disabilities possessed (75%) low levels of resilience.

In an effort to evaluate numerous data, Carnwale and Bawden (1992) discovered a link between behavioral issues and learning disabilities. They came to the conclusion that learning impairments and hostility were present in the classroom.

In 1992, LaGreea, Vaughn, Pearl, Swanson, and Malone reviewed a number of studies that indicated distinct learning disabilities had some kind of substantial relationship with students' social functioning.

Self-esteem levels are impacted by tendencies associated with reading disorders (dyslexia) (Gordon & Cullen, 2022).

Personal, academic, and social self-esteem were found to differ by gender (Ahmad, Imran, Khanam, & Riaz, 2013). Significant gender-based differences in self-esteem were also discovered by Moksnes and Espnes in 2013 to corroborate that conclusion. According to Moksnes & Espnes (2013), Sprecher, James & Avogo (2013), Tamini & Valibeygi (2011), and others, boys exhibit better self-esteem than girls. No sex or gender differences in self-esteem were detected, in contrast to findings from other thorough investigations (Tam, Lee, Har, and Pook, 2011; Pike, Evangelista, Doering, Eastwood, Lewis, and Child, 2012; Bhardwaj and Agarwal, 2013).

Student self-esteem is unaffected by specific learning disabilities (Sinead Woods, 2022). Self-esteem levels across students with learning disabilities were low (Shambhavi G, Rajeshweari N, Kenchappanavar, 2018).

Rationale for the study: While very little research has been done in the Bihar region, the majority of past studies have concentrated on the impairments of children with SLD. Information regarding the understudied SLD children in the Patna region may be enriched by the findings. Early detection may also aid in intervention, since studies show that children with learning difficulties frequently feel frustrated, experience emotional problems, and have difficulty adjusting, all of which can disrupt interpersonal relationships, which can, in turn, hinder academic success. Children with learning difficulties struggle with low self-esteem, a sense of incompetence when it comes to learning, difficulty making choices, a low threshold for frustration, and poor peer interactions.

Objective: To examine self-esteem, and adaptive behavior in children with specific learning disabilities (SLD) in comparison to children without specific learning disabilities (NSLD).

METHOD

Hypotheses:

1. Children with SLD and without SLD would not differ significantly in their self-esteem (in general, academic, social, and parental domains).
2. Children with SLD would not differ significantly in their adaptive behavior (communication, daily living skills, socializing, motor skills, and maladaptive behavior) than children without SLD (non-SLD children).

Design: A cross-sectional survey research was conducted with 100 school-going children drawn from several schools in Bihar state.

Sample: The sample for this study was drawn from the schools of Patna state following a purposive sampling technique. 100 children (N=100) ranging in age from 8 to 11 were included in the final sample. Fifty children with SLD and 50 of their counter-healthy children were screened from the schools using the screening tool, Specific Learning Disability Screening Questionnaire by Singh, (2007), (cut-off score being ≥ 4).

Inclusion criteria for SLD children:

1. According to the screening tool, the child must have SLD if he scores ≥ 4.
2. Child’s age must be in the range of 8–11 age
3. Having no other long-term illness
4. Having no significant prior medical or clinical background

Exclusion criteria for SLD children:

1. According to the screening tool, the child must have a score <4.
2. Aged 8 to 11 years.
3. With any other persistent illness
4. With any additional significant medical/clinical history

Tools used:

The following psychometrically sound questionnaires were used to test the hypotheses:

1. Specific Learning Disability Screening Questionnaire (SLD-CQ) (Sinha, 2007)- It consists of 12 items that are made for school-going children from class III to class VIII. Its reliability is 0.87.

2. Indian Adaptive Battle's Self-esteem Inventory for Children (SEIC) (Kumar, 2005)- It consists of 50 items. It is applicable for children from age 8 to 13. The split-half reliability coefficient for males is 0.92 and for females is 0.93, test-retest reliability coefficient for males and females is 0.90 and 0.92 respectively.
3. Vineland Adaptive Behaviour Scales-revised (Doll, E. A., 2005)- It was developed for the person age range from 0-90 years. It has 455 items which measure five domains of adaptive behavior. Internal consistency reliability for the Adaptive behaviour composite is 0.97 and Test-retest reliability for adaptive behaviour composite is 0.82.

Procedure: The sample was drawn following the purposive sampling technique with the help of structured questionnaires. Prior approval was taken from the school authorities and respective parents of the participating children for collecting data. Rapport was established with the participants and the informed consent was taken in both written and oral form from the parents as well as children.

The information was gathered in two stages. In the first stage, children with SLD were identified in several schools in Patna using the screening tool. After that, pertinent information was obtained from them. In the second phase, data was gathered from a comparative group of children without SLD. Their responses were kept confidential. When working with the study's human subjects, the ethical standards of the American Psychological Association (2010) were adhered to. For data handling and statistical analysis, SPSS version 26 was utilized.

Ethical approval: The ethical approval to conduct the present study was given by the concerned departmental committee of the respective department of the authors' university.

RESULTS

Table 1: Descriptive (mean, SD) and inferential statistics (t-test) assessing self-esteem among SLD and non-SLD children

Domains of Self-esteem	Descriptive and inferential statistics					
	Sample type	N	Mean	SD	t-test	Level of significance
General	**SLD**	50	11.5	3.6	2.47	p<0.05
	NSLD	50	13.08	2.7		
Social	**SLD**	50	5.26	1.35	0.69	p>0.05
	NSLD	50	5.24	1.55		
Academic	**SLD**	50	6.52	1.9	3.47	p<0.01
	NSLD	50	7.84	1.85		
Parental	**SLD**	50	6.16	1.67	3.36	p<0.01
	NSLD	50	7.28	1.65		
Overall Self-esteem	**SLD**	50	30.52	7.58	2.85	p<0.05
	NSLD	50	34.42	5.99		

Table 1 demonstrates that the self-esteem in children with SLD was significantly ($p<0.05$) lower (mean=30.52, SD=7.584) than that in children without SLD scored (mean=34.42, SD=5.997).

The general ($p<0.05$), academic ($p<0.01$), and paternal ($p<0.01$) self-esteem dimensions were significantly higher in children without SLD. In light of these findings, it can be said that the hypothesis, " Children with SLD and without SLD would not differ significantly in their self-esteem (in general, academic, social, and parental domains)" is unsupported by these results.

Table 2: Descriptives (mean & SD) and inferential statistics (t-test) assessing adaptive behaviour among children with and without SLD

Domain and sub-domain of Adaptive behaviour	Descriptive and inferential statistics					
	Sample type	N	Mean	SD	t-value	Significance value
Communication domain	SLD	50	170.92	2.892	1.370	p>0.05
	NSLD	50	171.76	3.230		
Receptive	SLD	50	37.46	1.147	0.99	p>0.05
	NSLD	50	37.48	0.863		
Expressive	SLD	50	103.42	2.269	2.016	P<0.05
	NSLD	50	104.30	2.092		
Written	SLD	50	30.04	1.538	0.185	p>0.05
	NSLD	50	29.98	1.696		
Daily living skills domain	SLD	50	143.34	2.264	0.405	p>0.05
	NSLD	50	143.14	2.657		
Personal	SLD	50	77.48	0.580	3.190	P<0.01
	NSLD	50	77.84	0.548		
Domestic	SLD	50	21.42	1.896	1.251	p>0.05
	NSLD	50	20.90	2.169		
Community	SLD	50	44.44	0.861	0.125	p>0.05
	NSLD	50	44.40	0.728		
Socialization domain	SLD	50	153.88	2.438	4.757	P<0.01
	NSLD	50	155.84	1.595		
Interpersonal relationships	SLD	50	67.54	1.729	3.386	P<0.01
	NSLD	50	68.50	1.015		
Coping skills	SLD	50	39.20	0.881	5.116	P<0.01
	NSLD	50	39.88	0.328		
Play and leisure time	SLD	50	47.14	0.904	1.915	p>0.05
	NSLD	50	47.46	0.762		
Motor skills domain	SLD	50	137.64	2.789	1.586	P>0.05
	NSLD	50	138.52	2.750		
Gross	SLD	50	75.34	1.996	2.491	P<0.05
	NSLD	50	76.22	1.502		
Fine	SLD	50	62.30	1.529	0.001	p>0.05
	NSLD	50	63.31	1.930		
Maladaptive behaviour domain	SLD	50	8.14	2.372	6.923	P<0.01
	NSLD	50	5.28	1.703		
Internalizing	SLD	50	2.38	1.028	2.918	P<0.01
	NSLD	50	1.86	0.729		
Externalizing	SLD	50	0.10	0.364	0.936	p>0.05
	NSLD	50	0.18	0.482		
Other	SLD	50	5.66	1.955	6.491	P<0.01
	NSLD	50	3.24	1.738		
Adaptive behaviour	SLD	50	605.78	7.665	2.240	P<0.05
	NSLD	50	609.26	7.868		

Result table 2 illustrates that children without SLD significantly ($p<0.05$) scored higher on adaptive behavior (mean=605.78, SD=7.665) than children with

SLD (mean=609.26, SD=7.868). Children with SLD reported significantly lower adaptive behaviour in the expressive subdomain of communication ($p<0.01$), personal subdomain of daily living skills ($p<0.01$), socialization domain ($p<0.01$), interpersonal relationships subdomain of socialization domain ($p<0.01$), and gross subdomain of motor skills ($p<0.05$) compared to their healthy counterparts. Children with SLD responded significantly worse on the internalizing subdomain of the maladaptive behavior domain ($p<0.01$), the other subdomain of the maladaptive behavior domain ($p<0.01$), and the maladaptive behavior domain's maladaptive behavior domain ($p<0.01$).

Thereby, based on the data in Table 2, it is possible to draw the conclusion that the findings do not support the hypothesis that "Children with SLD would not differ significantly in their adaptive behavior (communication, daily living skills, socializing, motor skills, and maladaptive behavior) than children without SLD (non-SLD children)."

DISCUSSION

The key purpose of the present research was to examine self-esteem and adaptive behaviour in children with SLD compared to their healthy non-SLD counterparts. The main hypotheses were that children with and without SLD would not differ significantly in their self-esteem and adaptive behavior. Formalized hypotheses were not supported by the findings of this study.

A lack of self-esteem and adaptable behavior in children has been linked to low academic accomplishment, which in turn causes negative academic self-concept and a sense of social inefficiency, according to prior research. From the results, it can be seen that there is a statistically significant difference in self-esteem between children with and without SLD. Children with SLD demonstrated marginally better self-esteem in one (social) of the four self-esteem dimensions. While these children have reported significantly lower self-esteem in the other three (general, academic, and parental) domains. SLD individuals have lower overall self-esteem than their healthy counterparts. According to studies, SLD children face rejection and disapproval more frequently (Raskind & Higgins 1995). Children with SLD often experience low self-esteem due to social rejection. But in contrast, some researchers found (Rajeshwari & Kenchappanavar, 2018; Patil & Padakannaya, 2009; Brook, 2001; Rozario, 1991), SLD children had higher self-esteem levels than NSLD children. Children with SLD experience lower self-esteem as a result of repeated failure. Children who struggle with reading have lower self-esteem (Gorden & Cullen, 2022). Further studies on children with SLD revealed that many of them suffered from feelings of low self-worth and incompetence and that many of them thought that their circumstances would not get easier. The stress of having a learning disorder is frequently manifested outwardly through clinical maladjustment, emotional symptoms index, and depression, which then leads to behavioral issues (Martinez and Semrud-Clikeman, 2004). Children without SLD behave more adaptively than children with SLD in the current study. Compared to SLD children, children without SLD exhibit more maladaptive behavior. The current investigation revealed a statistically significant difference in overall adaptive behavior between these two groups of children. Additionally, there were significant differences in the expressive subdomain of communication, personal subdomain of daily living skills, socialization and interpersonal relationship subdomain of the socialization domain, coping subdomain of the socialization, gross subdomain of the motor skills domain, and maladaptive behavior among SLD and non-SLD children. Two out of the five adaptive behavior domains and seven out of the fourteen subdomains were statistically significant. Children with SLD performed well in the receptive sub-domain of communication, written sub-domain of communication, daily skill sub-domain, domestic sub-domain of daily living skills, community sub-domain of daily living skills, maladaptive behavior sub-domain, internalization sub-domain of maladaptive behavior sub-domain, and other sub-domain of maladaptive behavior sub-domain. The majority of children with SLD will have limited social abilities, a lack of assertiveness, difficulty speaking in front of an audience, and an inability to connect and communicate with others in a social situation (Johnson, 2002). The findings of Carnwale and Bawden (1992) supported the findings of the result which stated that SLD children have more maladaptive behavior than their healthy children counterparts. They found that SLD is somehow related to aggression and classroom misconduct. SLD children also possess various behavioural difficulties (Carnwale & Bawden, 1992) and try to adjust to the situation but their learning difficulties hinders in it and it becomes maladjustment (Martinez & Semrud-Clikeman, 2004; Kempe, Gustafson & Samudsson, 2011). Specific learning disability not only affects their adaptive behaviour but also affect their interpersonal relationship (Patil & Padakannaya, 2009).

CONCLUSION

This study indicated significant variations in self-esteem and adaptive behavior between children with SLD and those without SLD.

SUGGESTION & IMPLICATIONS

It is crucial that parents and teachers are aware of the behavioral and emotional issues that children with specific learning disabilities experience. The diagnosis and treatment of SLD depend greatly on the participation of children, parents, and educators (Tuija Aro, Kenneth Eklund, Anna-kaija Eloranta, Timo Ahonen, & Leslie Rescorla, 2022). Thus, the findings have implications for the parents, teachers, and policymakers paving the path to early identification of psychological issues of children with SLD and timely intervention programs for preventing adverse clinical outcomes.

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MENTAL HEALTH SERVICES & CLINICAL PSYCHOLOGY IN INDIA: CALL FOR PAPERS

Special issue of IJCP, Vol. 50, September, 2023 issue to be published in the Golden Jubilee year of IJCP

Last date of submission of Paper for this special issue: 30th, October, 2023

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In the Golden Jubilee Year of IJCP this issue is planned to present contribution of the discipline of Clinical Psychology in the Mental Health services of the country with detailed account of work done since inception of Clinical Psychology in India, current status and future direction.

Papers are invited under various subsection of this Special issue; i.e., 1/. Child & Adolescent Mental Health, 2/. Mental Health of Adults & Elderly people, Community oriented services, Suicide & Suicide Prevention and any other area/topic related to Clinical Psychology, not mentioned here; but authors feel it's worth mentioning / publishing in this special issue.

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Happiness, self-compassion, and insomnia predicting academic achievement among middle school students with learning difficulty

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ABSTRACT

Students who do not have sufficient academic achievement suffer a great deal of associated issues. They spend a lot of time in academics and lose out on many other aspects of their life, affecting their well-being. This study attempts to develop an optimal functioning model of academic achievement through factors that are helpful for their well-being such as happiness and self-compassion. Also, the optimal influences of insomnia are indicated. 196 students from classes 5 to 7, of ages 11 to 14 years were assessed using the Bergen Insomnia Scale (Pallesen, et al, 2008), Self-Compassion Scale Youth Version (SCS-Youth) (Neff et al, 2021) and the Subjective Happiness Scale (Lyubomirsky, 1999). Response Surface Methodology using the design expert 13 is used to arrive at an optimal model. The model fitness indicates that high levels of happiness and compassion towards self, accompanied by low levels of insomnia optimizes academic achievement for students with difficulties in academics.

Keywords: *Happiness, self-compassion, insomnia, response surface methodology*

INTRODUCTION

The social order of today has become competitive. The present state of students with learning disabilities, slow learning capacities, or other learning issues is a matter of serious concern in our country where the value of academic accomplishment is emphasized. Failure in school is frequently associated with failure in all spheres of life, and students who experience it are frequently belittled. The lives of many of these young people are miserable in a variety of ways. They typically have to spend all of their waking hours studying and trying to catch up on their never-ending academic work because they are not permitted to engage in their hobbies. They already find this monotonous schedule to be stressful, so when there is no break from it, it spirals out of control and makes things worse. (Muthusamy & Sahu, 2020) Consequently, their sense of well-being drops dramatically. Though the incidence of diagnosed learning disabilities in India is around 10 to 12 percent of the school going population, a significant number of students are undiagnosed. (Oberoi, 2022)

Students who encounter learning difficulties exhibit low self-confidence levels; they begin questioning their abilities and consistently doubt themselves, thus feeling helpless. (Service, 2012) These children often devote significant amounts of time to completing their academic backlog, and the lack of proper leisure activities serves only to further restrict them. Such a life devoid of success often leads many students to experience depression and anxiety (Jothi & Anandaraj, 2017). Another issue that is found to disturb students with learning difficulties is lack of sleep or sleep disturbances. Insomnia is a common sleep disorder that affects people of all ages and backgrounds. It is particularly prevalent among students with learning difficulties, who often struggle with maintaining consistent and quality sleep patterns. Insomnia not only exacerbates their learning challenges but also affects their overall well-being and academic performance. Disturbed sleep is a major cause of poor performance in school and has adverse effects on cognitive functioning (Narasimhan, Anitha & Battula, 2020).

It is the need of the hour to identify certain positive traits that would function as protective factors against insomnia, stress, and eventual anxiety or depression among students with learning difficulties. Many factors, such as hope, happiness, optimism, resilience, courage, compassion, and empathy, would contribute to a student's sense of well-being. Self-compassion is one of many positive psychology constructs that is simple to cultivate. Self-compassion can indeed serve as a protective factor in the academic success of students with learning difficulties. Learning difficulties can create additional challenges and stress for learners, which can negatively influence their academic performance and total well-being. Moreover, self-compassion can help mitigate these negative effects and promote positive outcomes. Self-compassion when practiced regularly, can reduce self-blame and self-criticism, which is found to be very high in students with learning difficulties. (Nemati et al., 2021) By offering themselves self-compassion during times of stress, students can reduce anxiety and enhance their ability to cope effectively (Manavipour & Saeedian, 2016). Self-compassion encourages a mindset of

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growth, which indicates the belief that capabilities and multiple intelligences can be improved through practice and experience. Students with learning difficulties often face fixed mindset beliefs, perceiving their struggles as indicative of inherent limitations. Self-compassion helps students reframe their setbacks as opportunities for growth and learning, fostering a positive attitude towards challenges and promoting perseverance. Self-compassion promotes self-care and well-being, emphasizing the importance of taking care of one's physical and emotional needs (Willoughby & Evans, 2019). Students with learning difficulties may be prone to neglecting their well-being due to the demands of their academic challenges. By practicing self-compassion, students can prioritize self-care activities such as sufficient rest, relaxation, and engaging in activities they enjoy, which can enhance their overall academic performance, help cultivate better happiness, and reduce burnout. It is important for educators, parents, and students themselves to understand the value of self-compassion in supporting the academic achievement of students with learning difficulties. By promoting self-compassion, educational institutions can create an environment that fosters resilience, growth, and well-being, ultimately helping students overcome challenges and reach their full potential. (Ahmed & Raj, 2023)

This study attempts to optimize a model using the "Response Surface Methodology' (RSM), to try and locate the optimum levels of happiness, self-compassion and insomnia levels that will predict best possible academic scores.

An overview of available research studies was conducted. Children with learning disabilities are at a heightened risk for developing sleep disturbances and this in turn affects their functioning during day time (Wiggs, 2012) A study conducted by Wiggs & Stores (1996), establishes associations between sleep problems and challenging behavior as reported by parents. Incidentally, night waking as well as waking up early was reported in 44% of the children. The lack of sleep usually affects the prefrontal cortex of the brain, which is important for all forms of cognitive function. While sleep disturbances can cause learning trouble, there is also evidence that suggests that students with learning disabilities suffer from sleep related disorders. More specifically, the students with learning difficulties have a higher risk of developing breathing difficulties in sleep (Bernstein, 2021).

A very interesting study on the need for self-compassion to help in building self-advocacy, Stuntzner, (2014), reports that self-compassion is an underexplored area where disabilities are concerned and also reports evidence that increased self-compassion brings better self-advocacy skills among disabled. This study reports a model where self-compassion provides self-soothing from feelings of hurt or humiliation, reduces insecurities and judgmental thinking. A study reports that making parents aware of the right learning environment at school and at home for the student with learning difficulties are necessary for their well-being. Developing well-being and self-esteem through self-compassion for students and parents are effective in nurturing and fulfilling the emotionality of children with learning difficulties. (Ehmke & Phillips, 2016) Another recent study reports that self-compassion mediates the interaction between adverse social relationships and self-esteem among intellectually disabled students (Davies, et al., 2021). Abooei et al, (2021) recommends use of self compassion training for students with learning difficulties as this training improves their mental health by bringing about increased emotional regulation and reappraisal.

A qualitative study where Haigh et al., (2013) interviewed 20 learning disabled people who claimed to be happy. The participants indicated that they had life satisfaction due to independence in choices, their coping strategies to overcome sadness, and their ability to look at the brighter side of life with positivity and self-compassion made them happy. There are many studies that talk about physical disabilities and quality of life and happiness (*Rethinking Childhood Disabilities - Happiness vs Healthiness*, 2014; Valli, 2021), but very few studies research the happiness level in relation to learning disabled children. This study is thus innovative in bringing forth the concept of happiness as measured by subjective well-being to be a part of the optimal functioning model for students with learning difficulties. This study claims that it is a challenge for the students with learning difficulties to have a sense of well-being.

NEED FOR THE STUDY

Students with learning difficulties face a multitude of issues. They experience a constant state of stress in academics as they lag behind most of their classmates in their academic work, suffer low self-esteem and lack confidence, have poor social interaction with peers owing to lack of time and their own lack of esteem causing social withdrawal. This scenario affects their psychological well-being and as a result even if they do not have a diagnosed learning disability, they suffer all the psychological effects that a student with diagnosed learning disability may face. Moreover, they are shorthanded as any diagnosed student of learning disability may get the concessions provided during examinations, these students do not get any such concessions as extra time or scribe. Hence the students who are left undiagnosed suffer more. This study aims to develop an optimal model of functioning for such students, and further interventions can help them develop such an optimal model.

METHODOLOGY

The objectives for the present study are:

- To identify the level of insomnia, self-compassion and happiness among the students with learning difficulties
- To identify the associated academic achievement levels of these students with learning difficulties
- To establish a predictive model between insomnia, self-compassion, happiness and academic achievement of the students with learning difficulties.

HYPOTHESES

The hypotheses for the present study are as follows:

- There will be a significant correlation between insomnia, self-compassion, happiness and academic achievement of students with learning difficulties
- An optimal model comprising of low insomnia, high self-compassion and high levels of happiness predicting better academic achievement can be achieved for language, english, math and science performance of the students with learning difficulties

Sample

The sample for the present study comprises 196 students from classes 5 to 7th standard, (Age range= 11 to 14 years) all studying in public schools, all students having difficulty in academics, selected purposely after an initial survey of 500 students based on their academic performance in the past one year. All students had significant difficulty in academic performance indicated by poor marks scored in the past one year. The sampling technique used is purposive sampling.

Inclusion criteria

- Students of both genders were included
- Only students with poor academic performance for the past one year were included
- Only students from classes 5 to 7 were included

Exclusion criteria

- Students who had a poor academic performance due to certain physical ailments or any other significant reason were not included
- Students who were diagnosed as learning disabled were excluded
- Students who were not willing to participate in the study were excluded

Tools

The following tools were employed to collect data from the participants of the study:

- Informed consent form collecting consent to participate from students
- Parent consent form collecting consent from the parents
- School consent form collecting consent from the school
- The Bergen Insomnia Scale (Pallesen, et al, 2008) is a six item measure of clinical insomnia. This scale has the first three questions dedicated to onset of sleep, its maintenance and waking up earlier, while the last three questions pertain to day time difficulties due to poor sleep. The Cronbach alpha values 0.79, 0.87, and 0.80, respectively, when studied for 3 samples, one being the student population. The discriminant and convergent validity values were also sufficient (Pallesen, et al, 2008)
- The Self-Compassion Scale Youth Version (SCS-Youth) (Neff et al, 2021) consists of 17 items that give a measure of self-compassion of youth. This scale can be used in the age range of 10 to 14 years and has been specifically standardized for use with middle school students. The authors of the scale have established test-retest reliability and construct validity of the scale (Neff et al, 2021)
- The Subjective Happiness Scale (Lyubomirsky, 1999): This scale uses four items, with a rating scale ranging from 1 (less happy) to 7 (happier). More than 14 studies have proved the reliability and validity of this scale among adults, school students and college students. Cronbach alpha values of 0.77 have been reported (Lyubomirsky, S. 2020). Another study reported the Cronbach alpha values of 0.84 for a translated version (Alquwez et al. 2021)
- Academic performance: Average marks for the whole year were collected in Language, English, Math and Science subjects.

All the 196 participants of the study were administered the aforesaid tools. The data was collected and analyzed using the Design Expert Software version 13 for Response Surface Methodology (RSM) for process optimization.

RESULTS

The researchers choose six factors and four responses; that is six independent variables or factors are gender, age, class, happiness, self-compassion and insomnia.

The four dependent variables or responses are academic scores of language, english, math and science. The tables below show the distribution analysis of all the variables.

Table 1: ***Distribution analysis of independent variables/factors***

Factor	Name	Type	Mini	Maxi	Mean	Std. Dev.
A	Gender	Categoric	Female	Male	**Levels:**	2.00
B	Age	Numeric	11.00	14.00	12.56	0.7788
C	Class	Numeric	5.00	7.00	6.19	0.6187
D	Happiness	Numeric	1.00	35.00	19.49	6.47
E	Self –compassion	Numeric	3.00	48.00	25.17	8.42
F	Insomnia	Numeric	1.00	18.00	9.39	4.55

Table 2: ***Distribution analysis of dependent variables/responses***

Response	Name	Observations	Mini	Maxi	Mean	Std. Dev.	Ratio
R1	Language	196.00	22	80	57.15	16.38	3.64
R2	English	196.00	26	78	58.51	13.13	3.00
R3	Math	196.00	23	64	49.59	9.20	2.78
R4	Science	196.00	13	80	48.63	10.43	6.15

The above tables 1 and 2 show the mean and standard deviation values of all the variables. Next, the Pearson correlation values were correlated. The tables below show the correlation values.

Table 3: ***Pearson's correlation between variables***

Variables	Happiness	Self-compassion	Insomnia	Lang	English	Math	Science
Happiness	1	0.232*	- 0.276*	0.078	0.072	0.182	0.077
Self- compassion	0.232*	1	- 0.573**	0.059	0.093	0.205*	0.248*
Insomnia	- 0.276*	- 0.573**	1	- 0.170	- 0.293*	- 0.27*	- 0.271*
Language	0.0782	0.059	- 0.170	1	0.499**	0.354*	0.243*
English	0.072	0.093	- 0.293*	0.499**	1	0.543**	0.544
Math	0.182	0.205*	- 0.277*	0.354*	0.543**	1	0.570**
Science	0.0770	0.248*	- 0.271*	0.243*	0.544**	0.570**	1

*= Significant at 0.05 level
**= Significant at 0.01 level

As can be seen in the above table, there is a significant negative correlation between insomnia and all the other variables except language scores, which indicates that as insomnia increases, the levels of happiness, self-compassion decreases and the scores of english, math and science decrease. It is significant to note that language scores do not have significant correlations with either happiness, self-compassion or insomnia. Thus the hypothesis, "There is a significant correlation between insomnia, self-compassion, happiness and academic achievement of students with learning difficulties" is partially accepted.

Further, the ANOVA models for Reduced Quadratic model were computed for three factors namely happiness, self-compassion, insomnia and the response of Language, English, Math and Science respectively.

1. **Language:** The ANOVA model for reduced quadratic model was calculated for language scores. The ANOVA table, model fit statistics and coefficients with VIF (Variance Inflation Factor) is presented below. The perturbation plot and optimization graphs are also seen below:

Table 4. a: ***ANOVA for happiness, self-compassion and insomnia for Language scores***

Source	Coefficients	Sum of Squares	df	Mean Square	F-value	p-value	Significance
Model		6265.73	4	1566.43	6.49	< 0.0001	significant
Happiness		217.77	1	217.77	0.9029	0.3432	not significant
Self-compassion		5.84	1	5.84	0.0255	0.8734	not significant
Insomnia		**2457.27**	**1**	**2457.27**	**10.19**	**0.0017**	**significant**
Residual		46069.67	191	241.20			
Lack of Fit		45379.17	188	241.38	1.05	0.5841	not significant
Pure Error		690.50	3	230.17			
Core Total		52335.41	195				
R^2	0.1197						
Adjusted R^2	0.1013						
Predicted R^2	0.0636						
Adeq. Precision	12.6487						

- The **Model F-value** of 6.49 implies the model is significant. There is only a 0.01% chance that an F-value this large could occur due to noise.
- The **Lack of Fit F-value** of 1.05 implies the Lack of Fit is not significant relative to the pure error.
- There is a **58.41% chance** that a Lack of Fit, F-value could occur due to other causes. Non-significant lack of fit is indicative of good fit.

The table above shows that the model is fit. Only insomnia shows a significant difference in the language scores. It can be interpreted from the findings above that insomnia accounts for 58.41% of the academic performance in language. The model validation statistic, lack of fit is seen to be not significant, which is an indicator of a good model fit. The formula for lack of fit is given below:

Lack of Fit F-test = Lack of fit MS
----
where MS= Mean Square
Pure Error MS

- The **Predicted R^2** of 0.0636 is in reasonable agreement with the **Adjusted R^2** of 0.1013; i.e. the difference is less than 0.2.
- **"Adequate Precision** measures the signal to noise ratio. A ratio greater than 4 is desirable.
- The obtained ratio of **12.649 indicates an adequate signal**.
- "This model can be used to navigate the design space"

The above table indicates that the model has an adequate fitness statistic. The R^2 values are however very low, showing only a mild predictive ability. This can be due to the fact that happiness when taken separately does not have a significant predictive ability, but a combination of happiness and insomnia have higher model fit.

Table 4.b.: ***Coefficients in Terms of Coded Factors (Sum Contrasts) for Language Scores***

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	63.41	1	1.86	59.75	67.08	
Happiness	2.91	1	3.06	-3.13	8.94	1.10
Insomnia	-7.17	1	2.25	-11.61	-2.74	1.17

- "The coefficient estimate represents the expected change in response per unit change in factor value when all remaining factors are held constant. The intercept in an orthogonal design is the overall average response of all the runs.
- The coefficients are adjustments around that average based on the factor settings. When the factors are orthogonal the VIFs are 1; VIFs greater than 1 indicate multi- collinearity, the higher the VIF the more severe the correlation of factors. As a rough rule, VIFs less than 10 are tolerable."

The above table indicates that Variance Inflation Factor (VIF) is greater than 1, but nearer to 1indicating multi-collinearity. This can be due to the reason that the independent variables in the study are correlated. It has already been shown in the Table 3, that happiness and self-compassion both show a significant negative correlation with insomnia. Multiple linear regression hereby show that happiness and insomnia significantly predict the language scores. The fitted regression model was: Language Score= 63.41 + 2.91(happiness) -7.17 (Insomnia)

That is if a student is happy, it adds 2.91 to his/her language score, but having insomnia reduces the score by 7.17. The overall regression was statistically significant (R^2=0.119, F (4, 191) =6.49, p =<.000.

1.1. Optimization graphs: The contour plot and the 3D graphical representations (Figure 1 and 2 respectively) showing the optimization values of the language scores plotted for happiness and insomnia values respectively. Both the plots again indicate that for the highest possible language score (<60), the happiness level should be high (<25) and the insomnia level (>6) should be low. The best interaction effect for maximum language scores are shown.

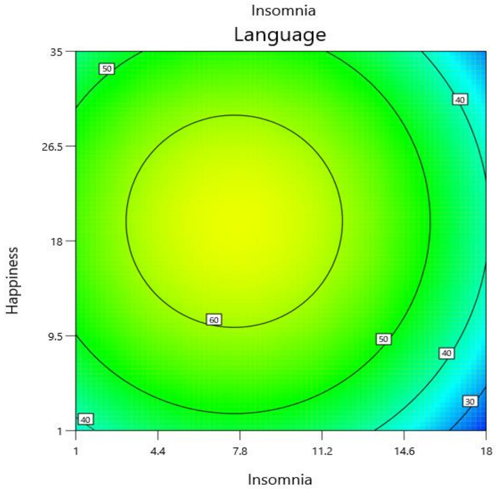

Figure 1. ***Contour Plot of insomnia and happiness values for optimum language scores***

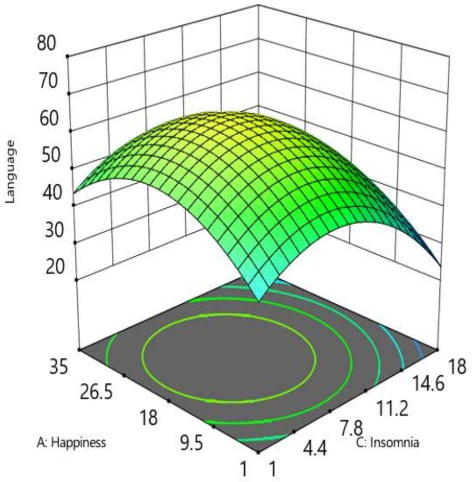

Figure 2. ***3D Surface graph of insomnia and happiness values for optimum language scores***

As can be seen in the above graphical optimization, for a score of above 60 in language, the happiness score should be 25.5 and the insomnia score should be only 6. As can be seen in the contour plot as the happiness levels go down and the insomnia levels go up, the scores go below 50 and then 40 respectively as can be seen flagged.

2. English: The ANOVA model for reduced quadratic model was calculated for language scores. The ANOVA table, model fit statistics and coefficients with VIF (Variance Inflation Factor) is presented below. The perturbation plot and optimization graphs are also seen below:

Table 5. a.: ***ANOVA for happiness, self-compassion and insomnia for English scores***

Source	Coefficients	Sum of Squares	df	Mean Square	F-value	p-value	Significance
Model		6238.08	6	1039.68	7.17	<0.001	significant
Happiness		11.66	1	11.66	0.0804	0.7770	not significant
Self-compassion		50.20	1	50.20	0.3462	0.5570	not significant
Insomnia		**3513.26**	**1**	**3513.26**	**24.23**	**<0.001**	**significant**
Residual		27404.92	189	145.00			
Lack of Fit		27181.92	186	146.14	1.97	0.3232	not significant
Pure Error		223.00	3	74.33			
Core Total		33642.99	195				
R^2	0.1854						
Adjusted R^2	0.1596						
Predicted R^2	0.1155						
Adeq. Precision	13.1312						

- The **Model F-value** of 7.17 implies the model is significant. There is only a 0.01% chance that the F-value could occur due to any other chance.
- The **Lack of Fit F-value** of 1.97 implies the Lack of Fit is not significant relative to the pure error
- There is a **32.32% chance** that a Lack of Fit, F-value could occur due to any other chance. Non-significant lack of fit is a good fit.

  The table above shows that the model is fit. Only insomnia shows a significant difference in the English scores. It can be interpreted from the findings above that insomnia accounts for 32.32% of the academic performance in English. The model validation statistic, lack of fit is seen to be not significant, which is an indicator of a good model fit.

- The **Predicted R^2** of 0.1854 is in reasonable agreement with the **Adjusted R^2** of 0.1596; i.e., the difference is less than 0.2.
- **"Adequate Precision** measures the signal to noise ratio. A ratio greater than 4 is desirable. "
- The obtained ratio of **13.1312 indicates an adequate signal**.
- "This model can be used to navigate the design space"

The above table indicates that the model has an adequate fitness statistic. The R^2 values are however low, showing only a mild predictive ability. This can be due to the fact that happiness and self-compassion when taken separately does not have a significant predictive ability, but a combination of happiness, self-compassion, and insomnia have higher model fit.

Table 5.b.: ***Coefficients in Terms of Coded Factors (Sum Contrasts) for English Scores***

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	63.69	1	1.47	60.78	66.60	
Happiness	0.6774	1	2.39	-4.03	5.39	1.11
Self-compassion	-1.71	1	2.90	-7.43	4.01	1.58
Insomnia	-10.19	1	2.07	-14.27	-6.11	1.65
Happiness*Self-compassion	-10.52	1	7.96	-26.21	5.18	1.18
Happiness²	-13.93	1	4.64	-23.09	-4.77	1.02
Insomnia²	-10.39	1	3.31	-16.91	-3.86	1.14

- "The coefficient estimate represents the expected change in response per unit change in factor value when all remaining factors are held constant. The intercept in an orthogonal design is the overall average response of all the runs."
- "The coefficients are adjustments around that average based on the factor settings. When the factors are orthogonal the VIFs are 1; VIFs greater than 1 indicate multi- collinearity, the higher the VIF the more severe the correlation of factors. As a rough rule, VIFs less than 10 are tolerable."

  The above table indicates that Variance Inflation Factor (VIF) is greater than 1, but nearer to 1indicating multi-collinearity. This can be due to the reason that the independent variables in the study are correlated. It has already been shown in the Table 3, that happiness and self-compassion both show a significant negative correlation with insomnia.

  Multiple linear regression hereby show that happiness and insomnia significantly predict the English scores. The fitted regression model was: English Score= 63.69 + 0.67(happiness) -1.71 (self-compassion) -10.19 (Insomnia)

That is if a student is happy, it adds 0.67 to his/her English score, but having insomnia reduces the score by 10.19. The overall regression was statistically significant (R^2=0.1854, F(6, 189)=7.17, p =<.000.

