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# INDIAN JOURNAL OF CLINICAL PSYCHOLOGY

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# Navigating the challenges of psychotherapy for sexual addiction

**Manjula M**

The term 'sexual addiction' was popularized by Patrick Carnes (1983), and since then different labels are used for the phenomenon ranging from 'sexual addiction',' impulsivity', 'nonparaphilic hypersexuality', 'compulsive sexual behaviour' to 'dysregulated sexuality' (Barth & Kinder, 1987; Coleman, 1991; Kafka, 2001; Winters et al., 2010). Sexual addiction is subsumed under behavioural addictions such as gambling, eating, exercise and sexual activity (Juhnke & Hagedorn, 2006).

Carnes (1992) in his description of sexual addiction, defines it as "the patterns of behaviour characterized by loss of control over sexual behavior despite adverse consequences and desire to stop the behaviour, persistence with the self-destructive behavior, developing tolerance, neglecting other aspects of life, experiencing severe mood changes around the sexual activity, and using sexual obsessions as a coping mechanism. Like substance use disorders, Griffiths' (2005) model includes criteria such as salience, mood modification, tolerance, withdrawal, conflict and relapse.

ICD-11 includes "Compulsive Sexual Behavior Disorder (CSBD)" under impulse control disorders which is characterized by persistent repetitive sexual impulses and behaviours with a lack of control over these behaviours (WHO, 2018). It was recognized under F52.7 "Sexual Dysfunctions not caused by a medical condition" in ICD 10 as "Excessive sexual drive" while the DSM-IV–TR identifies it as "Sexual Disorder NOS" (302.9). However the DSM V does not list it as a disorder.

In CSBD, sexual behaviour has compulsive, cognitive and emotional characteristics. The compulsive component includes high frequency sexual encounters, constant search for new sexual partners, unprotected sex, compulsive masturbation, regular use of pornography, cybersex and use of drugs. The cognitive-emotional component encompasses obsessive thoughts related to sex, feelings of guilt and shame, secrecy surrounding sexual activities, rationalization of such behaviours, low self-esteem, a sense of loneliness, and a feeling of losing control over one's life (Weinstein, et al., 2015).

The prevalence rates are not established mainly because of the lack of clarity with respect to definition and criteria for considering sexual addiction as a disorder. An international survey across 42 countries involving community samples reported that 4.8% of the participants were at risk for CSBD and only 14% sought help (Bothe et al., 2023). Co-morbid axis -1 disorders such as mood, anxiety, obsessive-compulsive, and impulse-control disorders, alcohol abuse, eating disorders and ADHD, were present in around 88-91% of them (Antshel, & Barkley, 2009; Bothe et al., 2023; Grant & Potenza, 2010; Reid et al., 2012). About 5.6% of patients with a current diagnosis of OCD have had a lifetime prevalence of CSBD, while about 19.6% of pathological gamblers met criteria for CSBD (Grant & Steinberg, 2005). The shared etiological mechanisms among these disorders include neurobiological and psycho-social factors (Goodman, 2008).

**Differentiating healthy and addictive sexual behaviours**

Healthy sexual behaviours involve mutual consent, they are balanced, fulfil desire, enhances mood, self-worth and are not followed by negative consequences. Whereas addictive sexual

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behaviours are characterised by coercion, victimization, compulsion of instant gratification, there are mood shifts before and after the addictive behaviours, it is impersonal and there is emotional detachment; often followed by negative consequences, feelings of shame and guilt, lack of satiation with individuals developing negative self- worth and tolerance over time, and requiring a variety of stimuli to achieve the arousal and the sexual behaviours may be erratic (excessive or anorexic) (Koehler & Manley, 2001).

**Models of sexual addiction**

The psychopathology of sexual addiction is described through various models, with some of the most notable being: a) Obsessive-compulsive model b) Impulsive control model (c) Out-of-control model d) Addiction model and e) Biopsychosocial model. These models collectively provide a framework for understanding the complexities of sexual addiction (Hall, 2011; Shaffer, 2004; Reid & Carpenter, 2016).

Attachment styles have also been implicated in sexual addiction. Secure attachment is associated with more sexually restrictive behaviors (Stephan & Bachman, 1999) whereas insecure attachment styles are associated with higher anxiety, and avoidance in their romantic relationships. Fearful-attachment is associated with greater interest in emotionless sex. Individuals with Avoidant (Dismissing- Avoidant) attachment use relational destructive patterns and fantasy as a substitute for intimacy. Sexual addiction is used to regulate emotions, to establish power over another person (pain, anger and fear) and as an escape/stress reliever (Torres & Gore-Felton, 2007). CSB is found to have association with childhood sexual abuse across the studies. The mechanism through which they are linked is explained in terms of neurobiological changes such as blunting of the right hemisphere, resulting in impairment in emotion regulation, insight and interpersonal connection (Shaffer, 2004; Slavin et al., 2020). Experience stigma and shame are said to maintain the cycle.

**"Classic" sexual addiction Vs "contemporary" sexual addiction**

Riemersma and Systma (2013) discuss the "classic" sexual addiction (those that emerges from history of abuse -emotional, sexual and physical abuse) Vs "contemporary" sexual addiction (which is largely described in the context of the generation that is exposed to technology). Further classic sexual addicts are said to have a history of insecure attachment styles, they have comorbid conditions such as other addictions, mood disorder, impulse control disorders, they are generally married/are in a stable relationship. Addictive patterns in them develop over time as solutions to problems and become established patterns over time.

Contemporary sex addiction has rapid onset, has largely emerged with the boom of the internet and technology and is characterised by "3Cs" – chronicity, content (graphic, illegal, human, non-human, deviant etc.) and culture (changing cultural sexual norms). They have relatively early exposure to sexual material on the internet, which disrupts normal neurochemical, sexual and social development in youth. "GenText" generation are roughly around 26 years and under. They may experience isolation, loneliness, relational regression, depression, impaired interpersonal relationships (Corley & Hook, 2012; Yoder et al., 2005).

Early exposure to online sexual content by itself may constitute trauma and result in neurochemical alterations which has a profound influence on the developing brain (addictive neuronal adaptation to cybersex) (Daneback et al., 2001). Computer behaviour becomes highly ritualised that they may detach from real-life sexual partners and over time novelty seeking behaviour may escalate

(Philaretou, et al., 2005). A variety of deviant practices such as violence, sadism, masochism, child pornography and other illegal practices are readily available on the internet; Virtual sex clubs, virtual images as sex partners (Avatars) dehumanize and depersonalize sexual behavior. GenTexters' gender roles and sexual boundaries have become blurred and the "normative" expression of sexuality has rapidly moved toward anonymous, casual, non-relational and/or cyber-base sexuality (Delmonico & Griffen, 2008). The casual and temporary nature of sex (for e.g., one-night stands, hook-ups, non-romantic sexual partners, tweetsex, etc.) has impacted the stabilising aspect of sexuality in the context of relationship and thus is associated with physical, emotional and psychological damage and decline in the learning of skills such as conflict resolution, and interpersonal communication skills skills, thus impacting the real-life intimacy (Boies et al., 2004; Morgan, 2011).

**Psychotherapy for sexual addictions**

Psychotherapy for sexual addictions focuses on several key areas, including sobriety, abstinence, shame, and experiences of sexual abuse. An essential consideration in this context is the challenge of maintaining therapeutic and ethical boundaries. Individuals who are identified as 'sexual addicts' often struggle to recognize and uphold sexual and emotional boundaries. Therapists must also establish and maintain their own boundaries, addressing issues such as touch, sexual attraction, fantasies, interpersonal dynamics, seduction, and disclosure (Herring, 2001) with caution.

Several therapeutic approaches have been employed to address sexual addiction. Therapies based on cognitive behavioural, transtheoretical, family systems, peer support groups are largely used in addressing sexual addiction (Dhuffar & Griffiths, 2015; Griffiths, 2012; Rosenberg et al., 2014).

**Cognitive behaviour therapy (CBT)**

CBT for sexual addiction is largely based on the addiction model. Sexual addiction is considered as a set of maladaptive and compulsive behaviors and cognitive patterns that cause significant impairment and distress (Gold & Heffner, 1998). Cognitive Behavioral Therapy (CBT) targets the thoughts, feelings, and behaviors associated with sexual urges. It aims to alter the behavioral patterns that sustain the addiction and improve coping skills. Psychoeducation for patients and family members and motivational interviewing techniques are used to improve knowledge regarding the disorder and facilitate insight and motivation for change. Other techniques used in therapy include self-monitoring through thought diaries, which help patients become aware of their thoughts, feelings, and emotions related to maladaptive sexual behaviors (Rosenberg et al., 2014).

Relapse prevention is the key objective of most therapies, incorporating elements like anticipating and managing situations that could trigger a relapse, developing action plans, and identifying supportive individuals (Larimer et al., 1999). During the initial phase of therapy (60-90 days), abstinence is emphasized. A range of CBT techniques—including behavior change programs, distraction strategies, improving metacognitive awareness, and cognitive restructuring are integrated with Motivational Interviewing to aid in relapse prevention.

Third wave therapies such as mindfulness-based interventions have also been tried out in sexual addiction. The components such as being aware of the present moment without being judgmental and taking action are supposed to help in managing the urge and improve distress tolerance (Van Gordon, et al, 2015). The meditation awareness training intervention led to significant improvements in

addictive sexual behaviors, in addition to improvement in levels of depression and psychological distress. Enhanced sleep quality, job satisfaction, and distancing from one's experiences was noticed. These positive outcomes were sustained at the six-month follow-up. Acceptance commitment therapy was also found to be helpful in reducing compulsive pornography use in a randomised controlled trial by Crosby and Twohig (2016).

Gestalt principles are used to enhance awareness of experiences, sensations, emotions, and needs, enabling individuals to engage with all aspects of themselves and function as integrated, whole beings. The therapy incorporates bodily movements to increase perception of self and reality (Freeburg & Van Winkle., 2011). However, there is limited research involving Gestalt therapy in sexual addiction.

Most therapies applied in sexual addictions are based on the models used in understanding the substance addiction and other behavioural addictions (Grubbs et al 2020). However, there is very limited literature, examining the effectiveness of these therapies using sound methodologies. Most of the published literature is based on case studies, warranting further research with adequate sample size and sound methodology to establish the efficacy of these therapies.

**Family/Couples Therapy**

The partners of individuals with sexual addiction often face general sexual difficulties, along with feelings of distrust, betrayal, shame, and diminished self-esteem. (Kaplan & Krueger, 2010). Emotion focussed therapy (Reid & Woolley, 2006) has been used to address the issues of the partners. The therapy uses a stage model. In the first stage, known as the "prerecovery stage," spouses may experience fears of betrayal (repetition of the addictive behaviours) by the partners and engage in "detective" or behaviors. The second stage, the "crisis stage," involves the spouses grappling with depression, anxiety, and low self-esteem, stemming from the grief of having a partner with a sexual addiction. The third stage, referred to as the "shock stage," is characterized by a sense of numbness, although there may still be hope for their partner's recovery. Ultimately, in the "grief stage," spouses consider their losses and think about their future.

12-step couples' retreats are used to rebuild trust, intimacy, establishing boundaries, developing a healthy sexual relationship, conflict resolution and forgiving. This approach uses 12-step meetings, and joint couples' sessions. Co-addicts take over a year to forgive and regain trust over the addict again (Schneider et al., 1998).

**Self-help groups**

The self-help group approach is adapted from the 12-step model of Alcoholics Anonymous and is grounded in both the addiction and obsessive-compulsive models. Groups include "Sexual Anonymous," "Sex and Love Addicts Anonymous," "Sexaholics Anonymous," as well as "S-Anon" and "Codependents of Sex Addicts" for patients and their families. The treatment goals of these groups focus on helping individuals stop or manage their problematic sexual behaviors while also learning new coping strategies (Hardy et al., 2010). Meetings typically last between 60 to 90 minutes and are held weekly, with a requirement for a certain level of abstinence. These groups create a supportive community, allowing members to liberate themselves from secrecy and shame. (Schneider & Schneider, 1996). This approach serves as a complement to individual therapy.

**Therapeutic stage models**

The psychotherapeutic stage model combines pharmacotherapy with behavioral and psychodynamic approaches. Several therapies incorporate this stage model. In the first stage,

patients learn to regulate their behavior and affect with a combination of inner motivation, psychological support, and medication. The second stage focuses on relapse prevention, by distinguishing high-risk and low-risk sexual behaviours. In the third stage, patients are guided to adopt "healthier" or more conventional sexual behaviors instead of pathological ones (Goodman, 1998).

Similarly, the *Out-of-Control Treatment Protocol* by Braun-Harvey and Vigorito (2015) outlines a three-step approach based on the severity of the disorder. The first step involves creating a treatment framework, preparing, and establishing priorities. The second step focuses on discussing the multiple factors that contribute to the disorder. Finally, the third step involves developing a treatment plan through a collaborative dialogue between the patient and therapist.

Task oriented approach program by Patrick Carnes (2000) is a long- term therapy spanning over 4 years and more. 1st year involves working on isolation, withdrawal symptoms, reducing negative emotions such as shame and resolving crises. The second and third years focus on rebuilding relationships, changing one's lifestyle and developing a relapse prevention plan. Fourth year and beyond involves behavioral changes such as having a healthy sex life and building healthy relationships with family and friends.