2.1. Optimization graphs: The contour plot and the 3D graphical representations (Figure 3 and 4 respectively) showing the optimization values of the English scores plotted for happiness, and self-compassion values respectively. Both the plots again indicate that for the highest possible English score (<60), the happiness level should be high (<25) and the self-compassion level (<39) also should be high. To note that only the best 2 predictors for the English scores are shown.

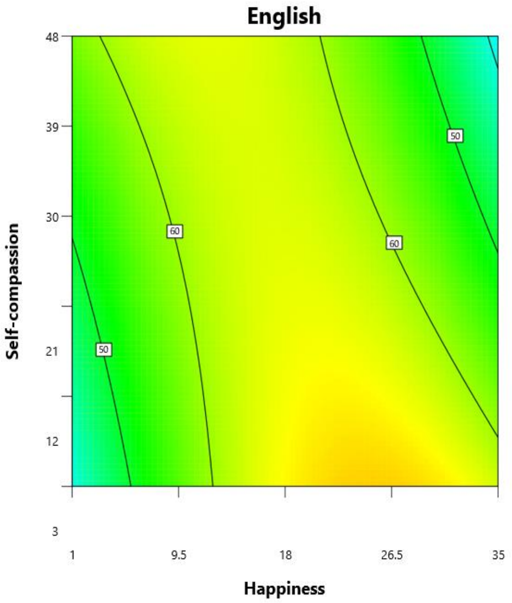

Figure 3. ***Contour Plot of happiness and compassion values for optimum English scores***

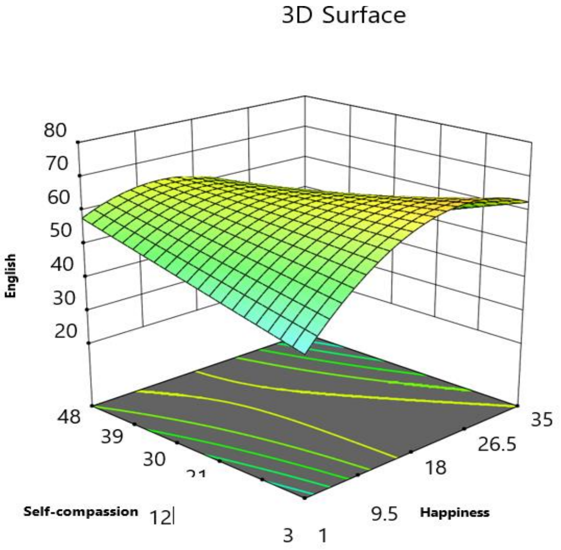

Figure 4. ***3D Surface graph of happiness and self-self-compassion values for optimum English*** scores

As can be seen in the above graphical optimization, for a score of above 60 in English, the happiness score should be 35 and the self-compassion score should be 39. As can be seen in the contour plot as the happiness levels go up and the self-compassion levels go up, the scores go above 60 as can be seen flagged in the contour plot.

3. Math: The ANOVA model for reduced quadratic model was calculated for language scores. The ANOVA table, model fit statistics and coefficients with VIF (Variance Inflation Factor) is presented below. The perturbation plot and optimization graphs are also seen below:

Table 6. a.: ***ANOVA for happiness, self-compassion and insomnia for Math scores***

Source	Coefficients	Sum of Squares	df	Mean Square	F-value	p-value	Significance
Model		1748.83	4	437.21	5.66	0.0003	significant
Happiness		235.97	1	235.97	3.06	0.0821	not significant
Self-compassion		14.72	1	14.72	0.1906	0.6629	not significant
Insomnia		619.74	1	619.74	8.02	0.0051	significant
Residual		14752.70	191	77.24			
Lack of Fit		14512.70	188	77.20	0.9649	0.6223	not significant
Pure Error		240.00	3	80.00			
Core Total		16501.53	195				
R^2		0.1060					
Adjusted R^2		0.0873					
Predicted R^2		0.0572					
Adeq. Precision		10.4647					

- The **Model F-value** of 5.66 implies the model is significant. There is only a 0.01% chance that the F-value could occur due to any other cause.
- The **Lack of Fit F-value** of 0.97 implies the Lack of Fit is not significant relative to the pure error.
- There is a **62.23% chance** that a Lack of Fit, F-value could occur due to other causes. Non-significant lack of fit is considered a good fit.

The table above shows that the model is fit. Only insomnia shows a significant difference in the math scores. It can be interpreted from the findings above that insomnia accounts for 62.23% of the academic performance in math. The model validation statistic, lack of fit is seen to be not significant, which is an indicator of a good model fit.

- The **Predicted R^2** of 0.1060 is in reasonable agreement with the **Adjusted R^2** of 0.0873; i.e. the difference is less than 0.2.
- **"Adequate Precision** measures the signal to noise ratio. A ratio greater than 4 is desirable. "
- The obtained ratio of **10.4647 indicates an adequate signal**.
- "This model can be used to navigate the design space"

The above table indicates that the model has an adequate fitness statistic. The R^2 values are however low, showing only a mild predictive ability. This can be due to the fact that happiness and self-compassion when taken separately does not have a significant predictive ability, but a combination of happiness, self-compassion, and insomnia have higher model fit.

Table 6.b.: ***Coefficients in Terms of Coded Factors (Sum Contrasts) for math scores***

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	50.03	1	0.7595	48.54	51.53	
Happiness	3.04	1	1.74	-0.3911	6.48	1.11
Self-compassion	0.9096	1	2.08	-3.20	5.02	1.53
Insomnia	-4.23	1	1.49	-7.18	-1.29	1.61
Self-compassion* Insomnia	6.64	1	3.73	-0.7098	13.99	1.07

- "The coefficient estimate represents the expected change in response per unit change in factor value when all remaining factors are held constant. The intercept in an orthogonal design is the overall average response of all the runs."
- "The coefficients are adjustments around that average based on the factor settings. When the factors are orthogonal the VIFs are 1; VIFs greater than 1 indicate multi- collinearity, the higher the VIF the more severe the correlation of factors. As a rough rule, VIFs less than 10 are tolerable."

The above table indicates that Variance Inflation Factor (VIF) is greater than 1, but nearer to 1indicating multi-collinearity. This can be due to the reason that the independent variables in the study are correlated. It has already been shown in the Table 3, that happiness and self-compassion both show a significant negative correlation with insomnia.

Multiple linear regression hereby show that happiness and insomnia significantly predict the math scores. The fitted regression model was:

Math Score= 50.03 + 3.04 (happiness) +0.90 (self-compassion) -4.23 (Insomnia)

That is if a student is happy, it adds 3.04 to his/her math score, but having insomnia reduces the score by 4.23. The overall regression was statistically significant (R^2=0.1060, F(4, 191)=5.66, p =<.000.

3.1. Optimization graphs: The contour plot and the 3D graphical representations (Figure 5 and 6 respectively) showing the optimization values of the math scores plotted for happiness, and self-compassion values respectively. Both the plots again indicate that for the highest possible math score (<55), the self-compassion level should be high (<30) and the insomnia level (>6) also should be low. To note that only the best 2 predictors for the math scores are shown.

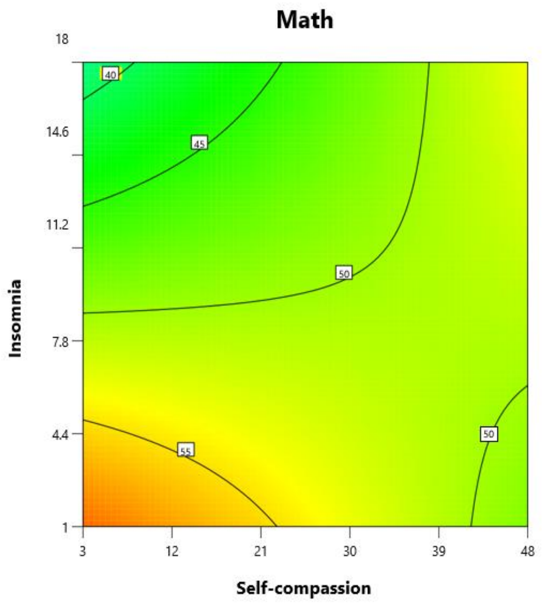

Figure 5. ***Contour Plot of self-compassion and insomnia values for optimum math scores***

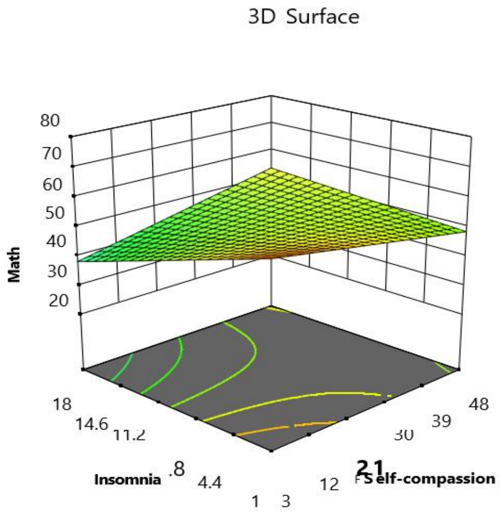

Figure 6. ***3D Surface graph of insomnia and self-compassion values for optimum math scores***

As can be seen in the above graphical optimization, for a score of above 55 in math, the self-compassion score should be 30 and the insomnia score should be 6. As can be seen in the contour plot as the self-compassion levels go up, the insomnia levels go down, the scores go above 55 as can be seen flagged in the contour plot.

4. Science: The ANOVA model for reduced quadratic model was calculated for language scores. The ANOVA table, model fit statistics and coefficients with VIF (Variance Inflation Factor) is presented below. The perturbation plot and optimization graphs are also seen below:

Table 7. a.: ***ANOVA for happiness, self-compassion and insomnia for Science scores***

Source	**Coefficients**	**Sum of Squares**	**df**	**Mean Square**	**F-value**	**p-value**	**Significance**
Model		3090.63	5	618.13	6.48	<0.0001	significant
Happiness		1.61	1	1.61	0.0168	0.8969	not significant
Self-compassion		341.07	1	341.07	3.58	0.0602	not significant
Insomnia		926.66	1	926.66	9.71	0.0021	significant
Residual		18124.92	190	95.39			
Lack of Fit		17908.92	187	95.77	1.33	0.4774	not significant
Pure Error		216.00	3	72.00			
Core Total		21215.55	195				
R^2	0.1457						
Adjusted R^2	0.1232						
Predicted R^2	0.0919						
Adeq. Precision	13.5177						

- The **Model F-value** of 6.48 implies the model is significant. There is only a 0.01% chance that the F-value could occur due to any other cause.
- The **Lack of Fit F-value** of 1.33 implies the Lack of Fit is not significant relative to the pure error.
- There is a **47.74% chance** that a Lack of Fit, F-value could occur due to chance. Non-significant lack of fit is indicative of good fit.

The table above shows that the model is fit. Only insomnia shows a significant difference in the math scores. It can be interpreted from the findings above that insomnia accounts for 47.74% of the academic performance in science. The model validation statistic, lack of fit is seen to be not significant, which is an indicator of a good model fit.

- The **Predicted R²** of 0.1457 is in reasonable agreement with the **Adjusted R²** of 0.1232; i.e. the difference is less than 0.2.
- **"Adequate Precision** measures the signal to noise ratio. A ratio greater than 4 is desirable. "
- The obtained ratio of **13.5177 indicates an adequate signal**.
- "This model can be used to navigate the design space"

The above table indicates that the model has an adequate fitness statistic. The R2 values are however low, showing only a mild predictive ability. This can be due to the fact that happiness and self-compassion when taken separately does not have a significant predictive ability, but a combination of happiness, self-compassion, and insomnia have higher model fit.

Table 7.b.: ***Coefficients in Terms of Coded Factors (Sum Contrasts) for Science scores***

Factor	**Coefficient Estimate**	**df**	**Standard Error**	**95% CI Low**	**95% CI High**	**VIF**
Intercept	49.96	1	0.8468	48.29	51.63	
Happiness	-0.2530	1	1.95	-4.10	3.59	1.13
Self-compassion	4.51	1	2.38	-0.1947	9.21	1.63
Insomnia	-5.22	1	1.67	-8.52	-1.91	1.64

- "The coefficient estimate represents the expected change in response per unit change in factor value when all remaining factors are held constant. The intercept in an orthogonal design is the overall average response of all the runs."
- "The coefficients are adjustments around that average based on the factor settings. When the factors are orthogonal the VIFs are 1; VIFs greater than 1 indicate multi- collinearity, the higher the VIF the more severe the correlation of factors. As a rough rule, VIFs less than 10 are tolerable."

The above table indicates that Variance Inflation Factor (VIF) is greater than 1, but nearer to 1indicating multi-collinearity. This can be due to the reason that the independent variables in the study are correlated. It has already been shown in the Table 3, that happiness and self-compassion both show a significant negative correlation with insomnia.

Multiple linear regression hereby show that happiness and insomnia significantly predict the math scores. The fitted regression model was:

Math Score= 49.96 – 0.253 (happiness) +4.51 (self-compassion) -5.22 (Insomnia)

That is if a student has self-compassion, it adds 4.51 to his/her science score, but having insomnia reduces the score by 5.22. The overall regression was statistically significant (R^2=0.1457, F(5, 190)=6.48, p =<.000.

4.2. Optimization graphs: The contour plot and the 3D graphical representations (Figure 7 and 8 respectively) showing the optimization values of the science scores plotted for happiness, and self-compassion values respectively. Both the plots again indicate that for the highest possible math score (<60), the self-compassion level should be high (<39) and the happiness level (<35) also should be high. To note that only the best 2 predictors for the science scores are shown.

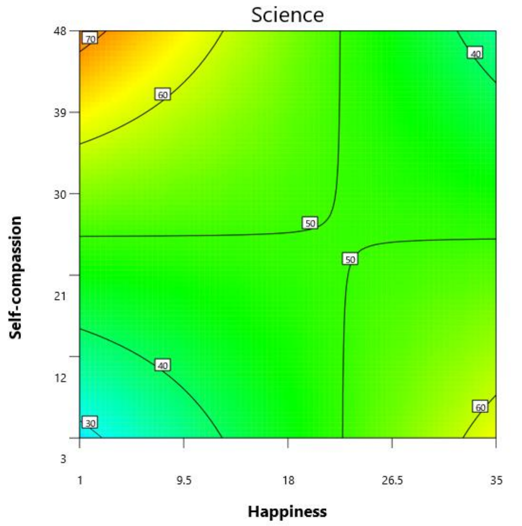

Figure 7. ***Contour Plot of self-compassion and happiness values for optimum science scores***

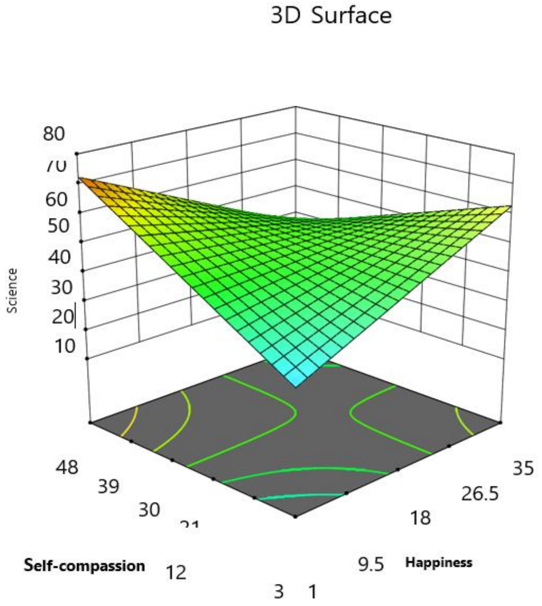

Figure 8. ***3D Surface graph of happiness and self-compassion science scores***

As can be seen in the above graphical optimization, for a score of above 60 in science, the self-compassion score should be 39 and the happiness score should be 35. As can be seen in the contour plot as the self-compassion levels go up, the scores go above 60 as can be seen flagged in the contour plot.

The above RSM optimization analysis for each of the subjects show that there is an optimum score that can be achieved against each of the independent variables taken up for study. The findings are summarized under table 8.

Table 8: ***Summarization of the optimization achieved in the model***

Subjects	Scores	Happiness	Self-compassion	Insomnia
Language	>60	High (25.5)	No major effect	Low (<6)
English	>60	High (35)	High (39)	Low (<6)
Math	>55	High (30)	No major effect	Low (<6)
Science	>60	High (39)	High (39)	Low (<6)

Moreover, from the ANOVA tables, it is clear that insomnia is a significant predictor of academic achievement. Higher the insomnia, lower is the academic achievement scores. Happiness and self-compassion show more interaction effects.

Hence the hypothesis, "An optimal model comprising of low insomnia, high self-compassion and high levels of happiness predicting better academic achievement can be achieved for language, english, math and science performance of the students with learning difficulties" is accepted.

DISCUSSION

The results section presented above show that the academic achievement scores in language, english, math and science are significantly affected by insomnia. Students who suffer from higher levels of insomnia, get lower scores. Also, the happiness and self-compassion scores show an interaction effect on the academic scores. Both happiness and self-compassion when present together have a better effect on the academic scores of the students with learning difficulties. Similar findings were reported by Moussa & Ali, (2022), where they reported happiness to be clearly and positively associated with academic success. A supportive study by CAMHS (Child and Adolescent Mental Health Service) supports young people's mental health and wellbeing in North Derbyshire, reports that there is a dire need for parents and caretakers of the children with learning difficulties to introduce a sleep hygiene and compassion in a relatable and easy framework, a routine that is easy to follow, to help them fall asleep. This includes a pleasant bed time routine, visualizing time tables and making workable plans that will help to motivate them. A similar earlier report (Contributor, 2005) in the Nursing Times, shows the association between severe learning difficulties and sleep disturbances.

Insomnia is one of the predictors for poor academic achievement. Especially, when the students have difficulty in learning, their lack of sleep and disturbance in sleep only complicates the issue. Similarly, self-compassion plays a protective role and supports academic success. (Landgraf, 2013) A supportive study reports that teaching self-compassion to students with learning disabilities decreases their sense of loneliness and increases their subjective vitality, thus enthusing them to perform better. (Shirani et al., 2020) It has been reported that persons with high levels of self-compassion are kind and not judgemental about their mistakes, at the same time recognising that failure is just another human experience, they feel bad about failure, but do not let themselves be controlled over negative emotions. (Chen, 2018, Zhao et al., 2021)

The journey of academics gives different success to different students. But, when the student faces learning difficulty, the journey itself through academics becomes more cumbersome. To negate the burdens of learning, this study shows an optimal model, where a combination of happiness and self-compassion has positive effects on academic achievement. A lesser level of insomnia is also seen as helpful in academic achievement.

CONCLUSIONS

The following conclusions can be drawn from the present study.

- There is a significant negative correlation between happiness and insomnia; and self-compassion and insomnia; while there is a significant positive correlation between happiness and self-compassion among students with learning difficulty.
- Optimization through response surface methodology, brings an optimal functioning model which shows, high happiness, high self-compassion and low insomnia to be optimal to better academic achievement in the four subjects measured namely language, english, math and science.

Limitations of the study

This study uses sample only from the middle school namely the classes 5th to 7th standards from two public schools. More students from higher classes and diverse schools could give a better understanding of the factors and responses and their interactions.

Implications for further research

Further research should focus on developing methodologies and interventions to build the happiness levels of students with learning difficulties. Training students on self-compassion and training parents to pay more attention to the need for proper sleep for their children would go a long way to ease this academic burden. Overall, it can be concluded effectively that happiness and self-compassion have a positive effect on academic achievement, while insomnia experienced has a negative effect on academic achievement of middle school students with learning difficulties.

DECLARATIONS

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A Study on Resilience and Quality of Life among Differently Abled Persons

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ABSTRACT

Background: The transformational journey of disability from pathology (physical limitation) to consideration within the domain of positive psychology is driven by the principle of normalization and community inclusion approach that has widen this psycho-social construct towards overall QOL and well-being among differently abled persons (Divyang). Aim & Objectives: The present study intends to examine the resilience and quality of life and to ascertain the significant relationship between these two variables among differently abled persons. Method: The correlational research study was conducted on a sample of 60 differently abled people (both working and non-working male and female; age range 25–50 years) with locomotive disabilities drawn from the state of Uttar Pradesh through purposive sampling. WHOQOL Brief and Resilience scale of Dr. Vijaya Lakshmi & Dr. Shruti Narain was used to measure quality of life and resilience respectively. Result: Findings establish a substantial relationship between the dimensions of resilience and quality of life as well as the influence of resilience on quality of life. Resilience was positively correlated with the Quality of life. QOL is found to be significantly influenced by the various dimensions of resilience. Conclusion: Despite of disability a good amount of resilience can ensure a high level of quality of life. The findings of the study have practical implications for improving the differently abled person's attitude towards themselves in a positive way and for planning intervention for them to deal with various psychological issues.

Keywords: *Resilience, Disability, Quality of Life and Well-being.*

INTRODUCTION

Disability is very common. It is not significantly different from what is normal. One cannot be isolated or restricted openly or covertly due to differences in physical appearance with other people. Disability lies in spirit. Individuals can feel disabled only when they consider themselves disabled in their mind. It is true that the group of differently abled persons have been hardest hit by the stereotypes and prejudices around entire the world, just like other marginalized and vulnerable social groups. They have been discriminated by the society. Consequently, they experience prejudice and social exclusion. Apart from physical problems they come across various mental issues such as stress, anxiety, depression, isolation and low self-esteem in comparison to normal population (Mushtaq1 & Akhouri, 2016) and they also face difficulty in getting jobs due to lack of employment and their mobility limitation (Rozali et al., 2017). World Health Organization (WHO) defines disability and according to it, "Disability is any restriction or lack (resulting from an impairment) of ability to perform in a manner or within the range considered normal for a human being". The term "disability" has many different meanings; the global burden of disease however, uses the term disability to refer to loss of health, where health is conceptualized in terms of functioning capacity in a set of health domains such as mobility, cognition, hearing, and vision. Further The National Sample Survey Organization (NSSO) defines disability as "Any restriction or lack of abilities to perform an activity in the manner or within the range considered normal for human being". Beyond these definitions Disability is something else in individual's point of view. It comes under social category rather than medical. The social concept of disability presents the idea that society has put up barriers, either structurally or in terms of attitudes, that have an impact on a person with a disability (Kasthuri et al., 2010). Disability could be seen distinctly as a social phenomenon within most existing societies where differently abled persons interact with others and face many difficulties such as physical, social, emotional as well as environmental in some extent in different social context (Abraham, 2018). These difficulties have been internalized by them in their perception and sufferings have been accepted as their destiny. It causes detrimental impact on their well-being and quality of life which is also found in some research studies that physical disability causes low level of QOL especially impact negatively on its psychological domain (Kuvalekar et al., 2015). It reflects that there is a need to change the attitude of other people towards the differently abled people in society, and as well as the physically challenged people, they also need to change their own attitude towards themselves. It is necessary to concentrate on certain positive psychological features of people in order to help them recognise the psychological traits and characteristics that contribute to having a positive outlook on their own lives. People would have a greater chance of improving their QOL and leading better lives if they were effective in recognising and attempting to cultivate these qualities. It is highly important and vital

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for people with disabilities because, after being subjected to prejudice and discrimination in society, they must come to terms with their own potential and value. After all, they are also a part of a nation, and as citizens of any country, their growth, development, and productivity assign a value to the advancement of the particular country. The National Policy for Persons with Disabilities (2006) recognises that persons with disabilities are valuable human resources for the country and seeks to create an environment that provides equal opportunities, protection of their rights, and full participation in society. To facilitate the national objectives, there is a need for the collection, compilation, and analysis of data on disability. WHO has advised every nation to conduct studies on the quality of life and well-being of people with physical disabilities. Quality of life can be understood in terms of physical health, mental health, social belongings, education, environment, safety and security and many more aspects. It is a broader concept including subjective and multidimensional measures such as physical, social, emotional and functional well-being (Cella, 1994). The World Health Organization defines QOL as "an individual's perception of their position in their life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" (WHO, 2004). On the other hand many studies found that there is negative impact of disability on the QOL of differently abled people and a substantial difference has found in living condition and quality of life between people with physical disability and people without physical disability (Arango Restrepo, 2015). Where disability is causing negative impact on the quality of life of the physically challenged people, resilience plays a substantial role in improving their QOL (Terrill et al., 2016). It is considered as a logical step to improve QOL of person with disability and their family members (Alriksson-Schmidt et al., 2006).

Resilience is the one of the psychological factor that helps people to be confident, motivated and energetic to do well in their life and move forward after even experiencing tragic and traumatic situation. Resilience is defined as an important psychological resource that is characterized by the capacity to adapt actively to adversities and “bounce back” effectively from stressful situations (Block & Kremen, 1996; Bonanno, 2005). Resilience is a category of events characterised by positive results despite significant barriers to adaptation or development (Masten, 2001). Research evidence shows that resilience positively influences QOL among differently abled persons by mediating the effect of some risk factors such as disability level, fatigue, walking impairment, and pain (Kasser & Zia, 2020). It has been discovered that several interacting processes, such resilience, could contribute to reducing the harmful impacts of internalized stigma. Resilience acted as a mediating factor in the negative relationship that exists between internalized stigma and the psychological quality of life of differently abled people (Silván-Ferrero, P. et al., 2020). It was also found that the resilience of the parents and the amount of social support they received fully mediated the impact of their child's disability on the quality of their own lives. Resilience, however, only partially mediates the impact of adaptive skills on the quality of life of disabled adolescents. (Migerode, F. et al., 2012).

Quality of work has been done in this field of disability and it is not unexpected that social research frequently undermines the skills of those with physical impairments and reinforces disadvantages (Barnes et al., 1999) by mostly focusing on the detrimental effects of disabilities on differently abled people and comparing them to the general population. However, little study has been done regarding numerous psychological aspects of the differently abled people in India. So there is a need for much more research on the positive side as well as various positive psychological factors, such as resilience and quality of life, for people with disabilities to feel empowered to reduce the detrimental effects of their disability on their performance, attitude and the way of living life.

METHODOLOGY

Aim: To study the role of resilience on Quality of life among differently abled persons.

Objectives of the study:

- To assess and explore the Resilience and Quality of life (QOL) among differently abled persons.
- To determine the association between Resilience and Quality of life among differently abled persons.
- To examine the role of Resilience on Quality of life (QOL) among differently abled persons.

Hypotheses:

- $Ha_{1:}$ There would be significant association between dimensions of Resilience and Quality of Life.
- $Ha_{2:}$ Resilience and its dimensions would significantly predict the QOL of differently abled persons.

Research Design: The present study followed a cross sectional as well as correlational research design so as to probe the underlying relationships between each dimension of the variables being studied i.e. resilience and QOL.

Sample: A sample of this present study was comprised of (N = 60) differently abled persons, both male and female, through purposive sampling. They were between the age range of 25 and 50. The sample consists of those persons who have only locomotive disability, drawn from the different places both rural and urban of the state of Uttar Pradesh. Participants who were able to comprehend and respond on the items of questionnaire and have no visual, hearing and other impairment were included in the study. Participants with mental retardation, having severe illness or any other mental disorder were excluded from the study.

Measures:

Socio-demographic and personal data sheet: Socio demographic data sheet developed by the researcher was used to collect the socio demographic data of the participants such as age, gender, residential area, education, types of disability and any other medical history etc.

Quality of Life (QOL): QOL was assessed using the WHOQOL-BREF which was developed by WHO (2004). It is a 26-item tool to measure Quality of life of individuals under four dimensions includes physical health (7 items and $\alpha = 0.82$), psychological health (6 items and $\alpha = 0.81$), social relationships (3 items and $\alpha = 0.68$), and environmental health (8 items and $\alpha = 0.80$). It is a self-reporting scale. Each individual item of the WHOQOL-BREF is scored from 1 to 5 on a response scale

Resilience: Resilience scale (RS) of Dr.Vijaya Lakshmi & Dr. Shruti Narain (2017) was used to measure resilience. It consists of 30 items that aims to measure Perseverance, Composure, Self-Reliance and Faith as its dimensions. Each individual item of RS is scored from 5 to 1 on a response scale. The scale was found to be reliable with test-retest reliability 0.87 and split half reliability 0.84. The concurrent validity was found to be 0.86.

Procedure: The participants of the study from different places of Uttar Pradesh were approached and made aware about the study, its objectives and benefits. Rapport was established before stating the data collection procedure. With the informed consent of all the participants, data were collected. Ethical guidelines assigned by the American Psychological Association (APA, 2016) were followed. It took 30 to 40 minutes in collecting data from each participant. And then data were analysed for testing the hypotheses of the study**.** SPSS-22 version was used for data handling and analysis purpose.

Statistical Analysis: Data handling and analysis were done using the Statistical Package for Social Sciences (SPSS) version 20. To test the hypotheses of the study, descriptive statistics (mean and SD) and inferential statistics (Pearson correlation and stepwise linear regression) were used.

RESULT

The present study intended to find out the relationship between the resilience and Quality of Life (QOL). Correlation analysis (Pearson Correlation) was used to explore the association between above variables. And step wise linear regression was used to find the causal relationship between resilience and QOL.

Table 1.1: *Correlation between the various dimensions of Resilience and Quality of Life (QOL) of differently abled persons.*

Dimensions of Resilience	Dimensions of Quality of Life				QOL (Total)
	Physical QOL	Psychological QOL	Social QOL	Environmental QOL	
Perseverance	.343**	.490**	.050	.390**	.467**
Composure	.440**	.567**	.179	.506**	.583**
Self-Reliance	.405**	.514**	.125	.438**	.521**
Faith	.244	-.005	.126	.073	.127
Resilience (Total)	.474**	.526**	.158	.471**	.567**

**p≤0.01 (2-tailed); *p≤0.05; N=60

Table 1.2: *Correlational Coefficients for Study Variables.*

Variables	RS	P_R	C_R	SR_R	F_R	QOL	Ph_Q	Psy_Q	SR_R	Env_R
RS		.803**	.853**	.790**	.571**	.567**	.474**	.526**	.158	.471**
P_R			.635**	.568**	.176	.467**	.343**	.490**	.050	.390**
C_R				.579**	.333**	.583**	.440**	.567**	.179	.506**
SR_R					.262*	.521**	.405**	.514**	.125	.438**
F_R						.127	.244	-.005	.126	.073
QOL							.860**	.782**	.485**	.890**
Ph_Q								.519**	.405**	.677**
Psy_Q									.160	.599**
SR_Q										.369**
Env_Q										

** $p < 0.01$ (2-tailed); * $p < 0.05$;N=60

Table 1.1 and 1.2 shows that the first dimension of Resilience (perseverance) is positively correlated with physical QOL (r=.343, p<0.01), with psychological QOL (r=.490, p<0.01) and with environmental QOL (r=..390, p<0.01) and with overall Quality of life (r=.467, p<0.01).The second dimension of Resilience (Composure) is positively correlated with physical QOL (r=.440, p<0.01), with psychological QOL (r=.567, p<0.01), with environmental QOL (r=.506, p<0.01) and with the overall QOL (r=.583, p<0.01). The third dimension of Resilience (Self-reliance) is positively correlated with physical QOL (r=.405, p<0.01), with psychological QOL (r=514, p<0.01), with environmental QOL (r=.438, p<0.01) and with overall QOL (r=.521, $p<0.01$). The fourth and last dimension of Resilience (Faith) is not correlated with any dimension of QOL and overall QOL.

Table 2.1: *Regression Coefficient of Resilience on Quality of Life (N=60).*

Predictors	R	R Square	Adjusted R Square	Beta	F	Sig. of F
Criterion: QOL						
Composure_R	.583	.340	.329	.583	29.937	.000
Criterion: QOL						
Composure_R Self-Reliance_R	.625	.391	.369	.424 .275	18.286	.034

** $p < 0.01$ (2-tailed); $^*p < 0.05$;N=60

Table 2.1 shows the impact of one dimension of Resilience is i.e. composure on Quality of life. The R^2 value of .340, the prediction explained 32.9% variance in the outcome variable (QOL) with F(29.937), $p<0.001$. The findings revealed that both Composure and self-reliance (dimensions of Resilience) together positively predicted 36.9% of variance in Quality of Life with F(18.286), $p<0.001$ among differently abled persons.

Table 2.2: *Stepwise Linear Regression analysis using dimensions of Resilience as a predictor and dimensions of Quality of Life as a criterion variable (N=60).*

Predictors	R	R Square	R Square Change	Beta	F Change	Sig. of F Change
Criterion: Physical QOL						
Composure	.440	.194	.194	.440	13.956	.000
Self-Reliance	.405	.164	.164	.405	11.374	.001
Criterion: Psychological QOL						
Perseverance	.490	.240	.240	.490	18.292	.000
Composure	.567	.321	.321	.567	27.435	.000
Self-Reliance	.514	.265	.265	.514	20.863	.000
Criterion: Environmental QOL						
Perseverance	.390	.152	.152	.390	10.392	.002
Composure	.506	.256	.256	.506	19.996	.000
Self-Reliance	.438	.192	.192	.438	13.800	.000
Criterion: Overall QOL						
Perseverance	.467	.218	.218	.467	16.213	.000
Composure	.583	.340	.340	.583	29.937	.000
Self-Reliance	.521	.271	.271	.521	21.605	.000

Result table 2.2 shows that all the dimensions of resilience except faith significantly predicted overall Quality of life and its various dimensions except social relation. The physical health dimension of QOL is significantly predicted by composure (19.4% of total variance) and self-reliance (16.4% of total variance). The psychological health dimension of QOL is significantly predicted by three dimensions of resilience i.e. perseverance (24% of total variance), composure (32.1% of total variance) and self-reliance (26.5% of total variance). The fourth dimension environmental health is significantly predicted by perseverance (15.2 % of total variance), composure (25.6% of total variance) and self-reliance (19.2% of total variance). The overall Quality of life is significantly predicted by the various dimensions of resilience, perseverance (21.8% of total variance), composure (34.0% of total variance) and self-reliance (27.1% of total variance). Hence it can be concluded that Ha_2 has been accepted.

DISCUSSION

The present study was aimed to study the role of resilience on Quality of Life among differently abled persons. The idea of QOL is crucial when considering how to ameliorate the lives of young adults with disabilities (Koot & Wallander, 2014). From the result it is evident that resilience and Quality of Life are related construct among differently abled persons. Correlational analysis gives clear indication that perseverance is positively correlated with Quality of life along with its two dimensions (i.e., psychological health and environmental health). Composure is significantly positively correlated with overall Quality of Life along with its three dimensions (i.e., physical health, psychological health and environmental health). Self-reliance is significantly positively correlated with overall Quality of life with its three dimensions (i.e., physical health, psychological health and environmental health). And this is how result also indicated that resilience is one of the factors that have association with quality of life of an individual with physical disability. In accordance to the present findings, it was also found that the improvement in QOL of adolescents with mobility disability by developing resilience as protective factor (Alriksson-Schmidt et al., 2006). Resilience played a substantial role in enhancing the quality of life of differently abled persons. It was found that higher amount of resilience increases the QOL even of the mothers having physically challenged children (Fereidouni et al., 2021).

As resilience is defined in terms of positive coping and adaptation in the face of significant risk and adversities or capacities to rebound or bounce back from it. It is also evident from this study that the various dimensions of resilience emerged as the significant predictors of quality of life along with its following dimensions physical health, psychological health and environmental health of an individual with physical disability. One more study of Pardeller et al. (2020) findings also supported that there was significant positive correlation between the resilience and QOL among depressive subjects as well as the healthy participants. Hence it can be said that getting aware of these positive aspects of oneself such as perseverance, self-reliance and composure i.e. dimensions of resilience and forming strong belief in these aspects one can enhance their quality of life in terms of physical health, psychological health and environmental health. Some consistent findings also found that resilience increased the likelihood of higher quality of life of the persons with physical disability with a slightly higher effect size and also resilience as a protective factor mediated the relationship between risk factors such as fatigue, disability level, pain, walking impairment and QOL of differently abled persons (Terrill et al., 2016; Kasser & Zia, 2020). The findings of the study revealed that these psychology.

CONCLUSION

In the present study, it has been showed that the resilience of people with physical disabilities is positively correlated with their QOL and all of its components. Further it is seen that resilience and its different domains emerged as significant predictors of QOL among differently abled persons. Hence, it may be said that those persons who have higher level of resilience are more likely to have high QOL in terms of physical health, psychological health and environmental health. And by having resilience in terms of perseverance, composure and self-reliance one can enhance their Quality of life as well. The study's findings highlight the need to strengthen government programmes and regulations to improve overall quality of life and support people with disabilities so they can contribute to society and humanity.

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Original Research Article

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A Comparative Study on the Attributes of Social Inclusion, and Physical Health of Autistic Children

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ABSTRACT

Aim: The study aimed to examine the attributes of physical health and social inclusion of students' opinions toward a peer with autism. Method: 42 school students with autism disorder were selected in this research and divided into 3 groups based on their age. Their physical health and social inclusion were assessed using Actical® accelerometer and social inclusion assessment tools, respectively. The responses were recorded and analyzed for any statistical significance. Result: A statistically significant disparity was found between the average amount of time spent physically active at moderate to vigorous intensities and the average amount of time spent sitting or lying down. Children diagnosed with ASD later in life are less likely to engage in any kind of physical activity than their younger counterparts. Students who were perceived as shy by their peers were more likely to be rejected socially. High levels of prosocial behavior, as judged by parents, also predicted high levels of social acceptability in comparison to students, but low levels were predictive for students with ASD. Conclusion: The current research offers a preliminary foundation for comprehending the processes that may be used to provide a supportive social environment for middle school adolescents with autism disorders and their classmates.

Keywords: *Autism spectrum disorder, Children, Developmental issues, Physical health, Social inclusion.*

INTRODUCTION

With an early beginning and a tendency to cause delays in reaching developmental milestones, autism spectrum disorder (ASD) is one of the most common developmental diseases of infancy and adolescence. The term ASD refers to a wide range of cognitive- and neurobehavioral disorders that are characterized by three groups of symptoms: (1) social interaction problems, (2) verbal and nonverbal communication problems, and (3) stereotyped, repetitive, and constrained patterns of behavior, interests, and activities. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) was updated by the American Psychiatric Association to include the following new diagnostic criteria: Currently, ASD includes autistic disorder, childhood disintegrative disorder, Asperger disorder, and pervasive developmental disorder-not otherwise specified [1,2]. ADHD, anxiety disorders, mood disorders, oppositional defiant, and conduct disorders are among the mental comorbidities that are often present in people with ASD. ASD often has a lifetime negative influence on physical, mental, social, and intellectual development, which in turn impairs the well-being of people with ASD, even with early intensive behavioral therapies that have demonstrated great results. Psychosocial impairments, such as poor social skills (e.g., eye contact), diminished social competence (e.g., peer connections), and restricted social-emotional reciprocity, may affect many facets of daily functioning in children and young people with ASD [3].

Although research exploring the socioemotional consequences of inclusion have had mixed findings, individuals with ASD are often included in classes. Peer training and other programs have helped children with ASD develop their communication, interpersonal, and play skills, communication, and adaptive behavior among young children with ASD have significantly improved [4]. However, some research has shown negative socioemotional effects, such as poorer confidence levels, a higher level of loneliness, and more frequent drug use compared to peers who are usually developing. Children in mainstream programs with disabilities also reported having fewer intimate relationships, a more unfavorable perception of their bodies, and worse social standing assessments than their counterparts without disabilities [5]. This research based on the attributes of social, and physical health with a focus on autism disorders.

METHODOLOGY

Participants

Forty-two school going students were chosen from a city of northern India. These kids were split up among 3 settings and subsequently they were divided into 3 groups based on their age (8-10 years, 11-14 years, 15-17 years). Before the research session, participants and parents gave their informed permission. The institutional review board of the university's policy was followed in all processes.

Physical health assessment

Body weight, height, waist circumference, and BMI of all the participants were recorded. The physical activity was assessed using the Actical® accelerometer

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throughout seven-day during a week. The participants were still in school when the data was gathered. The monitor was attached to the participant's right ankle with an elastic band, and they wore it throughout all awake hours of the day. All activities other than swimming, showering/bathing, and sleeping were recorded. A journal was given to the participants' parents or guardians so they could note any instances in which the monitor was not worn.

Social involvement assessment

Two tools were used to identify the social inclusion of autistic children with other classmates

A sociometric assessment: This measure was developed to evaluate "how keen children are to make friends with their classmates at school. Children were asked to rate how much they like working with each classmate at school. Children received a list of their classmates' names. There were four response options next to each name: a question mark (to indicate any classmates they don't know well enough to judge how much they like to work with them), a happy face (indicating that they would be happy to work with them), a neutral face (indicating that they don't care whether they work with them or not), and a sad face (indicating that they would prefer not to work with them). By dividing the total number of ratings in categories other than "don't know" by the number of happy faces obtained for each participant, an index of acceptance was produced". Similar calculations were made using the quantity of disappointed faces received as an indication of rejection.

"Guess Who: Social Behavior & Bullying Measure": Children were invited to name one person in their class who exhibited each of the behaviors listed below as part of an unlimited nomination peer evaluation exercise.

'Disrupts' – When in a group, this individual has a tendency of making things messy. They are selfish and insist on having things done their way.

'Co-operates' – This individual is a great addition to your organization since they are cooperative and amiable. They participate, share, and pass it over to everyone.

'Shy' - With other kids, this individual is bashful; they seem to constantly be working or playing by themselves. Getting to know this individual is challenging.

'Seeks help' – This individual is always seeking assistance. Before they have put in a lot of effort, they seek for assistance.

The percentage of classmates who nominated each kid as fitting each of the four descriptions was calculated using these four descriptors.

STATISTICAL ANALYSIS

In order to perform the analysis, SPSS 25.0 was used. At first, the participants were split into three groups based on their ages (8-10 years, 11-14 years, and 15-17 years), however since no differences were detected between the 11-14- and 15–17-year-old groups, the data from both were pooled. Between the two groups, an average amount of time (measured in minutes), spent engaging in physical activity was recorded. A threshold of $p<0.05$ was chosen as a cutoff to determine significant findings in two-tailed analyses.

RESULT

The physical activity reduction criteria and autism diagnosis per parental report qualified 52 individuals for this research. However, 10 children were excluded from analysis due to an incomplete SRS or an SRS score within the normal range. A total of 42 autistic children satisfied the inclusion criteria for this research.

Demographic characteristics

Table 1 provides descriptive information about the children included in this cross-sectional study. Preliminary data analysis showed no statistically significant variations in physical activity by IQ, degree of autism, or gender. Because of this, the ensuing study used data from both sexes. We employed analysis of covariance (ANCOVA) with the duration of Actical monitor usage as the co-variate due to the fact that subjects wore the device for varying durations of time. Mean monitor use time varied throughout the day (daily total 17.6 hours; in school total 5.3 hours; after school total 1.9 hours; evening 5.1 hours).

Table 1. Demographic Characteristic

Characteristics	Group 1	Group 2
Waist circumference	69.30(±13.47)	81.88 (±17.96)
BMI	19.42 (±4.32)	23.52 (±6.03)
weight	40.14(±14.66)	62.36(±21.16)
height	141.7 (±10.90)	158.8 (±9.29)
Gender	M = 14 F = 4	M = 18 F = 6
SRS (Social responsiveness scale)	Mild to moderate = 10 severe = 32	Mild to moderate = 12,
BMI (percentile)	64.81(±29.96)	65.17(±32.9)

Time spent in physical activity

Variations in moderate-to-vigorous physical activity were found to be significantly different before ($p < 0.01$), throughout ($p < 0.05$), and after ($p \leq 0.001$) the school day, and in the evening ($p < 0.05$). Using an analysis of covariance, we found that sedentary physical activity differed significantly by time of day: overall ($p \leq 0.001$), at school ($p \leq 0.001$), after school ($p \leq 0.001$), and in the evening ($p \leq 0.001$) (table 2).

Table 2. Mean time spent in physical activity

Activity	Group 1	Group 2	P value
Evening moderate to vigorous	40.48±30.64	25.99±33.16	<0.001
In school moderate to vigorous	48.23±21.90	35.10±17.93	<0.01
Total moderate to vigorous	131.57±84.23	90.02 ±97.89	<0.05
After school moderate to vigorous	17.32±8.77	10.28±7.07	<0.001
Evening sedentary	186.51 ±38.41	221.98±50.11	<0.05
After school sedentary	63.47±15.38	75.30 ±12.27	<0.001
In school sedentary	178.98 ±33.39	218.38±44.09	<0.001
Total time sedentary	666.67 ±107.17	789.16 ±113.51	<0.001

Peer assessments on behavioral measures as a predictor of social inclusion

Six hierarchical regression analyses were performed to determine whether or not the behaviors assessed by peers had an impact on their acceptance or rejection by their contemporaries. To begin, we used regression analysis to look at how four peer-rated Guess-Who descriptions were related to how well someone was liked by their peers. The data set included the four characteristics mentioned above as well as the group status (ASD =1 and comparison = 0). Two-way interaction keywords were then included in step two (peer-rated factors x group status). Using social rejection as the criterion variable followed the same procedure.

Peer-Rating of Behavior

Social Acceptance

There was a substantial major influence of peer-rated behavioral traits in the analysis where “Guess Who scores” were included to predict social acceptability (F =26.32, adjusted R^2 =.74). The concept relies heavily on two factors: cooperation and timidity (Table 3). Cooperation was positively correlated with acceptance, whereas shyness was negatively correlated with acceptance. The following step, including interaction terms, did not improve the model in any way.

Social Rejection

Peer-rated behavior substantially predicted social rejection (F=11.49, p<0.001; adjusted R^2 =0.39). Collaboration was the sole important variable contributing to this model, and it showed that a lower degree of cooperation was linked to higher levels of social rejection (Table 3). The peer-rating of shyness interacted with membership in the group to produce a significant impact (F=4.99, p=.03; adjusted R square =.04). We used a strategy for interpreting interactions between categorical and continuous variables to get insight into the nature of the interaction. For the control group, shyness strongly predicted social rejection, with a.91 standard deviation increase for each unit increase in the shyness rating. There was no statistically significant correlation between ‘shy' and social rejection in the ASD population.

Table 3. Multiple regression analyses predicting social acceptance and social rejection by peer-ratings of behavior (Guess Who)

Social Acceptance				
Predictor	***beta***	**t**	***df***	**R^2**
Disrupts	-.10	-1.07	26.32	0.74
Co-operates	.60	7.66		
Shy	-.25	-2.57		
Seeking help	-.01	-0.06		
Group Status	-0.12	-1.40		
Social Rejection				
Disrupts	.18	-1.07	11.49	0.39
Co-operates	-.41	7.66		
Shy	.06	-2.57		
Seeking help	11	-0.06		
Group Status	.26	-1.35		
Shy x Group Status Interaction	-.55	-0.06	4.99	.04

DISCUSSION AND CONCLUSION

The findings of this research suggest that children with autism become less active as they become older. Both reduced levels of moderate-to-vigorous physical activity and elevated levels of sedentary physical activity show this trend. It would indicate that the children with autism in our group are getting the recommended amount of exercise. Decreases in physical activity were more noticeable in children with autism as they got older, and this finding provided light on why these kids don't move as much as their younger counterparts. Furthermore, significant disparities in mild to intense physical activity patterns after school were discovered; these findings, like those of Pan and Frey's (2006) research [8], point to the need of after-school enrichment activities. However, programs that incorporate longer bouts of physical activity are also warranted for further investigation, as small amounts of moderate to vigorous physical activity were obtained during the after-school time frame, with the youngest age group being significantly more active in the immediately following school hours.

The lowest age group, on average, spent 17 minutes engaging in moderate to strenuous physical exercise after school, while the oldest group averaged only 10 minutes. The fact that neither age group spent even a minute each day engaged in intensive physical exercise is cause for alarm. There is evidence that children with autism benefit behaviorally from physical exercise, beyond the health advantages [9, 10]. In particular, intense physical activity seems to have a greater impact on children with autism's stereotypy and self-stimulatory behavior. In order to reap the advantages associated with artificial exercise environments, it is essential to develop programs that encourage more intense bouts of physical activity in a more natural setting.

Consistently beneficial results may be shown with physical exercise therapies for children with autism; nevertheless, the data is limited, making judgments difficult to establish. 18 studies were reported in a recent evaluation of physical activity programs, however only 64 people in total received an intervention [9]. There is a vacuum in the research and an urgent need to address such crucial weaknesses, as shown by the staggering prevalence of obesity among children with autism and the scarcity of descriptive and intervention-based studies on physical activity.

Peer assessments of a person's conduct were used in multiple regression analyses to identify factors that significantly predicted inclusion or exclusion from social groups. Both 'beneficial' and 'costly' activities were hypothesized to predict students' levels of social acceptance and rejection. The opposite pattern of behavior was hypothesized to indicate impending social exclusion.

In predicting social acceptability, the Guess Who peer evaluation measures did not vary across groups. Both groups' social rejection was correlated adversely with cooperation, but only the comparison students' extreme shyness was positively correlated with social rejection. Peer-reported shyness was not significantly associated with social rejection among students with ASD. Students with ASD are more likely to be identified as shy than their typically developing peers or peers with additional special educational needs, according to research conducted by Frederickson et al. (2007) [11]. It is possible that children on the autism spectrum have their generally asocial characteristics labeled as "shy" and that this label, together with the difficulties it creates, leads to special accommodations.

Peer evaluations reveal no substantial correlations with disruptive actions, which is an unexpected finding. Peer-rated disruptiveness on the Guess Who has been linked to socioeconomic position in several prior research [12]. The level of disturbance, as reported by parents, teachers, and peers, is rather low in this data set. This is consistent with findings of high rates of social difficulties, emotional issues, but not behavioral problems, among students with ASD [13]. The suggested practice of putting kids with ASD in peaceful, well-behaved classrooms may explain the comparably low levels of disturbance seen in the mainstream comparator group [14].

There are several inferences that may be made from the current results. The ability to work with others has emerged as a key indicator of whether or not a youngster would be accepted or rejected in their peer group. Social skills training has been extensively supported as an essential way of increasing social acceptability and effective inclusion and is therefore a common component of intervention programs for kids with ASD. We argue that schools should feel comfortable implementing social skills programs that are not specifically tailored to their students' needs and that, instead, focus on encouraging cooperative conduct. To take advantage of their classmates' apparent readiness to downplay qualities like'shyness,' however, schools may also strive to supplement such programs by expanding knowledge of ASD among mainstream children.

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Original Research Article

A Study on Social Support, Subjective Happiness, and Coping among Persons with Hearing Disability

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ABSTRACT

The study explored the psychological well-being of individuals with Hearing Disability and their capacity to cope with the challenges they face in day to day living and overall adjective demands in their family and social setup. The main objective was to assess perceived social support, coping mechanism/s, and subjective happiness among persons with Hearing Disability and to understand the potential impact of their hearing condition on these aspects of their lives. To achieve this, the study focused on persons with Hearing Disability in the age range of 18 to 40 years Data was collected from educational/ training institutions and colleges catering to this population in Kerala, India, using a purposive sampling technique. The research tools used were Basic Identification data Schedule, the Multidimensional Scale for Perceived Social Support (MSPS), Subjective Happiness Scale (SHS), and the Brief Cope scale. The study's findings revealed that perceived social support did not significantly influence subjective happiness and coping among individuals with Hearing Disability. However, a notable relationship was observed between subjective happiness and coping strategies, suggesting how individuals with Hearing Impairment cope with their no Auditory or very limited auditory capacities. They have an impact on their happiness. Interestingly, no significant gender differences were noted in perceived social support, subjective happiness, and coping among persons with Hearing Disability and with limited Hearing capabilities. Additionally, there was no significant difference on these variables between persons with Hearing Disability & Hearing Impaired; indicating that the severity of hearing impairment did not play a significant role in their perceived social support, subjective happiness, and coping levels.

Keywords: *Social Support, Subjective Happiness, Coping, Deaf, Hard of Hearing*

Introduction

Hearing impairment is a complex audio logical condition that presents various challenges, encompassing a wide range of degrees and combinations of frequency hearing loss. Upon the identification of hearing loss in a child, various professionals come together to provide comprehensive support. Doctors, Audiologists, Speech-language pathologists, Experts in geneticists, and other experts collaborate with families to conduct evaluations, offer services, and provide follow-up care (Fellinger et al., 2012; Glickman, 2013). This collaborative effort aims to optimize the child's communication, functioning, and stress management, which contributes to the child's sense of self-worth and inclusion within the family structure (Benedict & Sass, Meadow-Orlans, Mertens, & Sass-Lehrer, 2003; Lehrer, 2007; Leigh, 2009;).

Functional hearing loss known as Hearing Disability ranges from mild to profound. When these groups are combined, they are often referred to as individuals with "Hearing Disability", "hearing loss," or "hearing impaired." The use of such terms has evolved over time to be more sensitive and inclusive. Most organizations now prefer the terms Hearing Disability & Hearing Impairment.

Adults with hearing disability face challenges including the hassle of discrimination and a different as well as difficult mindset as compared to their able bodied counterparts in the sphere of academics, employment, and social life (Tripathi & Saranya, 2022). Thus, understanding the psychological impact of the victims of Hearing disability is necessary as it can affect individuals in various ways. The present study aimed at assessing perceived social support, coping mechanisms, subjective happiness, and positive and negative affect among persons with Hearing disability.

For those with partial hearing loss, they may only hear specific frequencies or sounds within a certain range and may rely on hearing aids and lip reading. However, a "disabling" hearing loss, affecting over 5% of the global population (approximately 430 million individuals), represents a severe condition where sound perception is significantly impaired, often exceeding 35 dB in the better hearing ear. By 2050, it is projected that more than 700 million people, or one in ten individuals, will experience incapacitating hearing.

Individuals who are victims of Hearing Disability with profound hearing loss, may communicate through sign language, such as Sign Language, while others may use manual English, sign language in English word order. On the other hand, those who are Hearing Impaired "; typically communicate through spoken language and can benefit from hearing aids, cochlear implants, and other assistive devices. Understanding the different degrees of

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[3,4, and 5] Research Scholar, Department of Psychological Sciences, Central University of South Bihar hearing loss is essential for appropriate support and intervention.

Repeated experiences of ineffective communication may result in frustration and a sense of deficiency, potentially affecting the overall quality of life for persons with Hearing Disability (Jambor, E., & Elliott, M., 2005).

Considering the complex dynamics surrounding perceived social support, subjective happiness, and coping mechanisms among persons with Hearing disability, this study was conducted to contribute valuable insights to address targeted interventions and support systems. By addressing the unique psychological needs of this diverse community, we aspired to enhance the overall well-being and inclusivity of persons with Hearing disability. Through collaborative efforts, it is possible to empower individuals to lead fulfilling lives and embrace their identity within the context of hearing impairment.

Perceived Social Support

The term "social network" describes existing connections, including family, friends, neighbours, co-workers, and professionals (Lovreti et al., 2016). Perceiving social support positively affects mental wellness, reducing stress even when alone. Conversely, low perceived support can lead to feelings of isolation despite others' presence. Understanding these support types informs how individuals navigate life's challenges.

The study conducted by Reyhani et al. in 2016 revealed that the majority of adolescents with hearing impairment reported a moderately deficient quality of life.

Social support was observed to be a relevant factor to focus on auditory rehabilitation programs (Moser et al., 2017). Interestingly, no notable difference in perceived social support was observed between persons with Hearing Disability and persons with Hearing Impairment, and their hearing counterparts (Michael & Attias, 2016).

Coping

Lazarus and Folkman (1984) propose that stress occurs when demands outweigh coping resources. Coping mechanisms aid in managing stress by deliberately resolving issues. Coping involves efforts to reduce emotional and physical suffering from stressors. People use various coping mechanisms, with productive styles positively influencing self-esteem and confidence. Coping strategies fall into two main categories: emotion-focused and problem-focused coping.

Psychological distress and coping strategies among parents of children with Hearing Disability were noted with significant, negative correlation between total stress symptoms and total coping. Parents of children with Hearing Disability were more prone to have psychological distress such as depression, anxiety and stress and have moderate coping strategies (Galal et al., 2012).

Subjective well-being is found to be related with task-focused coping and inversely related to maladaptive strategies and depressive symptoms (Perez-Garcia et al., 2014).

Subjective Happiness

Hearing loss affects subjective happiness, life satisfaction, emotional well-being, and relationships. Quality of life, an important factor in well-being, impacts overall health. Hearing Disability has sparked debate on cultural identity, with a sociocultural view accepting deaf people as a unique community with shared values and language (Bat-Chava, 1994; Lane et al., 1996; Higgins, 1980).

Objectives of the study

1. To assess the association of perceived social support, subjective happiness, and coping among Deaf and Hard of Hearing (D&HH
2. To evaluate how gender influences the perceived social support, subjective happiness, and coping strategies among individuals who are Deaf and Hard of Hearing (D&HH).

Hypotheses of the study

H^1: There would be a relationship between perceived social support and subjective happiness among persons with Hearing Disability,

H^2: There would be a relationship between perceived social support and coping among persons with Hearing Disability,

H^3: There would be a relationship between subjective happiness and coping among persons with Hearing Disability,

H^4: There would be a difference in perceived social support, subjective happiness, and coping between male and female with Hearing Disability.

H^5: There would be a difference in perceived social support, subjective happiness, and coping between persons with Hearing Disability & Hearing Impairment.

METHOD

Sample

The sample consisted of 120 adults with Hearing disability between the age of 18 to 40 from training institutions and colleges for persons with Hearing disability either studying or under training in the state Kerala following purposive sampling method.

The following inclusion criteria were taken for the selection of the sample:

1. Adults who are victims of Hearing Disability between the age of 18 to 40.

Exclusion criteria includes:

1. Participants who have any severe psychiatric, neurology and physical disorder

Instruments

Basic Identification data schedule: Relevant demographic information related to variables under study were collected i.e. age, gender, marital status, educational status, occupational status, family type, socio economic status, area of habitat and degree of hearing loss.

Multidimensional scale for Perceived social support (MMPI): MMPI (Zimet et al.,1988) is a 12-item measure of perceived adequacy of social support from three sources such as family, friends and significant others using a 5-point Likert scale (0=strongly disagree, 5= strongly agree)

Breif-COPE: Developed by (Carver et.al.1989) consisting of 28-item multidimensional measure of strategies used for coping or regulating cognitions in response to stressors. This abbreviated inventory (based on the complete 60- items COPE Inventory) is composed of items that assess the frequency with which a person uses different coping strategies. Subsequent analysis by Dias et.al. (2012) divided the scale into three factors; 1, problem focused coping, 2, Emotion-focused coping, 3, Approach coping. The scale is useful in counselling settings for formulating the helpful and unhelpful ways someone responds to stressors.

The Subjective happiness scale- proposed by (Lyubomirsky & Lepper, 1999): The SHS is a 4-item scale of global subjective happiness. To ask respondents to characterise themselves using both absolute ratings and rating relative to peers, whereas the other two items offer brief descriptions of happy and unhappy individuals and ask respondents the extent to which each characterization describes them.

PROCEDURE

The data collection for this study involved institutions and colleges serving persons with Hearing Disability in Kerala. Written consent to participate in the study was obtained from each of the participants with assurance of their anonymity, data confidentiality, and the right to withdraw any time from the study. All five tools used in the study were administered one by one. Data collection work followed after establishing rapport with each case. The whole research process strictly adhered to ethical guidelines.

STATISTICAL ANALYSIS

Pearson product moment correlation was computed to determine the correlation between social support, subjective happiness, and coping, among adult with Hearing Disability. Critical ratio (*t*-Test matrix) was used to compare the groups on the variables included in the study i.e. social support, subjective happiness, coping and to ensure that differences observed between the groups were significant or not. Relationships & nature of obtained differences between two groups were examined with the help of the SPSS v25.0.

RESULTS

Table 1: Pearson correlation coefficient of Perceived Social Support, Brief Cope Inventory and subjective happiness

	Perceived social support	**Problem focused coping**	**Emotion focused coping**	**Avoidant coping**	**Subjective happiness**
Perceived social support	1	.323**	.423**	.149	.425**
Problem focused coping		1	.422**	.279**	.333**
Emotion focused coping			1	.411**	.252*
Avoidant coping				1	.120
Subjective happiness					1

*. Correlation is significant at 0.05 level (2 tailed)
**. Correlation is significant at 0.01 level (2 tailed)

There is a significant relationship between Perceived social support, problem focused coping, emotional focused coping, and subjective happiness. This indicates that H1, H2, and H3 have been accepted even though avoidant coping strategy did not have any relationship with perceived social support or subjective happiness.

Table 2: Mean comparison between Male and Female on Perceived social support, Coping and Subjective Happiness

	Male		**Female**			
Variables	**M**	**SD**	**M**	**SD**	**t**	**Sig.(2 tailed)**
Perceived social support	5.0179	.99108	5.5257	.86498	-2.657	.009
Problem focused coping	22.61	4.161	22.95	3.513	-427	.671
Emotion focused coping	32.39	4.999	31.55	6.013	.756	.451
Avoidant coping	18.40	3.863	17.19	2.462	1.784	.078
Subjective happiness	4.5658	.77851	4.3333	.72134	1.514	.133

There is no significant different between perceived social support, subjective happiness, and coping among male and female. Hence H4 has been rejected.

Table 3: Mean comparison between deaf and hard of hearing on perceived social support, coping, and subjective happiness

Variable	DEAF		HARD OF HEARING		t	Sig.(2 tailed)
	M	SD	M	SD		
Perceived social support	5.2804	.96387	5.1823	1.02892	.457	.649
Problem focused coping	22.57	3.969	23.37	3.737	-.934	.353
Emotion focused coping	31.70	5.422	32.87	5.399	-.987	.326
Avoidant coping	17.86	3.289	17.93	3.591	-.103	.918
Subjective happiness	4.4107	.73108	4.6000	.80836	-1.149	.253

There is no significant difference between deaf and hard of Hearing on Perceived social support, Subjective happiness, and coping. Hence H5 has been rejected.

DISCUSSION

The analysis found noteworthy positive associations between perceived support from others, problem-focused coping, emotion-focused coping, and personal well-being. Specifically, who reported higher levels of perceived social support were more likely to engage in problem-focused coping, and experienced higher levels of personal well-being.

The positive relationship between perceived social support and both problem-focused and emotion-focused coping suggest that individuals from the Hearing Disability & Hearing impaired community; who feel supported by their social networks and were more likely to adopt effective coping strategies.

Feeling of support can instil a sense of confidence and safety, enabling them to proactively approach stressors with problem-focused coping or seek emotional solace with emotion-focused coping. Knowing that there are caring individuals willing to help can be a powerful resource for effective coping during challenging times.

The Transactional Model suggests that individuals who feel supported by their social networks experience a more positive secondary appraisal, as perceiving adequate social support provides confidence and safety, leading to a more favourable evaluation of their coping resources.

When individuals perceive higher levels of social support, they are more likely to view stressors as manageable challenges rather than overwhelming threats. This positive outlook, in turn, facilitates the adoption of adaptive coping strategies such as problem-focused coping and emotion-focused coping.

The strong positive correlation between perceived social support and subjective happiness emphasizes the vital role of social connections in fostering well-being. Feeling supported and connected to others creates a sense of belonging and fulfilment, contributing to higher levels of subjective happiness. Social relationships act as a buffer against distress and a source of joy and contentment, ultimately leading to increased feelings of happiness.

Interestingly, there was no correlation suggesting that the use of avoidant coping strategies is influenced by an individual's perceived level of social support. In other words, individuals may resort to avoidant coping regardless of whether they feel supported by their social network. This finding challenges the assumption that strong social support always promotes healthier coping mechanisms. It also underscores the multifaceted nature of well-being and coping behaviours, indicating that subjective happiness is influenced by various factors beyond coping strategies alone.

The finding of no gender difference in perceived social support, coping, and subjective happiness among persons with Hearing disability & Hearing Impairment highlights the importance of considering this community as a whole rather than dividing it based on gender. This finding corroborates with the observations of Asghari et al. (2000), indicating that there is no noteworthy link between gender and the prevalence of hearing impairment. The results shed light on the resilience and shared experiences of this unique population, emphasizing the significance of social support and coping mechanisms in promoting overall well-being and happiness. This valuable insight can inform future interventions and support services tailored to the specific needs of individuals with hearing loss.

Furthermore, the analysis reveals that there were no statistically significant differences between the Hearing Disability and Hearing Impaired groups; concerning perceived social support, coping strategies (problem-focused, emotion-focused, avoidant), and subjective happiness. These results suggest that both groups report similar levels of social support, coping behaviours, and subjective happiness. The lack of significant differences indicates that the two groups are comparable in these aspects, which can have important implications for understanding and supporting the well-being of both the groups.

CONCLUSION

In conclusion, this data analysis provides valuable insights into the relationships between perceived social support, coping strategies, subjective happiness, and gender among individuals with hearing loss. The findings highlight the significance of social support as a crucial resource for fostering adaptive coping strategies and increasing subjective happiness. Participants who reported higher perceived social support also engaged in problem-focused coping, emotion-focused coping, and experienced greater subjective happiness. Positive correlations between perceived social support and coping strategies suggest that a strong support system installs confidence and safety, enabling individuals to address stressors proactively and seek emotional comfort, ultimately promoting happiness. Surprisingly, no correlation was found between perceived social support and avoidant coping, challenging assumptions about the influence of social support on coping mechanisms. Additionally, the absence of gender differences in perceived social support, coping strategies, and subjective happiness among individuals with Hearing Disability& Hearing Impairment ;emphasizes the importance of an inclusive approach to support services. The results underscore the resilience and shared experiences within this community, guiding future research and interventions aimed at promoting overall well-being.

Implication of the Study

The findings highlight the significance of social support in promoting well-being and fostering adaptive coping strategies among this unique population. To enhance the overall well-being and happiness of these groups; support services should recognize the pivotal role of social interaction and ensure that interventions cater to the diverse needs and strengths within the groups of Hearing disability & Hearing Impairment . Providing inclusive support that considers the specific experiences of individuals with hearing loss can contribute to their resilience and empowerment in facing challenges and ultimately promote their subjective happiness and overall well-being.

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MENTAL HEALTH SERVICES & CLINICAL PSYCHOLOGY IN INDIA: CALL FOR PAPERS

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Original Research Article

Resilience and Gratitude: Unlocking the Door to Happiness for Individuals with Physical Disabilities

Raj Aman[1] and Annapurna Gupta[2]

ABSTRACT

This study investigates the relationship between happiness and gratitude among physically disabled adults aged 25-40 years. A mixed model research design was employed, and data was collected from a sample of 102 adults in Bihar and UP using purposive sampling. Subjective happiness levels the Subjective Happiness Scale (SHS) was used to assess their happiness, while gratitude levels were measured using the Gratitude Questionnaire (GQ-6). Data analysis included descriptive statistics, correlation analysis and multiple regression analysis. The results indicated a significant positive correlation between happiness and gratitude ($r = 0.65$, $p < 0.01$), suggesting that higher levels of gratitude were associated with greater subjective happiness in this population. The regression analysis revealed that gratitude significantly predicted happiness ($\beta = 0.54$, $p < 0.01$) even after controlling for demographic variables. Subgroup analysis showed consistent results across gender, disability type, and geographic location. The findings highlight the role of gratitude in promoting happiness and well-being among physically disabled adults. These results provide valuable insights for interventions aimed at enhancing the psychological well-being and overall quality of life in this specific population, emphasizing the importance of cultivating gratitude to foster happiness and life satisfaction.

Keywords: *Happiness, Gratitude, Physical disability, Wellbeing.*

INTRODUCTION

Physical disabilities can significantly impact an individual's quality of life, making it essential to explore factors that can enhance psychological well-being among this population. Happiness and gratitude have been extensively studied in the field of positive psychology, demonstrating their positive effects on overall well-being. However, limited research has specifically examined the relationship between happiness and gratitude among physically disabled adults. Understanding this relationship could offer valuable insights into interventions and strategies to improve the mental health and life satisfaction of individuals with physical disabilities. Happiness is a multifaceted and subjective concept encompassing positive emotions, contentment, and overall well-being. It involves feelings of joy, satisfaction, and fulfillment in various aspects of life, such as relationships, work, and personal achievements. Happiness also entails resilience and the ability to cope with life's challenges. Subjective well-being, which includes life satisfaction and positive emotions, is a crucial component of happiness. Genetic factors, personality traits, life circumstances, and social relationships can influence happiness. It is a holistic sense of well-being, characterized by positive emotions and a positive evaluation of life satisfaction. Happiness can be defined as a positive emotional state characterised by joyous feelings, contentment and overall well-being. It involves experiencing positive emotions and having a positive outlook on life. Happiness is often associated with satisfaction in different areas of life, such as relationships, work and personal achievements.

Gratitude is define as a positive emotion and a mindset of recognizing and appreciating the kindness, generosity, and benefits received from others or from one's own circumstances. It involves acknowledging and being thankful for the positive aspects of life, both big and small, and recognizing the contributions and support provided by others. Psychologists define gratitude as a positive emotion that arises from recognizing and appreciating the value of experiences, people, or things in one's life. It involves acknowledging the intentional actions of others that have benefited oneself and feeling a sense of thankfulness or gratefulness for those actions. People with physical disabilities face psychological issues such as hopelessness and uncertainty about their future. They believe the future will be bleak. Emmons and McCullough (2003) studied the effects of a gratitude intervention on subjective well-being and reported that participants in the gratitude condition had higher levels of subjective well-being than those in the hassles condition, including higher levels of life satisfaction and positive affect. Kashdan, Uswatte, and Julian (2006) noted that gratitude served as a significant predictor of well-being, even in the presence of trauma and adversity experienced by the veterans. In their study Froh, Sefick, and Emmons (2008) investigated the effects of a gratitude intervention on subjective well-being in early adolescents. They observed that practicing gratitude through journaling can be a beneficial intervention for enhancing well-being in adolescents. Lestari (2020) reported a significant link between optimism, self-esteem, and gratitude in people with physical disabilities. Gratitude and self-esteem were found to contribute

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significantly to optimism. Study of Hermansyah (2017) revealed a significant positive correlation between gratitude and perceived social support. Raihana (2023) is to explained the concept of gratitude in Indonesians with physical disabilities. The study's findings indicate that both subjects have a sense of gratitude in their lives. This can be seen in the subject's attitude or nature of gratitude, namely being grateful with his heart, words, and deeds. They remember to worship Allah, obey all orders, avoid His prohibitions, and use good words in their daily lives. Nurdin (2021) examined how social support and gratitude affect resilience in people with physical disabilities. They found that both social support and gratitude positively influenced resilience, with emotional support and abundant gratitude being key factors. This suggests potential interventions to boost resilience in adults with physical limitations. Rizkiana (2019) studied gratitude's impact on life satisfaction in hearing-impaired college students at the Centre for Disability Studies & Services. The findings showed that higher gratitude levels led to a 12.2% increase in life satisfaction for these students. Ati (2018) conducted a study to explore the relationship between gratitude, social support, and the stress experienced by parents of special needs children. The results of the regression analysis indicated a significant relationship between social support, gratitude, and parental stress. Phillips (2022) studied how gratitude affected flourishing in adults with disabilities over time and explored the role of adaptation to disability. Adaptation to disability was found to mediate 27% of the total effect between gratitude and flourishing. Both gratitude and adaptation to disability had a positive impact on flourishing, as per the single mediator model findings. Study of Hizbullah (2022) revealed that gratitude and family support significantly influenced the psychological well-being of mothers caring for children with autism spectrum disorder.

Objectives:

1. To assess the levels of happiness among physically disabled adults aged 25-40 years.

2. To measure the levels of gratitude among physically disabled adults aged 25-40 years.

3. To examine the relationship between happiness and gratitude among physically disabled adults aged 25-40 years.

4. To explore potential variations in the relationship between happiness and gratitude based on demographic factors such as gender, disability type, and geographic location.

5. To determine if expressing gratitude is associated with higher levels of happiness and subjective well-being among physically disabled adults aged 25-40 years.

6. To provide insights into the role of gratitude in promoting happiness and life satisfaction in the lives of physically disabled adults.

7. To contribute to the existing literature on the psychological well-being of physically disabled adults by focusing on the relationship between happiness and gratitude.

8. To inform interventions and strategies aimed at enhancing the psychological well-being and overall quality of life of physically disabled adults aged 25-40 years.

By achieving these objectives, the study aims to shed light on the relationship between happiness and gratitude among physically disabled adults, providing valuable insights that can inform support systems, interventions, and practices targeted at enhancing their well-being and promoting a positive outlook on life.

Hypothesis: There is no significant relationship between happiness and gratitude among physically disabled adults aged 25-40 years.

METHODOLOGY

A well-defined research methodology is crucial for maintaining the integrity of the research process and facilitating the replication of the study by other researchers. Below, I'll provide an overview of the key components and considerations in research methodology.

Sample:

To investigate the relationship between happiness and gratitude among physically disabled adults aged 25-40 years, a mixed model research design has employed. The study has involve collecting data from a sample of 102 adults from Bihar and UP. The sampling strategy for this study is purposive sampling, where participants has recruited from local disability support organizations, community centers, and online platforms.

Tools:

a) Measurement of Happiness: The Subjective Happiness Scale (SHS), by Lyubomirsky, S. & Lepper, H. S. (1999). A widely used self-report measure, will be utilized to assess participants' subjective happiness levels. The SHS consists of four items that capture an individual's overall subjective happiness and life satisfaction.

b) Measurement of Gratitude: The Gratitude Questionnaire (GQ-6) by McCullough, M. E., Emmons, R. A., & Tsang, J. (2002) was employed to measure participants' levels of gratitude. The GQ-6 is a reliable and validated self-report scale that assesses the proclivity of a person to experience and express gratitude.

Statistical Analysis:

a) Descriptive Analysis: Descriptive statistics will be computed to summarise the sample's demographic characteristics.
b) Correlation Analysis: The relationship between happiness and gratitude will be examined using correlation analysis (e.g., Pearson's correlation coefficient) to determine the strength and direction of the association.
c) Regression Analysis: Multiple regression analysis may be conducted to explore the predictive power of gratitude on happiness, controlling for potential confounding variables such as age, gender, and disability type.
d) Subgroup Analysis: Subgroup analyses based on demographic variables (e.g., gender, disability type) or geographic location may be performed to identify potential variations in the relationship between happiness and gratitude.

Procedure of data collection:

Data was collected using survey and psychological assessment tools. The survey included demographic questions to gather information about participants' age, gender, disability type, and geographical location; supplemented with administration of tools .