**Therapy for "classic" and "contemporary" sexual addicts**

In classic sexual addicts the issues such as trauma bonding, repetition, and enactment and unmet emotional and attachment needs are to be addressed. CBT is used to restructure negative cognitions related to shame. Interpersonal or psychodynamic approaches are used to address attachment issues. Additionally, Twelve-step group work, couple therapy is found to be useful.

Contemporary sexual addicts need early prevention and intervention strategies. Strong behavioral measures, such as using blocking software on the Internet and removing computers and Internet devices from private spaces like bedrooms are essential, as therapy often focuses primarily on youth. Additionally, exposure-based trauma resolution and basic social and relational skills training are necessary as many young individuals may have missed out on these skills due to early exposure to cybersex. Therefore, it is crucial to pay special attention to issues of deprivation in this context.

Common components shared by both groups include psychoeducation, breaking the cycle of addiction, managing acting-out behaviors, respecting person-to-person sexuality, promoting accountability, fostering spiritual growth, addressing comorbidities, and preventing relapse.

**Effectiveness of therapies**

In a review paper Duffer and Griffiths (2015) summarize the major findings of the therapy research. Their review suggests that CBT and its variants (group, online, individual) are most frequently used therapeutic forms. Significant reduction in symptoms of depression, anxiety, obsessive thoughts and psychological distress is reported (Bhatia et al., 2012; Orzack et al., 2006).

Behavioral outcomes observed in the studies show significant reductions in preoccupations with sexual stimuli, sexual acting out, masturbation, and the amount of time spent viewing pornography, as well as a decrease in associated risky behaviours (Bhatia et al., 2012; Sadiza et al., 2011). Overall, there was an improvement in psychological functioning and quality of life (Twohig & Crosby, 2010).

## Challenges of psychotherapy in sexual addictions

Psychotherapy in sexual addictions is a growing area. The psychopathology models of sexual addiction span across both spectrums of impulsivity and compulsivity and there seems to be no consensus in the literature on the degree of contribution of these constructs. Thus, the onus of planning the intervention is entirely on the therapist and their clinical judgement. While formulating the case for therapy, the therapists have to consider the complex combination of the psychosocial and neurobiological risk factors, the comorbid conditions, age, and context into consideration.

The number of patients seeking therapy for sexual addictions is very less compared to those who are experiencing sexual addictions (in the community and clinical samples) largely because of the shame, embarrassment and stigma associated with the problem. Those who do seek treatment are typically motivated by legal issues, marital or work-related problems, psychiatric conditions, suicidality, or substance use disorders (Hagedorn & Juhnke, 2005; Kaplan & Krueger, 2010). In case of adolescents, generally they are brought in by the parents and often motivation to engage in therapy remains low, necessitating the therapists to work on motivation enhancement to begin with.

Therapists also feel overwhelmed in cases involving explicit sexual content and practices which pose moral dilemmas for them (for e.g. child pornography, unusual sexual interests and practices etc.). There is not much clarity with respect to boundaries/limits in discussing these issues. Knowledge of legal issues associated with certain kinds of sexual behaviours is important for the therapist. As we may encounter more situations with increased use of the internet for sexual activities and decreasing age of exposure to online sexual material, it is high time that guidelines and skills to handle sexual addictions are emphasized as a part of training. As pointed out in a review study by Sahithya and Kashyap (2022) raising awareness and addressing stigma among individuals with sexual addictions, would help in furthering work in this area.

The current evidence is inadequate to inform clinicians about the most effective therapeutic techniques or approaches, as well as the appropriate duration of treatment for a complex and heterogeneous condition such as this. Therapists should be equipped with history-taking skills and should be able to assess patients in a comprehensive way. It becomes crucial to keep in mind the sociocultural context in mind while evaluating the excessiveness of the behaviour. Another challenge that clinicians have to grapple with is the proficiency to handle the issue across the age groups as well as the expertise in delivering individual and couple therapies. The issue of supervision is also another crucial aspect going forward in this area.

## Conclusion

The concept of "sexual addiction" needs empirical data for consolidation of the diagnosis and management. One of the important aspects to be addressed is whether it is simply a social/ experiential construct and when excessive sexual behaviours be considered problematic.

While research on sexual addiction has begun, much of it is marked by overly simplistic methodological designs and a lack of theoretical cohesion, and insufficient quality measurement. There is a notable deficiency in high-quality treatment-related research, with most interventions relying on recommendations drawn from treatments for other behavioural and chemical addictions. Therapists' fears and discomfort surrounding the concept of "sexual addiction" often result in resistance to working in this area. Inadequate training may cause therapists

to downplay or misdiagnose sexually addictive behaviour. Proper training and guidelines to provide therapeutic services, to handle the ethical, legal and moral issues associated with sexual addiction is crucial for the therapists.

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# Effectiveness of Acceptance and Commitment Therapy in a Community Sample of Young Adults with BPD Features: A Preliminary Investigation

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## ABSTRACT

**Background:** The purpose of this research is to determine whether community samples of young adults with features of borderline personality disorder (BPD) can benefit from Acceptance and Commitment Therapy (ACT).

**Method:** The research used a 12-session ACT program to enhance valued living, and reduce experiential avoidance, and cognitive fusion in six females ranging in age from 18 to 25. The Acceptance and Action Questionnaire-II (AAQ-II), the Cognitive Fusion Questionnaire (CFQ), and the Valued Living Questionnaire (VLQ) measures were taken for pre-, intermediate, and post-assessments.

**Results:** Through all stages of the assessment, experiential avoidance and cognitive fusion scores decreased significantly, and valued living: consistency and total composite scores improved.

**Conclusion:** This study adds to the literature on non-clinical individuals with BPD traits, especially in the Indian context, and supports earlier research that stated ACT effectively reduce BPD symptoms. Findings highlight ACT's promise in helping young adults with borderline personality disorder (BPD) traits become more psychologically flexible, less prone to cognitive fusion and experiential avoidance, and more likely to live a life they value. To confirm and generalize these findings further, future research should include a larger pool of participants and populations that are more diverse.

*Keywords:* ACT, BPD, experiential avoidance, cognitive fusion, valued living

## INTRODUCTION

Borderline Personality Disorder (BPD) is defined as a condition marked by persistent instability in interpersonal relationships, disruption in self-identity, impulsivity, and emotional instability (DSM-5-TR, APA, 2022).

According to Torgerson et al, 2001, the usual prevalence rate for BPD is approximately 1% to 2% in the population; however, it can rise to 5%. While inpatient clinics have a prevalence of 20% to 22%, outpatient psychiatric clinics have a prevalence of 10% to 12%, Surprisingly, the prevalence ranges from 0.5% to 32.1% in college samples, besides a lifetime prevalence rate of 9.7% (Leichsenring et al., 2011). BPD traits include recurrent mood changes, distress related to fear of abandonment, chronic empty feelings, irrational behavior that may hurt

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oneself, inability to control intense anger, brief paranoid thoughts, and dissociative symptoms arising out of stress. Individuals with BPD often involved in repeated self-harming and suicidal behaviors, 10% of individuals may end their lives by committing suicide (Oldham, 2005). They tend to experience negative outcomes in several domains such as work, academics, and relationships, and tend to seek treatment more often in comparison to individuals suffering from other mental health issues (Bagge et al., 2005).

Investigating the impact of Acceptance and Commitment Therapy (ACT) on BPD features is crucial as clinical studies mainly focused on the treatment of the severe symptoms (Cohen & Tohen, 1985), and individuals with BPD traits are suffering more with functional impairment (Trull, 1995). Several psychotherapeutic strategies were found to be effective in reducing the behavioral ineffectiveness among emotionally dysregulated patients (Lineman et al., 2007). A 12-week adolescent DBT program was helpful for the significant reduction in impulsivity, instability, and interpersonal problems at the end (Miller et al., 2000). Previous research also showed that Dialectical Behaviour Therapy (DBT) is quite effective for treating BPD (Linehan, 1993; Bateman & Fonagy, 1999). Schema or Transference Focused Psychotherapy, Mentalization based treatment, and several Group Therapies applied With Treatment as Usual (TAU) have shown significant positive outcomes over the years (Soler et al., 2009; Hopwood et al., 2009). Positive outcomes of mentalization-based treatment are evident for the reduction of BPD symptoms in randomized control trials (Rossouw & Fonagy, 2012). However, limited research exploring the impact of Acceptance and Commitment Therapy (ACT) on the BPD population is available so far.

In an acceptance-based group intervention by Gratz and Gunderson (2006), participants showed significant improvement in self-harm and Experiential avoidance reversing to the extent of the normative level of functioning. Changes were also observed in the measures of anxiety, stress, and depressive features as well. A pilot study on brief group-based 12-week ACT+TAU intervention (Morton et al., 2012) showed favourable changes in ACT process variables as well as improvement in anxiety and hopelessness levels. A study showing the impact of dialectical behaviour therapy for adolescents with borderline personality disorder (BPD) traits showed a pronounced reduction in both primary outcomes (individual trait level) and secondary outcomes (frequency of suicide attempts, non-suicidal self-injury, self-reported BPD core pathology, and general psychopathology) from the baseline to post-treatment. The findings imply that DBT-A could minimize non-suicidal self-harm as well as influence other aspects of BPD positively in teenagers despite an attrition rate of 18.1% (Buerger et al., 2018). A 16-week group-based ACT intervention along with a group-based cognitive behavior therapy (CBT) for chronic or recurrent depressive clients led to the reduction of depressive symptoms into the post-treatment. However, the improvements were more prominent for the 6-month follow-up ACT intervention study, with a large effect size (d=.90). In addition, reductions in experiential avoidance and an overall change in personality pathology were found (Clarke et al., 2014).

ACT approach is rooted in two fundamental principles: accepting situations that are beyond one's control and actively working towards values and goal-directed actions for enhancing the overall quality of living. ACT incorporates a variety of metaphors, paradoxes, and mindfulness practices, along with experiential intervention strategies, defusion techniques, and value-based exercises. The six ACT processes involve acknowledging and accepting difficult thoughts, emotions, and experiences; being fully present in the moment, observing thoughts, and creating gaps from

distressing emotions. Commitment and behavioral change involve pursuing activities aligned with value-based goals even in the face of difficulties and taking committed action towards a meaningful and fulfilling life.

Experiential Avoidance in BPD includes the tendency to avoid certain situations, low distress tolerance, troubling thoughts, repressing emotions, and bodily sensations. Research indicates that individuals with BPD use experiential avoidance as a coping mechanism. Chapman et al., 2005) showed a significantly higher correlation of experiential avoidance with BPD symptom severity (Iverson et al., 2012). Elevated experiential avoidance was found to be related to low progress in the level of depression in BPD people (Berking et al., 2009). Two studies have shown a significant amount of variation in BPD symptoms and general psychological distress as well (Gratz & Gunderson, 2006; Pistorello, 1998).

Cognitive fusion is another crucial construct related to BPD that refers to the difficulty in perceiving and analyzing thoughts from multiple perspectives. Instead of viewing thoughts as mere mental events, people are getting tangled in those thoughts and view them as absolute truths. This also includes critical self-appraisal, negative self-perceptions, inappropriate emotional reactions, erroneous beliefs, and identity disturbances among people with BPD (Beck & Padesky, 1990). As depicted in the ACT approach, psychological distress and negative thoughts usually dominate individual experiences (Hayes & Strosahl, 2004) and Cognitive fusion may lead to Heightened avoidance of the aversive situations. (Greco et al., 2008; Hayes & Gifford, 1997).

Valued living is the pursuit of meaningful goals and values, an essential aspect of holistic well-being. Previous studies have revealed that individuals with BPD recurrently struggle to identify and pursue their values, resulting in a sense of emptiness and lack of purpose in life. ACT value exercises help people commit to acting or behaving in a way aligned with their values in the present moment. (Lundgren et al., 2005). Paying attention to value-based behavior and acknowledging the natural reactions may lead to more psychological flexibility and a wider range of behavioral responses. A person may experience short-term as well as long-term positive reinforcement when they prioritize "value-based action".

A range of evidence-based outcome studies has proven that many of the ACT processes are found to be a significant mediator in the treatment outcome for BPD in general (Hayes et al., 2006; Gratz & Gunderson, 2006; Morton et al., 2012; Clarke et al., 2014; Clarke et al., 2012). The process of acceptance (and its opposite, experiential avoidance) along with the value-directed action have emerged as an important component for the ACT-based BPD treatment. Previous research has proved that BPD symptom severity is related to experiential avoidance to a greater extent (Iverson et al., 2012) and it is linked with depressive symptoms among BPD patients (Berking et al., 2009). Past research firmly showed a significant gain for BPD patients through ACT by increasing their overall flexibility, acceptance, awareness of the present moment, and valued living (Twohig, 2012). Considering the paucity of research on interventions for individuals with BPD traits especially in the Indian context, the current study seeks a preliminary investigation into the impact of ACT on alleviating the difficulties faced by these young minds.

The purpose of the present research is to determine the effectiveness of ACT on increasing psychological flexibility. Furthermore, it intends to investigate how ACT sessions will help reduce experiential avoidance and cognitive fusion and promoting valued living in a community sample of young adults with BPD features.