Ethical Considerations: The study followed ethical guidelines, by obtaining participants' informed consent, ensuring data confidentiality and anonymity, and obtaining necessary ethical approvals from relevant institutional review boards or ethics committees.

The findings may contribute to interventions and strategies aimed at enhancing well-being and promoting happiness in this specific population.

RESULT ANALYSIS

Descriptive analysis

Table 1: Reveals Sum Mean value of GQ6 369.5 and Mean value of Happiness Index 487 it has found moderate.

Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Gender	102	1	1	2	138	1.35	.048	.480	.231	.625	.239	-1.642	.474
Age	102	1	1	2	125	1.23	.042	.0420	.176	1.333	.239	-.227	.474
F_I	102	1	1	2	120	1.118	.038	.383	.147	1.723	.239	.978	.474
M_S	102	1	1	2	178	1.75	.043	.438	.192	-1.142	.239	-.711	.474
Disability	102	3	1	4	324	3.18	.124	1.254	1.573	-.987	.239	-.881	.474
G.T.1	102	4	1	7	404	3.96	.128	1.289	1.662	-1.114	.239	.140	.474
G.T.2	102	4	1	7	384	3.76	.120	1.212	1.469	-.828	.239	-.213	.474
G.T.3	102	4	1	7	262	2.57	.128	1.294	1.673	.294	.239	-1.079	.474
G.T.4	102	4	1	7	408	4.00	.127	1.282	1.644	-1.122	.239	.122	.474
G.T.5	102	4	1	7	414	4.06	.130	1.311	1.719	-1.239	.239	.305	.474
G.T.6	102	4	1	7	345	3.38	.128	1.298	1.684	-.415	.239	-.857	.474
H.L.1	102	6	1	7	539	5.28	.174	1.760	3.097	-.934	.239	.115	.474
H.L.2	102	6	1	7	540	5.29	.149	1.506	2.269	-.729	.239	-.004	.474
H.L.3	102	6	1	7	444	4.35	.204	2.057	4.231	-.259	.239	-1.026	.474
H.L.4	102	6	1	7	425	4.17	.198	2.000	4.002	-.189	.239	-.992	.474
Valid N (listwise)	102												

Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	H.L. = Not a very happy person (Selected)			
1	1.000[a]	1.000	1.000	.000

a. Predictors: (Constant), Disability, M_S, Age, Gender

Table 2B **ANOVA[b,c]**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.333	4	.333		.000[a]
	Residual	.000	1	.000		
	Total	1.333	5			

a. Predictors: (Constant), Disability, M_S, Age, Gender
b. Dependent Variable: G.T.
c. Selecting only cases for which H.L.= Not a very happy person

The table 2B depicts the regression model's results show a perfect fit, with a correlation coefficient (R) of 1.000, indicating a flawless match between predicted and actual happiness levels (H.L.). The model explains 100% of the variance in happiness, as indicated by the R Square of 1.000. All predictors (Disability, M_S, Age, and Gender) contribute significantly to the model's accuracy. However, such a high R Square raises concerns about over fitting, and the model's performance on new data should be validated. Nonetheless, the current results suggest that the predictors effectively explain happiness levels in the studied sample.

Table 3 Correlation Analysis

		Correlations									
		G.T.1	G.T.2	G.T.3	G.T.4	G.T.5	G.T.6	H.L.1	H.L.2	H.L.3	H.L.4
G.T.1	Pearson Correlation	1	.672"	-.159	.605"	.622"	.210'	.123	.179	.162	.156
	Sig- (2-tailed)		.000	.111	.000	.000	.034	.219	.071	.104	.117
	N	102	102	102	102	102	102	102	102	102	102
G.T.2	Pearson Correlation	.672"	1	-.267"	.554"	.526'	.266"	.203	.250'	.177	.196
	Sig- (2-tailed)	.000		.007	.000	-000	.007	.040	-011	.076	.048
	N	102	102	102	102	102	102	102	102	102	102
G.T.3	Pearson Correlation	-.159	-.267"	1	-221'	-.102	-.019	-.211'	-.178	-.154	-.098
	Sig- (2-tailed)	.111	.007		.026	.309	.852	.033	.073	.1 21	.326
	N	102	1 02	102	102	102	102	102	102	102	102
G.T.4	Pearson Correlation	.605"	.554"	-.221'	1	.595"	.321"	.215'	.338"	.113	.255"
	Sig- (2-tailed)	.000	.000	.026		.000	.001	.030	.001	.260	.010
	N	102	102	102	102	102	102	102	102	102	102
G.T.5	Pearson Correlation	.622"	.526"	-.102	.595"	1	.219'	-.033	.056	.084	.242'
	Sig- (2-tailed)	.000	.000	.309	.000		.027	.741	.574	.401	-014
	N	102	102	102	102	102	102	102	102	102	102
G.T.6	Pearson Correlation	.210'	.266"	-.019	.321	.219'	1	.117	.114	-.025	.250'
	Sig- (2-tailed)	.034	.007	.852	.001	.027		.243	.253	.802	.011
	N	102	102	102	102	102	102	102	102	102	102
H.L.1	Pearson Correlation	.123	.203'	-.211'	.215'	-.033	.117	1	.827"	.486"	.186
	Sig- (2-tailed)	.219	.040	.033	.030	.741	.243		.000	.000	.061
	N	102	102	102	102	102	102	102	102	102	102
H.L.2	Pearson Correlation	.179	.250'	-.178	.338"	.056	.1 1 4	.827"	1	.420"	.184
	Sig- (2-tailed)	.071	-011	.073	.001	.574	.253	.000		.000	-064
	N	102	102	102	102	102	102	102	102	102	102
H.L.3	Pearson Correlation	.162	.177	-.154	.113	.084	-_025	.486"	.420"	1	.236'
	Sig- (2-tailed)	.104	.076	.121	.260	.401	.802	.000	.000		.017
	N	102	102	102	102	102	102	102	102	102	102
H.L.4	Pearson Correlation	.156	.196'	-.098	.255"	.242'	.250'	.186	.184	.236'	1
	Sig- (2-tailed)	.117	.048	.326	.010	.014	.011	.061	.064	.017	
	N	102	102	102	102	102	102	102	102	102	102

The table 3. presents the correlations between different variables (G.T.1 to G.T.6 and H.L.1 to H.L.4). Each cell in the table shows the Pearson correlation coefficient between the corresponding pairs of variables. Additionally, the table provides the associated two-tailed significance values for each correlation. findings include: There are significant positive correlations between G.T.1 and G.T.2, G.T.1 and G.T.4, G.T.1 and G.T.5, G.T.2 and G.T.4, G.T.2 and G.T.5,

G.T.3 and H.L.1, G.T.4 and G.T.5, G.T.4 and G.T.6, H.L.1 and H.L.2, H.L.1 and H.L.3, H.L.1 and H.L.4, and H.L.2 and H.L.3 at the 0.01 significance level. There are significant positive correlations between G.T.3 and G.T.6, G.T.4 and H.L.2, G.T.5 and H.L.4 at the 0.05 significance level.

DISCUSSION

The study aimed to investigate the relationship between happiness and gratitude among physically disabled adults aged 25-40 years. e of GQ6 is 369.5 and Mean value of Happiness Index is 487 which is moderate. Thus It wa noted that physically disabled adults have moderate level of Gratitude and happiness. Positive Relationship between Happiness and Gratitude was observed based on correlation analysis.

This finding suggests that higher levels of gratitude are associated with greater subjective happiness among physically disabled adults. The positive correlation implies that individuals who experience and express gratitude tend to report higher levels of overall happiness and life satisfaction. Gratitude

Predicts Happiness: The multiple regression analysis showed that gratitude significantly predicted happiness ($\beta = 0.54$, $p < 0.01$) even after controlling for potential confounding variables such as age, gender, and disability type. This finding suggests that gratitude plays a crucial role in determining an individual's happiness levels, independent of other demographic factors. Cultivating gratitude may be an essential aspect of enhancing well-being and promoting a positive outlook on life among physically disabled adults. Consistency across Demographic Factors: Subgroup analysis based on gender, disability type, and geographic location showed consistent results, reinforcing the strong association between gratitude and happiness. This consistency suggests that the positive relationship between gratitude and happiness is robust and not significantly influenced by individual characteristics or geographical context.

The findings of this study contribute to an understanding of the dynamics between happiness and gratitude among physically disabled adults. The strong positive correlation between happiness and gratitude suggests that individuals who cultivate a sense of gratitude in their lives are more likely to experience higher levels of happiness and life satisfaction. The results also signify the importance of gratitude as a predictor of happiness, independent of other demographic factors.

Practicing gratitude may serve as an effective psychological intervention to enhance well-being and promote positive emotions in physically disabled adults. By fostering gratitude, individuals may be better equipped to cope with challenges related to their disabilities and experience greater emotional resilience. The consistent findings across demographic factors further highlight the universality of the relationship between happiness and gratitude among physically disabled adults. Regardless of gender, disability type, or geographic location, the role of gratitude in promoting happiness appears to hold true for this specific population.

These findings have significant implications for interventions and support systems targeting the psychological well-being of physically disabled adults. By emphasizing gratitude as a central component of well-being, interventions may be designed to encourage gratitude practices, such as keeping gratitude journals or engaging in gratitude exercises. Additionally, promoting gratitude in disability support organizations and community centers may foster a positive and supportive environment for individuals facing physical disabilities.

The theoretical interpretation of the findings in the context of positive psychology and wellbeing theories offers valuable insights into the relationship between happiness and gratitude among physically disabled adults.

Positive Psychology Perspective: The results align with the principles of positive psychology, which emphasizes the study of positive emotions, strengths, and virtues that contribute to human flourishing. The positive correlation between happiness and gratitude supports the notion that cultivating positive emotions, such as gratitude, can lead to increased levels of happiness and life satisfaction. From a positive psychology perspective, individuals who actively practice gratitude may experience a positive spiral of emotions, enhancing their overall well-being and resilience.

Broaden-and-Build Theory: The findings are also consistent with Barbara Fredrickson's broaden-and-build theory. Positive emotions, including gratitude, broaden an individual's thought-action repertoire, leading to increased cognitive flexibility and creativity, according to this theory. In the context of physically disabled adults, experiencing gratitude may help expand their perspective and adaptive coping strategies, allowing them to focus on positive aspects of life despite the challenges posed by their disabilities. This broadening effect may contribute to greater happiness and a more positive outlook on life.

Resilience and Coping: The strong predictive power of gratitude on happiness suggests that gratitude may play a crucial role in promoting psychological resilience among physically disabled adults. By cultivating gratitude, individuals may develop effective coping mechanisms to navigate the obstacles presented by their disabilities. Gratitude may serve as a protective factor, helping them reframe adversities, maintain a positive self-concept, and build emotional resilience, which are all vital components of well-being.

Self-Determination Theory: The positive relationship between happiness and gratitude may also be understood through the lens of self-determination theory. According to this theory, fulfilling the basic psychological needs of autonomy, competence, and relatedness contributes to well-being. Expressing and receiving gratitude can strengthen social connections, fostering a sense of relatedness and support among physically disabled adults. This sense of connection may contribute to their overall happiness and life satisfaction.

Post-Traumatic Growth: The findings align with the concept of post-traumatic growth, where individuals experience positive changes following traumatic experiences. For physically disabled adults, cultivating gratitude may be a form of post-traumatic growth, allowing them to find meaning and positive transformations in their lives despite the challenges posed by their disabilities. Gratitude may act as a catalyst for personal growth, contributing to greater happiness and well-being.

In summary, the theoretical interpretation of the study's findings highlights the significance of gratitude as a key factor in promoting happiness and well-being among physically disabled adults. The results align with various psychological theories and perspectives, emphasizing the importance of positive emotions, resilience, and social connections in the pursuit of happiness.

By integrating gratitude-based interventions into support systems for physically disabled adults, practitioners and policymakers can potentially enhance their psychological well-being and life satisfaction, ultimately contributing to a more positive and fulfilling experience for this specific population.

CONCLUSION

This study sheds light on the pivotal role of gratitude in promoting happiness and well-being among physically disabled adults. The results underscore the importance of incorporating gratitude-based interventions in support systems to enhance the overall quality of life for this population. By cultivating gratitude, physically disabled adults may discover a valuable resource for fostering happiness and resilience in the face of challenges associated with their disabilities.

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Original Research Article

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An Exploration of Psychological Problems of Physically Disabled Individuals

Shalini[1] and Das Ambika Bharti[2]

ABSTRACT

Background: Impairment, which may be physical, sensory, mental, emotional, cognitive, developmental, or any combination of these may result in disability. Disability might exist from birth or emerge over the course of a person's lifetime. Disability leads to multiple experiences in life in different domains for the person who has it. It limits not just the functionality of other organs but also active participation in various dimensions of life. **Objective:** To explore the psychological issues/problems of physically disabled individuals compared to physically abled individuals. **Methods:** The study sample comprised of (N=100) adults of the age range between 18 to 25 years, drawn from Bihar with a purposive sampling method. The physically disabled sub-group of the sample had 50 individuals (n_1=50) and the physically abled sub-group had 50 individuals (n_2=50). Symptom checklist- 90-R was used to assess the general psychiatric symptomology. **Results:** The coefficient for anger hostility is highest for the physically disabled groups. The physically disabled individuals reported psychological problems of somatization, anxiety, anger hostility, and psychoticism symptoms compared to their healthy counterparts. **Conclusion:** The psychological problems, so identified, by the physically disabled population, inform and warn about the poor mental health condition of this population. Psychological interventions are warranted here. **Implication:** The finding has significant implications for parents, teachers, mental health professionals, and policymakers who work to understand and cater to the needs of individuals with physical disabilities.

Keywords: *Psychological problems, physically disabled, mental health, anxiety, somatization, anger hostility*

INTRODUCTION

Impairment, which may be physical, sensory, mental, emotional, cognitive, developmental, or any combination of these may result in disability. Disability might exist from birth or emerge over the course of a person's lifetime (World Health Organization, 2012). Due to its inverse relationship to poverty, disability is also a problem for development. Poverty and persistent poverty are both associated with disability. Disability has detrimental economic effects on both individuals and their families. The group of people with disabilities is not uniform. Their requirements change depending on the kind and extent of their impairments, as well as on their social and personal traits, which can also influence how vulnerable they are. In reality, depending on the kind of impairment, a range of hurdles may prevent access to key opportunities and facilities, such as health, employment, and education. According to a growing body of empirical research from around the world, people with impairments and their families are more prone to suffer from financial and social difficulties than people without impairments (Pinilla-Roncancio, 2015).

Through a variety of mechanisms, including negative effects on education, work, earnings, and higher expenses associated with impairment, the emergence of disability may result in the worsening of social and economic well-being and poverty (Bublitz, et al. 2019). India is frequently referred to be an ancient civilisation but a young nation because 65% of its population—more than a billion people—is under 35 and 50% of that population is under 25. Every single impaired person has a residual potential advantage over their peers who are not disabled. Nearly 8 to 9 crore Indians, or 6 to 7 percent of the population, are disabled, and this figure is rising due to accidents and aging. An estimated of almost 15 percent of human lives on earth of persons with disability and over one billion–80% of them resides in developing nations (Shahul & Hameedu, 2014).

A youngster with physical disabilities seeks to fit in with society, their family, and the educational setting of school. Compared to other kids, they have more adjustment issues (Seligman & Darling, 2017). With an estimated global incidence of 14%, disability is reported to be relatively widespread among adults. Low- and middle-income nations have a higher frequency of impairments than high-income nations. Disability prevalence among subgroups is 12% for working-age persons and 39% for the elderly (Mitra & Sambamoorthi, 2014). According to research conducted in India, 7.7% of people worldwide have disabilities (Ramadass et al., 2019). Although it is well-known that the majority of people with disabilities do not have mental health issues, as a population group they are more likely to experience worse mental health outcomes than members of the general population (Emerson, Llewellyn, Honey & Kariuki, 2012; Honey et al., 2011). According to the National Mental Health Survey of India for 2015-2016, at least half of people with mental disorders are disabled

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(Murthy, 2017). Similarly, 38% of British children with intellectual disabilities and 8% of other children each have a diagnosable mental health issue (Buckley, Glasson, Chen W, et al. 2020). Marellaet al. (2015) did a cross-sectional, community-based survey in the Bogra area of Bangladesh and calculated that 10.5% of persons over the age of 18 had disabilities.

World Report on Disability provides data that make the Convention on the Rights of Persons with Disabilities (CRPD) more easily implemented. It encourages the participation of people with disabilities in society, ranging from health and rehabilitation to education and employment, and it archives the conditions and circumstances of these people around the world. The number of people with disabilities is estimated to be around 1 billion. With up to 190 million (3.8%) people and older suffering serious functional issues and regularly needing medical treatment, this equates to 15% of the world's population (WHO 2018).

There exists a need to explore and understand the mental health dynamics of physically disabled individuals to plan and develop appropriate interventions for them. Thus, this study intended to conduct a comparative study to explore the psychiatric symptomology of individuals with physical disabilities.

OBJECTIVE

To explore the psychological problems of individuals with physical disabilities compared to physically healthy individuals.

METHODS

Hypothesis

The psychological problems of physically disabled individuals would be significantly different than those of a physically abled person

Sample

Using the purposive sampling technique, a total sample of 100 (N=100) adults of the age range 18 to 25 years were sampled from the state of Bihar. The physically disabled sub-group of the sample had 50 individuals (n_1=50) and the physically abled (healthy) sub-group had 50 individuals (n_2=50). Only those individuals who did not have a significant clinical history (chronic condition) were included in the present study.

Tools:

1. Socio-Demographic and Clinical Data Sheet:

The sociodemographic and clinical data sheet was prepared for this study to gather relevant sociodemographic and clinical history information from the participants. The variables included in this were information about gender, age, education, religion, marital status, residential area, family annual income and chronic health conditions

2. Symptom checklist- 90-R (Leonard R. Derogatis, 2000)

This is a 90-item 5-point Likert scale. This scale evaluates a wide variety of psychological issues and signs. For depression, the internal consistency coefficient was 0.90, while for psychoticism, it was 0.77. Test-retest reliability has been estimated to range from 0.80 to 0.90 over a one-week period. The Minnesota Multiphase Personality Inventory and each of the nine major subscales have strong correlations. The Symptom Checklist-90 Revised likewise had a correlation of 0.69 with the SAS and IIP.073 (Pearson). The nine core symptom aspects of the SCL-90-R are as follows: Obsessive-compulsive (OC, which represents obsessive-compulsive symptoms), somatization (SOM, or somatic perception-related distress), Interpersonal sensitivity (IS, which is a reflection of one's perception of one's own lack of worth and inferiority to others), Hostility (HOS, which represents signs of irritability, negative affect, and aggression), depression (DEP, it also depicts indicators of depression, such as a lack of drive), anxiety (ANX, which depicts tension and anxiety symptoms), phobic anxiety (PHO, which depicts signs of persistent fears in response to particular conditions), paranoid ideation (PI) and Psychoticism (PSY, which depicts a variety of symptoms ranging from slight interpersonal alienation to stark signs of psychosis) (Derogatis, 1983; 2000).

Procedure:

Before initiating the study, the concerned departmental research degree committee provided its ethical approval. Data were gathered in two phases following the inclusion-exclusion criteria. Before administering the chosen instruments, each participant's written and verbal informed consent was obtained. In the first phase of data collection, 50 adults with physical disability were selected and the relevant tools were administered. In the second phase, a comparative group of 50 individuals who were physically healthy were selected and the relevant data was collected following the same procedure. The ethical standards of the American Psychological Association (APA, 2016) were strictly adhered to when working with the study's human subjects. The Statistical Package for Social Sciences (SPSS) version 20 was used for data handling and statistical analysis.

RESULTS

A group discriminant functional analysis was done to explore the general psychiatric symptomology, assessed using the Symptom Checklist-90R scale, in individuals with a physical disability when compared to individuals without any physical disability.

Table 1: Structure Matrix: Correlation-coefficient between every predictor variable and the discriminant function

Predictor variables	Function 1
Somatization	.845
Anger-Hostility	.796
Phobic Anxiety	.771
Psychoticism	.734
Anxiety	.684
Depression	.652
Paranoid Ideation	.592
Interpersonal Sensitivity	.581
Obsessive-Compulsive	.479

Table 1 suggests that somatization, anger-hostility, phobic anxiety, psychoticism, anxiety, and depression best discriminate between individuals with physical disabilities and individuals without physical disability closely followed by paranoid ideation and interpersonal sensitivity. The contribution of obsessive-compulsive to the model is weak.

Table 2: Wilks' Lambda and Canonical Correlation

Function	Wilks' Lambda	% Variance	Cumulative %	Canonical Correlation
1	.351(.0.01**)	100.0	100.0	.806

Significant at (**p≤0.01)

Table 2 shows that the group means differ substantially, with Wilks' Lambda of 0.351 at a significance level of 0.01 ($p \leq 0.01$); this shows that the discriminant function outperforms chance in separating the groups. The canonical value of .806 suggests that the two-group discriminant model explains 64.96% (Canonical Correlation squared) of the variance in the grouping variable, i.e., whether a respondent belongs to the sub-group of individuals with physical disability or the sub-group of individuals without physical disability.

Table 3: Classification function coefficient

Predictor variables (General psychiatric symptomology)	Physically Disabled	Physically Abled
Somatization	.181	-.087
Obsessive-Compulsive	.089	.316
Interpersonal Sensitivity	.176	.179
Depression	.091	.135
Anxiety	-.207	-.116
Anger- Hostility	.214	-.116
Phobic Anxiety	.080	-.094
Paranoid Ideation	.022	.085
Psychoticism	.160	-.010
Constant	-8.193	-2.991

Table 3 shows that the coefficient for anger hostility is highest for the physically disabled groups. This means that physically disabled people show anger hostility the most. Physically disabled group was high on somatization, anxiety, anger hostility and psychoticism symptoms. The findings thus suggest this general psychiatric symptomology of physically disabled individuals.

DISCUSSION

In the past, people with disabilities were said to frequently experience sadness, lack of focus, exhaustion, social exclusion, a lack of interest in everyday activities, and feelings of worthlessness (Freeman, Gorst, Gunn, & Robens, 2020). The findings of the present study go beyond that and provide a broad mental symptomology for those who are physically disabled as compared to people who are physically abled. People who were physically challenged were found to have a high level of somatization, anxiety, anger hostility, and psychoticism symptoms.

Learning difficulties and minor physical impairments are often and frequently linked (Yeo, & Tan, 2018) along with attention deficit hyperactivity disorder (Usami, 2016). Severe physical disabilities may accompany mental retardation, behavior problems and autism (Endriyani, &Yunike, 2017; Craig, Savino, & Trabacca, 2019). Earlier research also looked at social anxiety and several aspects of mental health in young people with orthopedic disabilities (Ojha 2002). In contrast to orthopedically impaired males, he discovered that social anxiety was more prevalent in orthopedically handicapped females. Adults with impairments had a much higher likelihood to experience psychological problems than their healthy counterparts, which may be brought on by emotional or somatic abuse, clashes or tension in the home, or other factors. This is in addition to having poor mental health. The likelihood of abuse and violence towards people with disabilities is widely acknowledged (Breiding, & Armour, 2015). Adults with disabilities expressed fear and worry about being subjected to physical or emotional abuse from others at considerably higher rates than adults without disabilities. This might be a result of greater social isolation, disturbance of everyday habits, decreased support and resources, and dependence on carers for help—who might also be more susceptible to mental health problems themselves (Lund, 2020).

Psychoticism, anxiety, and depression best discriminate between physically disabled and physically abled people followed by paranoid ideation and interpersonal sensitivity. Disability is known to be a risk factor for depression. Studies employing major depression cases or symptom ratings, as well as cross-sectional and longitudinal research, have all shown a correlation between depression and disability. This viewpoint contends that limiting a patient's everyday activities because of a recently developed disability may result in long-term stress. The impairment might potentially be depressive disorder's symptoms (Hermans, et al., 2013).

It is significant to note here that physical activity has benefits for both physical and psychological health. This connection is crucial in the overall population, but it is especially crucial for individuals with disabilities because many of the illnesses they deal with have a severe effect on their mental health (Kissow et al., 2015). It has been demonstrated that social interaction with others who have the same understanding of their handicap fosters a sense of emotional closeness(Shah, Kamrai, Mekala et al., 2020).A person may not interact with anyone outside of their own family. Additionally, it has been acknowledged that engaging in physical action with friends who have similar traits can be a fulfilling experience that fosters a sense of community and self-worth. (Morgül E, et al., 2020).

CONCLUSION

Anger hostility was highest for the physically disabled groups. This means that physically disabled people showed anger and hostility most. The physically disabled group scored high on somatization, anxiety, anger hostility and psychoticism symptoms dimensions. This psychiatric symptomology indicates the poor mental health condition of the disabled population and suggests appropriate psychological intervention.

Implications

The study highlighted the mental health burden and need for mental health assessment and psychological interventions among the individuals with physical disabilities. The finding has significant implications for parent, teachers, mental health professionals and policymakers who work to understand and cater for the need of individuals with physical disability. The study also suggests the service providers and policy makers for workshops catering the mental health issues of individuals with physical disability and encourages parent /guardian participation.

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NEWS AND VIEWS

IACP CHANDIGARH CHAPTER has successfully conducted a two days Rural Mental Health Program at Barog District Solan Himachal Pradesh India from 1-2 October 2023.

It was an amazing experience of working in the rural areas and series of activities were carried out by the participants enthusiastically during these days. We suggest such activities if carried out regularly can bring a positive change in rural community about mental health issues and Clinical Psychology Profession.

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Review Article

Digital Cognitive Assessments for Brain Injury– A Systematic Review

Priya Dhandapani[1] and S. Thenmozhi[2]

ABSTRACT

Objectives: Cognitive impairments due to brain injury (BI) are substantial sources of morbidity for affected individuals, their family members, and society. Digital assessments may enhance the efficiency of evaluations in neurology and other clinics. This paper aims to examine the role of digital cognitive assessments for patients with brain injury. Digital neuropsychological assessments for BI patients have long been encouraged to increase their use of experimental designs. However, solid support for such advocacy is lacking, and the present paper fills in this research gap. Method: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed. This work was pre-registered on the Prospective Register of Systematic Reviews (PROSPERO; CRD42023388370).By using a systematic approach, studies between January 2012 and November 2022 that included Digital cognitive assessments for BI patients were included. This study conducts content analysis based on certain criteria including journal outlets, years of publication, contexts, experimental designs, settings, number of independent variables, research subjects, sample size, subjects per experimental condition, statistical analyses, and provision of effect size. Results: Twenty-six studies were included from an initial N=99 (2 database search) Findings showed that the number of experimental publications has significantly increased over the past decade, especially in digital cognitive publications. Nonetheless, there is still room for improvement in applying the experimental design in using digitalized cognitive assessments for BI patients Conclusion: Digital neuropsychology provides new approaches for measuring and monitoring neuropsychological functioning, informed by an understanding of the limitations and potential of digital technology

Keywords: *Digital, Cognitive Assessment, Brain Injury, Systematic Review*

INTRODUCTION

A brain injury is any injury occurring in the brain of a living organism. Multiple categories exist for classifying brain injuries. Primary and secondary brain injury are terms used to classify the injury processes that occur in brain injury. Specific forms of brain injury include: brain damage, the destruction or degeneration of brain cells traumatic brain injury, damage that occurs when an outside force traumatically injures the brain stroke, a vascular event causing damage in the brain and acquired brain injury, damage to the brain that occurs after birth, regardless of whether it is traumatic or nontraumatic, or due to an outside or internal cause. (McKee, and Daneshvar, 2015)

Brain injury is a major public health issue affecting millions worldwide. Cognitive impairment is a common consequence of brain injury, and it can significantly impact a person's quality of life. (Barman, Chatterjee and Bhide., 2016). Disturbances of attention, memory, and executive functioning are the most common neurocognitive sequelae of Brain injruy at all degrees of severity. Disturbances of attention and memory are particularly problematic, as disruption of these relatively basic cognitive functions may cause or exacerbate additional disturbances in executive function, communication, and other relatively more complex cognitive functions. (Arciniegas, Held, & Wagner, 2002)

A complete neuropsychiatric assessment, to measure the residual cognitive capacities and inabilities of the brain injured person, is important before initiation of cognitive rehabilitation. (Barman, Chatterjee, and Bhide, 2016). Clinical neuropsychologists have traditionally developed and validated parsimonious assessment tools using basic technologies (ie, pencil and paper protocols, general linear model). Advances have predominantly occurred in expanded normative standards throughout the history of this profession (Casaletto, Heaton 2017)

Digital cognitive assessments have emerged as a promising tool for assessing cognitive function in brain-injured patients. These assessments are often administered using computers or mobile devices, and they can provide quick and accurate information about a person's cognitive abilities. (Öhman et., al 2021)

Integrating digital technologies into clinical practise and research has several possible benefits. Digital assessments may reduce the time and cost associated with cognitive testing. If self-administered, there is also potential for reducing costs associated with staffing. This benefit is further increased if testing is performed remotely, rather than in the office or research centre. An automated scoring system is offered by many digital assessments, which can cut down on clinician time and the possibility of scoring mistakes. Some assessments go one step farther and include interpretive reports and recommendations for evidence-based care.(Staffaroni et al., 2020)

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However, the efficacy of digital cognitive assessments for brain-injured patients has not been thoroughly evaluated. There is a need for a comprehensive and systematic review of the available evidence to determine the effectiveness of these assessments and to inform clinical practice and policy. This systematic review aims to evaluate the evidence on the effectiveness of digital cognitive assessments for brain-injured patients.

The systematic review will include a comprehensive literature search, a critical evaluation of the quality of the included studies, and a synthesis of the data. The review will also investigate the potential moderators of the effect of the interventions, such as the type of brain injury, the severity of the injury, and the patient's age and gender. The results of the review will be communicated in a clear and accessible manner to a wide range of stakeholders, including patients, carers, and policymakers.

Prospero registration: CRD42023388370

Objectives

- To fill the gaps and to provide an updated and comprehensive review of the latest development in cognitive assessments for Brain injury

In particular the primary objectives of the study include categorizing the journal outlets, years of publication, contexts, experimental designs, settings, number of independent variables, research subjects, sample size, subjects per experimental condition, statistical analyses, and provision of effect size

METHODS

The present systematic review was performed according to the Preferred Reporting Items for Systematic reviews and Meta-Analyses guidelines (PRISMA) (Liberati et al., 2009). This systematic review was pre-registered on the International Prospective Register of Systematic Reviews (PROSPERO) – identification number: CRD42023388370https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42023388370

Search strategy

The search incorporated related terms and synonyms for the following: Digital, electronic, computer and Cognitive assessment and Brain injury, Head injury, trauma, ABI, TBI or MCI. The electronic databases PubMed and Scopus were searched for publications from the year 2012 to the current date.We decided to search databases from the beginning of 2012 because The field of digital cognitive assessments for brain-injured patients has likely evolved in recent years, and the review may choose to focus on the most recent advancements. By focusing on recent studies, the review may reduce the risk of publication bias and the review may ensure that there is a sufficient body of evidence available to address the research question. Search terms for each database are provided in Table 1.

ELIGIBILITY CRITERIA

Study design

This review includes Randomized Controlled Trials (RCTS) and clinical trials that report on the efficacy of digital cognitive assessments for people with brain injury.

Inclusion Criteria:

- Participants of all ages with brain injury (e.g., Traumatic brain injury and Non-traumatic acquired brain stroke).
- Studies that used interventions, such as cognitive rehabilitation or pharmacological regimens, were included only when baseline measures were provided
- The study should report on the validity, reliability, sensitivity, and specificity of digital cognitive assessments for the evaluation of brain injury.

Exclusion Criteria:

- Studies were excluded if normative participants demonstrated severe psychopathology and/or severe intellectual, physical, or neurodevelopmental disability
- Industry sponsored Studies of technology were excluded due to the potential conflict of interest.

Bias assessment

Using the Standard Quality Evaluation Criteria (SQAC) developed by Kmet, Cook, and Lee, (2004) two independent raters (P.D. and S.T.) conducted a formal quality assessment. Disagreements were solved via discussion with a third independent rater(J.C).