## METHOD

### Participants

The study was conducted on the sample consisting of six young adult females (N=6) recruited after the screening from the undergraduate and post-graduate departments of two public universities of West Bengal in the period of July – October 2023. The mean age of the participants was 20.2 years (SD =2.23), spanning the age range from 18 to 25 years. The current study was based on a repeated measure design to investigate the changes in the score of the Experiential avoidance (AAQ-II), Cognitive fusion (CFQ), and Valued living (VLQ) across baseline (pre), mid and post-measures of 12-session Acceptance and Commitment Therapy (ACT) intervention.

### Procedure

Participants were selected from undergraduate and postgraduate departments of two public universities in West Bengal and the study was conducted between July and October 2023. Inclusion criteria for the participants were: (1) ages between 18-25 years, (2) enrolled in undergraduate or postgraduate regular courses, (3) proficiency in English language, and (4) screening with International Personality Disorder Examination-SQ (IPDE-SQ) with the obtained score of ≥3 in the said measure. Exclusion criteria were any history of head injury, epilepsy/organic problems, substance abuse, chronic physical illness or having been through some kind of psychotherapy before. Following the screening, fifteen eligible participants were provided with information about the identification of borderline personality traits, the nature of difficulties, and the objectives of the present study. Six of the participants provided consent and completed the 12 sessions of the intervention program. Therapy sessions were conducted by the first author, who is an RCI-registered clinical psychologist, who completed several therapy workshops and 16 hours of training on basic and advanced ACT. Each of the six participants received individual therapy sessions once in a week in the counseling set up of their respective institutions.

Before the beginning of the therapy, baseline data for experiential avoidance, cognitive fusion, and valued living were carried out. Depression, anxiety, and stress symptoms were at the normal level at the beginning of the therapy (measured through DASS-21). A total of twelve sessions of ACT were spread out over three months. The first six sessions (1-6) of ACT were centered on the enhancement of psychological flexibility through the acceptance of challenges and suffering. This was accomplished by the variety of ACT metaphors, paradoxes, and experiential activities. Following the sixth session of therapy, a measure of all the selected variables was carried out. In the subsequent sessions (7–12), participants were challenged to define their ideas, thoughts, and emotions, as well as to work on their willingness to follow a value-driven path to live a fulfilling life in due course of time. Participants' feedback was received after each of the session. Following the completion of therapy, a post-assessment was accomplished. Ethical approval was provided by the institutional ethical committee, University of Calcutta vide certificate no. CUIEC/04/06/2023-24 dated 28/06/2023. The study is not part of any registered trial. However, the present study has contributed to enlightening the effectiveness of ACT for a community sample with BPD traits by exploring its effects on the selected key variables.

### Measures

The researcher administered the International Personality Disorder Examination – Screening Questionnaire (IPDE-SQ, Loranger, 1999) for screening the participants. Therefore pre/baseline, mid and post-assessment data were obtained from Acceptance and Action Questionnaire-II (Bond et al., 2011), Cognitive Fusion Questionnaire

(Gillanders et al., 2014) and Valued Living Questionnaire (Wilson et al., 2010).

***Sociodemographic Data Sheet:*** To gather information about the participant's age, gender, educational qualification, occupational status, length of illness, medical and treatment history, etc., socio-demographic data sheets have been used.

***IPDE-SQ:*** It is a self-report measure of personality disorder characteristics that includes five BPD-specific items. Only the IPDE-SQ's five BPD-relevant items were administered.

***AAQ-II:*** The AAQ-II is a self-report measure focused on an individual's emotional regulations, cognitive and behavioral responses, and judgment of their own personal experiences, utilizes a 7-point Likert Scale, 1 representing "never true" and 7 is indicative of "always true". A low score on this scale is indicative of higher levels of experiential acceptance and psychological flexibility.

***CFQ:*** CFQ is used to evaluate cognitive fusion. It has seven items with ratings of 'never true' to 'always true' on a seven-point scale. Good psychometric qualities have been proven by the CFQ, including discriminant and convergent validity, internal consistency, and test-retest reliability (Gillanders et al., 2014).

***VLQ:*** In the two sections of VLQ, the first component assesses 10 life factors: family, employment, friendships, intimate relationships, education, recreation, etc. Each domain is rated from 1 to 10: "not at all important" to "extremely important". The second component assesses a person's weekly value consistency in each domain. This assessment uses a 10-point scale from 1 (completely inconsistent values) to 10 (completely aligned values). Multiplication of importance and consistency scores for each domain and its average is considered as valued living composites. Wilson et al. (2010) recommend the composite for investigation.

**12-Session ACT Program used for the present study:**

A 12-session ACT-based therapeutic intervention was planned based on various available books and treatment manuals on ACT. [ACT: An Experiential Approach, Hayes et al. (1999), Hayes (2005); ACT Made Simple, Russ Harris, 2009, 2019, Learning ACT, Luoma et al., 2017]. Several techniques, metaphors, and exercises were employed based on the requirements of the people with BPD features.

For the present study, a 12-session ACT intervention program was followed with a duration of one hour for each session. The structure of the ACT session plan for the present study has been presented in Table 1.

**Table 1**

*Structure of 12-Session ACT Intervention Program*

| Session No. | Area | Session Details |
|---|---|---|
| Session 1 | Introduction to ACT | The intervention began with an introductory session, focusing on rapport-building, case conceptualization, and obtaining voluntary consent. Therefore, the therapist utilized Dissecting the Problem and Join the Dots worksheets to have an insight into the challenges and coping strategies used. |
| Session 2 | Being in the Present: introducing Mindfulness practice | Emphasizing the Take Ten Breaths exercise and the Drop the Anchor technique to promote present-moment awareness. |
| Session 3 | Avoidance and Values | Introduced the metaphor of 'passengers on the bus,' demonstrating the impact of unpleasant thoughts and feelings and the importance of value-driven action on life decisions. This metaphor describes how the pressure put on the driver (human being) by rude passengers (i.e. one's thoughts and feelings). When one is getting stuck with his unhelpful thoughts those thoughts can distract from doing what matters the most. |

| | | |
|---|---|---|
| Session 4 | Creative Hopelessness | Delved into creative hopelessness, emphasizing the futility of avoiding pain and introducing 'tug of war with a monster' and 'Quicksand Metaphor'. Homework assignments included Getting Hooked and Mindfulness worksheets. |
| Session 5 | Defusion | Focused on defusion exercises, such as 'Watch your thoughts' and 'Leaves on the stream,' to foster cognitive flexibility. |
| Session 6 | Mindfulness Exercise | Exploring joyful experiences through the five senses while acknowledging and "making space" for uncomfortable ideas and feelings that may occur. Incorporate the Eat a Raisin exercise and mindfulness into daily tasks. |
| Session 7 | Acceptance & Awareness of Emotion | Repeated discussion on utilizing various acceptance strategies with sensations and urges through observing, breathing, expanding, and allowing techniques, using the "Demons on the boat" metaphor. |
| Session 8 | Acting on values | Engaged participants in identifying values through the Bulls Eye exercise, emphasizing their significance in guiding actions. Strategies for aligning actions with personal values and practicing assertiveness and negotiation skills were also covered. |
| Session 9 | Choice points | Focusing on identifying moments where one has the power to make choices, also known as "choice points", delving deeper into understanding values and how they can guide one's actions. Working on planning small steps that align with values. Additional discussion on internal obstacles, such as difficult thoughts and feelings, that may hinder progress. |
| Session 10 | Discussion on Obstacles | Examining and evaluating the small steps previously planned; repeated discussion on identification of current thoughts and feelings that are distressing for the client; Mindfulness practice in daily life and strategies for accepting the discomfort |
| Session 11 | Willingness and Committed Action | Focused on willingness and committed action, guiding participants in selecting SMART goals and employing the commit-break-recommit technique. The FEAR to DARE technique was introduced, emphasizing Defusion, Acceptance, Realistic Goals, and Embracing values. |
| Session 12 | Review and Concluding session | Comprising a review and concluding discussion. This integrated approach aimed to enhance mindfulness, acceptance, and values alignment, fostering positive, and meaningful changes in participants' lives. |

**Data Analysis:**

Statistical Package for Social Sciences (SPSS) for Windows, Version 26.0 (IBM Corp. 2019) was used for the analysis of the collected data. Friedman's ANOVA and Wilcoxon signed rank test were computed to conduct an analysis of the changes across pre-, mid, and post-assessment measures. In addition, the median was computed as descriptive statistics.

## RESULTS

This section provides a summary of findings, from the data collected from the six female participants (N=6) in the present study.

**Table 2**

*Socio-Demographic Profile of the Participants [Young Adults with BPD Features (N=6)]:*

| Variables | *Groups* | *Frequency (%)* |
|---|---|---|
| Sex | Female | 6 (100%) |
| Education | Undergraduate | 4 (66.67%) |
| | Post-Graduate | 2 (33.33%) |
| Religion | Hindu | 6 (100%) |
| Occupation` | Employed | 1 (16.66%) |
| | Unemployed | 5 (83.33%) |
| Residence | Urban | 4 (66.66%) |
| | Sub-urban | 2 (33.34%) |
| Marital Status | Unmarried | 6 (100%) |
| Family Type | Nuclear | 4 (66.67%) |
| | Extended | 2 (33.33%) |
| *SES | Upper Middle (II) | 4 (66.67%) |
| | Lower Middle (III) | 2 (33.33%) |

The details of socio-demographic characteristics of the participants are given below.

**Figure 1**

*Details of the Socio-demographic Variables*

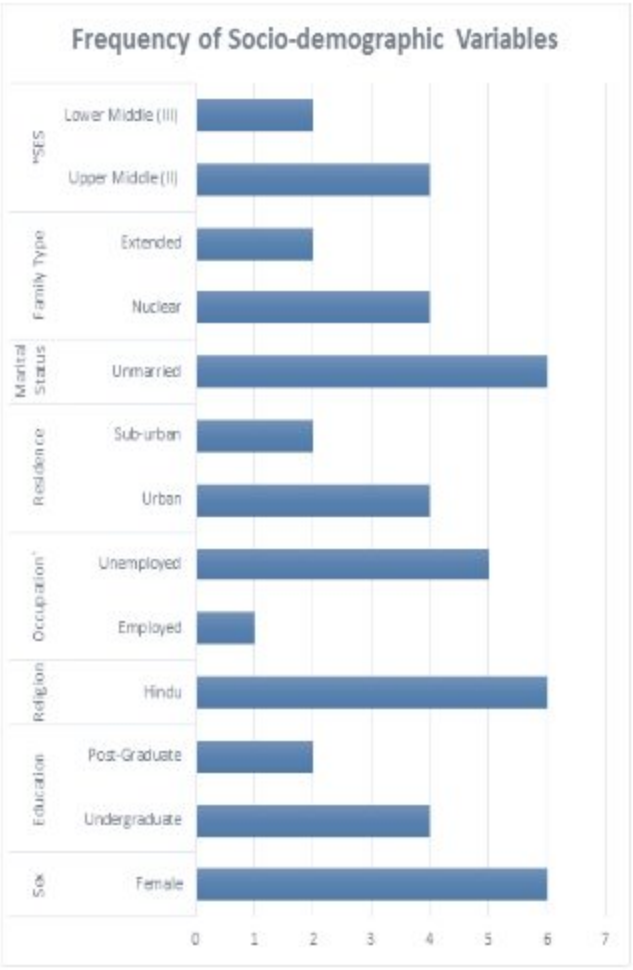


**Table 3**

*Showing the Comparison in Change of Score (Median, Mean Rank, and Friedman's Anova) of Experiential Avoidance (AAQ-II), Cognitive Fusion (CFQ) And Different Sections of Valued Living (VLQ) for Baseline, Mid, and, Post-Assessment (N=6)*

| Variables (N=6) | Median | | | Mean Rank | | | Friedman's ANOVA ($\chi^2$) | p |
|---|---|---|---|---|---|---|---|---|
| | Pre | Mid | Post | Pre | Mid | Post | | |
| Experiential Avoidance | 40 | 38 | 32.50 | 2.83 | 2.00 | 1.17 | 8.330* | .02 |
| Cognitive Fusion | 41 | 39 | 31 | 2.92 | 2.08 | 1.00 | 11.56** | .003 |
| Valued Living: Importance | 8 | 8 | 8.75 | 1.83 | 1.75 | 2.42 | 1.652 | 0.438 |
| Valued Living: Consistency | 5.4 | 5.5 | 7.25 | 1.50 | 1.50 | 3.00 | 9.000** | .011 |
| Valued Living: Composites | 38.88 | 44.57 | 60.65 | 1.17 | 1.83 | 3.00 | 10.33** | 0.006 |

A summary of median and mean rank for pre, mid, and post-intervention outcome measures for participants who completed the study across these conditions are given in Table 3.

*Experiential Avoidance:*

Friedman's ANOVA was used to observe the changes in the selected measures across pre-, mid-, and post-assessment indicating a significant change in the score of experiential avoidance across the conditions ($\chi^2$= 8.33* and $p$ = 0.02). The result suggests that there is a significant decrease in the score of experiential avoidance after therapy (Table 3).

*Cognitive Fusion:*

The result shows that the score of Cognitive fusion also lowered significantly across pre-, mid, and post therapy measurements. The values ($\chi^2$=11.56**, p = .003) suggest a significant effect of therapy on the said variable (Table 3).

*Valued Living:*

A significant change has been observed in the score of Valued living: Importance ($\chi^2$=1.652, p = .438), Consistency ($\chi^2$=9.000**, p = .011), and Composite section ($\chi^2$=10.33**, p = .006) across pre-, mid, and post-intervention measurement. (Z = 2.032* and $P$ = 0.04). Scores display a significant decrease in valued living: consistency and valued living: composite from pre to mid and post-assessment measures. (Table 3)

Reliable change was noted across pre-, mid, and post assessment on the selected measures of experiential avoidance, cognitive fusion, and Valued Living.

**Table 4** showing a pairwise comparison examining changes across pre-to mid, mid-to-post, and pre- to post-intervention measures shows that scores of experiential avoidances (measured through AAQ-II) have changed significantly across time. Scores have decreased significantly from pre- to mid (Z=1.897*, p = 0.05), mid to post (Z=1.992*, p = 0.05) and pre to post assessment measures (Z=2.201*, p = 0.03). Findings also suggest a significant reduction in the score of cognitive fusion from pre- to mid (Z=2.041*, p = 0.04), mid to post (Z=2.207**, p = 0.03), and pre- to post-assessment measures (Z=1.107**, p =0.03) (Table 4).

**Table 4**
Showing the Pair-Wise Comparison for Experiential Avoidance (AAQ-II), Cognitive Fusion and Different Sections of Valued Living for Pre-, Mid, and Post-Assessment Measures (N=6)

| Variables | Median | | | Wilcoxon Signed Rank (Z) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pre | Mid | Post | Z (Pre-Mid) | p | Z (Mid-Post) | p | Z (Pre-Post) | p |
| Experiential Avoidance | 40 | 38 | 32.50 | 1.897* | 0.05 | 1.992* | 0.05 | 2.201* | 0.03 |
| Cognitive Fusion | 41 | 39 | 31 | 2.041* | 0.04 | 2.207* | 0.03 | 1.107* | 0.03 |
| Valued Living: Importance | 8 | 8 | 8.75 | 0.647 | 0.52 | 1.786 | 0.07 | 1.051 | 0.29 |
| Valued Living: Consistency | 5.4 | 5.5 | 7.25 | 0.954 | 0.34 | 2.232* | .03 | 2.207* | 0.03 |
| Valued Living: Composites | 38.88 | 44.57 | 60.65 | 1.992* | 0.05 | 2.201* | .03 | 2.201* | 0.03 |

**depicts the significance of the obtained result at 0.01 level, * depicts the significance of the obtained result at 0.05 level

In the case of Valued living: consistency and overall composite score, there is a significant improvement of score from mid to post-treatment condition for both domains (Z=2.232*, p = 0.03; Z=2.201*, p = 0.03) (Table 4).

## DISCUSSION

The present study explored the impact of ACT on experiential avoidance, cognitive fusion, and valued living among young adults with BPD features. After attending 12 sessions of Acceptance and commitment therapy intervention scores in experiential avoidance and cognitive fusion significantly reduced and there has been a significant improvement reflected in the domain of valued living: consistency and the composite score.

After conducting ACT on the individuals with BPD features, results showed that experiential avoidance decreased across pre- to post-assessment. Findings of the present work also revealed a significant change in cognitive fusion scores not only in between pre- and mid-measures, there was also a significant change from mid to post-assessment as well. This is in direct agreement with the findings found by Gratz and Gunderson, 2006. In their study, a new acceptance-based 14-week group intervention was provided and showed a positive effect of the therapy on the reduction of self-harming behavior, emotion dysregulation, and experiential avoidance as well as on BPD-specific symptoms and associated anxiety, stress, and depression to an extent that 83% reached the normative level of functioning.

Hayes (2005) discovered that the ACT program helped a group of social media-addicted university students to lessen experiential avoidance by accepting negative feelings despite unpleasant personal experiences. There has been a significant change over time on different measures in several studies which goes with the present findings very well.

BPD-specific symptoms are considered functional disorders that can be effectively treated with ACT (Twohig, 2012). According to the literature, experiential avoidance may result in adverse outcomes, fusing with challenging thoughts, and adopting some dead goals may result in impeding productivity, especially engaging in acts such as self-harm and substance abuse that may drive against individuals' core values and can be viewed as means to avoid dealing with problems (Chapman et al, 2004).

The present findings are in line with other findings, conducted by Villatte et al. (2016). They investigated the impact of specific components of ACT on 15 clients with mental health issues. The OPEN module targeted acceptance and defusion, while the other module was focused on value-oriented action. As per the findings, the OPEN module led to improvements in experiential avoidance and defusion, while the other module resulted in enhanced value-based behavior. Participants exposed to the OPEN segment showed significant progress in acceptance, with consistent gains throughout the sessions even after the follow-up period of 3 months. The ENGAGED module specifically focused on the value-based actions and produced large improvements in this area compared to baseline scores, with consistent growth observed session by session. Participants in the OPEN module also showed improvement in value-based actions at follow-up as well.

The goal of ACT is to overcome difficulties and to live a satisfying and meaningful life. ACT focused on value-based behavior. ACT targets to upgrade a person's ability to live a satisfying, meaningful life while dealing with the discomfort of difficulties. Value-based work in ACT has played a central role in developing and maintaining psychologically flexible behavior. ACT is based on behavior analysis and establishes values in terms of verbal motivation. Empirical research on ACT at various levels reveals

insights about values and their significance in psychotherapy procedures. Study in basic, and applied fields supports valuing as a crucial process for promoting meaning, well-being, and increased quality of life across psychiatric issues, although more study is needed. Valuing is a complex word phenomenon, and conceptualizing and measuring it as a construct is difficult (Wersebe et al., 2016). A study observed improvement in the value-oriented action and life satisfaction across pre, post, and 6-month follow-up data of 3,687 anxiety and mood disorders cases from the university outpatient department with moderate effect size (d = .34), in treatment responders (d = .51) (Hoyer et al., 2020). Over time and during the subsequent phases of assessment of the intervention, commitment towards the value and goal-directed behavior have grown. It has also demonstrated the impact of therapy and the reduction of experiential avoidance as well.

## CONCLUSION

In summary, this study highlights the potential effectiveness of ACT in addressing borderline personality disorder (BPD) features among a community sample of young adults. The 12-session ACT program significantly reduced experiential avoidance and cognitive fusion, while also improving valued living consistency. These findings support previous research on the effectiveness of ACT in alleviating BPD symptoms and contribute to the limited literature on BPD features in the Indian context.

Despite the promising results, there are several limitations to consider. Twelve sessions would not be enough to bring significant changes among the individual with BPD traits, so more sessions and further follow-up might be considered for further investigation. The small sample size of only six female participants limits the generalizability of the findings. A control group is essential to establish a causal relationship between the ACT intervention and the changes observed. Additionally, self-report measures may produce response bias to some extent. Further research could compare the effectiveness of ACT with other established therapeutic approaches for BPD. Longitudinal studies with extended follow-up periods would provide insights into the long-term impact of ACT on psychological flexibility, experiential avoidance, and cognitive fusion. Exploring cultural influences on the reception and applicability of ACT in diverse populations, particularly in community contexts, would enhance the cultural competence of therapeutic interventions. In addition, investigating potential factors that moderate or mediate the outcomes of ACT in BPD features would deepen understanding of underlying mechanisms of transformation. Finally, developing tailored ACT interventions for specific cultural contexts and populations could optimize therapeutic outcomes and expand the global utility of ACT in addressing BPD features. Future research might focus on the large sample and a comparative study of ACT with other types of psychotherapeutic treatments in group settings for a longer period.

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# Belief in Just World in Children of Female Sex Workers

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## ABSTRACT

**Background:** Belief in a Just World (BJW) refers to a belief that people get what they deserve and deserve what they get because the world is considered fair. BJW allows people to understand that their lives are meaningful, predictable, and controllable. Children of Female Sex workers (CFSW) are considered a marginalized group as they live in a stigmatized environment that often deprives them of adequate resources or opportunities that are required for their overall development.

**Aim:** The current study explored BJW in CFSW compared to Children Living with Both Parents (CLBP).

**Method**: 57 CFSW (Boys = 18, girls = 39) were compared with CLBP (boys = 30, girls = 40), both groups aged between 12 to 18 years on Belief in Just World Scale.

**Results:** The results showed there was no difference in BJW between the two groups.

**Conclusion:** Being CFSW does not adversely affect the BJW. Access to education, attending school, and mentoring by guardians and teachers are protective factors for CFSW. NGOs working for the benefits and welfare of these children play a major role in their development and their work needs to be highlighted.

*Keywords*: Belief in a Just World, Children of Sex Workers, NGOs

## INTRODUCTION

Belief in a Just World (BJW) is defined as a belief where people believe 'they get what they deserve and deserve what they get because the world is fair' (Lerner, 1980). Further, it is conceptualized as a 'positive illusion'- which is psychologically beneficial, even if it is not justified by facts or logic (Taylor & Brown, 1988).

According to justice motive theory, BJW allows people to have a firm belief that one's life can be meaningful, predictable, and controllable. Higher BJW has been associated with psychological well-being, exhibiting less anger and physical health (Dalbert, 2001; Lerner, 1980). Further, it is adaptive as it encourages people to invest and strive for long-term goals. Individuals who score high on BJW are likely to feel confident to invest their resources in pursuit of long-term goals and believe they will be treated fairly (Dalbert, 2001; Hafer, 2000). Lipkus and Bissonette (1996) found that having higher BJW correlated with more 'trust' between intimate partners in their relationship, leading to them being more accommodative to each other's needs and higher relationship satisfaction.

On the other hand, research has shown that higher BJW sometimes may support 'anti-social' behaviors, if those behaviors are interpreted as 'just punishment' for moral transgressions committed by others (Kaiser et al., 2004). Further, having stronger BJW predicts support for vengeance toward

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perpetrators of terrorist attacks and encourages handing out harsh, punitive punishments to offenders. Studies have shown that BJW can be so strong that it can be maintained irrespective of contrary evidence, and witnessing someone else's suffering who is perceived to be deserving of it, then it is considered justified (Lucas et al., 2011; Strelan & Sutton, 2011).

The ability to delay gratification is considered one of the important steps in developing BJW (Mischel, 1974). Children between the age group of 5-10 years often perceive parents as absolute authority figures and they learn from them the concept of punishment which is likely to be handed out for every wrong, and this instills the idea of 'fairness' in the world (Piaget, 1975). Further, children learn to respect authority from their parents as they become their initial role models. In addition, story-telling by parents, teachers, or caregivers themed around the concept of 'fairness and/or universal justice' conveys the message that the world is a just place (Raman & Winer, 2004). Adolescence is a crucial period for the development of BWJ.. Children till the age of seven or eight, believe justice for every wrongdoing is automatically punished. As they grow older and as a result of cognitive development, they tend to slowly abandon this belief (Jose, 1990). Hence, they tend to consider that 'fate' can be random and unjust sometimes. A mature version of belief in justice and fairness which also takes into account the randomness of events develops in the adolescent period (Dalbert & Sally, 2004).

Among the marginalized groups, Children of Female Sex Workers (CFSW) are among the most disadvantaged, which is the result of the stigma associated with their mother's profession and the difficulties that come along with it. Irregular working hours, a complicated work environment, and the role of being a parent and the breadwinner can result in improper parenting. Mothers of these children, leave their younger ones with the brothel manager to take care of them, while they are attending to their profession (Adhikari, 2013). Thus, these children often do not experience a parent-child relationship that is warm, attentive, and responsive. Due to financial difficulties faced by their mothers due to them being sole earners, when the children reach adolescence, boys are usually told to fend off themselves on the street, whereas the girls are forced to join sex work or sent away to their mother's hometown. As the boys become older, few of them start to look for customers for the brothels. Whereas, a few older boys tend to join established gangs or cliques and start to run errands for them like procuring cigarettes or tobacco. In addition, these children usually live in communities where there is less access to adequate and safe shelter, and lack access to proper education (Adhikari, 2012).

In recent years, the Government has taken measures such as bringing new legislature and reforms to rehabilitate children of sex workers. For the last few years, Non-Government Organisations (NGOs) established in the red-light areas have been working to support and care of children of sex workers. The NGOs provide care and essential needs such as food, clothing, and shelter for the young children when the mothers are busy with their profession. In addition,, these NGOs also provide opportunities for education by opening residential schools or sending these children to government schools established in the surrounding areas.

Children are strongly influenced by their cultural, social, and material environment. The socio-economic context they live in allows them to learn and develop ideas or beliefs about what is good-bad or right-wrong and what means to acquire materials and resources. CFSWs are at greater risk due to the location they live in, and the profession of their mother, and are more vulnerable to developing substance abuse problems and indulging in other risky behaviors.

In addition to this, these children are subjected to discrimination, stigmatized, and possibly subjected to neglect and abuse. Living in these circumstances can lead any child/person to question or doubt the concepts such as justice, hard work, or perseverance towards one's goals and can alter their belief in a just world. Furthermore, there have been no studies that have examined BJW in CFSW. Therefore, this study compared the BJW in CFSW with Children Living with Both Parents (CLBP).

## METHOD

Children of Female Sex Workers (CFSW) and Children Living with Both Parents (CLBP) were compared on the Belief in Just World scale. The research design was cross-sectional and the sampling method adopted was convenient sampling. This paper is part of the first author's Ph.D. thesis. The sample consisted of 57 Children of Female Sex Workers (Boys= 18, Girls= 39) and 60 Children Living with Both Parents (Boys= 20, Girls= 40) aged between 12 to 18 years.