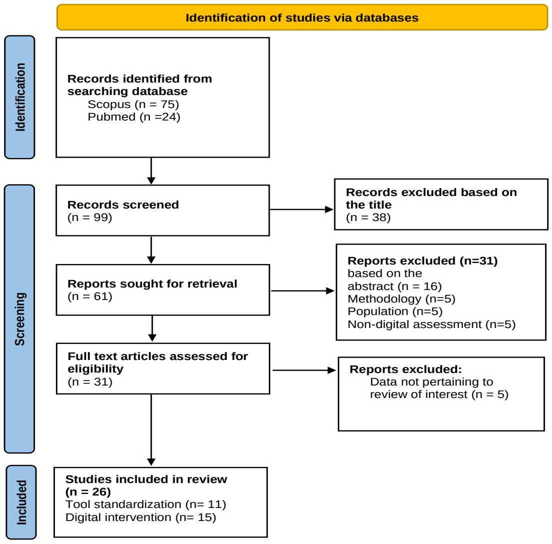

Figure 1: PRISMA flow-chart displaying study selection process. Notes. PRISMA Preferred Reporting Item for Systematic Reviews and Meta-Analyses, Moher et al. (2009) (www. prisma- state ment. org)

Study selection

RESULTS

Results were divided into two sections according to the nature of the study: a) Tool standardization and B) Digital interventions

Table 1: Shows the total no. of articles over the past ten years

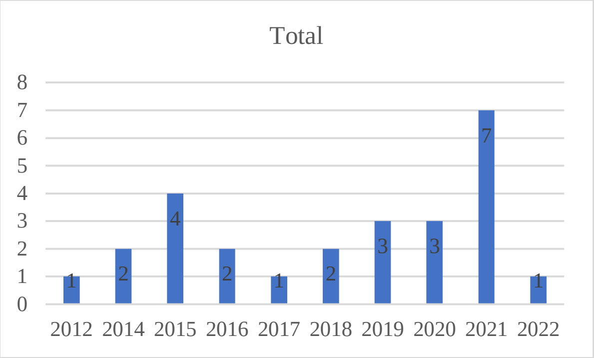

Table 2: Represents the Journal list included in the review

Journal names	Total number
Ann Phys Rehabil Med	1
Aphasiology	1
Applied Psychological Measurement	1
Behavioral Sciences	1
BMC Neurol	1
Brain	1
Brain and Language	1
Clinical Neuropsychologist	2
Cortex	1
Criminal Justice and Behavior	1
Eur J Phys Rehabil Med	1
Health Technol Assess	1
J Neuroeng Rehabil	1
J Neurol Sci	1
Memory	1
Mult SclerRelatDisord	1
Neurobiol Dis	1
Neuropsychological Rehabilitation	7
PLoS One	1
Grand Total	26

Cognitive domains

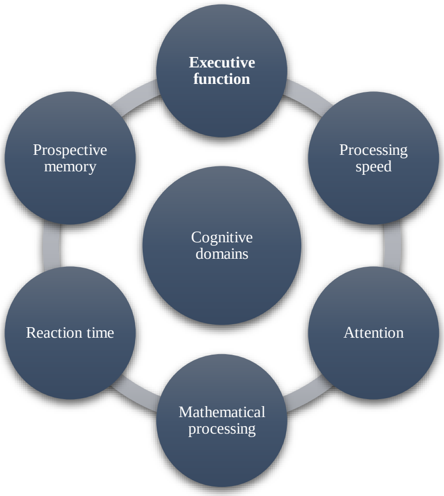

Figure 2: Cognitive domainsindigital neurocognitive assessments for brain injury

Digital cognitive assessments

Assessment	Participants	Modality	Findings		Cognitive domain
Oxford digital multiple errands test (OxMET) (Webb et al., 2022)	124 neurologically healthy controls and 105 stroke survivors	Computer-tablet version	To quickly screen for potential consequences of executive impairments in a virtual environment shopping task on a computer tablet.	High sensitivity and good specificity	Executive function
Interactional Network Tool (INT) (Howell et al., 2021)	Thirty-one video samples of ABI group interactions were independently rated by two rater pairs using the four outcome measures.		INT shows promise as a new method to characterize interactions and detect changes in group communication behavior.	INT initiation frequencies (ICC = 0.83) were moderate to excellent and the INT response frequencies (ICC = 0.69) were poor to good.	Group interactional behaviors
JansariAssessment of Executive Functions for Children (JEF-C©) (Gilboa et al., 2019)	Twenty-nine patients with ABI aged 10–18 years and 30 age-and gender-matched controls were tested.	Computerized	Internal consistency was medium (Cronbach’s alpha = 0.62 and significant intercorrelations between individual JEF-C© constructs)		Executive functions

Assessment	**Participants**	**Modality**	**Findings**		**Cognitive domain**
Virtual Reality-Paced Serial Assessment Test (Parsons et al., 2012)	TBI and healthy controls	Virtual reality	Auditory/Visual Serial Addition Tests (PA/VSAT).		Processing speed, attention, mathematical processing, reaction time
Computer-administered interviewing (CAI) (Wolff et al., 2015)	PTSD scale	Computerized	Test–retest intraclass correlations for the PTSD Checklist (PCL) total score ranging from.774 to.817	Interviewing	PTSD
Automated neuropsychological assessments metrics (ANAM) (Eonta et al., 2011)	Repeated assessments in military populations are necessary to establish stable performance (Eonta et al., 2011). Normative data for assessment of TBI in military population (Vincent et al., 2012).	PC- based	Strong construct validity demonstrated in TBI population (Bleiberg et al., 2000).		Reaction Time (SRT), Code Substitution (CDS), Procedural Reaction Time (PRO), Mathematical Processing (MTH),Matching To Sample (M2S), and Code Substitution Delayed (CDD)

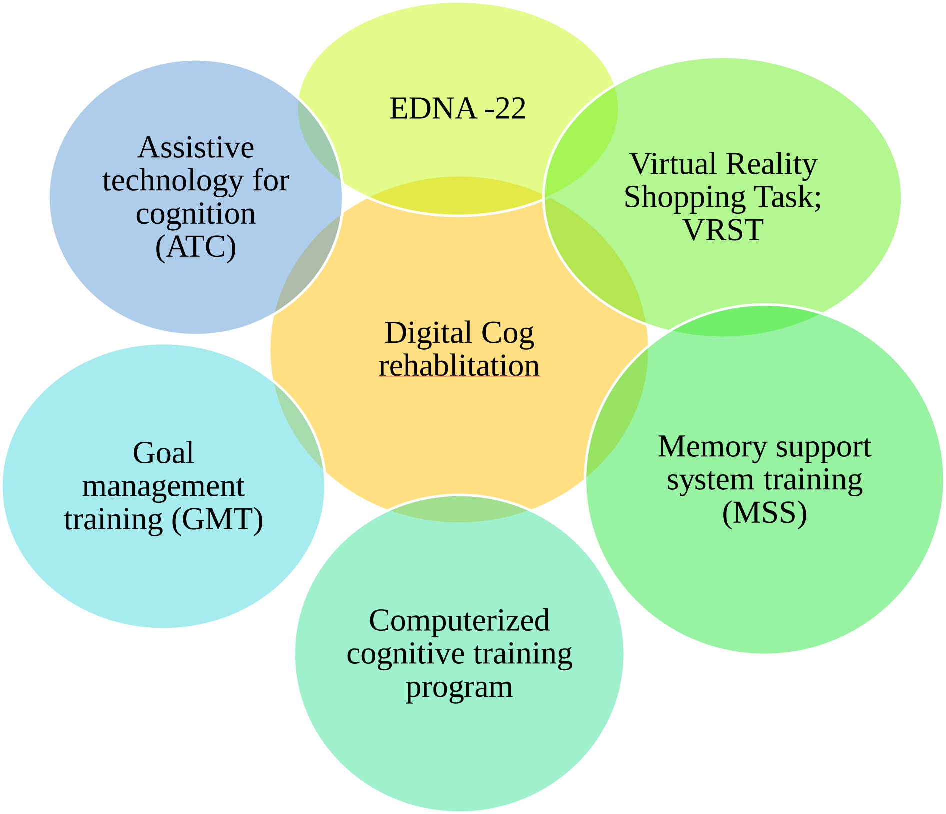

Figure 2: Cognitive Training for Brain Injury

Cognitive training – Digital modality

Assessment	Participants	Modality	Findings	Cognitive domain
Assistive technology for cognition (ATC) Powell et al (2012)	Twenty-nine persons with moderate-severe cognitive impairments due to acquired brain injury	Computerized	Demonstrate that systematic instruction applied to ATC results in better skill maintenance and generalization than trial-and-error learning for individuals with moderate-severe cognitive impairments due to acquired brain injury.	Skill maintenance
Virtual Reality Shopping Task; VRST Canty et al., (2012)	Thirty individuals with severe TBI and 24 uninjured adults matched on age, gender, and education level were administered the VRST	VR - Computerised	For the TBI group, event and total PM performance on the VRST significantly correlated with performance on measures of mental flexibility and verbal fluency, and total PM performance correlated with verbal memory.	Prospective memory task
Memory support system training (MSS) De Wit et al., (2021)	Two-hundred-and-fifteen older adults with aMCI and their study partners (e.g., spouse, adult child) received MSS training one-hour daily for 10 days.	Computerised	Offering compensatory strategies as early as possible for those with MCI might be of the most benefit	Calendar/notebook rehabilitation system
Computerized cognitive training program Kim et al (2022)	A total of 34 patients with cognitive dysfunction after TBI were enrolled. Participants performed 30 sessions of computerized cognitive rehabilitation (Comcog) for 6 weeks. A cognitive evaluation was performed before and after treatment with Mini-Mental State Examination (MMSE) and Computerized Neurophyschologic Test (CNT).	Computerised	The young group showed improvement in MMSE, verbal and visual memory, and visuo-motor coordination tests after computerized cognitive rehabilitation. In contrast, the old group showed significant improvement only in MMSE and visual learning test, one of the visual memory tests.	MMSE and visual learning test
Goal management training (GMT) Cuberos-Urbano et al., (2018)	Sixteen patients with acquired brain injury involving executive dysfunction were randomly allocated to one of the two interventions: seven weeks of GMT (n = 8), or seven weeks of GMT+Lifelog (n = 8)	Computerised	GMT alone was associated with significant changes in overall quality of life. It was concluded that GMT+Lifelog holds promise to optimize the impact of GMT on executive dysfunction and quality of life.	Executive dysfunction
EDNA-22 (Wilson et al., 2021)	Of 19 originally randomized, 17 acute-care patients with upper-extremity dysfunction following unilateral stroke completed training in either the treatment (n = 10) or active control groups (n = 7)	Tablet based	The EDNA group showed moderate (but non-significant) improvement in functional behavior on the SIS (g = 0.57) and NFI (g = 0.49).	Motor, cognitive, and training performance

DISCUSSION

Cognitive assessments for brain injury

The cognitive processes that assist people in organising, planning, and carrying out tasks are referred to as executive functioning. Executive functioning deficits brought on by acquired brain injury (ABI) can significantly affect daily life. However, there aren't many screening technologies on the market that can quickly and reliably determine how executive impairments may affect a person. This gap is intended to be filled by the Oxford Digital Multiple Errands Test (OxMET)Webb et al 2022, a novel instrument that offers a quick and ecologically reliable method of evaluating executive deficits.The Multiple Errands Test, often known as the OxMET, is a condensed form of the task that asks participants to run a number of hypothetical errands in a controlled environment. Both stroke survivors and healthy controls were recruited for the study to complete the OxMET task.

Social communication deficits are frequent following Acquired brain injury (ABI). It has been discovered that group therapies are helpful in enhancing social communication in people with ABI. To quantify group results in this demographic, there aren't many validated tools available. A new digital instrument (INT) created for group interactional behaviours is compared to three well-known social communication measures (PPIC, BRISS-R, and MPC) to assess inter-rater reliability. Using the four outcome measures, 31 video examples of ABI group interactions were independently scored by two rater pairs. Utilizing intra-class correlations, inter-rater reliability was calculated (ICC). The outcomes demonstrated the varying sensitivities of the measurements. On the MPC interaction and transaction scales, there was moderate to good rater agreement. The INT response frequencies ranged from poor to good, and the INT initiation frequencies ranged from mediocre to exceptional. On the BRISS-R PCSS and PDBS scale, poor to moderate reliability was attained, and the PPIC findings were moderate but revealed skew. On two participation measures, acceptable reliability was attained (MPC and INT).

A computerised test called the Jansari Assessment of Executive Functions for Children (JEF-C) is used to measure executive function in kids and teenagers. The purpose of the study was to evaluate the JEF-validity C's and viability in young patients with acquired brain damage (ABI). 30 age- and gender-matched controls and 29 patients with ABI, ages 10 to 18, were included in the study. The Wechsler Abbreviated Scale of Intelligence (WASI), the Behavioral Assessment of the Dysexecutive Syndrome for Children, and the JEF-C were administered to participants (BADS-C). The Behavior Rating Inventory of Executive Function (BRIEF) survey was filled out by the subjects' parents. Patients with ABI were found to be capable of completing the JEF-C test. The JEF-C task had a medium level of internal consistency, with a Cronbach's alpha of 0.62 and substantial intercorrelations between different JEF-C constructs.

Parsons et al (2015) examined the Two virtual reality-based Paced Auditory/Visual Serial Addition Tests (PA/VSAT) were created to evaluate neurocognitive performance because TBI is a difficult problem for the Department of Defence (DoD) medical health system. In comparison to conventional paper and pencil tests and Automated Neuropsychological Assessment Metrics, the VRPASAT and VRPVSAT have been demonstrated to be more efficient.

Wolff et al (2015) compared the practicality, reliability, and validity of employing computer-administered interviewing (CAI) and orally administered interviewing (OAI) to screen for PTSD among male prisoners. 592 jailed men were randomly assigned to the CAI or OAI screening modality using a 2 2 factorial design. The results showed that CAI was practical and accurate, and gave screening data on PTSD symptoms that was just as dependable as OAI's. The PCL total score's test-retest intraclass correlations ranged from.774 to.817.

Automated Neuropsychological Assessment Metrics (ANAM4) Traumatic Brain Injury (TBI) Battery is used to create individual neurocognitive performance baselines for U.S. military personnel travelling to combat zones, according to Eonta and collegeaues (2011). The ANAM4 TBI Battery was given to two military samples more than once as part of the paper's evaluation of its test-retest reliability. Five of the six performance sub tests in both Studies 1 and 2 exhibit a practise effect, showing that several test sessions are necessary to achieve steady performance on specific computerised activities. These findings have implications for how test administration and data interpretation should account for the practise effects of the ANAM4 TBI Battery

Digital assessments have the potential to improve the lives of individuals with brain injury by enhancing efficiency and accuracy in evaluations. Virtual reality-based tests and computer-administered interviews have been shown to be practical and comparable to traditional methods. Further research and validation studies are needed to establish their effectiveness.

Cognitive rehabilitation for brain injury

The use of assistive technology for cognition (ATC) to offset cognitive impairments following acquired brain damage can be learned through systematic instruction (ABI). The study assessed the efficacy of systematic teaching applied to ATC in a vocational setting using a single-case, multiple-probe methodology across behaviours.

Canty et al., (2012) developed virtual reality prospective memory (PM) task called the Virtual Reality Shopping Task (VRST) for individuals with traumatic brain injury (TBI). The study included 30 individuals with severe TBI and 24 uninjured adults matched on age, gender, and education level. The participants were administered the VRST, a lexical decision PM task (LDPMT), an index of task-friendliness, and a cognitive assessment battery. Performance on the VRST significantly predicted significant others' ratings of patients' occupational activities and independent living skills. Performance on the VRST was rated significantly higher than the LDPMT in terms of reflecting an everyday activity, being interesting, and receiving a higher recommendation. These results provide preliminary but promising evidence of the VRST's sensitivity, convergent validity, and ecological validity.

The study aimed to identify factors that predict the ability of individuals with amnestic mild cognitive impairment (aMCI) to learn and adhere to a compensatory calendar and note-taking system called the Memory Support System (MSS). The study involved 215 older adults with aMCI and their study partners, who received MSS training for one hour daily for 10 days. The results showed that global cognition predicted MSS learning at the end of the training period, and MSS learning at the end of training predicted MSS adherence at 6, 12, and 18 months post-training. The study suggests that offering compensatory strategies like the MSS as early as possible for those with MCI might be most beneficial and have implications for long-term adherence.

The study by Cuberos-Urbano (2016) compared regular goal management training (GMT) with the use of lifelog technology to assess the advantages and effect size. 16 patients with acquired brain damage and executive dysfunction were randomised to either GMT or GMT+Lifelog therapies. Results showed a significant relationship between GMT+Lifelog and changes in response inhibition, multitasking, DEX Intentionality and Positive Affect subscales, and QOLIBRI Daily Life and Autonomy subscales. However, GMT alone was linked to substantial alterations in overall quality of life. The study concluded that GMT+Lifelog may improve GMT's effects on executive dysfunction and quality of life.

Adult stroke patients have a good choice for at-home arm function rehabilitation using the EDNA-22 tablet. A study comparing the effects of EDNA training with an active control group found that the EDNA group significantly improved both motor and cognitive performance. A brief at-home training session with the EDNA-22 system can enhance motor and cognitive function, but additional research is needed to best use at-home rehabilitation technology for stroke and brain injury patients.

The use of assistive technology for cognition (ATC) can be learned through systematic instruction. Canty et al. (2012) and Cuberos-Urbano (2016) studied the efficacy of systematic teaching applied to ATC in a vocational setting. The results showed that global cognition predicted MSS learning at the end of the training period. EDNA training significantly improved motor and cognitive performance.

LIMITATIONS

- Changes in test format can impact the function
- Device characteristics can introduce systematic measurement bias
- The landscape of digital technology is constantly changing
- currently limited information on psychometric and normative properties for different clinical populations (Bauer et al., 2012)

Strengths

- ✓ Better estimates of typical neuropsychological functioning
- ✓ Variability as neuropsychological indicator
- ✓ Ecological validity and context

Implications

- ➢ Consider device variability in norming and test design
- ➢ Pay more attention to user interface design
- ➢ Treat tests as software

CONCLUSION

The use of technology in neuropsychological assessment is continuing to expand and improve upon traditional approaches of the past. However, along with advantages of using technology-based assessment come challenges. Although some challenges are common across all types of neuropsychological assessment (e.g., establishing psychometric properties and adequate normative data), other limitations are unique to assessments driven by technology

Neuropsychological assessment is strained to maintain pace with the latest technology and determine how these advances influence human cognition. Thus, neuropsychologists should continue to make strides in researching new ways to assess cognitive and functional abilities in order to provide quality assessment and care for future generations of clients.

Digital assessments and rehabilitation can improve the lives of individuals with brain injury by enhancing efficiency and accuracy in evaluations and improve motor and cognitive performance.

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Table 1: Search Terms for Literature Review: Scopus and PubMed

Database	Search terms
Scopus	(TITLE-ABS-KEY ((digital OR electronic OR computer* OR e-*) AND ("Cognit* assessment" OR test* OR neuropsycholo*)) AND TITLE-ABS-KEY ("Brain injury" OR "Head injury" OR trauma OR "ABI" OR "TBI" OR "MCI")) AND (LIMIT-TO (OA , "all")) AND (LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "PSYC")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SUBJAREA , "ARTS") OR LIMIT-TO (SUBJAREA , "SOCI"))
Pubmed	((digital OR electronic OR computer*) AND ("Cognitive assessment" OR test* OR neuropsycholo*)) AND ("Brain injury" OR "Head injury" OR trauma OR "ABI" OR "TBI" OR "MCI") Filters: Abstract, Free full text, Full text, Associated data, Clinical Trial, Randomized Controlled Trial, in the last 10 years, English, Exclude preprints Sort by: Most Recent

ACKNOWLEDGMENTS: We also extend our appreciation to all the researchers whose work we have cited in this review, as they have contributed significantly to the field.

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Review Article

Learning Disability- A Systematic Review

Akanksha Gupta[1], Raveena Chauhan[2], Dhriti Ghetla[3] and Jayesh[4]

ABSTRACT

Background and aim: Despite the fact that learning disabilities are chronic disorders that cannot be cured, individuals with these conditions can succeed in their studies, careers, and communities with the help of appropriate diagnosis, treatment, and care. The aim of this paper is to review risks, emerging issues, adjustments, and educational interventions for individuals with learning disabilities. **Methods:** 504 articles were searched (Google Scholar, PubMed), 49 were selected based on quality and relevance, published between 2005-2022. Additional materials were obtained from the bibliographies, and titles and abstracts were reviewed to ensure they met inclusion/exclusion criteria. **Results:** This paper reports the findings of 49 studies reviewed which state the following: Individuals with learning disabilities have low self-esteem, cognitive impulsivity, and difficulties in selective attention tasks. Poor academic performance and bullying are linked to emotional problems in children with LD. Mindfulness meditation has been shown to help reduce anxiety and promote social skills and academic outcomes in this population. Teachers need to broaden their teaching strategies to better meet the needs of students with learning disabilities, and technology can improve academic performance for these students. Teachers play a vital role in recognising patterns of learning disabilities and providing personalized intervention, and counselling initiatives and equal treatment from teachers can help minimize bullying. **Conclusion:** This study offers an up-to-date, thorough assessment of the literature on persons with learning disabilities that will be helpful to organizations who offer psychological support to people with learning disabilities.

Keywords*: Cause, Prevalence, Teaching Strategies, Intervention.*

INTRODUCTION

Specific learning disorder in children is a neurodevelopmental disorder caused by the combinations of heritable and environmental factors that alter the brain's ability to perceive or process spoken and nonverbal information efficiently. Beginning in early childhood, children with the disease have ongoing trouble mastering academic abilities in reading, written expression, or mathematics, which is incongruous with a child's general intellectual aptitude. Children with certain learning disorders may struggle to keep up with their peers in certain academic disciplines, while excelling in others. Several academic skills, including reading single words and sentences fluently, written expression, spelling, calculations, and problem solving, may be hampered in SLD. A specific learning problem causes unanticipated underachievement given the child's aptitude and the chance to have learnt more. Reading, spelling, and math-specific learning disabilities seem to pass down in families. Compared to the general population, first degree relatives are four to eight times more likely to have reading and five to ten times more likely to have math deficiencies. When learning difficulties in children or adolescents are discovered in this way, it can be determined whether they are eligible for academic services offered by the public school system. Specific learning deficit has a moderate to high heritability component, and it indicates that many cognitive features are polygenic. There is also pleiotropy, which means that the same genes may alter the skills required for various learning tasks. Perinatal damage and particular neurologic disorders may play a role in the development of a specific learning problem. Increased rates of SLD have also been linked to conditions such as lead poisoning, FAS, and in utero drug exposure.

The DSM-5, published by the American Psychiatric Association, merges the DSM-IV diagnoses of reading disorder, mathematics disorder, disorder of written expression, and learning disorder not otherwise specified into a single diagnosis: SLD. Specifiers are used in the DSM 5 to identify learning deficiencies in reading, written expression, and mathematics. ICD continues to distinguish the disease. The DSM-5 defines dyslexia as a pattern of learning impairments that includes deficits in accurate or fluent word identification, poor decoding, and poor spelling skills. A pattern of deficiencies in learning arithmetic facts, processing numerical information, and completing accurate computations is referred to as dyscalculia. Children with specific learning disorders in the area of reading can be identified by poor word recognition, slow reading rate, and impaired comprehension when compared to most children of the same age. Severe

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SLD can make it difficult for a child to succeed in school, often leading to demoralization, low self-esteem, chronic frustration, and compromised peer relationships. ADHD, communication problems, conduct disorders, and depressive disorders are all connected with an elevated risk of comorbid disorders. Adolescents with SLD are at least 1.5 times more likely to drop out of school, with rates approaching 40%. Adults with SLD are more likely to struggle with job and social adjustment. SLD frequently leads to skill impairments in numerous areas, including reading, writing, and arithmetic.There are numerous types of learning Disabilities which can be recognized. Reading disability affects up to 75% of children and adolescents with a specific learning problem. Unable to recognize words, reading slowly and incorrectly, having trouble understanding what is being read, and having trouble spelling are all symptoms of reading impairment. Children with reading impairments can usually be identified by the age of seven (second grade). When a child's reading achievement falls significantly below that of a youngster of the same age, reading impairment is identified. Reading disabilities are frequently accompanied by comorbid disorders such as language disorder, written expression difficulty, and ADHD. Children who struggle with reading are more likely to struggle with other areas of learning, such as mathematics and written language.

Mathematics impairment is another kind of learning disability. Children that struggle with math have problems learning and retaining digits, can't recall basic facts regarding numbers, and compute slowly and incorrectly. In actuality, reading, writing, coordination, and language impairments frequently coexist with math difficulties. There could be issues with spelling, memory, or attention, as well as emotional or behavioral issues. We must distinguish between specific causes of reduced functioning, such as intellectual disability, and deficiencies in mathematics. An inadequate education may have an impact on a child's ability to do math. When conduct disorder or ADHD coexists with a specific learning problem in mathematics, we would diagnose both conditions. The most difficult ability to learn in order to communicate language comprehension and articulate thoughts and ideas is written expression. For the majority of kids, reading and writing skills go hand in hand, but for certain kids, reading comprehension may be much more powerful than their capacity to articulate complicated ideas. Writing abilities that are significantly below the standard for a child's age and schooling are considered a written expression deficit. In more severe situations, a written expression issue may not become obvious until age 10 (fifth grade) or later; in less severe cases, it may take longer. Between 5 and 15 percent of school-age children have a specific learning disability with impairment in written expression.

METHODS

For the systematic review, 504 research articles were searched using electronic databases such as (google scholar, PubMed) and other additional sources out of which 49 articles were selected on the basis of quality and keywords after which the articles were thoroughly read in detail and later reviewed. Selected articles were the articles published from the year 2005-2022.Furthermore, additional published materials were screened from the bibliographies of the studies which were relevant to the topic of learning disabilities. We examined the titles of all citations and retrieved pertinent abstracts using the inclusion and exclusion criteria listed below for a more thorough evaluation.

Inclusion criteria:

- Studies examining risks, types, characteristics, adjustment, emerging trends, modifications, interventions and mental health issues related to learning disabilities
- Studies included sample participants from age groups of children, adolescents, and adults.
- Studies published from the year 2005 to 2022 were reviewed
- Studies in English language only have been reviewed.

Exclusion criteria:

- Studies beyond the periods mentioned were not included since examining current data was taken into consideration
- Case studies were not reviewed
- Studies that focus on interventions that are not related to learning disabilities

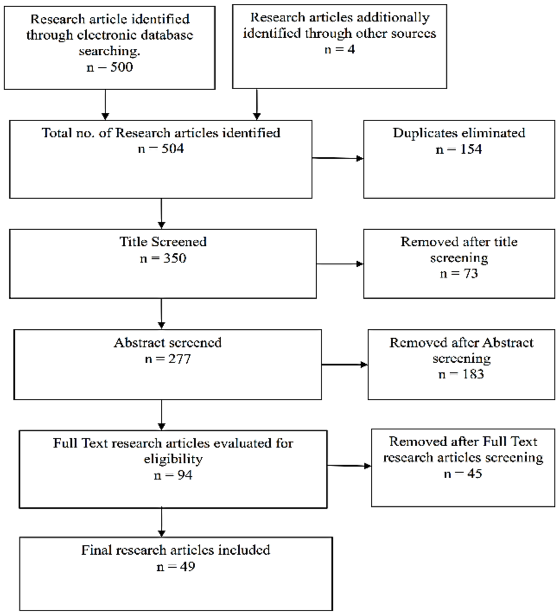

Figure 1: Flowchart displaying study selection.

Table 1: Characteristics of studies reviewed

Author, Year	**Place of conduct**	**No of respondents**	**Participant**	**Measures**
Miller-Shaul, 2005	Israel	100	Children & Adult	Raven Standard Progressive Matrices, Word list test for children, connected text test, Israeli psychometric test, Reading comprehension test Ministry of Education,
Sáenz et.al, 2005	Texas	142	132- Children & 12-reading teacher	Reading: The Comprehensive Reading Assessment Battery, Teacher and Student Questionnaires.
DeSimone et al. 2006	United States.	228	Teachers	The Survey on Teaching Mathematics to Students with Learning Disabilities in Middle School and Interview.
Heiman, 2006	Israel	381	Students	Multidimensional Scale for Social Support (MSPSS), Sense of Coherence (SOC), Academic Success and Lack of Academic Success Questionnaire
Van Garderen, 2006	South Florida	66	Students	Mathematical Processing Instrument (MPI)
Lackaye et al. 2006	Israel	571	Students	Meltzer scale for effort, Academic Self Efficacy, Loneliness and Social Dissatisfaction Questionnaire, The Children's Sense of Coherence Scale, Moos Scale, The Children's Hope Scale (Snyder, 2002).
Hoeft et al. (2006)	Pittsburgh	30	Students	A word-rhyme task, The MRI imaging and imaging-related procedures.
Walker &Nabuzoka, 2007	Northeast of England	236	Students	Stoichiometric and peer behavioral attribute checklist.
Swanson &Jerman 2007	Southern California	84	Children	Wide Range Achievement Test-3 (WRAT-3),Raven Progressive Matrices test, Wechsler Intelligence Scales for Children–Third Edition(WISC-III)
Rousselle et al. 2007	Belgium	90	Children	A composite test battery devised for mathematics level assessment, Similarity and Picture Completion subtests of the Wechsler Intelligence Scale for Children-III
Al-Yagon et al, 2007	Israel	100	Children-Mother	Loneliness and Social Dissatisfaction Questionnaire, Children's Sense of Coherence Scale, Attachment Security Style, Children's Hope Scale, Coping scale, Affect scale, Experiences in Close Relationships Scale, Child Behavior Checklist.
Snowling et al. 2007	UK	70	Young People	A battery of tests of literacy and language skills and questionnaire
Beauchemin et al. 2008	Vermont	34	Students	Social Skills Rating System (SSRS), Attitudinal questions
Wilson et al. 2008	Canada	36,984 (National data sample)	Adolescents and adults	Self-reported measures and Mental health measures
Estell et al. 2008	Mid-western city	1361	Students	Social Cognitive Mapping (SCM), Best Friend Nominations, Peer-Perceived Popularity, Social Preference
Terras et al, 2009	Scotland	68	Children	Self-perception Profile for Children, Strengths and Difficulties Questionnaire, Understanding and Perceived Impact of Dyslexia Scale (UPIDS).
Rubinsten et al. 2010	Israel	36	Children	Arithmetic-affective priming task
Grills-Taquechel, 2011	Houston	153	Children	The Multidimensional Anxiety Scale for Children (MASC), Woodcock-JohnsonPsychoeducational Test Battery-III, Continuous Monitoring of Early Reading Skills (CMERS)
Westendorp et al. 2011	Northern Netherlands	104	Children	Analysis of IndividualWord Forms ,Improvements in Spelling Skills, WIG, The Test of Gross Motor Development-2
Pimperton, & Nation , 2012	UK	244	Children	The Matrix Reasoning subtest of theWechsler Abbreviated Scale of Intelligence Efficiency, the Neale Analysis of Reading Ability–II , WMRS
Hen& Goroshit, 2012	Israel	287	Students	The Schutte Self Report Emotional Intelligence Test, College Academic Self-Efficacy Scale, Academic procrastination scale.
Xiao et al. 2013	Hong Kong	90	Children	The Raven's Standard Progressive Matrices, Chinese word-reading subtestof the HKT-SpLD
Moll et al. 2014	North Yorkshire	99	Children	Wechsler Individual AchievementTest, SWAN (Strengths and Weaknesses of ADHD Symptoms andNormal Behavior Scale, Wechsler Abbreviated Scale of Intelligence.
Gaetano Rappo, (2014).	Italy	132	Children	Raven's Progressive Matrices, The Self Administrated Psychiatric Scales for Children andAdolescents (SAFA) test, "School Self-Esteem" - Multidimensional Self-Concept Test
Tanimoto et al. 2015.	USA	21	Students	Detailed assessment of speed of handwriting (DASH)best and fast, Test of orthographic competence (TOC) ,Wechsler individual achievement

Author, Year	**Place of conduct**	**No of respondents**	**Participant**	**Measures**
				test, 3rd edition(WIAT 3), Test of word reading efficiency (TOWRE), Test of silent word reading fluency (TOSWRF), WJ3 oral comprehension, Clinical evaluation of language function, 4th edition, WJ3 passage comprehension, PAL II sentence sense accuracy, WIAT III sentence combining), WJ3 writing fluency
Padhy, 2016	India	3600	School students	Specific Learning Disorder-Screening Questionnaire (SLD-SQ), Brigance Diagnostic Inventory (BDI)
Satsangi, 2016	USA	3	secondary students	Wechsler Abbreviated Scale of Intelligence, Wechsler Intelligence Scale for Children (WISC; 4th ed.),
Min Wook Ok, 2016	USA	4	School students	Pre-test, Progress monitoring daily probes, Strategy use test, Maintenance tests, Inter-scorer agreement, Social validity interview
Maehler, 2016	Germany	2195	School students	Culture Fair Intelligence Test 1, ELFE 1–6, WRT 2+, DEMAT 2+, d Working Memory Test Battery for Children aged Five to Twelve Years,
Ghimire, 2017	Nepal	150	School teachers	A structured knowledge questionnaire
Kaur, 2017	USA	20	School students and teachers	Measures of Academic Progress (MAP),
Allison, 2017	USA	10	School students and teachers	Student portfolio, observations, Student interviews, educator interviews
Zhang, 2018	Finland	1880	School students	a battery of cognitive and mathematical tests
Terrazas-Arellanes, 2018	USA	2303	School students and teachers	Pre-implementation readiness inventory, Implementation and post implementation logs, Post-implementation teacher and students survey
Meifang Yu, 2018	USA	150	College students	Parent and youth interviews/surveys,
Lipka, 2019	Israel	8	College students and instructors	semi-structured interviews,
Satsangi, 2019	USA	4	School students	pre-assessments, assessments, problem-solving accuracy, session duration, independence, social validity
Ouherrou, 2019	Morocco	42	School students	facial expression recognition system based on convolutional neural networks (CNN), Camtasia Studio's Screen Recorder
Ciullo, 2019	USA	20	College students	Live observation, Text reading documentation and coding, Focus groups,
Young, 2019	USA	11	School students	Reading comprehension assessment, Oral Reading Fluency, Social validity, interobserver agreement
Khouri, 2019	Israel	53	Faculty members	Demographic questionnaire, Faculty Willingness to Provide Accommodations questionnaire
Garcia, 2019	Spain	44	School students	Wechsler Intelligence Scale for Children–IV, D2 Attention Test, EDAH scale
Atanga, 2019	USA	62	School teachers	conformity versus nonconformity framing scale, self-ratings of AT competencies, iPad app proficiency ratings, demographic questionnaire
Morina, 2019	Spain	119	Faculty members	Semi structured interviews
Lipka, 2020	Israel	200	Faculty members	Demographic questionnaire, Faculty experience/contact with people with disabilities and Faculty attitudes towards students with LD with a Likert scale questionnaire, Faculty topics of interest with a checklist-type MCQs
Khasawneh, 2020	Saudi Arabia	104	School students	Reading Comprehension Achievement Test, training program for developing reading comprehension skills
Alkhawaldeh, 2021	Saudi Arabia	20	School students	semi-structured interviews
Ibrahim, 2021	Malaysia	584	Parents and teachers	questionnaire developed by Williams (2013) to describe the perceptions of parents and teachers on SDL
Yang, 2021	USA	3	School students	Criterion word problem solving test, Problem-posing test, Problem-solving transfer test, COMPS-based problem-posing instruction

RESULT

Poor Academic performance

A learning-disabled child's struggle in school persists through their entire life and children and adolescents with learning difficulties find it difficult to succeed in academics. It has been found that children have trouble adjusting to normal school environments. Adults frequently have weak arithmetic skills, which can make it difficult to get work and to complete many regular daily tasks. They also have issues understanding and representing numerical magnitude. They display higher degrees of learned helplessness than students without Learning Disability (LD), which includes decreased tenacity, lowered academic expectations. (Hen &Goroshit, 2012). Certain children stop trying new things because they accept failure in the classroom. Academic procrastination has long been regarded as a barrier to students’ academic progress. According to research, it is associated with poorer levels of self-regulated learning and academic self-efficacy. Structured approaches to simplifying concepts employed in cognitive therapy, as well as methods of socialization and education, will be beneficial to people with learning disability.

Low Self-esteem and difficulty with social adjustment

A child's social acceptance is important, but it can be challenging to achieve if they have a learning disability (LD). Peers often exclude them, insult and characterize people with learning disabilities as being stupid, and slow learners and they are frequently stigmatized and usually people around associate them as failure. Individuals with learning disabilities have a very low level of self-esteem compared to typically developing children because they often felt down and less confident when experiencing difficulties during reading and writing which had an impact on their attitude. Also, students with learning disability compared with their typically achieving peers were viewed as lower in social standing among their classmates. It has been found that students with LD thought they had less social support than students without LD. According to research on the social functioning of kids with learning disabilities (LD), while the majority are a part of peer groups, a higher percentage are lonely, and most have lower social standing among peers overall than their counterparts who are generally successful.

Mental illness in individuals with learning disability

Evidence suggests that individuals with learning disabilities may experience more mental health issues than those without learning disabilities and also there is a high prevalence of behavioral issues in people with learning disabilities. The individual emotional wellbeing could deteriorate when there is no emotional support available. When possibilities seem restricted when attempting to achieve one's personal and academic goals, depression may become apparent. People with LD report high levels of distress, depression, anxiety disorders, suicidal thoughts, visits to mental health professionals, and poorer overall mental health than persons without learning disabilities.

Neurological Basis and family risk of learning disabilities

Children with dyslexia showed less activation in the left parietotemporal cortex, including the right parietotemporal cortex, compared to children who were both age and reading-matched (younger normal readers who were equivalent to the dyslexic children in terms of reading ability or scanner performance). Reduced parietotemporal activity is seen in functional neuroimaging investigations of phonological processing in adults and children with developmental dyslexia (Hoeft et al., 2006). Children at family-risk for dyslexia had long-standing LD issues. The gene-environment interactions play a significant role in determining dyslexia.

Working Memory deficit

Children with learning disability have verbal working memory and numerical working memory loss. Many research outlined that children with learning disabilities are slower at processing verbal and visuospatial information, and were impaired in the ability to remember verbal material, compared with same-age peers. These points imply that working memory functions deficits, represent a significant barrier to learning, reading and math skills in LD people.

Effective teaching approaches

Plenty of studies examined at teaching-related areas include enhancing teaching strategies, introducing interventions, and assessing instructors' knowledge of learning difficulties. One significant conclusion in Ciullo's study in 2019 on reading instructions provided to children with learning disabilities indicates that teachers aimed to provide a complete approach to addressing student needs by teaching foundational skills. Small-group instruction for children with learning disabilities has also been identified as a successful technique. It has also been noted that teachers encourage peer help for students with learning disabilities. Peers can provide academic assistance by clarifying topics, offering study advice, and participating in collaborative learning activities. Differentiated teaching has been identified as an essential method for improving the learning of children with LD. Tasks may be tailored to their ability levels, ensuring that kids are not overburdened or bored. This promotes confidence and a good attitude towards learning.

Early detection and management

Early detection and intervention are critical in assisting individuals with learning impairments and fostering academic achievement. According to research conducted by Padhy (2016), most teachers detect the frequency of among children by seeing impairments such as missing words or sentences when reading, missing letters or phrases while attempting to read or write, and making frequent spelling mistakes while writing or reading. Visual memory, gross motor coordination, and visual-motor skills were similarly shown to be the most typically impaired domains in persons with learning impairments.. Working memory problems were seen in children with below-average academic success. Working memory deficiencies can make it difficult for kids with learning disabilities to comprehend and remember knowledge properly. Therefore, early detection and intervention for learning disorders are critical variables in ensuring better outcomes for children who face learning disabilities.

Technological Interventions

Technology integration in education has shown enormous promise in assisting children with learning difficulties (LD). Atanga (2019) conducted a study to determine the prevalence of assistive technology expertise among teachers. Young (2019) investigated the impact of text-to-speech technology on reading outcomes in kids with learning difficulties. Text-to-Speech (TTS) technology is regarded as an important assistive technology tool for students with learning disabilities (LD) who struggle with reading and comprehension activities. Garcia's 2019 study on the influence of serious games on increasing attention of students with LD found that serious games in VLE improve students' visual attention. Min Wok Ok (2016) investigated the effect of a strategic intervention using iPad practise on students with learning disabilities. The students enjoyed using the iPad, found it helpful, and recommended it to their peers. To summarise, technology in education has enormous promise for assisting children with learning disabilities.

Teacher’s awareness and attitudes

Teachers play an important role in assisting children with learning impairments (LD) in their social and academic growth. According to Khouri's investigation into university faculty perceptions of accommodations for students with learning disabilities, faculty members saw themselves as agents of support through personal assistance and modified teaching methods, which included not only academic support but also emotional support and empathy. In a 2019 study on university faculty attitudes and understanding on learning disabilities, Lipika discovered that the majority of participants claimed no engagement in training activities and inadequate awareness of patterns of students with LD. They did, however, have generally positive attitudes about LD and thought that individuals with LD might succeed at the university level. In conclusion, instructors' viewpoints and attitudes towards students with learning difficulties have a major influence on their educational experiences.

DISCUSSION AND FUTURE DIRECTION

In spite of having a lot of literature related to learning disabilities there is no proper direction with which family member (Especially parents) of people with LD can have access to helpful material related to LD. Our review contributes towards the understanding of difficulties and issues faced by people with learning disabilities and providing information about various interventions that can be used by teachers, parents and organizations, NGO. From many studies reviewed it has been found that teachers usually are unaware about the dilemmas faced by children with LD which creates a problem for inclusion of people with LD so for future implications proper training of teacher with the understanding of the concepts such as dyslexia, dysgraphia, dyscalculia will be resourceful in helping LD students in adjustment in schools. Major issues faced by LD people is social adjustment, emotional problems, academic failure and poor working memory functioning which has been linked to lower self-esteem, negative self-concept, loneliness, depression, anxiety. This review mentions a lot of intervention programs which will be crucial in dealing with such difficulties faced by individuals with learning disabilities. In today’s modern world where technology usage is on rise, using technology for the betterment will be beneficial for LD people. Research studies states that having computer knowledge (ICT), using e-learning, use of ipad, applications, and educational games can improve the academic performance of children with LD. Mental illness in LD is common for which cognitive therapy can be useful. Simplifying the concepts used in education, socialization can be helpful for LD people. Future implication- Our review will be helpful for clinical psychologist, occupational therapist, psychiatrist in providing information regarding various concepts related to learning disabilities, a proper direction in the following field and various interventions which will be useful in treating people learning disabilities.