### Description of Tools

Belief in Just World Scale (Dalbert et al., 1987): It's a scale designed to measure Just World Beliefs. It has six items. Each item is scored on a 6-point rating scale ranging from Strongly Disagree to Strongly Agree. A high score indicates a higher belief in the just world.

### Procedure

For recruitment of CFSW three NGOs in Pune and one NGO in Delhi, that have been working for the welfare of sex workers and their children were contacted for assistance and permission for data collection. Only two NGOs from Pune and one NGO from Delhi agreed to assist and permitted data collection. After obtaining permission from the concerned stakeholders, children were approached for the study.

Informed assent was taken from adolescents younger than 16 years of age, after obtaining informed consent from the mothers/guardians for participation in the study. Informed consent was obtained for children aged 16 to 18 years. CFSWs who could understand English, Kannada, or Hindi and those who knew about their mother's profession (being a sex worker) were included in the study.

Three schools and two colleges were contacted for the data collection for the CLBP group. One semi-urban school and one urban college permitted data collection and then children from the school/college were asked to participate in the study. Consent from schools and parents for adolescents below 16 years was obtained and later informed assent was obtained from the adolescents. Informed consent was obtained from adolescents who were between 16 to 18 years old. CLBP who could understand English, Kannada, or Hindi were included in the study.

For each adolescent, the socio-demographic data sheet and BJW scale were allocated on a one-to-one basis.

### Data analysis

Descriptive statistics such as mean and standard deviation were derived for the socio-demographic variables and BJW scores for both the groups. The data was found to be not normally distributed and hence non-parametric test of Mann-Whitney test was applied.

### Results

The results indicated that the average education level was higher for CLBP compared to CFSW, where adolescents belonging to the CLBP group were more educated. Further, analysis on age indicated that there was no significant difference between the two groups. The results on BJW scores indicated that there was no significant difference between both the groups that was statistically significant (see Table 1).

Table 1

Descriptive Statistics and Comparison of Socio-Demographic Details Along with Belief in Just World

| Variable | CFSW | CLBP | Statistical comparison |
|---|---|---|---|
| Age- m(SD) | 13.9 (2.09) | 13.9 (1.7) | M.U.= 1646<br>p= .72 |
| Education-m(SD) | 7.4 (2.7) | 8.8 (1.7) | M.U.= 1209<br>p= .00** |
| Gender | | | |
| Males | 18 | 20 | $X^2$= .041 |
| Females | 39 | 40 | p= .83 |
| BJW | 26.6 (5.8) | 26.2 (5.2) | M.U.= 1656<br>p= .77 |

## DISCUSSION

The current study explored and compared Belief in a Just world (BJW) in children of female sex workers and children living with both parents. BJW was studied using the Belief in Just World Scale (Dalbert et al., 1987). The socio-demographic details showed that adolescents in the CLBP group were studying in higher academic grades compared to CFSW group adolescents. CFSWs belong to one of the marginalized groups due to their mothers' profession. These adolescents live in communities where there is minimal access to health care, schools, and other facilities. In addition, due to the stigma associated with their mother's profession, adolescents often have difficulty getting admission to schools, as they cannot provide their father's name or do not possess the required documents for school admissions. Billah and Baroi (2012) found that mothers who are sex workers were themselves poorly educated and do not share a positive attitude towards educating their children, as it adds more financial expenditure to their daily wages. The NGOs working for the welfare of these children initially provide basic school readiness skills in their centers and then admit them to schools after they acquire certain academic proficiency. Thus, CFSWs are likely to begin schooling at a later age than at the age-appropriate level.

The results also showed no significant difference between the two groups on BJW. Even though the adolescents belonging to the CFSW group face a lot of adversity in their upbringing in terms of the non-availability of constant caregivers, and inadequate access to resources such as safe and secure shelter, there was no difference in BJW when compared with CLBP. Similar findings were obtained in studies conducted by Janoff-Bulman (1989) and Overcash et al. (1996), who found no difference in BJW among adolescents who faced critical events compared to those who did not. Further, studies done by Dalbert and Yamauchi (1994) and Dalbert (1999) with adolescents belonging to immigrant groups found no difference in BJW with adolescents belonging to non-immigrant groups.

Education is considered one of the major factors that contributes to resilience. CFSW, with assistance from the NGOs, gets access to schools that are established in the same locality where these children stay. At school, children are supposed to wear similar clothing as uniforms which intends to instill the idea of each one being treated with uniformity, fairness, and equality. Further, they are asked to follow rules about school behavior and school ethics which are similar to all the children who attend. Teachers stress hard work for better grades and reinforce it. In the school curriculum, children are taught moral values through various subjects, and; biographies of various eminent individuals or leaders are discussed. Therefore, the school environment creates an ethos for children to learn values such as justice, fairness, and equality, and also know one's fundamental rights. Studies have shown adolescents who have higher scores on morality tend to have stronger BJW. Thus, the school environment CFSW are exposed to might contribute

to them having a similar BJW when compared to CLBP (Furnham, 2003).

The NGOs often arrange for their donors, trustees, and other prominent people to come and share stories about achieving success in life. In addition to this, the guardians also bring in experts from various fields of public service such as prominent police personnel, doctors, and other healthcare workers to give these children 'lecture/talk' about how one can choose to take up a career goal and also provide means to achieve it. The common themes in these lectures/talks are centered around how there are opportunities for everyone in society to succeed and one is mainly required to put effort into it. Thus, such activities further contribute to instilling the idea that the world is a fair place for all and everyone can succeed, leading to stronger BJW.

Children of female sex workers who stay in the shelter homes established by NGOs, get to view television or movies once every week. Often, the content is entertainment which is decided by popular vote, but sometimes the caretakers/ guardians decide to make these children watch movies or programs that are socially and culturally relevant. In addition, the caretakers encourage following religious practices and celebrating festivals when they occur. Following religion and its teachings might give a sense of meaning, and purpose for people and it might also give a sense of predictability in their lives. Through religious teaching, people are made to believe that any immoral acts committed are likely to have consequences. Therefore, all these factors influence these children to believe in moral uprightness and behave accordingly, which further strengthens BJW.

The limitations of the study were that both groups did not exactly match for age, education, and gender. Given the extreme difficulty in obtaining a research sample of CFSW, the data collection was based on convenient sampling. In the future, studies could use the probability sampling method and strive to exactly match the groups according to socio-demographic details. In addition, a similar study can be carried out in younger age groups of children.

## CONCLUSION

The current study showed that being CFSW does not differentially affect the BJW. Factors such as access to education, attending school, and interaction with teachers who insist on hard work create the belief that the world is fair and just. Further, the NGOs play a major role in creating a stable and protective environment that encourages higher BJW in CFSW.

## IMPLICATIONS

The current study paves the way for exploring other psychosocial variables in this population. Further, it suggests exploring psychosocial variables that are related to BJW such as locus of control, motivation, and personality factors using various study designs and research methods. The study also highlights the possible benefits provided by the NGOs for the welfare of CFSW.

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## Conflict of Interest

None

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# Psychological flexibility, personal values, and goal pursuits among individuals with personality disorders

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## ABSTRACT

**Background:** Individuals with personality disorders have been specifically scrutinized as having difficulty in emotion regulation. However, the exploration of personality disorders as a dysfunction in psychological flexibility, consistency in values, and pursuit of goals is yet to be made. The current study examined the above variables among individuals with personality disorders through a dimensional lens.

**Method:** A total sample of 60 participants, 30 individuals in the clinical and control groups each, were assessed after a screening procedure. The clinical group met the criteria for personality disorders, and the control group consisted of a non-clinical sample. The assessments were carried out through an online platform (Google Forms) using the following tools: Acceptance and Action Questionnaire-II, Valued Living Questionnaire, Personal Goal Survey, and Personality Inventory for DSM-5—Brief Form (PID-5-BF)—Adult. Independent sample t-tests, Pearson product-moment correlation, and multiple linear regression were utilized for the analysis of the data.

**Results:** The findings show that individuals with personality disorders have lower psychological flexibility, lesser importance and consistency in their values, and a less positive way of pursuing goals as compared to the control group. Inflexibility was significantly correlated with domains of personality dysfunction and overall scores. Finally, four significant models were identified for the predictability of personality dysfunction.

**Conclusion:** The study provides a valuable platform for future research to facilitate intervention in increasing psychological flexibility, being consistent with values, and developing a positive style of achieving goals among individuals with varying personality dysfunction.

***Keywords:*** psychological flexibility, personal values, goal pursuits, personality disorders

## INTRODUCTION

Personality disorders (PD) are found to be one of the most complex and prevalent psychiatric conditions in the clinical population (1.07%), with borderline PD being more common (60%) (Gupta & Mattoo, 2012). Individuals with personality disorders have been known to have varied manifestations of emotion dysregulation (Borges & Naugle, 2017; Sloan et al., 2017). Emotions have the power to measure how well or how poorly one is performing, along with advancing their values, goals, and beliefs (Vingerhoets et al., 2008).

Psychological flexibility is thought to be frequently associated with paying attention to and accepting

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painful internal events such as cognition and affect (Salande & Hawkins, 2016). Psychological inflexibility encompasses cognitive fusion, which is an entanglement with the content of private experiences to the extent that the here-and-now experiences become disconnected (Dinis et al., 2015). Furthermore, there is an attempt to escape from bodily sensations, thoughts, and emotions, termed experiential avoidance. This has been particularly studied among borderline personality disorders (BPD; Morton et al., 2012). Despite some research being carried out in regard to psychological inflexibility in PD, there is only one account of BPD.

Individuals with PD may have a discrepancy in giving importance to their values and committing to the same. The lack of committed action has been found to have an adverse impact on behavioral avoidance, in comparison to other psychological disorders, including anxiety disorders and depression (Hayes et al., 2005). Locke (2000) conducted a study to investigate the usefulness of interpersonal values in personality disorders. It was observed that each of the categories of personality disorders tended to have unfavorable interpersonal tendencies, particularly through avoidance and inconsistency in their interpersonal values. However, the pursuit of their goals secondary to their strained values is yet to be understood.

A study by Chapman et al. (2006) found that individuals with BPD were less willing to tolerate emotional distress to pursue goal-directed behavior. This is in line with previous literature on individuals with BPD and their mechanisms of avoidance and distress intolerance. A longitudinal study of Israeli young adults described less-articulated work goals as linked with underlying personality difficulties and less adaptive outcomes. Individuals who placed undue emphasis on interpersonal relatedness were more likely to develop a dependent personality style (Shulman & Nurmi, 2010).

The overall findings propose that individuals with personality disorders may have variation in the way they achieve their goals, which is heavily dependent on their intensity of emotions. There is limited literature on understanding personality disorders as a whole concerning psychological flexibility. Thus, it is relevant to understand the domains of psychological rigidity that may lead to experiential avoidance. Additionally, their understanding of their values and whether they can set goals and take action would help to gain a valuable explanation of their behaviors. Hence, the current study would take into consideration personality disorder severity as well as a category to understand the psychological flexibility, personal values, and goal pursuits among individuals with personality disorders and also to examine the predictors of personality pathology. Furthermore, understanding the above-mentioned variables in comparison to the non-clinical population would help to identify the differences between those who have a personality disorder and those without.

## METHOD

A cross-sectional exploratory, two-group comparison study design was used. The sample consisted of clinical and non-clinical community samples. A clinical group comprising individuals diagnosed with personality disorders who met the PD criteria of Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) was recruited for the study. The sample was recruited from already existing records as well as new clients from adult psychiatry and psychotherapy units in the department of mental health services at a tertiary psychiatry hospital in South India. Informed consent was obtained from those fulfilling the inclusion and exclusion criteria. The participants were screened using two tools: the Mini International Neuropsychiatric Interview (MINI) for identifying Axis I disorders and the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD) for the identification of personality

disorders.

A non-clinical group of controls was recruited from a community using the snowball technique of sampling and were matched according to the Caliper method of age and gender. Following this, the administration of tools was done in both groups through online mediums and/or face-to-face interactions. The sample size for the study was 30 participants each, for a total of 60, from clinical and non-clinical groups (as per the G Power). The power requirement (0.80) for the scales (AAQ, VLQ, and PID-5) was met in a sample size of 30 each in the clinical and control groups based on a pilot study done with 8 participants in each group. The PEGOS scale needed a sample size of 45 to meet the power requirement. However, due to resource constraints, a sample of 30 was established. The power analysis was done using R statistical software. Those individuals aged over 18 who met the criteria for the DSM-5 diagnosis of personality disorders were recruited for the clinical group. Individuals with a diagnosis of a severe mental disorder (severe mood disorders, schizophrenia, and other psychotic spectrum disorders), a diagnosis of intellectual disability, neurological disorders, or substance use disorders, and undergoing therapy for personality disorders for 10 or more sessions over 6 months were excluded. In the control group, those who obtained a score of 20 or below on Kessler's distress scale (K10) and who did not fulfill the criteria for PD on SCID-5-PD were recruited.

**Tools**

Two separate socio-demographic sheets were developed by the researcher, one each for the clinical and non-clinical groups. The demographic details were collected for both groups, whereas clinical details such as diagnosis and length of psychotherapeutic intervention were collected for the participants in the clinical group. Mini-International Neuropsychiatric Interview (MINI; Sheehan et al., 1997), a short diagnostic-structured interview, was used to screen for major Axis I disorders according to the Diagnostic and Statistical Manual (DSM IV) criteria. The Kessler Psychological Distress Scale (K10) (Kessler & Mroczek, 1992) was used to measure psychological distress in the control group. Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD; First et al., 2015) was utilized to assess the ten categories of DSM-5 Personality Disorders. Acceptance and Action Questionnaire-II (AAQII; Bond et al., 2011), which assesses the extent to which an individual is able to remain in contact with undesirable private experiences, was used. Personality Inventory for DSM-5—Brief Form (PID-5-BF)—Adult (Krueger et al., 2012) was used to assess the 25 pathological personality trait facets and the five higher-order domains of criterion B of the DSM-5, which include - Negative affect, Detachment, Antagonism, Disinhibition and Psychoticism. Valued Living Questionnaire (VLQ; Wilson & Groom, 2002) was used to assess ten domains of valued living. They include: 1) family, 2) marriage/couples/intimate relations, 3) parenting, 4) friendship, 5) work, 6) education, 7) recreation, 8) spirituality, 9) citizenship, and 10) physical self-care. It has two components that assess the degree to which an individual remains in contact with his or her chosen values in everyday life. The first (Importance), being the importance of the aforementioned values held by the individual, is rated on a scale of 1–10. The second (Consistency) component is for the participant to provide a rating based on the consistency of one's actions in accordance with their values. Finally, the Personal Goal Survey (PEGOS; Rao & Mehrotra, 2010) was utilized to measure the personal goals that individuals have and the style of their goal pursuits. The items assess five areas: 1) goal contents, 2) motives, 3) styles of goal pursuit, 4) goal-related difficulties, and 5) goal-related coping. The current study used a 40-item measure of the style of goal pursuits. It consists of seven subscales: tracking,

planning, autonomy and flexibility, process-related enjoyment, goal-generated positive affect, and goal commitment.

**Procedure**

The study was initiated after obtaining clearance from the Institute Ethics Committee. The data collection process was done between September 2020 and March 2021. The participants were briefed about the study, confidentiality was communicated, and informed consent was obtained through an online platform (Google Forms) or a written form during face-to-face interactions. A total of 32 participants were screened for the clinical group. Two individuals did not meet the criteria for personality disorders and could not be part of the study. On MINI screening, no participant had severe symptoms of Axis I disorders. The total administration, including the screening procedure, took about 1–1.5 hours.

For the participants in the control group, upon fulfilling the criteria, the study tools were administered. A total of 39 participants were recruited for the main study. However, nine participants had to be excluded from the screening procedure as their scores on the K–10 scale were higher than 20, indicating mental health concerns, and were referred for an evaluation. Further, no participant showed any symptoms of personality disorder on the interview using SCID-5-PD. The total administration, including the screening procedure, took about 40-50 minutes.

The obtained data was analyzed using IBM SPSS software. Descriptive statistics in the form of frequency distribution, mean, and standard deviations were used for describing demographic and clinical details. As the data achieved normality, a parametric test of Independent sample t-test was computed to compare the two groups. Furthermore, Pearson product-moment correlation was utilized to find an association between the variables in the clinical group. Multiple regression analysis was done to explore predictors of personality dysfunction in the clinical group.

**RESULTS**

**Table 1**

**Socio - Demographic Details**

| Frequency (Percentage) | Clinical group (n = 30) | Control group (n = 30) |
|---|---|---|
| 1. Gender | | |
| Males | 12 (40%) | 12 (40%) |
| Females | 18 (60%) | 18 (60%) |
| 2. Age Mean (SD) | 26.05 (7.99) | 26.06 (7.66) |
| 3. Education | | |
| Up to High School (12$^{th}$ standard) | 6 (20%) | 1 (3.3%) |
| Graduation | 17 (56.7%) | 21 (70%) |
| Post-Graduation | 7 (23.3%) | 8 (26.7%) |
| 4. Socio-economic status | | |
| Low | 1 (3.3%) | - |
| Middle | 28 (93.3%) | 25 (83.3%) |
| High | 1 (3.3%) | 5 (16.7%) |
| 5. Relationship status | | |
| Single | 22 (73.3%) | 17 (56.7%) |
| In a relationship | 3 (10%) | 8 (26.7%) |
| Married | 5 (16.7%) | 5 (16.7%) |

The socio-demographic details of participants from both clinical and control groups are presented in Table 1. As observed, both the mean age and gender distribution are similar in the two groups, as matching was done based on the Caliper method. A majority of the sample in both groups falls into the categories of being unmarried, having completed their graduation, and hailing from middle-class economic strata. The personality disorder distribution in the clinical group is as follows: 4 (13.3%) individuals with Paranoid PD, 1 (3.3%) with Histrionic PD, 1 (3.3%) with Anti-Social PD, 24

(80%) with Borderline PD, 9 (30%) with Obsessive-Compulsive PD, 12 (40%) with Anxious-Avoidant PD, and 4 (13.3%) diagnosed with Dependent PD. Overall, 14 (46.6%) individuals were diagnosed with more than one personality disorder. For Axis 1 disorders, 8 (26.6%) were diagnosed with Major Depression, 4 (13.3%) with Obsessive-Compulsive Disorder, and 3 (10%) with Social Anxiety. In the clinical group, 23 individuals (76%) had sought 2-3 sessions of psychotherapy.

Table 2 presents a comparison of two groups on psychological flexibility, personal values and goal pursuits, and personality dysfunction. The findings indicate that individuals in the clinical group have lower psychological flexibility *(p<0.001)*, give less importance *(p<0.001)*, are less consistent with their values *(p<0.005)*, and have lower overall scores on goal pursuits compared to the control group *(p<0.005)*. In the sub-domain of the Tracking, Autonomy, and Flexibility of Goal Pursuits scale, the clinical group had difficulty being able to track their goals and allow themselves autonomy and flexibility in the way they achieve their goals. There is a significant difference in personality dysfunction between the two groups concerning overall severity and sub-domain scores.

**Table 2**
**Comparison of psychological flexibility, personal values, goal pursuits and personality dysfunction in clinical and control groups**

| Variables | Clinical Mean (Standard Deviation) | Control Mean (Standard Deviation) | t-value | P-Value |
|---|---|---|---|---|
| AAQ-II | 36.70(10.67) | 20.80(8.73) | 6.31 | <0.001 |
| VLQ-I | 72.47(9.81) | 83.40(8.66) | -4.57 | <0.001 |
| VLQ-II | 61.83(16.40) | 74.30(13.9) | -3.18 | 0.002 |
| PEGOS-T | 17.87(5.67) | 21.20(4.61) | -2.50 | 0.02 |
| PEGOS-P | 18.57(4.36) | 20.00(3.9) | -1.34 | 0.18 |
| PEGOS-A&F | 17.47(3.80) | 19.20(2.70) | -2.04 | 0.04 |
| PEGOS-PRE | 8.60(2.01) | 9.23(1.83) | -1.27 | 0.20 |
| PEGOS-PA | 12.07(3.50) | 13.60(2.95) | -1.83 | 0.07 |
| PEGOS-GGPA | 11.03(2.68) | 12.27(2.42) | -1.86 | 0.06 |
| PEGOS-GC | 7.47(2.37) | 8.50(2.55) | -1.72 | 0.08 |
| PEGOS-Total | 94.80 (17.54) | 105.30 (16.75) | -2.37 | 0.02 |
| PID-5-NA | 9.90(3.04) | 6.00(3.61) | 4.4.8 | <0.001 |
| PID-5-DET | 7.73(3.19) | 3.70(2.64) | 5.33 | <0.001 |
| PID-5-A | 4.17(2.60) | 2.33(2.02) | 3.04 | <0.005 |
| PID-5-DIS | 7.90(3.28) | 4.00(3.09) | 4.70 | <0.001 |
| PID-5-PSY | 8.70(2.93) | 2.73(2.44) | 8.54 | <0.001 |
| PID-5-Total | 38.20(9.40) | 18.80(9.95) | 7.75 | <0.001 |

Note. AAQ-II= Acceptance and Action Questionnaire-II, VLQ-I= Value Living Questionnaire I, VLQ-II= Value Living Questionnaire II, PEGOS-T= Personal Goal Survey-Tracking, PEGOS-P= Personal Goal Survey- Planfulness, PEGOS-A&F=Personal Goal Survey-Autonomy and Flexibility, PEGOS-PRE= Personal Goal Survey- Process Related Enjoyment, PEGOS-PA= Personal Goal Survey-Positive Attitude, PEGOS-GGPA= Personal Goal Survey-Goal Generated Positive Affect, PEGOS-GC= Personal Goal Survey Goal Commitment' PID-5- NA=Negative Affect, PID-5-DET=Detachment, PID-5-A=Antagonism, PID-5-DIS=Disinhibition, PID-5-PSY=Psychoticism

**Relationship between psychological flexibility, personal values, and goal pursuits in the clinical group**

Psychological inflexibility was found to be negatively correlated with the sub-domain of Positive Attitude in the Personal Goals Survey (Table 3), meaning that the higher the inflexibility, the lower the positive attitude. A positive relationship between being detached and withdrawn and having high inflexibility was observed, indicating that individuals with high inflexibility show higher personality dysfunction. There is a negative relationship between both the sub-domains of personal values – Importance and Consistency and the personality domain of Detachment. This would imply that individuals with high detachment give less importance to goal pursuits and are less involved in behaviors consistent with goals.

Regarding goal pursuits, two sub-domains, Autonomy, and Flexibility showed negative correlations with the Detachment sub-domain of personality dysfunction (r=-.514, p=0.001). The total score of the personal goals has a negative correlation with Detachment (r=-0.42 p= 0.01). This would suggest that overall, being detached interferes with having goal pursuits and involving in behaviors consistent with the goal pursuits. Another sub-domain of Positive Attitude in goal pursuits showed a negative correlation with the Negative Affect sub-domain of the personality inventory (r=-0.40, p= 0.01). This would indicate that as one's negative affect increases, their positive attitude toward achieving their goals decreases. A total score of personality dysfunction in the inventory showed a negative correlation with Positive Attitude in goal pursuits (r=-0.40, p= 0.001). This would suggest that those with higher personality dysfunction have a lower positive attitude towards their goals.

Table 3

Relationship between psychological flexibility, personal values, and goal pursuits

| | AAQ -II | PEGO S-Total | PEG O-T | PEGOS-P | PEGOS-A & F | PEG PRE | PEGOS-PA | PEGOS-GGP A | PEG OS-GC | PID-NA | PID-DET | PID-A | PID-DIS | PID-PSY | PID-Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AA | 1 | -0.15 | - | 0.08 | -0.32 | 0.08 | - | 0.07 | 0.09 | 0.722** | 0.572* | 0.19 | 0.35 | 0.361 | 0.715** |
| Q-II | | | 0.03 | | | | 0.45* | | | | * | | | * | |
| VL | 0-24 | 0.32 | 0.29 | 0.09 | 0.22 | 0.12 | 0.28 | 0.28 | - | -0.04 | -0.45* | - | - | 0.09 | -0.20 |
| Q-I | | | | | | | | | 0.08 | | | 0.12 | 0.04 | | |
| VL | -0.20 | 0.23 | 0.29 | 0.20 | 0.15 | -0.07 | 0.24 | 0.13 | - | -0.16 | -0.37* | - | - | -0.09 | -0.28 |
| Q-II | | | | | | | | | 0.18 | | | 0.12 | 0.09 | | |

Note. AAQ-II=Acceptance and Action Questionnaire. VLQ-I= Value Living Questionnaire I, VLQ-II= Value Living Questionnaire II. PEGOS-T= Personal Goal Survey-Tracking, PEGOS-P= Personal Goal Survey-Planfulness, PEGOS-A&F=Personal Goal Survey-Autonomy and Flexibility, PEGOS-PRE= Personal Goal Survey-Process Related Enjoyment, PEGOS-PA= Personal Goal Survey-Positive Attitude PEGOS-GGPA= Personal Goal Survey- Goal Generated Positive Affect, PEGOS-GC= Personal Goal Survey Goal Commitment, PID-5-SF= Personality Inventory for DSM-5-Short Form, PID-5-NA=Negative Affect, PID-5-DET=Detachment, PID-5-PSY=Psychoticism

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

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

**Prediction of variables for personality dysfunction**

Multiple linear regression was computed to examine the influence of variables on the criterion variable, that is, personality dysfunction. Four models arose during the computation (Table 4). The first model significantly predicted the total scores of personality inventory. It implies that 51% of the variance in personality dysfunction is accounted for by the predictor variable, psychological inflexibility (Model 1). The Negative Affect domain of personality was also accounted for by psychological inflexibility scores. The findings suggested that 52% of the variance in the outcome is accounted for by psychological inflexibility (Model 2). Positive Attitude, Autonomy, and Flexibility (sub-domains of goal pursuits) accounted for 48% of the variance in the detachment domain of personality (Model 3). Finally, Psychoticism, a domain of personality, was predicted by psychological inflexibility and Autonomy and Flexibility sub-domains of goal pursuits (26% of variance; Model 4).