CONCLUSION

In a nutshell learning disability is neurological conditions that impair a person's ability to learn and successfully process, receive, retain, recall, and convey knowledge to others. There is an inconsistency between the potential and accomplishment. Individuals with learning disabilities face numerous difficulties throughout their lives. Few limitations of the following systematic review are that it does not include any case studies related to learning disabilities. Future investigation can include research studies with the following criteria. This review includes many of the studies that gathered data using self-report measures. These studies dependence on self-report measures may introduce social desirability bias since participants may not correctly remember or represent their beliefs or experiences. Future investigation should include studies that acquire data that avoids biases and social desirability.

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Review Article

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Issues and Concerns related to Psychological Assessment Intervention and Rehabilitation of Disability in India-Current Status

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ABSTRACT

People with disabilities are subject to multiple deprivations with limited access to basic services, including health, education, vocation, rehabilitation, recreation facilities etc. Despite various legal safeguards and existing policies in India, at the ground level, persons with disabilities are often reported to face multiple challenges and disadvantages. At the same time even after the revised guidelines under the RPwD Act (2016), Clinical Psychologists involved in the Assessment and Quantification of various disabilities have many issues and concerns, due to which they are facing many problems and challenges in their day-to-day wok. The present review article is based on the findings from various online published Indian studies on disability assessment, intervention and policies which have been analyzed and summarized. The findings are presented under predefined categories as outlined at the outset of stating the analysis as per the categories framed. These five major categories identified for this article are- Prevalence of Disability in India; Current Indian laws and policies for PwDs; Current challenges in disability assessment and certification; Psychological Intervention & Rehabilitation Approaches for PwDs; and Welfare Schemes for PwDs. The current challenges, issues and concerns related to these categories have been presented here to think upon and make possible changes in the current clinical practice of assessment and intervention of some of the disabilities.

Keywords: *Psychological assessment of disabilities; Issues and concerns related to disability assessment and intervention; Current Indian Laws and Policies; Disability Certification; Welfare Schemes*

INTRODUCTION

The World Health Organization (WHO) has defined 'Disability' as "an umbrella term, covering impairments, activity limitations, and participation restrictions. According to the WHO, impairment is a problem in body function or structure; an activity limitation is considered as a difficulty encountered by a person in executing a task, action or activity. When a person experiences a problem in getting involved and participating in day to day life situations, it is termed as participation restriction. Thus, as per WHO, "disability is a complex phenomenon, which reflects an interaction between aspects of a person's body and aspects of the society in which he or she lives." The WHO has estimated that more than one billion people, that is approximately 15 percent of the world's population lives with some form of disability(WHO, 2011) arising due to varied causes like congenital defects, chronic diseases, injuries, violence, infectious diseases, malnutrition, and other causes related to poverty.

People with disabilities are subject to multiple deprivations with limited access to basic services, including health, education, vocation, rehabilitation, recreation facilities etc. Despite the world today talking so much about inclusion, widespread social stigma still prevails and plays a major role in hindering the normal social, occupational and economic life of persons with disabilities (PwDs). Despite various legal safeguards and existing policies, at the ground level, persons with disabilities, not only in India but worldwide are often reported to face multiple disadvantages. Multiple social policy processes and other institutional arrangements have been responsible for keeping disability issues out of the purview of social recognition for long. Society at large, has till date not been able to create a suitable environment for the inclusion of persons with disabilities mainly due to the 'conspicuous invisibility' in the realms of health care, education, laws, development policy, social and institutional practices, political advocacy, academic engagements, intervention services, community-based rehabilitation, and public support systems.

In the past few years, there have been attempts towards major global shift in the understanding of disability with an emphasis on recognizing rights of persons with disabilities while acknowledging human diversity. Although, disability is an important public health concern, however, systematic research into prevalence, analysis of assessment techniques, intervention methodologies and determinants of disability has been scanty in India.

METHODOLOGY

The present article is based on various online published studies collected for the purpose of review. Findings from Indian studies on disability assessment, intervention and policies have been analyzed and

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summarized. Literature review articles in Google Scholar and PubMed electronic database, and website of various departments of Government of India was done, using search questions decided and framed by the authors. The search terms used were disability status in India, disability assessment, disability policies, intervention for disabled, and social welfare schemes for PwDs. The articles were reviewed for ideas and concepts, which were then categorized under broader themes, and these broad categories are being discussed here based on the relevance to clinical and practical issues and concerns related to the field of disability in present time. Information gathered from these studies/ articles is presented under findings here. These categories have been framed as per the questions and challenges based on the difficulties faced by Clinical Psychologists in the assessment and interventions of different disabilities.

The five major categories identified for this article are-

1. Prevalence of Disability in India
2. Current Indian laws and policies for PwDs
3. Current challenges in disability assessment and certification
4. Psychological Intervention & Rehabilitation Approaches for PwDs
5. Welfare Schemes for PwDs

Findings:

Based on research questions, the following concepts which are important from the point of views of clinicians, PwD and caregiver perspective are discussed.

1) Disability Prevalence in India

According to the Census 2011, the differently abled population in India was reported to be 26.8 million. In terms of percentage, the population stands at 2.21 %. Compared to the census of 2001, there has been a marginal increase in the PwD population in India, with the reported PwD population rising from 21.9 million in 2001 to 26.8 million in 2011. In a recent study by Pattnaik et al (2023), the overall prevalence of disability in India has been reported to be 4.5%. The study reports locomotor disability (44.7% of all disabilities) as the most common type of disability among Indian population. As per the reported findings of this study, mental disabilities account for 20.28% of all the disability in Indian population (Patnnaik et al.2023).

2) Current Indian laws and policies for PwDs

India signed the United Nations Convention on the Rights of Person with Disabilities (UNCRPD) and subsequently ratified the same on October 1, 2007. According to the UNCRPD, disability is a result of an interaction of bodily impairments with attitudinal and environmental barriers which hinders full and active participation in society on an equal basis. Further, because the UNCRPD convention mandated the signatories to change their national laws, to identify and eliminate obstacles and barriers on disability rehabilitation, the Government of India introduced the amendment of the existing Persons with Disability Act, 1995 (PWD Act 1995). The Rights of PWD Act, 2016 (RPWD Act 2016) replaced the PWD Act 1995 and was introduced to secure the rights of PwD.s in accordance with UNCRPD convention and it has been fine-tuned considering the socio-cultural needs of Indian society, while considering the available resources.

Subsequent to the RPWD Act 2016, on January 4, 2018, the Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment notified the specific guidelines for the purpose of assessing and certifying the extent of specified disability (GOI, 2018). The Government of India has launched “Unique ID for Persons with Disabilities”(2018) project which is being implemented with a view of creating a National Database for PwDs, and to issue a Unique Disability Identity Card to each person with disabilities. The project would not only encourage transparency, efficiency and ease of delivering the government benefits to the person with disabilities, but also ensure uniformity. The project would also help in stream-lining the tracking of physical and financial progress of beneficiary at all levels of hierarchy of implementation – from Village level, Block level, District level , State level and National level. Even after more than five years of its launch, the project is facing several challenges like non availability of specialists in many hospitals that are notified for disability assessment and certification, limited infrastructure, lack of awareness among people about the process and procedure of applying and issuance of UDID. Even after the successful launch and prevalent use of Digital India program, still there are people, like illiterates, extremely poor, elderly or rural people who lack Smart phones or access to Internet facilities, making difficult for them in getting registered for UDID, and to track the process.

3) Current Challenges in Psychological Assessment and Certification of Disabilities

With the introduction of Gazette notification, 4th January 2018, Government of India has laid down specific guidelines for assessment and quantification of disability for certification. However, clinical experience and expert opinions suggest that there is a need to have updated tests. For example, for the assessment of Intellectual Disabilities (Mental Retardation) Para 21.3 of the Gazette has recommended only two tests for IQ assessment (BKT/MISIC), and the percentage of Disability has to be decided by SQ, as assessed by Vinland Social Maturity Scale (VSMS). Many a times a discrepancy is found between the IQ score and SQ score, and it becomes a problem for the clinician to decide about the category and percentage of Intellectual Disability. Also, all the three tests prescribed have very old norms, and items also appear obsolete seeing the changes in the pattern of education and wide exposure of children to various sources at present in comparison to 20-30 years back, when those tests were developed.

For some other categories of disabilities, there needs to be more specified and notified tests for Psychological assessments. For instance, as per para 25.5, of Gazette notification dated 4th January 2018, for chronic neurological conditions, the medical authority should comprise of a trained psychologist to administer IQ test. This needs to be reconsidered as a person with chronic neurological condition, most of the times, would also require detailed Neuropsychological assessment (NPA) in addition to/ instead of IQ assessment. Since, no Neuropsychological assessment tools have been notified in the gazette, most notified centers for assessment of chronic neurological conditions, having qualified clinical psychologists are using the Neuropsyhological assessments as per their own expertise. Also, the currently available and used NPAs do not provide any clear cut guidelines regarding identification and quantification of disability; and also deriving at the percentage of disability.

In respect to assessment of Specific learning disability, the Gazette (Para22.4) has notified NIMHANS battery for Specific Learning Disability assessment. However, as already pointed out by Math et al. (2019),the battery is not comprehensive for all ages and is standardized only till Grade 7 (approximately till age 14 years) and also does not give specific percentage of disability. Therefore, there is a pressing need to develop psychological assessment tools which give specific disability scores and disability percentage. Standardized SLD assessment tools are also required for PwDs who are above the age of 14 years as currently there is no standardized tool for SLD assessment of this age group. Another problem regarding SLD certification is related to repeated assessments, which is required theoretically to assess the changes which might have occurred due to age and / or remediation techniques. The initial assessment and certification has to be done for children aged eight years and above only, and the child will have to undergo repeat assessment and certification at the age of 14 years and at the age of 18 years. The referral for repeat certification is required from school, as per gazette notification, which is not being followed by most of the schools leaving persons with SLD in a difficult situation and adding to their distress, therefore there is a dire need to sensitize schools on this aspect.

4) Psychological Intervention & Rehabilitation Approaches for PwDs

Rehabilitation interventions at early stages of disability are highly recommended as early intervention can minimize progression to severe disability. It has been reported that very few persons with disability gets benefit from rehabilitation services in India. (NSSO,2003; Kumar et al. 2008). In general, data reports that of all PwD.s in India, 1/3 need no rehabilitation, 1/3 can be helped through CBR alone and 1/3 needs specialized referral services (Sharma and Praveen,2002).

The interventions for disabled in India largely focus on catering to six main categories namely health, education, livelihood, social, empowerment, advocacy and governance. According to the, National Policy for the Persons with Disabilities, Government of India (2006), rehabilitation measures can be classified into three distinct groups:

i. Pphysical rehabilitation, includes early detection of problem and intervention including medical interventions, counseling provision of aids, if need be. It will also include the development of manpower in terms of training of rehabilitation professionals.

ii. Educational rehabilitation including vocational education and

iii. Economic/financial rehabilitation including job placements for a dignified life in society.

In a review by Saran et al.2023, it has been summarized that all these various types of interventions play a vital positive role towards improvement of social inclusion of PwDs. These authors have further reported that interventions at the individual level which include social and communication training lead to significant improvement in the social adaptive behaviour and social skills of people with disabilities. The review has concluded that the studies targeting broad-based social inclusion have shown a large and significant positive effect, while only moderate effect was reported from interventions designed to improve interpersonal relationships between people with disabilities and their families and communities.

According to the Alma Ata declaration (1978), comprehensive primary health care should include preventive, promotive, curative, and rehabilitative care. Further, it states that there are three approaches to rehabilitation, namely institution based, outreach based, and community based. In India, in the recent years, focus has been on Community based rehabilitation (CBR), which is a comprehensive approach at primary health care level used for situations where resources for rehabilitation are available in the community. The major objective of Community Based Rehabilitation (CBR) is to ensure that PwDs are able to maximize their physical and mental abilities, have access to regular services and opportunities, and achieve full integration within their communities (Sharma and Praveen, 2008). In CBR model, in addition to transfer of knowledge related to skill development in various rehabilitation methods, community is also involved in planning, decision making, and evaluation of the rehabilitation program/s with multi-sectoral inputs. It also includes a referral system for those PwDs who cannot be managed at community level and require individual or institutional rehabilitation services.

The service delivery system for CBR requires coordinated efforts by ministries, local, district and provincial authorities, and nongovernmental organizations in the different sectors involved in rehabilitation. It has been reported that for most PwD.s (70%), interventions can be done effectively at the community level by local rehab professionals and school teachers. A study by Ganesh et al. (2011) concluded that psychosocial intervention increases the quality of life and reduces the disability severity among mentally disabled adolescents. Additional services need to be set up in response to the needs of the community. At district or provincial level there is a need to sensitize general physicians, intermediate level supervisors, orthopedic technicians, resource teachers and vocational trainers. National level professionals need to be involved in delivery of complex rehabilitation services as well as training and supervision of rehabilitation professionals for district, provincial, and national levels.

Basic principles of a CBR program for the disabled include inclusion, participation, sustainability, empowerment, and advocacy. These principles are overlapping, complementary, and interdependent and they cannot be addressed in isolation. Hospital based interventions are often considered to lead to social isolation and have limited accessibility when it comes to rural and semi urban population. While selecting the mode of intervention- hospital based versus community based, it is important to prioritize in terms of resources like finance, manpower and aids/equipments that may be required. Currently, there is limited evidence towards efficacy of various approaches of rehabilitation. Another major challenge in Indian scenario is professionals not maintaining professional boundaries as per their professional training and licensing and many untrained professionals claiming to be trained expert professionals which rather than alleviating the problems, can become hindrance in adequate intervention and rehabilitation of the PwD. There needs to be adequate coordination between different sectors, departments and all stakeholders for optimum outcome of intervention services. For example, the primary health care system must play a key role in early identification, and providing initial support and guidance to PwD.s and their caregivers with initiatives such as early identification of symptoms/ impairments, initiating basic intervention, referrals to appropriate specialized services such as Clinical Psychologists, Occupational therapist, speech therapist and other medical and para medical specialities. The educational sector needs to be more inclusive not just in reserving the number and percentage of seats for PwD.s but in real terms by adapting newer educational techniques with respect to content of the curriculum, teaching methodologies and teaching aids and adaptations being used. Many rehabilitation centres are working in vocational training of PwD.s but this rarely leads to any real life occupational placement.

There is no dearth of Indian studies on Parenting stress, caregiver burden, WQol of PwD and their caregivers(Malhotra et al. 2012; Malhotra et al.2019); . However, the question arises that despite so much research into these aspects how much we have been able to utilize these findings in laying down policies for identification, assessment and intervention. Periodic monitoring and evaluation of intervention and rehabilitation programmes in critical component. There need to be a system for periodic monitoring and evaluation of intervention programmes.

2) Welfare Schemes for PwDs

In order to give focused attention to Policy issues and meaningful thrust to the activities aimed at welfare and empowerment of the Persons with Disabilities, a separate Department of Empowerment of Persons with Disabilities (Divyangjan) (DEPwD) under Ministry of Social Justice & Empowerment was set up in May 2012. The DEPwD is the nodal department for implementing various Programmes, Schemes and other initiatives for the welfare of persons with disabilities. Empowerment of persons with disabilities is an inter-disciplinary process, covering various aspects namely, prevention, early detection, intervention, education, health, vocational training, rehabilitation and social integration. Some of the schemes of Government of India to empower PwD are presented in the table below.

SchemeName	Aims of the Scheme
Deendayal Disabled Rehabilitation Scheme (DDRS)	to provide grant-in-aid to non-governmental organizations (NGOs) for projects relating to rehabilitation of persons with disabilities aimed
Assistance to Disabled Persons for Purchase / Fitting of Aids / Appliances (ADIP)	Assist the needy PwDs to procure durable, sophisticated, certified aids/ any parts of aids to promote their independent functioning

SchemeName	Aims of the Scheme
Scheme for Implementation of Rights of Persons with Disabilities Act, 2016 (SIPDA)	providing financial assistance for undertaking various activities like skill development, educational training, vocational training, providing accessible infrastructure
National Trust	To- to enable and empower persons with disability to live as I ndindependently and as fully as possible within and as close to their community as possible; to facilitate the realisation of equal opportunities, protection of rights and full participation of persons with disability; to extend support to its registered organisations to provide need based services; and to evolve procedures for appointments of guardians and trustees for persons with disabilities
National Handicapped Finance and Development Corporation (NHFDC),	works for Socio-economic empowerment of PwDs. Provides concessional loan through its partner agencies to PwDs and to self help groups
GHARAUNDA	Life long shelter and care of Persons with Disability (PwD), under National Trust
Nirmaya	Scheme of National Trust- Health insurance upto 10 lakhs to PwD
Badhte Kadam	Raise awareness in the public, regarding Person with Disability (PwD) covered under the NationalTrust Act and encourage their inclusion in the society, social integration and participation of persons with disabilities in all aspects of life.

SUMMARY

Despite being a widely discussed issue, there are many lacunae and challenges in the assessment, intervention and rehabilitation of PwD.s. There is a need to update notified assessment tools for certification of disability. Further, attempts should now be focused more on developing evidence based multidisciplinary interventions which are in sync with the ground realities and enable further research. It is of utmost importance to involve PwDs in development of policies, support services and training. Capacity building is another major area that requires focus. Thus, although we have many policies and guidelines in place, the pace of work happening at ground is very slow due to the lacunae discussed above indicating the scope of further evidence based efforts to fill the gap in knowledge and practice.

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PSYCHOTHERAPY IN INDIA: CALL FOR PAPERS

Special issue of IJCP, Vol. 50, December 2023 issue to be published in the Golden Jubilee year of IJCP Last date of submission of Paper for this special issue: 30th, November, 2023   Availability of online and print version of this special issue by 1st, week of December, 2023 In the Golden Jubilee Year of IJCP this issue is planned to present contribution of Clinical Psychologists and other Mental Health Professionals in the application of various therapeutic techniques and their efficacy followed by highlighting the contribution in the area of Psychotherapeutic Research & Training of Psychotherapy. We welcome authors from outside India who are extensively working in this area.

Papers are invited on Psychotherapy under various groups of Psychotherapeutic techniques. Specifying the name of a type of Psychotherapy limits the scope, as the area of Psychotherapy is expanding.

Editors encourage with priority in publication to a Review & Status paper covering the contribution of Clinical Psychologists and other allied Mental Health Professionals in Psychotherapy; followed by empirical observations, quantitative and qualitative research findings, brief research report, Case Studies and Letter to Editor.

As a significant contributor, be a part of the Golden Jubilee year of IJCP by publishing your work in this special issue. Which is going to be a memorable issue as the same will be useful and educative for the upcoming generation of professionals.

Editor: IJCP

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Review Article

Challenges in Assessing Children with Autism: Making Informed Choices to assess the Spectrum

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ABSTRACT

Autism is a neurodevelopmental disorder with a diverse presentation. Our understanding and theories of the diversity of the condition are constantly evolving. The clinical profile of symptomatology and behavioral challenges need to be taken into consideration during the assessment of their skills and abilities. Most manualized psychological assessments are normed to the majority of a population, which automatically puts the neurodiverse population at a disadvantage, especially Autism, and the entire spectrum of its clinical presentation. The challenges faced by the stakeholders (parents, teachers, therapists, prospective employers, and persons on the spectrum themselves) in home, clinic, and classroom settings need to be put together with the scores of the assessments conducted, otherwise, the numbers will always remain an arbitrary concept. The current article attempts to find avenues within manualized procedures to assess children with Autism, otherwise prematurely labeled as 'untestable'.

Keywords: *Autism, IQ assessment, VIQ, PIQ, FSIQ*

Autism, a neurodevelopmental disorder characterized by deficits in communication, socialization, and repetitive restrictive behaviors (American Psychiatric Association, 2013), has its presentation on a spectrum – where traits/symptoms are manifested in varying degrees.

Several areas of research, include etiological research and impact research, the effect of parenting (which has been subsequently disregarded), to the current focus on epigenetics and machine learning. Changes in the perspective of diagnostic manuals (DSM-5 and ICD 11), currently emphasize adaptive behavior, which helps understand the long-term impact of the diagnosis. However, the involvement of cognitive functioning is undeniable. Cognitive function, though a broad umbrella term, has its influence on daily adaptive functioning, learning, acquisition of skills, academic performance, and social adjustment. Understanding cognitive ability is one of the cornerstones in making a holistic plan for the child's therapeutic progress.

The assessment of intellectual ability (IQ assessment) is the most common method of assessing cognitive ability. It is a highly manualized and standardized method of testing to understand the level of the child's skills, in the context of peers of their chronological age. IQ assessment yields a score that is interpreted as the intellectual ability of the child. The benefits of IQ assessment include (a) diagnostic clarification; (b) obtaining a profile of strengths and weaknesses (Klin et al., 2005); (c) assessment of intervention efficiency (Estes et al., 2015) (d) long-term outcome predictions. Their latest revisions attempt to provide a profile of abilities instead of one absolute score. The advantage is a profile sheds light on the strengths and weaknesses of the child, which in turn lends itself to myriad benefits in areas of therapy and training, or even in formulating individualized plans.

Kanner (1943) postulated that autistic children tend to have ‘good’ cognitive ability. However, subsequent research studies have shown mixed results. Studies indicate they have the entire range of IQ, from Intellectual Developmental Disabilities (IDD) to extremely high IQ levels (Charman, 2010). The Autism & Developmental Disabilities Monitoring (ADDM) Network found among 8-year-olds, 31.6% had IDD, 24.5% had Borderline Intelligence, and 43.9% had average or above-average IQ ranges (Goldstein et al., 2008). However, these mixed results are likely due to symptomatology interacting with various testing factors, which may result in spuriously low scores (Brown, 2000).

IQ is a strong predictor of future outcomes (school, work, achievement) for not only the ASD population but amongst neurotypicals too (Holwerda et al., 2012). Testing of intelligence is part of the recommended interdisciplinary diagnostic evaluation for children with Autism (Volkmar et al., 2014). ICD 11 also has specifiers based on intellectual functioning for diagnosing autism (World Health Organization, 2018).

Cognitive profiles in autism have no definitive pattern, varying based on age, IQ level, symptom severity, and co-morbidities. People on the spectrum have “splinter skills” in areas of reading, memory, math skills, visuospatial skills, semantic knowledge, and various art forms (Meilleur et al., 2015). On the other hand, they have their own set of cognitive weaknesses including but not limited to, atypical perception, inattention, predictive cognition, cognitive inflexibility, and perspective-taking. Depending on the task or domain tested, the splinter skills and the weaknesses skew the child's performance, making interpretation of IQ scores a challenge. Comparably higher IQ scores and lower

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symptom severity have been seen as prognosticators of optimal outcomes in autism (Di Renzo et al., 2021).

One of the greatest limitations of focusing only on the IQ score as an absolute measure of a child's functioning is evidence that the same IQ score can be associated with varied cognitive profiles (Goharpey et al., 2009). Rommelse et al., (2015) attempted to understand if cognitive deficits in ASD were a function of the IQ, concluding that children with below-average IQs had more severe cognitive impairment, leading them to postulate that intelligence may be a moderator in the cognitive presentation of ASD. Volkmar et al. (2014) believed that IQ served as a frame of reference to evaluate the social, cognitive, and communicative difficulties of a child.

The three well-known cognitive theories implicated in Autism are Executive Dysfunction, 'Weak' Central Coherence (Frith & Happe, 1994), and 'Theory of Mind' difficulties (Baron-Cohen, 1985). Brunsdon et al. (2015) found a third had two or more areas of cognitive deficits, while most of them had impairments in one domain, also concluding that a higher level of symptomatology is associated with multi-domain cognitive deficits.

Assessing intelligence in autistic children has proven to be a challenge. This article attempts to list out the challenges and their reasons, as it would provide stakeholders involved in the child's care, to make informed decisions about the child's abilities.

The challenges will first be discussed in terms of test factors, and autistic symptomatology.

Difficulties with the instrument:

Interpretation of IQ tests relies strongly on norms. They provide meaning to raw data by converting it to scaled/standardized scores based on age, gender, and/or grade level. In simpler terms, it is comparing the individual's performance to the performance of others with similar demographics (Timmerman et al., 2020). Norming, despite several efforts to decrease error and keep it relevant, can pose several issues.

1. **Culturally or diagnostically appropriate norms:** The deliberation of assessment for culturally diverse populations has been ongoing. Several studies have acknowledged the lack of culturally appropriate norms for IQ assessment (Shuttleworth-Edwards, 2016), the absence of appropriate diagnostic and screening tools for Autism (Wallis et al., 2008), and relevant intervention modules for Autism (DuBay et al., 2018). Incidentally, Carter et al. (1998) established norms for the Vineland Adaptive Behavior Scale-II (VABS) for autism, where he provided percentile norms for four groups, based on chronological age and language development. Considering these well-researched viewpoints, it is postulated that existing normed IQ assessment tools are diagnostically and culturally not relevant to autism.

2. **Updated Norms:** The biggest difficulty of using norm-referenced tests is the lack of updated norms. The latest available Indian norms (Wechsler, 2013) for a standardized IQ test is the WISC IV (Wechsler, 2003), while the WISC V has been in use since 2014, internationally. The well-established concept of the Flynn effect postulates an increase of three points in the standard score every decade (Flynn, 1984). The lack of relevant norms has a far-reaching impact as the narrow, outdated choice of assessment tools available, severely limits the scope for a strength-based assessment, especially for a population as distinct as autism.

The available measures with autism included in the standardization sample are, (a) Bayley III (Bayley, 2005) (b) WPPSI-IV (Wechsler, 2012) (c) WISC-V (Wechsler, 2014) (d) Stanford-Binet-5 (Roid, 2003) (e) Vineland II (Sparrow, 2005) and Vineland3 (Sparrow, 2016); (f) Leiter International Performance Scale 3rd Ed (Roid, 2003) (g) Adaptive Behavior Assessment System – 3rd Edition (Harrison, 2015). The tests that have not included autism in the standardization sample, but have been well-researched with the population, are (a) Differential Ability Scales-II (Elliot, 2007); (b) Mullens Scale of Early Learning (Mullen, 1995) (c) WASI-II (Wechsler, 2014) (d) Kaufman Brief Intelligence Test-2nd edition (Kaufman, 2004).

Despite having about eleven cognitive measures, mentioned above, we, in India, have only one test –the WISC IV which has norms standardized on the Indian population.

Influence of ASD symptomatology on IQ assessment:

1. **Language Processing Impairments:** Language skills include receptive, expressive, pragmatic, and written skills; with every child having different levels of each skill. These are impaired in autism, especially when tasks involve speech. There is also a decrease in audio-visual integration (DePape et al., 2012).

Language deficits vary significantly along the developmental trajectory. Receptive and expressive language delay is a core diagnostic feature, where the presentation of the deficit varies with development and intervention. Also in autism, there is no simple presentation of 'language delay'; instead, there is the presence of the 'lack of intent to communicate' (Happe & Frith, 1996). Language Processing is also impacted by the severity of autistic features (Bavin et al., 2014).

The impact of language processing challenges is seen in the very first step of the assessment, which is understanding instructions. The diverse ways the same instruction is received and processed by each child implies that every child understands what needs to be done differently.

2. **Attention Skills**: Attention deficit is an inherent feature of Autism. The absence of joint attention is a diagnostic indicator. Sustained attention and divided attention have been documented to be impaired (Shiri, et al., 2015).

Attentional hyper-focus is another feature, which influences repetitive, restrictive behaviors (Allen & Courchesne, 2001). In autism, attention is strongly based on their interest levels, and perform only if the task interests them.

Children who have not had any intervention, find participation in tabletop activities challenging. Children with impaired joint attention are unable to focus on the example/samples required to perform further tasks.

Taking attention abnormalities – joint attention, selective attention, divided attention, and shifting of attention – into consideration, some children have significant difficulties, especially on timed tasks, (Block Design, Coding, and Symbol Search tasks of the WISC IV), where more often than not they engage in the stereotypic play of blocks and writing tools, instead of the actual tasks.

3. **Sensory Processing Abnormalities**: These are flaws present in the process of understanding sensory stimuli – visual, olfactory, gustatory, auditory, vestibular, proprioceptive, and interoceptive (Mailloux et al., 2007). Over 90% of these children have sensory abnormalities ranging from hyposensitivity to hypersensitivity, and these differences in sensory processing may cause the various features of autism (Marco et al., 2011).

Haigh et al. (2018) argued cognition is impacted by sensory abnormalities. Additionally, sensory abnormalities influence attention skills and adaptive behavior (Dellapiazza et al., 2018). Leekam (2007), demonstrated sensory abnormalities persist irrespective of age or IQ range and the severity of sensory abnormality was higher in those with lower IQ scores.

4. **Motor Skill Deficit**: Motor Skills, broadly classified into two types – gross motor and fine motor skills – include coordination, balance, postural stability, locomotion, palmar grasp, and pincer grip.

As a group, autistic children exhibit poorer motor skills. More severe sensory symptoms and lower IQ were found to be the best predictors of motor ability (Surgent et al., 2020). The Verbal-Performance discrepancy has also been associated with motor skills, higher VIQ indicates poorer visuomotor and motor coordination, and higher PIQ indicates higher motor skills (Yu, 2018). Cognitive assessments require gross motor skills from core stabilization for sitting at the chair, to fine motor skills of grasping and manipulation of blocks and materials (Matheis, 2018).

5. **Repetitive and Restrictive Behaviors (RRBs)**: RRBs are a core diagnostic feature. The child displays behavior patterns that are repeated over and over again, and/or are circumvented to a limited interest area. Various behaviors come under this umbrella term – motor stimming (repetitive physical movements), verbal stims (repeating certain sounds, words, at times even sentences). Walking/running around and poor sitting tolerance can also be an RRB, rather than a feature of ADHD. The need for symmetry is another RRB that can interfere during assessment.

Higher the level of RRBs, the more challenging it is to engage the child in goal-directed activity. Like, a child with a high need for symmetry, finds the Block Design test significantly challenging, due to their intrinsic need to arrange the blocks in an idiosyncratic pattern. Poor sitting tolerance, and stimming, both verbal and physical, impact the process of assessment significantly.

6. **Executive Skill deficits**: Neurodevelopmental disorders are documented to have executive functioning (EF) deficits, manifested in varying degrees. EF is the efficient use of primarily the pre-frontal cortex functions, for goal attainment using appropriate problem-solving, involving higher-order processing like planning, decision-making, set-shifting, impulse control, and inhibition amongst others (Ozonoff et al., 1991). The different overlapping components include Attention Control, Cognitive Flexibility, Information Processing, and Goal Setting (Anderson, 2002).

Executive dysfunction is one of the cognitive theories explaining autism (Rao et al., 2016). The involvement of executive dysfunction was noted when the similarities were observed between those with traumatic brain injuries and frontal lobe dysfunction, and those with autism (Ozonoff et al., 1991). The main areas of EF deficit in autism have been noted in cognitive flexibility, planning, and working memory (Hill, 2004).

Cognitive flexibility is the ability to shift between tasks or actions based on demand (Geurts et al., 2009). Studies using the modified version of the Wisconsin Card Sorting Test (WCST) did find that autistic children had poorer scores on cognitive flexibility and disengagement (Yeung et al., 2016).

The clinical implications of these findings are seen when the sub-tests of the IQ test change without feedback. The child is expected to seamlessly move to the next task testing unrelated cognitive processes. Sometimes, even within a sub-test, the technique of reaching the solution changes, leaving the child to build upon recently acquired knowledge, and intuitively attempt various techniques for a successful resolution.

7. **Social factors**: A child with autism has an altered sense of achievement, accomplishment, competition, and motivation. All of these add to the drive to perform on a test and do their best, which is completely different in autistic children. Very often, young children need to be motivated with food or their favorite toy to elicit one response.

The Social Motivation Theory of Autism has been well-established and studied (Chevallier et al., 2012). When motivation is taken in its neuropsychological terms, it is completed by a continuous loop of monitoring and feedback (Stavropoulos & Carver, 2018). Autistic children find repetitive behavior and restrictive interests more motivating, rather than being motivated by any external factor.

Difficulties with IQ tests for children on the spectrum:

Amongst all available tests, autistic children do better on Ravens Progressive Matrices (Dawson, 2007), Leiter International Performance Scales (Grondhuis, 2013), and Stanford Binet-5 (Baum, 2014). The pattern of their performance on the Wechslers' scales has been studied intensively. Several studies have proven the Verbal-Performance Skew (PIQ>VIQ), which is typical of the ASD profile (Gilchrist, 2001; Charman, 2011). Analysis has further shown subtest-wise variance in their performance. Among the performance-based tests, they do significantly better on Block Design (Gilchrist, 2001; Takayanagi et al., 2021), Matrix Reasoning (Oliveras-Rentas et al., 2012; Mayes & Calhoun, 2008). On the verbal tests, they do relatively better on lexical-based tests like Information, Vocabulary, and Similarities, rather than Comprehension (Mayes & Calhoun, 2003), involving social reasoning and complex language processing. They have challenges in Working Memory and Processing Speed, as highlighted by poorer scores on Digit-Span (Mayes & Calhoun, 2003), Coding (Mayes & Calhoun, 2008), Symbol Search (Nader et al., 2015), and Letter-Number Sequence (Oliveras-Rentas et al., 2012). The relatively lower scores on the subtests of the Working Memory Index and the Processing Speed Index are due to the challenges in working memory, which is one of the main components of EF (Wang et al., 2017).

Working with the challenges:

The various challenges faced by autistic children have been elucidated until now, with decades of research that prove it. It is evident that children with diverse neurodevelopmental disorders such as autism are at a disadvantage when measured on tools standardized on the neurotypical population. While having an equating measure is important, it is also vital to work with neurodiverse strengths and challenges. Slight alterations in the testing procedure, without diluting the sanctity of the test administration, can help get the best performance out of these children.

Pilvang and Brown (2000) describe a phenomenon, they call 'blocking', a pattern of responses or behavior that aimed to avoid certain types of responding. It is postulated that autistic behavior patterns interfere with response to the stimuli presented and the behavior of blocking thwarts any abnormal response pattern. They concluded that children with ASD obtained average to high IQ levels when specific techniques to counter the 'blocking' behavior. Using the Peabody test, they obtained average–high IQs with children who previously were tested to have sub-normal intelligence or were considered untestable when a multi-sub-test battery was used.

Similarly, Koegel et al. (1997) explored how attention and motivation impact test scores in autism. Several IQ assessments were conducted in two conditions – the standardized condition, where the instructions in the manual were followed exactly; the motivation/attention design, where they accounted for the motivation/attention factors that could interfere in testing based on clinical observation/interview. They conclude that factoring in the motivational/attentional attributes resulted in a higher score on multiple standardized tests, such that some children deemed 'untestable' on the standardized condition, obtained scores in the adequate range on the motivation condition.

Several other techniques that are well established in the field of Special Education and therapy can be incorporated into the testing procedure.

Instructions: Existing standardized instructions could be given pointwise or step by step. Children can be made to repeat what is expected. In the sub-tests that have an example or sample item, it can be demonstrated or roleplayed with the parent, without any extra explanation. This will help the child observe what is expected of them. Use phrases or words the child is comfortable with, instead of introducing a new word and penalizing them for not understanding what is expected of them. Example: using the words 'matching' or 'same-same' instead of alike or similar, for the Similarities or Picture Concepts subtest; or even using a sentence stem, like 'both carrots and peas are…'; or coaching the parent to give the instructions, especially in cases where the child tends to listen only to the parent.

Priming: This technique can be used to help the child understand what is expected of them, without giving away the test materials or exposing actual testing items. Example: getting the child to imitate the assessor before the Block Design test. The imitation can be in the form of a game of hand tapping, which can then progress to imitation with single block colors before the actual Block Design sub-test begins.

Visual Schedules: This is the best technique for preparing a child for work that is expected. As each sub-test is over, the child can score off or peel the item off the schedule. This can be done without divulging the nature of the test or the procedural rules of the sub-test (Dettmer et al., 2000).

Breaks and Stim-time: Some children with poor sitting tolerance and attentional difficulties tend to perform well with several breaks, just as children with RRBs and sensory issues do well with regulated stim-time or fidget-time. Having these incorporated within the visual schedule makes the rest of the assessment smoother.

Despite the planning that is required to try and make these techniques uniform and standardized, it is vital to be willing to act immediately when unforeseen events occur. An assessor should always be prepared to diffuse a meltdown before it occurs or deal with behavioral difficulties that can be unique to each child.

CONCLUSION

Intelligence as a construct is a relatively stable one; however, IQ scores vary based on several reasons that have been discussed. Standardized, manualized assessments have certain unwritten pre-requisite competencies that autistic children inherently lack. Low scores on cognitive assessment could be an artifact of decreased attention, social disengagement, emotional dysregulation, or any of the factors discussed above, rather than actual cognitive inability. The procurement of an IQ score requires several of the aforementioned factors to be in the optimal range, and disturbance of even one of the factors can make it almost impossible to get a score. This is the singular reason why it has always been difficult to obtain an IQ score for them, such that most research studies in the field control for IQ.