## DISCUSSION

The study aimed to examine psychological flexibility, personal values, and goal pursuits among individuals with personality disorders. There were more females as compared to males in the sample (Table 1). This may be because of the higher percentage of people diagnosed with BPD in the sample. Similar gender distribution with respect to higher percentage of women being diagnosed with BPD is reported in the previous literature as well (Zanarini et al., 1998; Klonsky et al., 2002; Gupta &

**Table 4**

**Regression showing prediction of personality disorder**

| | Variable | B | β | t | F |
|---|---|---|---|---|---|
| Model 1 $R^2 = 0.511$ | Personality disorder | 15.0 | - | 3.39 | 29.22 |
| | Psychological Inflexibility | 0.63 | 0.71 | 5.40 | - |
| Model 2 $R^2 = 0.52$ | Personality Disorder-Negative Affect | 2.30 | - | 1.61 | 30.43 |
| | Psychological Inflexibility | 0.20 | 0.72 | 5.51 | - |
| Model 3 $R^2 = 0.48$ | Personality Disorder-Detachment | 14.29 | - | 8.23 | 12.77 |
| | Positive Attitude Autonomy and Flexibility | -0.44 | -0.49 | -3.41 - | - 2.62 |
| Model 4 $R^2 = 0.26$ | Personality Disorder-Psychoticism | 0.31 | 0.37 | | |
| | | 5.05 | - | 2.72 | 4.78 |
| | Psychological Inflexibility | 0.13 | 0.48 | 2.77 | - |
| | Autonomy and Flexibility | 0.29 | 0.38 | 2.19 | - |

Mattoo, 2012; Shenoy & Kumar, 2019). Fifty percent of the sample had co-morbid axis I disorders such as depression, obsessive-compulsive disorder, and social anxiety. The findings are in concordance with earlier studies that reported more than 50% of the individuals with PD having mood and anxiety disorders as the most frequent co-morbid axis I disorders, followed by eating and substance use disorders (e.g., Friborg et al., 2014; Quirk et al., 2016).

There is a significant difference between the two groups with regard to psychological flexibility (Table 2). In the context of the tool used in the study, it would signify that individuals with PD have high inflexibility and tend to become entangled with their cognitive and emotional experiences. This has been well-established in individuals with BPD (Chapman et al., 2005; Gratz et al., 2008). The individuals in the clinical group tend to give less importance to their values, coupled with less consistency towards these values in comparison with the control group. The lesser importance given to values is understood as a consequence of difficulty in regulating their affect (Roccas et al., 2002). However, contrary findings have been reported in other studies, wherein they found little association between negative affect and values (Veage et al., 2011). The clinical group tends to have difficulty engaging in interpersonal values. This was demonstrated in a previous study by Locke (2000), where individuals with PD were least consistent in their interpersonal values. They tended to avoid interpersonal conflicts, leading to a disconnect between themselves and others, and their disengagement from social humiliation was high. The underlying processes for personality disorders appear to be entangled with social appropriation and less with authentic self-enhancement.

Pursuit of goals suggests that individuals with PD have difficulty monitoring their progress towards goals and their style of pursuing goals compared to the control group (Table 2). In the sub-domains of goal survey, there is a significant difference in Autonomy and Flexibility as well as Tracking with the PD group showing lower autonomy and flexibility. This could also be conceptualized as being rigid and not allowing themselves the drive to achieve their goals. This is in line with the previous literature, for example, Gratz et al. (2006) contended that individuals with BPD were less willing to tolerate emotional grief while pursuing goal-directed behavior. In the Tracking sub-domain, there was difficulty in monitoring one's progress in the clinical group in comparison to the control group. In line with previous literature, personality difficulties have been linked with less-articulated work goals and are predictive of less stable and adaptive outcomes (Shulman & Nurmi, 2010).

**Relationship among the variables**

In individuals with PD, higher psychological inflexibility was associated with a lower Positive Attitude toward goals (Table 3). It would imply that psychological inflexibility has an impact on the positive outlook towards having meaningful goals. It has been well-recognized that psychological inflexibility is detrimental to mental health and well-being (Fledderus et al., 2010; Kashdan, 2010). However, the current study further establishes a relationship between inflexibility and attaining a positive attitude toward one's goals. Individuals with personality disorders seem to have difficulty applauding their efforts despite setbacks. This is linked to their general difficulty accepting their emotional experiences (Borges & Naugle, 2017).

Inflexibility showed a relationship with the Detachment domain of personality, indicating that detachment may be an inflexible way of handling unpleasant emotions. Although no study has particularly investigated this domain of inflexibility, related constructs could provide valuable insights to understanding the relationship. For example, Panousopoulos (2014) reported that the individuals

who were higher in attachment-related avoidance tended to avoid unpleasant internal stimuli by utilizing psychological mechanisms (repression and denial of emotions). A high correlation between the total scores of personality dysfunction and psychological inflexibility indicates the role of psychological inflexibility in PD. Furthermore, Negative Affect and Psychoticism were also related to psychological inflexibility. This is in line with previous research on experiential avoidance and perceptual disturbances. Langer et al. (2010) were of the opinion that experiential avoidance seemed to be present in individuals with hallucination-like experiences. They also contended that experiential avoidance seems to be common across disorders, which makes it a moderator of psychological symptoms. This corroborated another study that found individuals who coped with life hassles in a psychologically inflexible manner were more likely to experience distressing delusional ideas (Goldstone et al., 2011).

The two sub-domains of personal values—importance and consistency—were significantly negatively correlated with the sub-domain Detachment in personality inventory. This would indicate that individuals with higher values will have less detachment from the social world. This finding, although it has not been investigated in prior research, has relevance to understanding personality dysfunction. Values may help in maintaining healthy boundaries and having clarity on what to expect in relationships. Individuals tend to be motivated by others' affectionate care to maintain and value a positive relationship (Thompson et al., 2006). However, in individuals with PD, it is probable that detachment as a coping method might be interfering with their value consistency.

Four significant models arose in the context of predicting personality dysfunction (Table 4). The first model explained 51% of variance in personality disorder by the predictor variable, psychological inflexibility. From a functional contextualist viewpoint, it has been described that emotion dysregulation is a result of one's entanglement with language-based content. Inflexibility has been known to wreak havoc among individuals with BPD (Chapman et al., 2005; Zurita Ona, 2020). The study has established that individuals with high personality dysfunction are engaging in experiential avoidance and cognitive fusion. In the second model, the predictor variable, psychological inflexibility, contributed about 52% of the variance towards the Negative Affect domain of personality disorder. The third model states that a 48% variance in the sub-domain Detachment was accounted for by two sub-domains of goal pursuits: Positive Attitude and Autonomy and Flexibility. However, the contribution is negatively related. In other words, the lower the positive attitude, autonomy, and flexibility, the higher the detachment from the social world. As previous research has not investigated these domains, this would be a new finding. In the study, it would be noted that the more criticality is towards themselves during failures, they may disengage and disconnect from people and their goals. Overall, having a positive attitude towards oneself, independence, and flexibility towards goals are consequential. These would make a significant difference in being content with oneself and also engaged with others. The final model shows that Psychological Inflexibility and Autonomy contributed 26% of the variance towards Personality Disorder-Psychoticism. This suggests that having increased inflexibility and low autonomy and flexibility in achieving goals contributes to Psychoticism. This is in line with previous research studying experiential avoidance and perceptual disturbances (Langer et al. 2010).

This study is subject to several limitations; the sample had a higher percentage of women, limiting the generalization of the findings to men and other genders. Most of the sample had co-morbid axis I disorders; it is possible that these would have

influenced the scores on the tools used in the study. Comparing those without any disorders (axis I and II), those with axis I and without PD, and those with only PD would give a clear understanding of the variables examined. However, it was challenging to obtain exclusive samples as comorbidity is fairly common. In regards to the tools used, some of the items in the sub-domain of personality inventory had an overlap of content with psychological inflexibility. This leads to the question of having similar constructs examined, which poses limitations on the information obtained. Furthermore, as the study design was cross-sectional, palpable conclusions regarding the causality of relationships cannot be drawn.

Despite its limitations, the present study also carries some strengths. The sampling was done as efficiently as possible to minimize Axis I disorders and PD symptoms in the control group. To the researcher's knowledge, this is the first study to explore the aforementioned variables from a dimensional standpoint of personality pathology. The study also included most of the PDs to holistically understand the study variables and their relation to personality pathology.

## CONCLUSION

The current study facilitated fathoming the constructs of psychological flexibility, personal values, and goal pursuits and seeing them through the dimensional lens of PDs. The findings show that, despite having categories, a dimensional view of personality pathology cuts across all clusters and helps in addressing the deficits in the dimensions, irrespective of the overall severity and the diagnosis. Furthermore, this study has clinical implications with respect to addressing psychological flexibility, values, and goals across personality disorders.

### Author contribution

The first author AS has contributed to the conceptualization of the study design, data collection, analysis, and preparing the drafts of the paper. The second author MM has contributed to the conceptualization of the study and the methodology, plan for analysis, and has reviewed the drafts of the paper. Both authors have read and finalized the manuscript.

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***Original Research Article***


# Mental Health in Diseased Inhabitants of Arsenic-affected Middle Gangetic Plain

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## ABSTRACT

**Background:** Groundwater arsenic contamination is a major public health issue in Bihar. The mental and emotional toll that arsenic pollution has on people and communities is noticeably lacking in literature, though its physical health impacts are well-documented. This study addressed this research gap and explored mental health and the prevalence of mental health problems in diseased inhabitants of the arsenic-affected Middle Gangetic plain of Bihar.

**Method:** A comparative survey research design was employed to conduct a case-control study with a sample of 382 people (age range 20-60 years) drawn through purposive sampling. Out of these, 202 individuals were identified as diseased while 180 were comparatively healthy counterparts. Self-report measures were used to assess mental health and mental health issues.

**Results:** A high prevalence of mental health issues were reported by the diseased group with high scores on severe levels of paranoid ideation (frequency (f)=59, percentage (%)=29.3), interpersonal sensitivity (f=55, %=27.3), and depression (f=51, %=25.4). The two groups were significantly different on all dimensions of mental health and the overall mental health indices (t-value=43.07, $p<0.01$).

**Conclusion:** The prevalence of mental health issues was high in the diseased inhabitants of arsenic-affected areas. The mental health of the diseased population is also relatively poorer than their healthy counterparts. The results emphasized the need for multidisciplinary collaboration among environmental scientists, public health specialists, and mental health experts to address the overall health problems of people residing in the arsenic-affected areas.

*Keywords:* arsenic contamination, diseased group, groundwater, Middle Gangetic plain, mental health issues, prevalence

## INTRODUCTION

Arsenic is a naturally occurring metalloid element and a well-known environmental toxin that has been identified as a carcinogen in humans (IARC, 2004). It is one of the most abundantly found elements in the earth's crust that contaminates lakes, rivers, and underground water by dissolving in rain, snow, or through dumped industrial wastes. In many regions of the world, environmental arsenic contamination is becoming a major public health concern. Researches affirm that drinking water containing high levels of arsenic can have negative

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health consequences on people (Shankar et al., 2014). Arsenic exposure may go unnoticed because of its physical characteristics (it has no color, flavor, or odor) until people experience symptoms of arsenicosis, as a result of consuming arsenic-contaminated water. The World Health Organization (WHO) and the US Environmental Protection Agency (USEPA) have suggested a 10 mg/L threshold for the amount of inorganic arsenic in drinking water. Sadly, millions of individuals are exposed to far higher quantities of arsenic, and some people are unaware of its lasting consequences, which are contributing to the rise in cancer cases (Martinez et al., 2011).

Arsenic pollution of groundwater is a lot more pervasive than most people believe, ranging from developing to developed nations, including India, Japan, Argentina, Bangladesh, China, Hungary, Canada, Chile, Mexico, Poland, Taiwan, Nepal, and USA (Singh & Ghosh, 2012). Arsenic contamination from both natural and anthropogenic sources can have significant consequences from an environmental psychology perspective. Most naturally occurring deposits contain arsenic, which is released into the atmosphere by volcanic emissions, rock and solid erosion, and weathering. (Naujokas et al., 2013). Mining, burning fossil fuels, using arsenical fungicides, herbicides, and insecticides in agriculture, as well as using wood preservatives, are the primary human sources of groundwater arsenic contamination. (Bhattacharya et al., 2007). Furthermore, the environment gets exposed to arsenic via industrial activities such as producing cement, burning fuels and wastes, smelting iron ores, and pulp and paper (Ahmed et al., 2003). Arsenic can be absorbed by humans from a variety of sources, including the food chain and drinking water tainted with arsenic, which is commonly found in its inorganic forms of arsenite [As(III)] or arsenate [As(v)] (Bhattacharya et al., 2012; Halder et al., 2014). When polluted water is used to irrigate crops, it gets into the food chain and exposes people to arsenic when they eat those crops. (Rasheed et al., 2016).

The fertile banks of the Ganges and its tributaries (Ghaghara, Gandak, and Kosi) constitute the Middle Gangetic Plain (MGP), which spans the states of Uttar Pradesh and Bihar and stretches roughly 600 km from east to west and 330 km from north to south (Mishra et al., 2017). The Eastern India's state, Bihar, situated in the Ganga-Meghna-Brahmaputra (GMB) basin, has significant issues with groundwater contamination due to arsenic. In Bihar's rural and peri-urban areas, groundwater is the most accessible and affordable supply of drinking water, and over 90 % of the area's residents rely on tube wells for this purpose (Thakur & Gupta, 2016). In Bihar, groundwater poisoning with arsenic was initially discovered in 2002 (Chakraborti et al., 2003). Expert research has since revealed that, of the 38 districts, 18 have high levels of As contamination in their groundwater, with Buxar, Bhojpur, and Bhagalpur being the most severely afflicted. Buxar has the greatest groundwater arsenic contamination (1906 ug/L) (BSPCB).