We acknowledge that the process of assessing a child with autism can be daunting. However, several techniques can be utilized to ensure the child is not penalized for the features of his diagnosis. Understanding that they lack the skills and continuing to put them through stringent assessment techniques is setting the stage to measure their incompetence. However, learning about the child's symptomatic and behavioral challenges and making allowances for them in a pre-determined method, keeping in mind what is permissible by the manual, is the means to obtain a strengths-based score of their abilities, as described in the previous section. Accommodating a child’s physical challenges during assessment has always been in practice, where no Clinical Psychologist penalizes the child for physical disability. A process where accommodations are made, in a systematic and documented manner, is vital to ensure no autistic child is penalized during the assessment, for their symptom profile.

Unless assessment with autistic children follows a strengths-based approach, it is best that we (mental health professionals, therapists, educationists, and other stakeholders) refrain from treating the IQ score like an exalted absolute score, as it would not be truly reflective of the child's actual ability.

Conversely, having supplementary norms or norms specific to children with developmental disorders or autism could equate some of the variability and scatter in the profiles obtained.

It is also important to note that a valuable report of the child's abilities has a careful and detailed behavioral observation, even session-wise if need be, to interpret the scores in the light of the child's clinical symptomatology. Other factors like detailed adaptive profiles, cognitive profiles, learning profiles, and language and sensory profiles need to be used in conjunction with the IQ score to understand the abilities of the child in a diverse presentation like autism.

Disclaimer: The terms children with autism and autistic children are used interchangeably to take into consideration the current preference of autism self-advocates.

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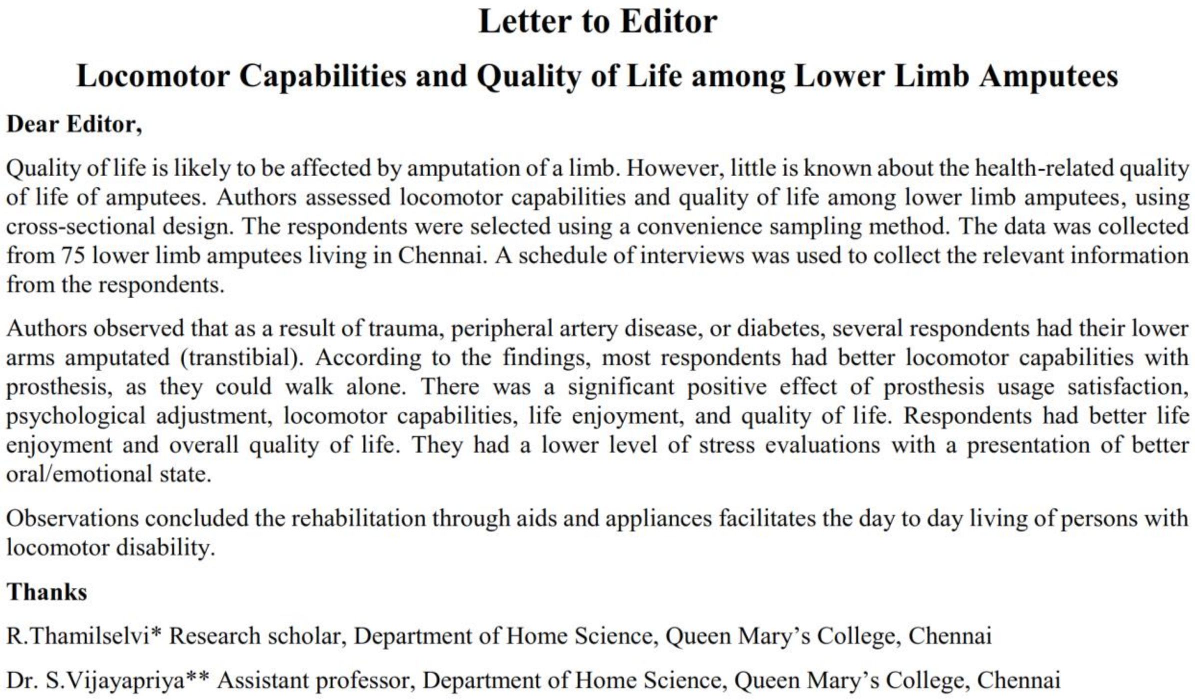

Letter to Editor

Locomotor Capabilities and Quality of Life among Lower Limb Amputees

Dear Editor,

Quality of life is likely to be affected by amputation of a limb. However, little is known about the health-related quality of life of amputees. Authors assessed locomotor capabilities and quality of life among lower limb amputees, using cross-sectional design. The respondents were selected using a convenience sampling method. The data was collected from 75 lower limb amputees living in Chennai. A schedule of interviews was used to collect the relevant information from the respondents.

Authors observed that as a result of trauma, peripheral artery disease, or diabetes, several respondents had their lower arms amputated (transtibial). According to the findings, most respondents had better locomotor capabilities with prosthesis, as they could walk alone. There was a significant positive effect of prosthesis usage satisfaction, psychological adjustment, locomotor capabilities, life enjoyment, and quality of life. Respondents had better life enjoyment and overall quality of life. They had a lower level of stress evaluations with a presentation of better oral/emotional state.

Observations concluded the rehabilitation through aids and appliances facilitates the day to day living of persons with locomotor disability.

Thanks

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Review Article

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Understanding and Avoiding Plagiarism in Academic Writing

Tomy Varghese

ABSTRACT

Plagiarism is a buzzword in the research world. Along with academic misconduct, it is also a punishable offence. This is the idealistic dilemma faced by anyone who has ever written or evaluated an article manuscript, a research report or a doctoral thesis. The boundaries between plagiarism and research are often vague or abstract. Knowingly or unknowingly, students and researchers fall victim to this. This paper points to the need to develop awareness and to take appropriate precautionary measures to make academic writing original.

Keywords: *Research reporting, Academic writing, Plagiarism, Research Ethics, Similarity, Turnitin*

INTRODUCTION

The University Grants Commission which is a regulatory body which setting standards and guidelines; controls and coordinates higher education in India vide letter D.O.No.F.1-18/2010(CPP-II); dated 6 August, 2018 to all Vice Chancellors of constituent colleges implement the Promotion of academic integrity and prevention of plagiarism in higher educational institutions regulations, 2018, with 'most priority'. The regulation also advocates to implement suitable measures to avoid potential threat of plagiarism in academic writings, research theses, scholarly articles etc. (UGC, 2018). So it is imperative to understand the vices of plagiarism and to avoid it in academic publishing.

Plagiarism and its types

According to the definition of the Oxford Dictionary 4th Edition, "Plagiarism is the act of using another person's ideas, work, or writings and pretending that they are your own. All published and unpublished material, whether in manuscript, printed or electronic form, falls under this definition." (Oxford, 2012). Merriam-Webster's online dictionary explains that to plagiarize is "to steal and pass off (the ideas or words of another) as one's own: use (another's production) without crediting the source to commit literary theft: present as new and original an idea or product derived from an existing source."(Webster, 2003)

Besides being an academic misconduct, plagiarism is a criminal misdeed too. Karl-Theodor Zu Guttenberg, the German Defence Minister, resigned in 2011, and Annette Schavan, the Minister of Education and Research, resigned due to alleged plagiarism in their scholarly works (Guardian, 2011). President Pál Schmitt of Hungary resigned in 2012, and Minister Christine Aschbacher of Austria stepped down in 2021 for the same reason.

Many papers, despite their content merit, are often rejected for not following proper research practices. The policy of each research journal is published on their website. Journals that maintain a high citation index, which is a benchmark for research journals, follow these strictly.

Turnitin, a leading similarity testing software service provider, has recorded ten types of abnormal tendencies and scored them on a ten-point scale based on their severity and frequency.

1) Cloning or ghost-writing

Someone else's composition is copied and submitted as such, without any alterations and presented as one's own work.

This is the most intensively repeated delinquency. The abuse score is nine out of ten.

2) CTRL+C or photocopy

A greater percentage of the article would have been copied directly from a single source, without alteration.

This is second in intensity; the repeat score is 8.9.

3) Find-Replace or Impersonation

Apart from keywords and phrases, the author may have retained the plagiarized content, albeit with minor changes.

Third in intensity; Repeat score is 3. 9

4) Remix or Potluck Paper

The material for the article would have borrowed from a variety of sources. When compared to the previously mentioned abnormalities, the similarity score will be low.

Fourth in intensity; Repeat score 5. 6

5) Recycle or self-theft

The author copies liberally and presents one's own work done elsewhere without proper citations. The act of self-theft is known as self-plagiarism and it refers to the practice of presenting one's own previously published work as though it were new. (Fidler, F., 2010).

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Fifth in intensity; Repeat score 5. 5

6) Hybrid

The article will be a mix of completely unattributed passages and properly quoted passages.

This is sixth in intensity; Repeat score 0. 5

7) Mashup

The article will be written by copying from many sources with little or no correlation.

Seventh in intensity; Repeat score 9. 1

8) 404 Error

The article will be comprised of citing non-existent sources or including false information about the source.

Eighth in intensity; the repeat score is low as it is labour-intensive work involving scouring fake documents/ websites for reference verification. The repeat score is 0.6

9) RSS Feed

All written work will be properly referenced. Citations will be used extensively in the article. The author will have little to say.

This aberration ranks seventh in terms of intensity. The repeat rating is 2.8.

10) Re-tweet

The article will have appropriate citations. However, without paraphrases and the source's language and structures will be heavily relied upon.

This 10th in severity; Repeat score 4. 4

Indicators of similarity scores and their corrective actions

1. **High similarity score**

This indicates that the author has borrowed too much data or information from other sources without proper citation or reference.

Remedial measure

Balance the knowledge gained from texts that the author owns. Determine whether it is best to paraphrase, summarize, or explain a topic in your own words.

2. **Low similarity score**

A very low similarity score is not a good indicator. It does not necessarily mean that the paper is of higher quality. It means that only a very small portion of your article is borrowed from other sources.

Remedial measures

- Balance your own writing with the information sources that you have referred to for authoring the paper.
- Determine whether it is better to cite verbatim from a source or paraphrase facts to offer research-based support to your assertion.
- Cite each source that you use according to the style followed.

3. Does a large section of your paper come from outside sources?

This means that you have borrowed too much information from other sources.

Remedial measures

- Wherever necessary, use your own language/words/ standard terminology in your work.
- Instead of quoting a full paragraph of superfluous material, provide only the most significant sections of each quote.
- Explain each quotation you use, including an explanation of how it relates to your claim.

4. Do large sections of your paper consist entirely of your own words?

This is not a recommended approach. It suggests that you have not reviewed the relevant literature in your field. This also implies that much too little of your paper is based on relevant sources.

Remedial measures

- Include research-based evidence to back up your claim.

- Cite each source properly, that you use.

Interpreting the similarity score

The percentage of the similarity score is based on the amount of matching text in a document. It is perfectly natural for an assignment to match against some of the other databases. If you have used quotes and referenced them properly, there will be instances where you find a match, and that is acceptable. The similarity score simply highlights any matching areas in your paper, so the reviewer can use this as an investigative tool to determine if the match is acceptable or not.

The limitations of similarity checking software

The algorithms used to create plagiarism detection software can only detect simple duplication from other sources. They might simply be tricked by paraphrasing the source material. They are inefficient at identifying both verbatim plagiarism and plundering from other languages, which the technology cannot detect. Though the web crawlers of plagiarism detection software may scan billions of digital data sources, undigitized forms are not evaluated for suspected plagiarism.

“The answer to all of this is simple, the decision as to what is and what is not plagiarism should be left to human judgement and discretion. Humans are the only ones who can detect non-verbatim plagiarism and are the only ones who can make determinations about the likelihood that the matches are coincidences or not, whether the attribution was adequate or not. Though plagiarism detection tools are a part of the solution, they have to be used in tandem with human judgment and discretion to do any good” (Bailey, 2011).

Is there a solution?

The accusation of plagiarism may be avoided to a large extent in the main article by citing them according to established academic style (style manual) guidelines and explaining the content of the quotes without reproducing them verbatim.

Not all similarities are considered plagiarism. It is reasonable to have different compositions with similar terminology. The software just finds similar sources. Similarity and plagiarism should be distinguished based on human cognition and subjectively acquired knowledge.

Most of the similarity-checking software providers have introduced a free-of-cost version with limited features. Some of the popular paid subscriptions include Turnitin, iThenticate, Grammarly, Blackboard, QuillBot, Urkund etc.

CONCLUSION

Not all similarities are plagiarism. Many works with similar vocabulary are common in the infinite ocean of knowledge. There are many artificial intelligence-based software tools available, both proprietary and non-proprietary, to detect them. All they do is find similar resources. Analogy and plagiarism can be discerned based on human intelligence and subjectively acquired knowledge.

Academic writing without accompanying prior readings is adventurous. Proper research and citation practices, publishing original ideas, evaluating sources, following reliable sources of ideas, giving them credit (citation), referencing them in the bibliography and main article according to accepted academic style (style manual), and paraphrasing the idea of quotations without copying them verbatim) to some extent, avoid the charge of misperception by following the style of writing. (Varghese, 2022).

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Brief Research Article

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Efficacy of Parent Management Training in ADHD Children Using Kazdin's Model

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ABSTRACT

Attention deficit hyperactivity disorder, or ADHD is a neuropsychiatric condition affecting preschoolers, children, adolescents, and adults around the world, characterized by a pattern of diminished sustained attention, and increased impulsivity or hyperactivity. It is the most common behavioral disorder which develops in childhood and later becomes apparent in the preschool and early school years (Alizadeh et al., 2015; Cheng & Myers, 2005). Psychosocial treatments for ADHD are generally combined with medication as medication alone cannot address parental concerns around child management issues and behaviour. Parent training is the most commonly prescribed psychological intervention for ADHD. Aim & Method-The aim of the study was to find out the effectiveness of the Parent Management Training (PMT)model by Kazdin in a sample of 30 children and adolescents in the age group of 10 to 18years. The participants were divided into 2 groups- the study group received PMT along with medication while the control group received only medicine. Results indicated that the study group had better improvement as compared to the control group suggesting that the parent management training module by Kazdin is an effective treatment for children with ADHD.

***Keywords**: ADHD, Parent Management Training, Kazdin Model*

INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is a common childhood disorder which is known to affect 3% to 5% of school-age children (Fewell & Deutscher, 2002). As per Pelham & Gnagy (1999), The behaviours which are associated with ADHD -inattentive, hyperactive and impulsive behaviours resulting in serious impairment in academic achievement of the child in school. Further they also affect their relationship with parents, siblings, and peers.

ADHD children are often at a higher risk for several negative outcomes including alcohol or other substance abuse, low self-esteem, and criminal behaviour as compared to other children (Sonuga-Barke, et al., 2001; Mash & Barkley, 1998). Previous research also indicates that a lack of proper treatment may cause further problems for children with ADHD (Thomas & Corcoran, 2003). Hence, the issues of early detection , early intervention and effective treatment of childhood ADHD need to be addressed by all concerned including state.

Various approaches to treatment of ADHD include behavioural training for parents of children with ADHD, social skills training involving social skills groups, and behavioural interventions targeted at school and home alone which is supplemented with medication management. Of these, the most commonly used intervention for ADHD is behaviour parent training. Behavioural parent training provides instruction for implementing behavior modification techniques to parents and these techniques are based on social learning principles. Techniques applied are; direct instruction, role-play and modelling to teach parents to reinforce positive behaviours while decreasing the use of punitive strategies, and managing stubborn, defiant and inappropriate behaviours effectively (Cunningham *et al.* 1993). Parent training works directly with parents to enable them to enhance and modify their own parenting skills in order to improve their relationships with the child (Pelham et al., 1998). Parent training also includes teaching parents to learn how to identify a child's behaviour and manipulate the antecedents and consequences of the behaviour. This also helps in understanding the target behaviour and monitor these problematic behaviours. Finally parents are taught to reward behaviours which are prosocial through positive attention, praise and tangible rewards, while the unwanted behaviours are minimized by ignoring and time-out in a planned manner (Lonigan, Elbert, & Johnson 1998; Chronis et al., 2001). Parent-training programme helps in improving the child management skills for the parents, enhances their self-confidence, reduces stress and mitigates oppositional behaviour (Webster-Stratton & Hammond 1997).

Parent training is based on the observation that parents of ADHD children tend to use inefficient and controlling strategies for parenting (Mash & Johnston 1990) and in the parent- child relationship the use of such strategies is predictive of poor outcome (Taylor *et al.* 1996).

In India, there are increased parent- child conflicts as parents often place higher value on patriarchal control and family relationships, instead of applying open communication, closed communication is used. Further

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parents hold diverse views on morality from their children (Chadda & Deb, 2013). Despite evidence that parents struggle with issues of monitoring, disciplining, setting limits, there exist very few parenting programs in India to assist parents. (Chadda & Deb, 2013).

Moreover, Parental Behavioural training has been used in this study as an intervention strategy for children with ADHD as well as oppositional defiant disorder (ODD) and conduct disorder (CD) (Pelham et al., 1998; Brestan & Eyberg, 1998), and many internalizing disorders as well. Although there is comorbidity between ADHD and CD/ODD, it is still not clear whether parent training is effective in reducing antisocial behaviour and symptom severity in ADHD children with or without comorbid CD/ODD. Appropriate guidelines by NICE (2008) recommend parent training as an intervention in ADHD, however; it is based on studies conducted in children under twelve years of age. Nonetheless, they recommend parent training as the first line of treatment for parents or carers of school age children with moderate ADHD.

However, the relationship between ADHD and parent training needs to be examined as a mechanism for development of behaviour problems might be different. In the present study an effort was made to establish whether parent training is effective in reducing ADHD symptom severity and associated problems in children and adolescents with ADHD. This was also an effort to fill up the research gap of Indian studies in this area.

METHOD

Objective of the study: To find the efficacy of Kazdin's model of parent management training in children with ADHD.

Sample: A group of 30 participants from the age group of 10-18 years diagnosed as Attention Deficit Hyperactivity Disorder as per DSM 5 was collected using purposive sampling method. These 30 Ss were selected from a data pool and were randomly allocated into 2 groups consisting of 15 participants each. Group 1 received PMT with Treatment As Usual. Group 2 received only TAU. PMT was given to both parents if available or the key caregiver who was defined as someone who looks after and spends most of the time taking care of the child/ adolescent. Written informed consent was obtained from the participants and their caregiver parents in the beginning of the study.

TOOLS USED

1. Socio demographic and clinical data sheet- To collect demographic details this sheet was used. Which included age, sex, educational qualification of child and parents along with their occupation, domicile and SES. In this tool clinical variables such as chief complaints, age of onset, duration of illness were also included.
2. ADHD rating scale- This tool is a teacher-report or parent-report inventory (DuPaul et. al. 1998) which consists of 18 questions about a child's behaviour over the past 6 months; It is rated on a 4-point Likert scale where 0 is never or rarely, 1 is sometimes, 2 is often and 3 is very often. It gives a raw score for hyperactivity-impulsivity and inattention. The raw scores are then converted into percentile scores for inattention, hyperactivity-impulsivity as well as both combined.
3. Child Behaviour Checklist (CBCL)- This tool was used as a measure to evaluate maladaptive emotional and behavioural problems (Achenbach, 1991). It has 8 constructs or syndromes consisting of 113 items; The responses are recorded using a Likert scale where 0= not true, 1= somewhat or sometimes true, and 2= very true/often true.

Parent management training module by Kazdin, (2008) was used; applying this training module, 12 sessions were conducted. Each session continued from 45 minutes- 1 hour. Per week 2 sessions were conducted within 6 weeks.

Sessions Details	
Pre-treatment introduction and orientation	Session 7: Family meeting
Session 1: Defining, observing and recording behaviour	Session 8: Low-rate behaviours
Session 2: Positive reinforcement: point incentive chart and praise	Session 9: Reprimands
Session 3: Time out from reinforcement	Session 10: Compromising (1st session)
Session 4: Attending and planned ignoring	Session 11: Compromising (2nd session)
Session 5: Shaping and school program	Session 12: Skill review, practice and termination
Session 6: Review and problem solving	Booster session after 15 days

STATISTICAL ANALYSIS

Statistical analysis was done using SPSS version 25. To analyse the data, applying descriptive statistics, chi square and t test.

RESULTS

The average age of the children was 12.87 ± 1.88 years. Their age of onset was 5.73 ± 1.58 years. Majority of children in both PMT and TAU groups belonged to the urban population.

Parents' sociodemographic details: The average age of fathers and education were 39.40 ± 3.86 years and 14.73 ± 3.08 (in years of schooling) years respectively. The average age of mothers and education was 32.67 ± 3.49 years and 14.00 ± 4.22 years. Majority of the mothers in both the groups were housewives and fathers were employed in private jobs.

Table 1: Sociodemographic profile of children receiving PMT with TAU and TAU only

Variables		PMT+TAU (N=15) n (%)	TAU (N=15) n(%)	χ^2 (df=1)	p
Gender	Male	14 (93.3)	14 (93.3)	.001	1.00
	Female	1(6.7)	1 (6.7)		
Child education	1-5th class	7 (46.6)	5 (33.3)	3.00	.39
	6-10th class	8 (53.3)	10 (66.7)		
DOI	0-5 years	5 (33.3)	7 (46.6)	10.23	.17
	6-10 years	10 (66.7)	8 (53.3)		
SES	Lower and middle	10 (66.7)	9 (60)	.14	.70
	Higher	5 (33.3)	6 (40)		

Table 2. Comparison of study variables between children receiving PMT with TAU and TAU only

Domains	PMT + TAU (N=15)	TAU (N=15)	t (df=28)	P
	Mean ± SD	Mean ± SD		
Baseline ADHD	37.53 ±5.98	40.13 ± 5.38	.459	.650
Baseline CBCL	46.07 ±12.13	50.73 ±12.20	.624	.538
Post ADHD (after 6 weeks of intervention)	34.33 ±5.56	39.33 ± 5.563	2.378	.024*
Post CBCL (after 6 weeks of intervention)	43.00 ±12.14	48.00± 12.148	2.413	.023*
Follow up ADHD (after 2 weeks if follow up)	32.54 ±5.48	38.67 ± 5.486	3.148	.024*
Follow up CBCL (after 2 weeks if follow up)	40.00 ± 12.84	46.00 ±12.845	2.357	.026*

*p<.05, **p<.001

Table 3: Comparison at different intervals in PMT + TAU group

Domains		ADHD	t (df=14)	p	CBCL	t (df=14)	p
Baseline (N=15)	**Mean± SD**	37.53± 5.98	12.22	.021*	46.07± 12.13	13.44	.002*
Post intervention (N=15)	**Mean± SD**	34.33± 5.56			43.00± 12.14		
Baseline (N=15)	**Mean± SD**	37.53± 5.98	13.39	.012*	46.07± 12.13	7.06	000**
Follow up (N=15)	**Mean± SD**	32.54 ±5.48			40.00± 12.84		
Post intervention (N=15)	**Mean± SD**	34.33± 5.56	10.45	.002*	43.00± 12.14	4.07	.001**
Follow up (N=15)	**Mean± SD**	32.67± 5.48			40.00± 12.84		

DISCUSSION

The study was conducted with the aim to study the effectiveness of parent management training in attention deficit hyperactivity disorder. The present study was a pre test- post test design. Both the study group and control group were similar in their baseline evaluation. Since the two groups were similar prior to the intervention, the efficacy of the intervention will be more pronounced. Both groups were matched on relevant variables like children's age, gender, education, age of onset, duration of illness, domicile and SES. Parents' age, education, occupation were also matched i.e. similar and in close proximity between the two groups.

On a comparison of study variables after 6 weeks of intervention as well as follow up after 2 weeks, at the end of therapy, it was found that ADHD symptom severity and behavioural problems in children receiving parent management training was significantly decreased than children receiving treatment as usual. There was also a significant difference between baseline scores and scores after 6 weeks of intervention in the PMT group only indicating efficacy of PMT. There was a significant difference between scores after 6 weeks of intervention and scores after 2 weeks of follow up indicating the maintenance effect of PMT. PMT has been known to be one of the most acceptable and effective treatment options by parents, when compared to stimulant medications alone (MTA, 1999); which has been demonstrated in observations of this study. It is an evidence-based treatment for children with externalizing behavior problems (Eyberg et al., 2008).

PMT has been applied to a broad range of problems in children and in different age group populations. There are several core elements of the PMT model with different approaches. Firstly, the intervention is primarily conducted with the parents, with very less contact between the therapist and the child.

Secondly, the therapist tries to shift the parents' attention from problem behaviour towards prosocial goals. Parents are trained to define, monitor, and track a child's behaviour. Praise, positive parent attention, token system were some of the positive reinforcement procedures which are used while ignoring, response cost, and time out in giving clear instructions or commands were used as extinction and mild punishment procedures.

Finally, to promote effective parenting in PMT, modelling, role playing, didactic instruction, behavioural rehearsal, and structured homework exercises are also used. Earlier studies reported that parent training programs in children with ADHD are majorly aimed to reduce behavioural problems through contingency management principles (Barkley, 1987). They are also known to improve problem-solving skills or social skills in children with ADHD (Sheridan & Dee, 1996). Parent training generally results in minimizing the oppositional behaviour of the adolescents, suggesting that the treatment is most useful when parent-child conflict exists (Anastopoulos et al., 1993). Thus, the present observations are supported by previous research findings. Which clearly demonstrates that PMT improves childhood behaviour problems, reduces parental stress and allows the development of positive parenting competences (Furlong et al., 2013; Froelich et al., 2002).

CONCLUSION

Treatment of primary symptoms of ADHD in school aged children were successfully achieved by parent training in this study. Overall review of previous studies also indicates an increase in confidence amongst parents regarding their child management abilities and self-esteem. It has also been found to reduce the stress of the parents and helps in reducing ADHD symptoms and child noncompliance. The present study indicated the need for future research to include both parents in the treatment program and to continue to investigate any possible differential effects of parent-training. Focus should be given on the possible problems that parents experience and how these experiences influence the effects of the treatment. It is necessary to give importance to parent training programs within the clinical as well as community settings. Lastly, the maintenance effects of the treatment need to be evaluated even after the completion of the study.

Conflict of interest: No conflict of interest

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Letter to Editor

Indian Classical Music Therapy for Pervasive Developmental Disorder: A Case Study

Dear Editor,

Music therapy is transitioning from a social science model that focuses on overall health and well-being to a neuroscientific research field that focuses on addressing motor, cognitive, language, emotional and social deficits in people with neurological disorders. As music therapy in India is nascent and still evolving, there is a need at this stage to make use of the rich musical resources to develop culturally sensitive approaches, techniques, or methods adaptable to clinical applications. R, a 29 year old, diagnosed with Pervasive Developmental Disorder, delineates the benefits of structured Indian classical music intervention towards various cognitive goals, sensory goals, communication goals, improved physical and emotional response, behavior improvement, social cognition, and musical goals. Music therapy assessment and multi-modal problem analysis help identify significant strengths, potentials and resources, which may not be apparent in other formalized assessments. Thus, it can facilitate the development of a systematic method for measuring response to therapy.

Thanks

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Prof. Nalini. Bikkina, Director, GITAM School of Humanities and Social Sciences

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Brief Research Article

Experience of a Clinical Psychologist Working with Chronic Mental Illness in a Halfway Home: An Illustrative Report

Aditi Bansal[1] and Monika Misra[2]

ABSTRACT

As the focus and awareness about mental health increase, the need to care for less privileged individuals suffering from chronic mental illness also becomes important (In The Rights of Persons with Disabilities (RPwD Act, 2016), Mental Illness is one of the disabilities specified). In the recent past, the importance of Psychosocial Rehabilitation (PSR) has been gradually increasing. Considering this, *Halfway* and *Longstay Homes* are the need of the hour. Halfway and longstay homes are residential facilities that are beneficial for providing accommodation to those who suffer from chronic mental illness, who are destitute, may have wandered away from their homes due to their illness or those who have minimal family support in the wake of mental illness as a disability. Such a cohort constitutes an important part of PSR. Whereas a halfway home is a transitional facility, longstay home provides extended residential care. Both these homes can be present in the same facility. The present article delineates the experiences of a clinical psychologist who is working as a part of a multidisciplinary team in one such halfway/longstay home exclusively for females who are stable on treatment and recovering from psychiatric illness. It also highlights how the Mental Healthcare Act, 2017 is practically implemented in this institution. The institution is located in Tier I city of India (Census of India, 2011), and the name is kept anonymous to maintain the confidentiality of the residents.

Keywords: *Psychosocial rehabilitation, RPwD Act, halfway homes, longstay homes, Clinical psychologist*

INTRODUCTION

Psychosocial Rehabilitation (PSR) is defined by the World Health Organization (WHO, 1996) as, "a process that facilitates the opportunity for individuals who are impaired, have a disability or handicapped by a mental disorder—to reach their optimal level of independent functioning in the community. It implies both improving individuals' competencies and introducing environmental changes in order to create a life of the best quality possible for people who have experienced a mental disorder, or who have an impairment of their mental capacity, which produces a certain level of disability." The importance of PSR is steadily rising in India. Halfway Homes and Longstay Homes constitute an important part of rehabilitation and provide a sanctuary for those suffering from chronic mental illness.

A Psychiatric Halfway Home is a less restrictive residential treatment facility, usually located in the community, primarily for those people who are stable on psychiatric treatment and require no further hospitalization but are not yet prepared to be reintegrated back into society due to chronic mental illness. As the name indicates, it is 'halfway' between a psychiatric hospital and completely independent living. Thus, a halfway home is a transitional facility. The term 'residents' or the Hindi term *'sadasya'* is a better way to address the population living in these facilities instead of 'patients' as they are living in a home-like environment. The main objective of the halfway home is to facilitate a gradual reintegration into society. For a homeless person or a destitute, who is vulnerable to physical and sexual abuse, these homes function as safe places where they are provided with appropriate treatment, accommodation and shelter as well as attempting the process of their rehabilitation.

A longstay home is a residential treatment facility for those, who after appropriate assessment by mental health professionals have been found to be unable to fulfil the criteria for independent living and/or family rehabilitation (due to unavailability of address/location of the family). These residents may have, cognitive difficulties, may be treatment-resistant, may be unable to recall their address/family members, require supervision for their daily needs etc.

Table 1: Difference between halfway home and longstay home

S.No.	Halfway Home (HWH)	Longstay Home (LSH)
1.	Transitional facility till when the person under treatment becomes better either for independent living or their residential address is traced.	A facility of continued support for those under treatment who are unable to improve till the point of independent living or are unable to recall their residential address.
2.	Assessment is initially done every month for 6 months and then every 3 months to check the progress.	Assessment is initially done every month for 6 months and then every 6 months to check the progress.

Overall, the primary focus of halfway/longstay homes is on developing self- sufficiency in the personal lives of the residents.

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Brief history of halfway homes in India

The first halfway home in India was established by Medico Pastoral Association (MPA) in Bangalore in 1972. Initially starting with counselling services and group activities for those suffering from mental illness, the halfway home was established later after identifying the needs of this group. The Richmond Fellowship (RF) was founded by Ms Elly Jansen in UK in 1959. Subsequently, its branches were opened in various countries. The Richmond Fellowship Society (India) started in 1986. The organization established a model halfway home ASHA – Accredited Social Health Activist in 1989 in Bangalore, catering to both males and females and in 1995, and established long stay home. In 1989, around the same time, Dr Bharat Vatwani established a rehabilitation centre for the mentally ill, known as *Shraddha Rehabilitation Foundation* (Karjat, Maharashtra) which has helped in uniting people with their families. He later won the Ramon Magsaysay Award (2018) for working with mentally ill street people. Other significant homes such as *The Banyan* in Chennai and *Chittadhama Trust*, in Karnataka, also have contributed significantly to PSR.

Working in the home: through the lens of a clinical psychologist

Admission/Entry criteria

The present halfway/longstay home is located in a Tier I city, in India and is exclusively for female residents who are stable and recovering from mental illness. There are 2 types of admissions that are permitted in the home.

1. Independent admission: The home follows specific entry criteria for admission, keeping in purview the definition of mental illness as defined in the MHCA, 2017, which is as follows; “a substantial disorder of thinking, mood, perception, orientation or memory that grossly impairs judgment, behaviour, capacity to recognise reality or ability to meet the ordinary demands of life, mental conditions associated with the abuse of alcohol and drugs, but does not include mental retardation which is a condition of arrested or incomplete development of mind of a person, especially characterised by sub normality of intelligence.”

For independent admissions, an application in a prescribed format as per the entry criteria of the institution is duly filled, usually by the applicant’s family member. The filled application along with requisite documents is then assessed by the team of members on a decided date, where the applicant and their family members are also called. Typically, a meeting for independent admission is held once a month or depending on the number of applications received in a month. Those applicants who are found to satisfactorily fulfil the entry criteria are admitted.

2. Admission through the involvement of court and police personnel Often, people wandering in any public place, such as roads, railway stations, etc are reported to the police and then taken for appropriate treatment. After the person improves on treatment, if they can recall their address and family rehabilitation is possible, they are rehabilitated back to the family. However, if they are unable to recall their address, but require no further hospitalization and are stable on treatment, they are shifted to a halfway/longstay home. Most of the present cases have been found as destitute and are admitted through the involvement of the court and police personnel. Most of the residents have also been diagnosed with long-term psychotic illness.

Multidisciplinary Team (MDT)

The home also has a multidisciplinary team consisting of a Psychiatrist, Clinical Psychologist, Psychiatric Social Worker (PSW), Occupational Therapist (OT), Physiotherapist (PT), General Physician, Nursing Officer and Caretaking staff. Round-the-clock staff is available on shift duties and meals and medicines are provided under supervision. The home follows a multidisciplinary team approach, with medical and mental health professionals to assist individuals with their medical and/or co- occurring needs. This institution aims to provide a “home- like” atmosphere. Normal housekeeping and food preparation are done on the premises.

The objectives for the residents include creating a structured environment, regularly scheduled psychotherapy sessions, specialized professional/medical consultation, and tests such as a psychiatric evaluation, biopsychosocial assessment, referral to additional services and resources, group therapy, individual and/or family therapy as required, developing life skills, providing an opportunity for family involvement and strengthening the existing qualities.

Activities of Daily Living (ADL) and routine of the residents

There is a routine that is followed in the halfway/ longstay home. All the basic necessities are provided in-house to the residents, like, a scheduled wake-up time and bedtime, tea followed by breakfast in the morning, yoga activities, group activities, lunch, leisure time for rest/ walk, evening tea, time for watching news/TV, and dinner. All the festivals are celebrated in the home and are organized and implemented by a team of professionals. Group meetings and activities are also carried out for the residents to keep them involved and engaged.

Challenges and Solutions in therapeutic intervention

1. Gathering history: Any intervention begins with gathering the in-depth history of the person in question. However, most of the time in the present institution, since the majority of the cases are admitted through the involvement of court and police personnel, without any family member, the means to gather reliable and valid information becomes difficult. Hence, most of the cases are diagnosed as psychosis NOS till further improvement takes place. Therefore, any new admission is kept under the direct supervision of the round-the-duty staff to observe any changes in psychopathology.
2. Managing behaviour of the residents: Since some of the people are in longstay homes and residing for a long time, it is a natural progression of their behaviour to demand things, to pick fights with other residents etc. For managing the daily hassles and promoting a sense of responsibility, a system of token economy is being followed, where a list of acceptable behaviours and points which can be converted to rewards as well as a list of unacceptable behaviours with response cost is being taught to the residents.
3. Cognitive decline due to chronic illness: The majority of the cases have long-term illness, which causes a decline in cognitive abilities. Hence, group meetings focusing on orientation to time, place and person, prayer, etc are being done. Group meetings also focus on discussion on simple topics, such as maintaining hygiene, and other soft skills such as honesty, etc. Apart from this, regular yoga activities are being implemented.

CONCLUSION

Psychosocial rehabilitation is an essential component in managing mental health. Halfway/longstay homes are transitional residential care facilities that provide psychiatric care to those suffering from chronic mental disorders and disability due to the disorder. Halfway Home provides accommodation and services for a shorter duration of time and longstay home provides extended accommodation and services. In the present times, there is a pressing priority for halfway/ longstay homes in the country, since the aim is to provide the individual with a home-like environment and finally rehabilitate people with the community. For sustained support to such institutions, public-private partnerships are required that will help in implementing various schemes and help in overall psychosocial development.

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Attitudes of Parents and Behaviour Problems of Children with Intellectual Disability

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ABSTRACT

Present study attempts to to explore the impact of parent's attitude towards disability on the behaviour problems of children with intellectual disability. The sample consisted of 50 parents of children with intellectual disability (N = 50). Data was individually collected from two major rehabilitation institutes in Hyderabad through administering Attitudes toward Disabled Persons Scale – Form O and Behavioural Assessment Scales for Indian Children with Mental Retardation (Part-B). On statistical analysis, parental attitude towards disability as predictor and the behavioural problem of children as criterion indicated a significant result (R^2=0.11, β= -0.33, F=6.10, p=0.017). Findings reveal thatchildren with intellectual disability are less prone to behavioural problems if the parents have an attitude that their chid with intellectual disability is not different from other "normal" children. It gives insight upon the necessity to focus upon parental attitude towards disability in order to bring about changes in behaviour problems among children with intellectual disability.

Keywords: Children, Intellectual Disability, Parental Attitude, Behaviour Problems

INTRODUCTION

The attitude of the parents represents the most important social influence that the child experiences in the earliest years. Parental attitude is a significant factor in a child's behavioural development. This applies not only to parents of typically developing children, but also to parents of children with intellectual disabilities. Some parents have the attitude that their child, having disability, is not normal and consider and treat them as 'different' while some parents see their child like any other child, even though they know that their child has certain limitations. It's not about that existence or non-existence of a disability, but about how the parents perceive it.

It has also been reported that there is an interaction between the child with intellectual disability and the family. Regarding parental attitudes, there are many influencing factors covering the interaction between the parents and their children with intellectual disability; the way parents treat their children, in turn, influences their children's attitudes toward them and the way they behave. So, the parent-child relationship is dependent on the parent's attitudes towards them. If parental attitudes are favourable, the relationship of parents and children will be far better than when parental attitudes are unfavourable (Goswami, 2013).

Children with intellectual disability are more likely to exhibit behaviour problems than are children without disabilities. Study by Purukayastha et al. (1997), of 574 subjects, revealed that nearly half of the subjects have associated psychiatric or behavioural disorder. ADHD was found in 11.1%, conduct disorder in 1.1%, temper tantrums in 3%, aggression in 0.6%, autism in 4.7% and other nonspecific behaviours in 10.8%. Psychiatric and behaviour disturbances are 3-4 times commoner in children with intellectual disability than in general population (Rutter, Tizard & Whitmore, 1970). The more severe the retardation, the higher the incidence of behaviour problems observed (Heward, 2014). Prakash, Sudarsanan& Prabhu (2007) studied on behavioural problems in children with intellectual disability and found that there was significantly higher prevalence of behaviour problems in the younger age group and there was a higher prevalence of behaviour problems in children with moderate ID than in children with mild ID. Common behaviour problems reported were 'impulsive or acts without thinking', 'cannot concentrate' and 'sudden changes in mood or feelings'. Common behaviour problems found in younger age group included - impulsive, can't concentrate, acts too young for her age, etc. and in the older group, it were - impulsive, cannot concentrate and acts too young for her age. Common behaviour problems in children with mild intellectual disability were impulsive, can’t concentrate, gets hurt a lot, accident prone, etc., and in children with moderate retardation were - can’t concentrate, bite fingernails, accident prone, gets hurt a lot, etc.

A simple part of being human is that we develop attitudes towards people, objects and activities that we are exposed to in life (Scior& Werner, 2015). Attitudes are a psychological construct that relates to favourable or unfavourable evaluations of people, objects, places or activities. Attitudes are ephemeral and change over time from person to person, from group to group, and even within groups. Yet we tend to see patterns in people's attitudes. People with common characteristics or social experiences may well develop similar attitudes towards disabled people or disabilities in general.

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(Aiden & McCarthy, 2014). Some researchers tried to determine the parental attitudes of traditional Hindu families toward their child with intellectual disability and found that most parents accepted their disabled child with a philosophical attitude (Kamath 1951). According to Goswami (2013), attitudes towards people with intellectual disabilities in India were not as negative as in Rome and Greece. Gellman (1959) strongly believes that the practice of raising children tends to pre-determine the behaviour of adults towards people with disabilities. This concept is in line with intercultural research by Whiting (1953), which shows that parenting practices influence attitudes towards illness and disability. Many factors influence the interaction between parents and their children with intellectual disabilities. Again, the way parents treat their children, in turn, affects their children's attitudes towards them and their behaviour (Goswami, 2013).

Siperstein, Norins, Corbin & Shriver (2005) in a study of participants over 800 people in 10 different countries, examined three main capabilities to generalise how the public perceives individuals with intellectual disabilities. One perception is that individuals with disabilities can complete simple tasks such as getting dressed and making friends but less capable of the more complex tasks such as handling emergencies. Second, people with intellectual disabilities have limited ability to make their own decisions about work, school and life. A third perception is that people with disabilities can mostly play sports with other players with intellectual disabilities, with few believing they can participate in inclusive sports. This study also focused on where people with intellectual disability should live, work and attend school. They found that most of the responses were that people with intellectual disability should live with their parents at home. However, very little decided that an institution or group home was the proper place. Also, a large population agreed that a non-mainstream workplace would help them the most. As for schools, many respondents said thatpeople with intellectual disability should be in special schools. They also concluded that the perception of the severity of the disability impacts the perception of the living, working, and learning capabilities of individuals with disabilities.

Rangaswami (1995) examined the attitude of mothers toward their children with intellectual disability, with and without behaviour problems. The overall attitude of mothers of children with and without behaviour problems differed significantly. Mothers of these children with behavioral problems had higher negative attitudes about acceptance, education and future, home management and hostility.

Sabat, Burke, & Arango (2021) examined parenting styles and attitudes, and adaptive behaviour of children with intellectual disabilities. It was observed that both fathers and mothers tend to have an authoritarian parenting style. Overall, paternal parenting styles and attitudes were found related to children's adaptive behaviour. Teague, S. J. (2018) proposed that children's attachment quality was associated with parenting practices. But this was found among children with an autism spectrum disorder. Maternal sensitivity and structing were also linked to attachment quality of children with intellectual disability (Feniger-Schaal, & Joels, 2018).

Phillips, Conners &Curtner-Smith (2017) found that mothers of children with Down Syndrome use less of an authoritarian and more of a permissive parenting style than mothers of typically developing children. In addition, mothers of children with Down Syndrome resorted less to reasoning/induction and verbal hostility and were more ignoring child's misbehaviour than mothers of typically developing children. Mother's expressed emotion was also found to be associated with behaviour problems in children with intellectual disability (Fragile X Syndrome and Down Syndrome) as evident from the studies of Cregenzán-Royo, Brun-Gasca & Fornieles-Deu (2018).

In the light of above facts, it is vital to understand if parental attitude towards disability influences the behavioural problems manifested by the child. The present study has the objective to examine the impact of parent's attitude towards disability on the behaviour problems of children with intellectual disability. There is a general concern that disabled people are among the most marginalised in the country's development process. For effective and efficient political intervention to improve the situation of people with disabilities, it is of the utmost importance to have a clear picture of the dimension of disability in India. There is increasing evidence that people with disabilities are more likely than non-disabled people to perceive the attitudes of others as the main obstacle to education, leisure, transport, access to public services, social contacts and accessibility outside the home. Children with intellectual disability have significant difficulties in both intellectual functioning and adaptive behaviour. Parent of such a child may have different attitudes towards their child with disability and disability in general. Studies have shown that behavioural problems are more among children with intellectual disability than among normal children. Behavioural problems may arise due to negative parental attitudes and it is vital to know if parental attitude towards disability influences the behavioural problems manifested by the child i.e., whether parent's attitude towards disability can affect their parenting process and thereby finally being evident in the behaviour of the child. Negative parental attitude towards the disabled child can prevent the parent from loving and caring and providing the adequate training necessary for enabling the child to get integrated into the society and lead a normal life. A child with intellectual disability who is not exposed to special training to learn adaptive ways of behaviour are likely to learn or continue to with maladaptive behaviours. It is essential to explore every possible approach that may increase such a child's chances for positive adaptation. On review of literature, the researcher didn't come across any quantitative study done in India associating specifically the parent's attitude to disability and behaviour problem of children with intellectual disability. Thus, a study associating the parents' attitude towards disability and child's behavioural problems is essential so that the need of focus on parental attitude to bring about changes in behaviour problems in a child with intellectual disability can be seriously felt and understood.

METHOD

Participants: The sample was drawn randomly from the OPD blocks of two rehabilitation institutes situated in Hyderabad. The sample consisted of 50 parents (either father or mother) of children (between the age of 7 and 18 years) with intellectual disability (IQ below 70). Parents of children with autism as co-morbid condition were excluded from the present study.

Materials: The socio-demographic data sheet was used to record the relevant information of the participants and their children. Both the parent's details (such as age, gender, educational qualification, occupation, marital status, number of children, family type, socio-economic status and locality) and the child's details (such as age, gender, birth order, IQ level, educational status, treatments undergone and other physical or neurological conditions) were recorded systematically in the data.

Attitudes toward Disabled Persons Scale – Form O was developed by Yuker, H. E., Block, J. R. &Younng, J. H. in 1970. It has 20 items and is rated ona Likert-type scale. The response ranges from +3 to -3 (without a 0 point) where +3 means 'I agree very much', +2 means 'I agree pretty much', +1 means 'I agree a little', -1 means 'I disagree a little', -2 means 'I disagree pretty much' and -3 means 'I disagree very much'. A high score indicates that the respondent perceives disabled persons as being not very different from non-disabled persons and a low score indicates that the respondent perceives disabled persons as different from normal persons. A test-retestreliability of +.73 was found for this scale.

Behavioural Assessment Scales for Indian Children with Mental Retardation (Part-B) was developed in 1992 by Peshwaria, R. and Venkatesan, S. It has 75 items which are grouped into 10 domains. Three levels of severity or frequency of the problem behaviours that is Never (N) which is scored 0, Occasionally (O) which is scored 1, and Frequently (F) which is scored 2. The total of 75 items will be calculated. Higher the score, higher the severity of behavioural problems. Test-retest reliability of 0.68 was found.

Procedure: Cross-sectional assessment of the study variables was employed. The data was collected individually from two major rehabilitation institutes in Hyderabad in a period of 3 months. The objective of the study was explained to the participants. The confidentiality of the information was assured in all cases. Those consented to participate in the study were given the questionnaires. The study-specific measures were administered. Clarifications and interpretations were given need-based. The order of administration of the questionnaires was constant for all the participants. Each session lasted approximately 30 to 40 minutes. The instruction for administration and scoring were strictly followed, and care was taken to ensure that incomplete response sheets were not used for final analysis. The data was coded and entered in the software-based data sheet for statistical analysis.

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RESULTS

Using the statistical software and procedures, collected data were statistically analysed. Descriptive statistics was employed to understand the demographic data. Correlation method was used to determine the degree of association between variables. Regression analysis was used to understand whether one variable predicted the other.

Table 1: Socio-demographic characteristics of study population (Parent’s details).

Variable	Mean (SD)	Percentage
Age	35.46 6.76)	
Gender		
Male		34.0
Female		66.0
Education		
10th and below		50.0
Above 10th		50.0
Occupation		
Employed		40.0
Unemployed		60.0
Marital Status		
Staying together		88.0
Staying alone		12.0
No. of Children		
One		12.0
Two		64.0
Three and above		24.0
Family		
Joint		36.0
Nuclear		64.0
Socio-economic Status		
Low		50.0
Middle		50.0
Locality		
Rural		28.0
Urban		72.0
History of substance abuse in either parent		16.0

Table 2: Socio-demographic characteristics of study population (Child's details).

Variable	Percentage
Child’sAge	
7 to 10 years	68.0
11 to 18 years	32.0
Child’sGender	
Male	58.0
Female	42.0
Child'sBirth order	
First-born	64.0
Later born	36.0
Child’sIQ level	
Mild	60.0
Moderate	30.0
Severe and profound	10.0
Child’sEducation	
Illiterate	16.0
Normal school	28.0
Special school	56.0
Treatments underwent by the child	
Medication	82.0
Behaviour modification	44.0
Speech therapy	54.0
Physiotherapy	40.0
Occupational therapy	20.0
Special education	56.0
Faith healing	8.0
Other Conditions (Current / Past) in the child	
Epilepsy	46.0
Cerebral palsy	4.0
Hearing problem	2.0
Visual problem	8.0
Speech problem	50.0
Head injury	4.0

Table 3: Regression analyses for variables predicting the behavioural problems of children with intellectual disability

Predictor	Regression Values						ANOVA	
	R^2	B	SE B	β	t	Sig	F	Sig
Attitude towards disability	0.11	-0.48	-0.19	-0.33	-2.47	0.017	6.10	0.017

Regression analysis was done to predict the behavioural problems of children with intellectual disability. Attitude towards disability as predictor and the behavioural problem of children as criterion indicated a significant result (R^2=0.11, β = -0.33, F =6.10, p=0.017).

DISCUSSION

The results described above suggested that parents' attitude towards disability was a significant predictor of the behavioural problem exhibited by children with intellectual disability (R^2 = 0.11, β = - 0.33, F = 6.10, p = 0.017). The necessity of working on improving the parent's attitude to bring about changes in behaviour problems of children with ID is hereby evident. Previous studies revealed that very often the parents have a negative attitude towards their child with disabilities. The finding of the present study, suggesting an opposite direction of influence to what found in the study of Rangaswami, K (1995) where parents of children with intellectual disability accompanied by behavior problems had higher negative attitude, reveals that the parents' attitude towards disability influences the behaviour problems in children with mental retardation. This means that children with intellectual disability are less prone to behavioural problems if the parents have an attitude that their chid with intellectual disability is not different from other "normal" children. Parents with a positive attitude towards disability, i.e., those with an attitude that their child is similar to normal children, are more likely to believe that a normal life is possible for their child and therefore explore ways to make them adaptive to the environment. This provides more chances for children of such parents to undergo various training and gain better ways of living which in turn provides more opportunities for learning adaptive behaviours. A parent with negative attitude believes and treats their child as "a different child" and get along with it accepting that they are "different", less effort being made to bring change in the child's behaviour. Parents with negative attitude might also indulge in over-involvement or to the other extreme i.e., rejection towards the child. This can bring about a direct negative influence on the child's behaviour leading to high level of behaviour problems.

Addressing stigma and discrimination at the family or community level can have a significant impact on the lives of such children. One of the best ways to make this possible is to show communities what these children are capable to do, such as attending school, getting job and having a role in the community. Change should begin from family. Working on improving the parent's attitude towards their child with intellectual disability is the stepping stone towards making this possible. The need and benefit of inclusive approach is underlined. The study can be taken forwarded with more sample representation exploring the pattern specific to various levels of intellectual disability.

CONCLUSION

Disability is not an impairment itself, but rather also involves attitudes and environmental barriers. It can be said to be a social issue which results from the interaction between people, with long-term physical, mental, intellectual or sensory impairments, and various barriers that could hinder their full and meaningful participation in society on an equal basis with others.

Attitudes are seen to play a key role in achieving equality because they may translate into behaviour towards individuals and groups. Negative attitudes can have negative consequences such as discrimination and hate crime. Negative attitudes, or perceived negative attitudes, towards people with disabilities can become a barrier to the inclusion of those with disabilities into the society, and to achieving their full potential. Children with intellectual disability are often at greater risk of violence and exploitation than their non-disabled peers.

The relationship between people's attitudes, their knowledge and their behaviour is complex. One assumption frequently made is that certain attitudes are due to ignorance or misinformation and therefore, if attitudes are to be changed, people must be educated through the provision of information. Another assumption is that behaviour should be changed first, and attitudinal change will follow. Legislation can lead to people with negative attitudes changing their behaviour and changes in behaviour can lead, in time, to changes in attitudes. Which is the better way for attitudinal change has to be more thoroughly studied.

While there is some evidence that public attitudes toward people with intellectual disability are shifting in a positive direction, the need for a change is clearly apparent, as studies have consistently shown that people with intellectual disability remain highly stigmatised. It is known that a shift to a more positive attitude results in greater acceptance of inclusion and thus may have a direct impact on the quality of life for a person with mental retardation. Through this study it has come to our knowledge that this shift can even influence the behaviour problem manifested in the child with intellectual disability. Much greater number of in-depth researches is still required for greater precision and clarity.

ACKNOWLEDGEMENTS

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Case Study

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Effects of Behavior Therapy on Drooling in Low Intellectual Functioning: Aversive Approach

Babita Gupta

ABSTRACT

Hypersecretion of saliva or impairment of swallowing leads to drooling among children which carries physical and medical complications and social stigma to their families. It affects physical and mental health in a negative way. The aim of study was to see the effects of behavior therapeutic intervention program mainly using aversion therapy (pinching/inflicting pain), visual cuing and praising conducted in playful manner on drooling in a child and an adult with low intellectual functioning. Drooling Severity and Frequency Scale**,** Drooling Impact Scale**,**Teacher and Parents Rating Scale were done. The sessions were conducted twice a week, forty minutes duration for four months. Fortnightly follow-up sessions were conducted for three months. Single case study, pretest-posttest assessment design andQualitative analysis were done. Pretest assessment results showed that both the participants had profuse severity level of drooling, frequent drooling in all the settings, while playing with toys, talking with others and lack of awareness of saliva control also noticed. Informed consents were taken. Posttest assessment results revealed a drastic reduction in the frequency and quantity of drooling, enhanced self-management skill and socialization. It can be said that therapeutic programs are very effective in reducing drooling in people with low intellectual functioning.

Keywords: Aversion therapy, Drooling, Play, Behavior therapeutic intervention, Low intellectual

Introduction

Drooling is an indication of an upset in the coordinated control mechanism of Oro-facial and palato-lingual musculature leading to excessive pooling of saliva in the anterior mouth and resultant unintentional loss of saliva from the mouth (Cotton & Richardson, 1981; Blasco & Allaire, 1992). It can be seen in normal children and gradually it subsides as the child grows. However, it is considered abnormal beyond the age of 4 (Crysdale, 1989).There are many direct causes related to drooling e.g cerebral palsy, motor neurone damage, cerebrovascular accidents, parkinsonism, congenital suprabulbar palsy, major resection of the oropharynx and there are some indirect causesas well e.g nasal obstruction, tongue thrust, constant open mouth and poor lip control, hypoactive gag reflex, gastro-oesophageal reflux, head posture and sitting position, concentration on a task (Hussein et al. 1998).

Physiotherapy, biofeedback and behaviour therapy (Sochaniwskyj et al. 1987; Rapp & Bowers, 1979), pharmacotherapy (anticholinergics, scopolamine, benzotropine and glycopyrolate. Botulinum toxin) and an injection to the salivary gland have been found effective in reducing drooling (Robert, 2013). Moreover, surgery was also reported for the treatment of drooling in many cases.

Review of literature showed various treatments are available which are effective/ineffective in reduction of drooling among the person with disabilities. Crysdale et al (1985) found improvement of orofacial motor control by maintaining the head in an upright position and substituting the lost reflex by willpower-controlled swallowing. However, stimulating or brushing the oral soft tissues with chin vibration therapy was found ineffective (Domaracki & Sisson, 1990).

In Indian population and setting, Damayanti and Makati (2002) conducted a study to investigate the effect of behaviour therapy technique for controlling drooling in children with cerebral palsy with mild intellectual disability. The results of the study showed effectiveness of the token economy program in controlling drooling in children with cerebral palsy with mild intellectual disability.

Hegde and Pani (2009) studied drooling / saliva in children with cerebral palsy and its etiology, prevalence, and relationship to salivary flow rate. They found a significant relationship between ability to close the mouth and the severity of drooling. The severity of drooling was reduced with age. They found no significant difference in the mean salivary flow rate of those children who drooled and those who did not. On the other hand, oral motor stimulation intervention was found effective in drooling among children with cerebral palsy (Rekha, 2014).

Hence, several techniques and treatments were reported and no one found universally successful. The research showed complications and conflicting results as well (Blasco, 1992). However, use of aversion behaviour therapy was not reported. In this paper, aversion

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therapy in combination of visual cuing and praising has been examined in a playful manner.

Objective:

To see the effects of behaviour therapeutic intervention program based on aversion therapy, visual cuing and praising on drooling in an individual with low intellectual functioning.

METHOD

Sample and Setting: The total sample consisted of two participants (a child and an adult).

Participant 1 (child) was 4 years 6 months old with diagnosis of low intellectual functioning based on DSM criteria. On Vineland Social Maturity Scale, his I.Q was 80. He showed overall delay in developmental milestones such as speech, motor (gross and fine-motor skill) and self-help skills. On the Seguin Form Board (SFB), the child has not established form perception. He did not respond and was not able to complete even the first trial of the procedure of the testing. He was attending pre-school education in formal school. The present study was done in a clinical setting. Both parents were working and belong to upper middle-class background.

Participant 2 was an adult with moderate level of intellectual disability (mentioned on disability certificate and 75% disability). She was 21 years old, passed 10 std form NIOS (Open School) and attended Diya foundation for training in daily living skills and employability /vocational skills. She had one sibling who studied in 12 std. She belongs to a poor socio-economic status. She liked coloring activities and typing on the computer. She used to help her mother in cleaning utensils. However, she wasn't allowed to do activities e.g cooking etc. because of constant drooling. She avoids going out and meeting people. She always puts bibs on her mouth. Her mother reported that she started drooling at the age of 2 to 3 years and had speech challenges. Her parents consulted a speech pathologist for the same when she was 6 years old. She underwent oral motor exercises (blowing, swallowing etc) for drooling for a year. Her drooling had reduced a lot. However, they couldn’t continue the formal therapy sessions because of financial constraints. Later she discontinued exercises at home.

She understands well and is quite expressive with familiar people. Her speech is not clear, however she tried to communicate.

Inclusion criteria: individual with intellectual disability

Exclusion criteria: individuals with Cerebral Palsy, Mental illness, Learning disability, Autism

Design:

Single- subject case study was used.

Pretest-posttest assessment design was done.

Tools

Drooling Severity and Frequency Scale (Thomas-Stonell & Greenberg, 1988) was used. The participants were assigned a rank according to the following categories of drooling severity;

1- dry: never drools; 2- mild: only the lips wet; 3- moderate: wet on the lips and chin; 4- Severe (drools to the extent that clothing becomes damp) 5- profuse: clothing, hands, tray, and objects become wet.

Frequency of drooling is also ranked as

1- never drools; 2- occasional drooling; 3- frequent drooling; 4-constant drooling*;*

Drooling Impact Scale (Reid et al 2010) was used to measure the impact of drooling. It focuses on questions related to frequency and severity of drooling as well as burden of care (number of bibs and clothing changes needed throughout the day) and its effect on children's quality of life. All items are scored on a10-point scale.

Teacher and Parents Rating Scale were done on the basis of Visual Analogue Scale i.e 10% to 100% drooling.

Techniques Used- Therapeutic intervention program was designed mainly using aversion therapy (pinching/pain) and visual cueing for creating awareness of drooling and praising the participants for successfully achieving the task.

Procedure: The sessions were conducted in a playful manner on the floor of the activity room at centre, Bangalore. These sessions were held twice a week for forty minutes duration for four months. Play activities (developmental age appropriate) were taken up accordingly. Subsequently fortnightly follow-up sessions were conducted for three months. The results of all scales served as a baseline. The entire intervention program was conducted by the same rehabilitation psychologist (registered with RCI).

The description of the therapy sessions is given in table no 1. The individual therapy notes of each participant are given in table no 2 and table no 3.

Table-1: Blue Print of Therapy Program

Sessions	Description
Session 1 to 5	Pre assessment, orientation about therapy program, written consent Rapport building and play activities,
Session 6 to 12	behaviour therapy, aversion therapy, play activities
Session 13 to 28	Continued behaviour therapy, aversion therapy and play activities
Session 29	Post assessment
Follow up session	fortnightly for three months

Table-2: Detailed Progress Report of Therapy Program (Session by Session) of Participant 1

Session	Frequency & Severity of Drooling	Aversion Therapy	Behaviour Therapy	Play Activities	Observed Positive Changes
Session 6 to 7	Three times, moderate drooling	Moderate pinching	Visual cues, praising	string beads, picture/sequential story making, peg board, marble games,	Nil
Session 8	Four times, mild drooling,	mild pinching	Visual cues, praising	story making, paper folding, puzzles	Nil
Session 9 to 10	Five times, moderate drooling,	moderate pinching	Visual cues, praising	Scissoring work, puzzles, sequential story, Form board, clay, sequential story making	Understood the concept of association between drooling and aversion
Session 11	two times, mild drooling,	mild pinching	Visual cues, praising	writing work, fine motor work, language expressive work,	Increased awareness
Session 12 to 13	six to seven times, mild drooling,	mild pinching	No Visual cues, praising	fine motor activities, memory games, social themes cards, expressive language card sequential story	
Session 14	No drooling,	no aversion	No Visual cues, praising	Social theme cards, Peg board game,	No drooling during session, Better on describing sentences/ language
Session 15	Five times, moderate drooling,	moderate pinching	No Visual cues, praising	Scissoring work, puzzles, sequential story	Child wiped his lips himself
Session 16 to 17	No drooling	no aversion	Visual cues, praising	Form board, Story/picture card, form board	No drooling, Child looked happy and more expressive
Session 18 to 19	Fourtimes, very minimal drooling,	very mild pinching	No visual cues, Praising	Cause-effect relationship puzzles, clay, Form board, social theme flash cards	Child wiped his lips himself,
Session 20	Very minimal drooling, one time,	very minimal pinching	Praising	Puzzles, fine motor activities	Improved a lot
Session 21	No drooling	no pinching	Praising	Memory game,	Better in speech, very mild drooling at home and school, Child able to frame the sentences based on questions i.e why, where, when etc
Session 22	One time, very minimal drooling,	very mild pinching	Praising on achieving desirablebehavior	Cause-effect relationship, fine motor activities,	Wiped himself without visual cues,
Session 23 to 28	No drooling,	no aversion	Praising	Form board, social theme flash cards, Peg board, string beads, matching and sorting games,	Child looked happy, Improved expressive language, Improved self-management skill, Looked confident
Session 29	Post Assessment				
Follow-up sessions	Follow-up sessions showed maintenance of the therapy program.				

Table-3: Detailed Progress Report of Therapy Program (Session by Session) of the Participant 2

Session	Frequency & Severity of Drooling	Aversion Therapy	Behaviour Therapy	Activities	Observed Positive Changes
Session 6 to 8	constant and profuse drooling	very firm pinching	Visual cues, praising on wipe and swallowing	string beads, picture/sequential story making, coloring	Nil,
Session 9 and 10	profuse constant drooling,	very firm pinching	Visual cues, praising on wipe and swallow	story making, paper folding (Orgami), puzzles	Nil, continuously saliva coming out needs reminder
Session 11	Profuse drooling,	very firm pinching	initially Visual cues, praising on wipe and swallow later she started herself wiping and swallowing saliva herself without any cue	computer typing ,	Increased self-awareness
Session 12 to 14	seven times, severe drooling,	firm pinching	initially Visual cues, praising on wipe and swallow by the therapist later participant started wiping and swallow saliva herself without any cue	computer typing, memory games,	increased self-awareness,
Session 15 to 18	five to six times moderate drooling,	moderate level of pinching	No Visual cues, praising	computer typing, reading story loudly	one drop of saliva on chin, she takes in with help of her lip movement and swallow it enhancing self-managing skills
Session 19 to 21	Five to seven times, moderate drooling,	no aversion	No Visual cues, praising	Scissoring work, puzzles, sequential story, household chores, cutting vegetables	enhancedself-awareness and self-managing while doing activities, No bib, improved peer interaction and social skills,
Session 22 to 28	very minimal drooling	no aversion	No visual cues, praising	watching T.V, computer typing, cutting vegetables, cooking activity e.g preparing maggiee and tea etc	participant wiped herself, Enhance self-awareness and self-managing while doing such activities, looked happy and confident, enhanced expressive language, reduced avoidance for attending social group
Session 29	Post Assessment				
Follow-up sessions	Follow-up sessions showed maintenance of the therapy program.				

Analysis: Qualitative analysis was done.

Results: The results of the study were as follows

Scales	Pre-test Assessment Score	Post-test Assessment Scores
Drooling Severity and Frequency Scale	**Participant 1:** 8 profuse: clothing, hands, tray, and objects become wet. frequent drooling **Participant 2:** 8 profuse: clothing, hands, tray, and objects become wet. constant drooling	**Participant 1**: 4mild: only the lips wet, 2 occasional drooling **Participant 2**: 2 mild: only the lips wet, sometimes no drooling
Teacher and Parents Rating Scale on Visual Analogue Scale	**Participant 1:** 90% drooling Not socialize, peer group does not take initiative to interact with him **Participant 2:** 100% drooling we (parents) didn't allow to do cooking and other activities because of constant drooling, getting angry easily, stubbornness, lazy,	**Participant 1:** 20% drooling Looked happy, increased interaction with peer group, other children come forward to interact with him **Participant 2:** 25% drooling, Enhanced self-managing, didn't need any reminder, most of the time mouth is closed, very less drooling while doing activities at home and social setting, improved sibling interaction and cooperation
Drooling Impact Scale	**Participant 1 and 2:** Moderate skin irritation, All the time participant's mouth needed wiping (reminder to be given), Embarrassment, Wipe or clean saliva from household items, e.g. toys, furniture, computers all the time Drooling affected their life greatly Affected family's life-moderately	**Participant 1 and 2:** Mild skin irritation, Increased awareness and socialization felt happy, improved self-image Enhanced self-management skills, Enhanced peer interaction and peers came forward to interact with them, Parents felt happy

DISCUSSION

Post intervention results showed enhancement in the participant's self-esteem, confidence level, socialization and self - management skill. Moreover, there was reduction in severity and frequency of drooling in both participants. Intervention brought positive changes in the individuals' awareness, perception, skills, and attitude towards them by the people who were around them (society). They didn't feel isolated and felt alone because of better management of drooling. They were part of social groups and activities. Other studies also found improvement in awareness and self-esteem by other methods of intervention. Harris and Dignam (1980) used sucking and blowing games with straws and candles by increasing awareness of their tongues over a year period. They found 73% reduction in the volume of saliva drooled. Moreover, quality of life was improved among them.

Vanderburg et al (2001) conducted a study to find out the relationship between drooling and quality of life of children and their parents. These children experience problems with social interaction, neglect and low self-esteem. They found improvement in the physical appearance, socialization and acceptance of the child. Therefore, effective management of drooling could reduce the frequency of wiping the child's mouth, changing bibs and damage to electronic devices thereby making the quality of life of parents and child better.

The present study was conducted on the small sample size and short length of the follow up sessions. Hence, generalization of the study would be difficult. However, the research showed sound results by using unique intervention method and having positive implications in the field of disability and rehabilitation of an individual. It indicates that self-awareness is pivotal and foremost skills to bring positive changes in reducing drooling, enhancing self-determination and interpersonal skills at any age. Playful atmosphere is another important component to bring changes in the person's attitude where the person feels comfortable and relaxed even when facing to the unfavourable conditions.

Conclusion:

Thus, it can be said that behaviour therapeutic intervention programs based on mainly aversion therapy, visual cuing and praising techniques in playful manner on drooling are effective in the person with low intellectual functioning.

Postscript:

After 3 years, Participant 1 (child) had been seen for poor academic performance and learning problems at the clinic. Later the child consulted again for psychosocial training when he was 11 years old. Maintenance of positive changes of therapy programs was noticed.

Participant 2 (an adult) was seen after 2 years (post covid-19). It was noticed that she has started profuse drooling and wears bibs on her mouth constantly.

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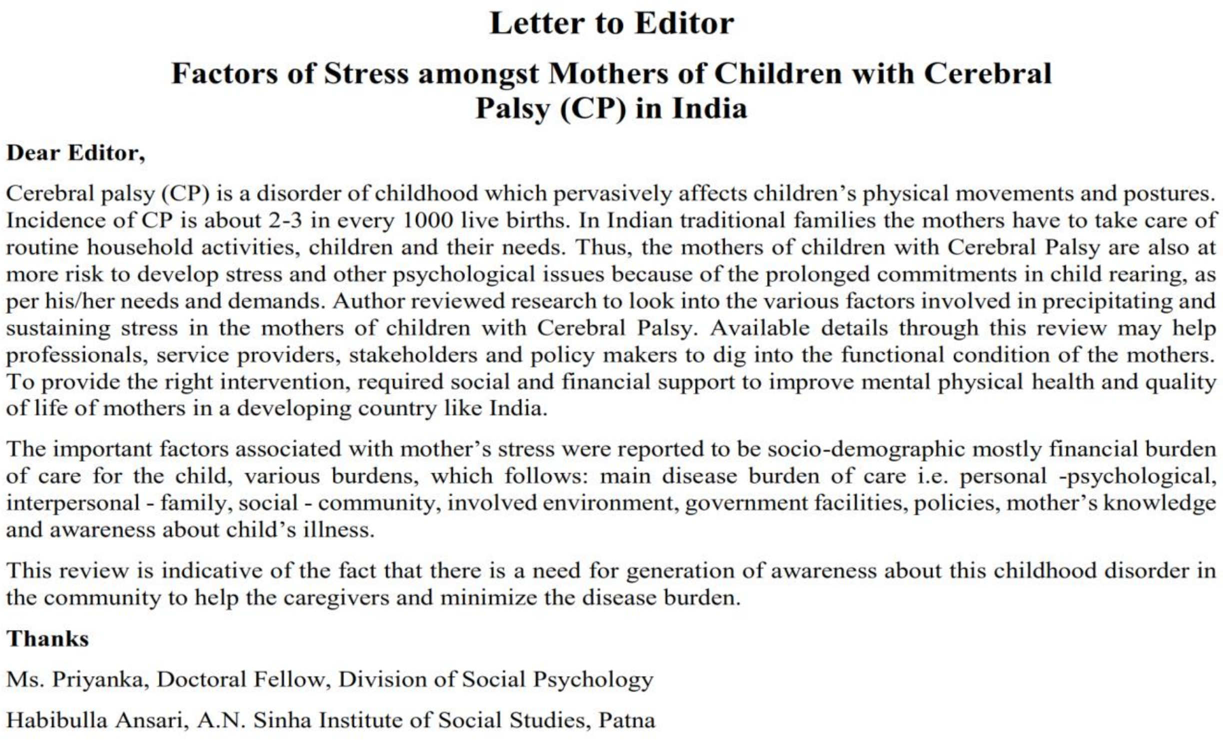

Letter to Editor

Factors of Stress amongst Mothers of Children with Cerebral Palsy (CP) in India

Dear Editor,

Cerebral palsy (CP) is a disorder of childhood which pervasively affects children's physical movements and postures. Incidence of CP is about 2-3 in every 1000 live births. In Indian traditional families the mothers have to take care of routine household activities, children and their needs. Thus, the mothers of children with Cerebral Palsy are also at more risk to develop stress and other psychological issues because of the prolonged commitments in child rearing, as per his/her needs and demands. Author reviewed research to look into the various factors involved in precipitating and sustaining stress in the mothers of children with Cerebral Palsy. Available details through this review may help professionals, service providers, stakeholders and policy makers to dig into the functional condition of the mothers. To provide the right intervention, required social and financial support to improve mental physical health and quality of life of mothers in a developing country like India.

The important factors associated with mother's stress were reported to be socio-demographic mostly financial burden of care for the child, various burdens, which follows: main disease burden of care i.e. personal -psychological, interpersonal - family, social - community, involved environment, government facilities, policies, mother's knowledge and awareness about child's illness.

This review is indicative of the fact that there is a need for generation of awareness about this childhood disorder in the community to help the caregivers and minimize the disease burden.

Thanks

Ms. Priyanka, Doctoral Fellow, Division of Social Psychology

Habibulla Ansari, A.N. Sinha Institute of Social Studies, Patna

Dr. Niranjan Reddy
(22-12-1942 to 23-12-2022)

Jubilant, Loving & Smiling Face of Clinical Psychology in India

Dr. Niranjan Reddy was born and brought up with six siblings in a cultivator's family of Rachapalli, in Karimnagar District of Telangana. He had his schooling from Warangal; Post Graduation (M.A. Psy.) from Osmania University and obtained his professional degree (D.M. & S.P.) from NIMHANS, Bangalore. Subsequently he was awarded Ph.D. degree based on his doctoral research work at Hyderabad.

He devoted maximum years of his service to the Institute of Mental Health, Hyderabad (erstwhile known as Erragadda Mental Hospital). Other assignments which he had apart from IMH were at Dr. Reddy's Foundation for Health Education , as Honorary Principal ; Stanley Medical College, as Clinical Psychologist & Sweekar Academy of Rehabilitation, Secunderabad; as Professor & HOD.

He was a seasoned practitioner of Clinical Psychology and delivered desired services to the needy people as Consultant through:

1. Stress Management Lab. Punjagutta (2013 to 2017)
2. Roshni Counseling Center, Begempet (2010 to the time his health allowed him to serve the clients attending this Center).

He was always observed to be very keen like a student to know and learn recent advances in the discipline of Clinical Psychology & Mental Health.On top of that his conversations with his contemporaries and professional colleagues were filled with humor and joy; who always maintained a cordial interpersonal relationship with the people living around him.

He was instrumental in organizing two NACIACPs in 1972 & 2009. These two events familiarized each one of us (very senior to senior and all young members of IACP) with Dr Niranjan Reddy jubilant nature, filled with humor and greeting and interacting with everyone with a smiling face.

Dr. Niranjan Reddy was equally popular in public as columnist in newspapers, magazines and by way of his regular appearance on TV Channels talking and discussing issues related to Mental Health and Clinical Psychology. His programmes made a great impact in popularizing Clinical Psychology in Andhra Pradesh and Telangana.

Professor Srinivasan Vnkateshan from Mysore wrote; remembering Dr. Niranjan Reddy "...a man of simple attire, manners, encouraging words, demeanor and habits."

Professor S.P.K. Jena, University of Delhi remembered him saying "I saw the aura of a fulfilling life in his humor. He was an inspiration for many and a down to earth person. This loss leaves a big vacuum in us."

Dr. Niranjan Reddy's departure has touched each one of us. Who will be remembered for his contribution to the discipline of Clinical Psychology, as a good friend, great teacher and a humanitarian. His fond memories will live in our hearts forever.

Editor: IJCP