**Health Effects**

According to research, various diseases have been linked to inorganic arsenic. It can have several harmful consequences on the body, including cardiovascular, respiratory, gastrointestinal, neurological, reproductive and developmental, endocrinological (diabetes mellitus), cutaneous, and carcinogenic impacts. The latter is more common in the Ganga River Basin. (Chakraborti et al., 2017). The most common as well as concerning characteristics are the cutaneous symptoms since they are a sign of serious internal damage (Chakraborti et al., 2011). Diffuse melanosis, which is the darkening of the skin on the body or palms of the hands, and spotted pigmentation, also known as leucomelanosis, is among them. Spotted keratosis, which is rough, dry skin with palpable nodules, and mucus membrane melanosis on the lips, gums, and

tongue are also included (Chakraborti et al., 2018). Chronic arsenic exposure causes malignancies of several organs in humans, including the liver, lungs, skin, kidney, and urinary bladder. Arsenic poisoning can also cause dermatological malignancies such as hyperkeratosis, and hyper and hypo pigmentation (Banerjee & Giri, 2015). Chronic arsenic exposure can result in both benign and malignant chronic illnesses as well as a range of respiratory symptoms, such as coughing, shortness of breath, and loud chest when breathing. (Chakraborti et al., 2004; Chakraborti et al,. 2017). The inhabitants in the Indian states of Bihar and Uttar Pradesh, exposed to high arsenic concentration in their drinking water reported developing neurological illnesses (Chakraborti et al., 2003, Ahamed et al., 2006). In addition to the above-mentioned health impacts, arsenic also causes cardiac failure, liver swelling and cirrhosis, diabetes mellitus, gangrene, goiter, and hypertension (Ahmad & Khan, 2015; Nahar et al., 2013; Yunus et al., 2016).

In a survey conducted in Bihar, of the 1,888 children aged 11, 61 showed signs of skin lesions caused by arsenic. These children consumed elevated amounts of arsenic (up to 841 mg/L) and were often undernourished (Wasserman et al., 2007). It has been shown that prolonged exposure to drinking water tainted with arsenic, damages children's cognitive and psychosocial development. (Asadullah et al., 2011). The central nervous system (CNS) is significantly impacted by arsenic, which can result in short-term memory loss and other cognitive issues. (Mazumder et al., 2000). In children consuming highly arsenic-contaminated water, low intelligence and memory problems are found. The children were also reported to have impulsivity, inattention, loss of concentration, and alertness (Kumar et al., 2019).

Ironically, as of present, there is no recognized cure for persistent exposure to arsenic. As a preventive measure, only a clean arsenic-free water and nutrient-rich diet, including vitamins are recommended. This contamination poses a major threat to people's health, and economic wellbeing, particularly in developing countries and rural areas. Patients with arsenicosis face social exclusion, social hate, and significant psychological distress (Chakraborti et al., 2018). Studies show that there is a higher likelihood of mental health problems in people who have been exposed to arsenic poisoning (Brinkel et al., 2009; Rihmer et al., 2015; Milione et al., 2016).

**Arsenic exposure and Mental health**

Mental health is one's fundamental human right that is essential for socioeconomic, communal, and personal growth. There is more to mental wellness than merely the absence of mental illnesses. It is a multifaceted spectrum with varying degrees of difficulty and distress, as well as potentially wide variations in social and clinical outcomes across individuals. There are studies found from other Asian countries that reported adverse consequences of arsenic exposure for mental health (Khan et al., 2006; Brinkel et al., 2009). The mental health of the arsenicosis patients was found to be poorer when compared to that of normal people (Fujino et al.,, 2004). Brinkel et al., (2009) explored the mental health of arsenicosis patients from China and Bangladesh. They found a significant association between mental health issues and arsenicosis. Increased levels of depression, uneasiness, insomnia, loss of appetite, and altered state of consciousness were found in arsenicosis patients (Khan et al., 2006). Sen and Biswas (2012) said that arsenic can cause psychiatric disorders. They studied arsenicosis patients and found that 18.99% of patients were suffering from psychiatric disorders. They reported 8.47% of psychiatric depression, 4.61% of mixed anxiety and depressive disorder, 2.22% of brief depressive disorder, and 1.53% of suicidal attempts.

Chronic arsenic exposure has a strong impact on an individual's mental health, quality of life, and subjective well-being (Keya, 2004). Due to ongoing diseases, individuals feel negative emotions like anxiety, fear, and disorganization (Taylor & Aspingwall, 1990). Based on household survey data collected from Bangladesh, Chowdhury et al..(2006) found that suffering from an arsenicosis symptom is strongly negatively related to mental health, more than other illnesses. Earlier Syed et al., (2012), concluded that the QOL and mental health status of the arsenic-affected patients were significantly lower than those of the non-patients. Recently, Kumar et al., (2022) conducted research on the mental health of arsenic-induced cancer patients of the arsenic-affected regions and found it to be a function of perceived social support among this population.

Some studies reported a negative association between arsenic exposure and mental health. However, these studies are only based on a single measure (i.e., arsenic contamination) and limited observations (Keya, 2004). According to the study of Havenaar and van den Brink (1997), exposure to toxic substances not only causes physical harm but also psychological harm. Although there are few studies available regarding arsenic exposure and mental health in literature, the mental health burden caused by arsenic poisoning seems to be remarkable. Employing a case-control study in an arsenic-affected rural area in Bangladesh, Aklimunnessa, Ahsan, Kabir, and Mori, (2006) also found significantly higher levels of depression, weakness, restlessness, insufficient sleep, drowsiness, and loss of appetite among the arsenicosis cases as compared to controls.

**Rationale**

Many rural areas of Bihar have significant groundwater contamination due to arsenic, making drinking water sources hazardous to use and endangering the health of the populace. Our knowledge of the mental and emotional toll that arsenic pollution has on people and communities is noticeably lacking, despite the reality that the physical health impacts of arsenic poisoning are well-documented. Considering this significant gap in the scientific literature and to address this imbalance, the current study examines the mental health issues faced by the diseased people residing in the arsenic-affected Middle Gangetic plain in Bihar. It investigates the psychological impact of living in an environment where a basic necessity like clean drinking water is compromised.

**Objective**

To assess mental health and prevalence of mental health problems in diseased inhabitants of arsenic affected Middle Gangetic plain of Bihar.

**METHOD**

**Hypotheses**

H1: Prevalence of mental health problems in diseased inhabitants of arsenic-affected Middle Gangetic plain of Bihar would be high.

H2: The mental health of diseased inhabitants would not be well compared to their healthy counterparts.

**Research Design**

Comparative survey research design was employed to conduct a case-control study.

**Sample**

Total samples comprised 382 (N=382) consenting individuals (age range 20-60 years) drawn with purposive sampling method from the arsenic-affected regions of Middle Gangetic plain in Bihar which included 6 districts of Bhojpur, Buxar, Lakhisarai, Patna, Samastipur, and Saran. Among these, 202 individuals suffered from one or the other chronic disease ($n_1$=202) and formed the clinical group for the study. The clinical sub-sample met the inclusion criteria of residing in the arsenic-affected

region for more than 10 years and consuming arsenic-contaminated groundwater. These participants did not have a history of mental illness but were suffering from any of the chronic illnesses reported in the literature to be caused due to chronic arsenic exposure. Mostly this included cases of liver disease, cancer, gall bladder stone, skin manifestations (arsenicosis), kidney diseases, and indigestion. Local doctors were approached for the identification of prospective participants. Subsequently, the clinical sample was selected by referring to their medical history as presented either in their medical record books or doctors' prescriptions clearly stating the diagnosis made by respective doctors. The healthy control group was drawn from the same locale under the same districts from where the clinical sample was drawn. This group comprised remaining 180 individuals ($n_2$=180) (age range 20-60 years) who were residents of the same arsenic-affected Middle Gangetic plain of Bihar for more than 10 years and consuming arsenic-contaminated groundwater. The healthy participants neither suffered from any chronic disease nor had any history of mental illness. This healthy control group was selected to be equivalent for major socio-demographic characteristics (see Table 1).

**Study Area/Locale**

The fertile banks of the Ganges and its tributaries (Ghaghara, Gandak, and Kosi) constitute the Middle Gangetic Plain (MGP), which spans the states of Uttar Pradesh and Bihar. Groundwater arsenic contamination is a major environmental health hazard faced by the inhabitants of the MGP. The present study was conducted in the arsenic-affected Middle Gangetic regions of Bihar that included six districts namely Bhojpur, Buxar, Lakhisarai, Patna, Samastipur, and Saran.

**Tools**

1. *Brief Symptom Inventory (Derogatis, 2001)*: The Brief Symptom Inventory consists of 53 items that assess 9 mental health issues: like obsession-compulsion, somatization, interpersonal sensitivity, hostility, depression, anxiety, paranoid ideation, phobic anxiety, and psychoticism. This scale also measures three global indices of distress: global severity index, positive symptom distress index, and positive symptom total. Good internal consistency reliability for the nine dimensions is reported ranging from .71 on psychoticism to .85 on depression.
2. *Mental Health Inventory (Jagdish & Srivastava, 1983)*: This scale is used to assess the mental health of individuals in various spheres of life. The 56 items are placed in 6 dimensions of mental health (*viz.* positive self-evaluation, perception of reality, integration of personality, autonomy group-oriented attitudes, and environmental mastery). Good internal consistency reliability is established for dimensions ranging from .71 on perception of reality to .75 on positive self-evaluation.

**Procedure**

The participants of the study were selected from the arsenic-affected Middle Gangetic regions of Bihar that included the most affected districts namely Bhojpur, Buxar, Lakhisarai, Patna, Samastipur, and Saran. The data collection for the study was done in two phases. In the first phase, 202 individuals suffering from various diseases and residing in the arsenic-affected endemic regions were identified. The participants were selected according to the inclusion and exclusion criteria of the study. Factors such as detailed records, type, and severity of their illnesses were also considered. In the second phase, 180 healthy counterparts residing in the same arsenic-affected areas were identified. The selected questionnaires were administered on them. The ethical guidelines of APA were strictly followed during working with the participants. Before collecting data written informed consent was taken

from the study participants, after establishing a good rapport with each of them. The confidentiality issues, study objective, data usage, possible risk-benefits involved and the nature of voluntary participation in the study were properly explained to the participants. Data handling and analysis were done with the help of a statistical package for social sciences version 25 (SPSS-25).

***Ethical approval:*** The study was granted ethical approval from the Faculty Project Approval Committee (FPAC) of the concerned department of the University (Letter no. CUSB/PSY/321/2021; dated 02/09/2021).

## RESULTS

**Table 1**

**Table 1**

Socio-demographic Data Sheet

| Socio-demographic characteristics | | Clinical Group | | Healthy Group | |
|---|---|---|---|---|---|
| | | frequency | % | frequency | % |
| Education | Literate | 84 | 41.58 | 97 | 53.89 |
| | Illiterate | 118 | 58.42 | 83 | 46.11 |
| Gender | Male | 131 | 64.85 | 145 | 80.56 |
| | Female | 71 | 35.15 | 35 | 19.44 |
| Marital status | Single | 7 | 3.47 | 18 | 10 |
| | Married | 195 | 96.53 | 162 | 90 |

Note. Table 1 shows that the healthy control group selected for the study was equivalent to the clinical group concerning major socio-demographic characteristics.

**Table 2**

Prevalence of Mental Health Issues (frequency and Percentage) Among Diseased Inhabitants of Arsenic-affected Middle Gangetic Plain in Bihar

| Mental health issues | | No distress | Mild distress | Remarkable | Severe |
|---|---|---|---|---|---|
| Somatization | frequency | 102 | 44 | 25 | 31 |
| | % | 50.5 | 21.7 | 12.5 | 15.3 |
| Obsession | frequency | 74 | 33 | 46 | 49 |
| compulsion | % | 36.6 | 16.3 | 22.8 | 24.5 |
| Interpersonal | frequency | 42 | 52 | 53 | 55 |
| sensitivity | % | 20.7 | 25.7 | 26.2 | 27.3 |
| Depression | frequency | 51 | 38 | 62 | 51 |
| | % | 25.3 | 18.8 | 30.6 | 25.4 |
| Anxiety | frequency | 126 | 37 | 26 | 13 |
| | % | 62.5 | 18.3 | 12.9 | 6.5 |
| Hostility | frequency | 48 | 56 | 53 | 45 |
| | % | 23.8 | 27.7 | 26.3 | 22.3 |

| | | | | | |
|---|---|---|---|---|---|
| Phobic anxiety | frequency | 118 | 46 | 25 | 13 |
| | % | 58.4 | 22.8 | 12.4 | 6.5 |
| Paranoid ideation | frequency | 37 | 31 | 75 | 59 |
| | % | 18.3 | 15.3 | 37.1 | 29.3 |
| Psychoticism | frequency | 74 | 39 | 55 | 34 |
| | % | 36.7 | 19.3 | 27.2 | 16.9 |
| Global Severity Index | frequency | | | | % |
| No distress | | | 69 | | 34.1 |
| Mild distress | | | 52 | | 25.7 |
| Remarkable | | | 57 | | 28.2 |
| Severe | | | 24 | | 11.8 |

*Note.* Table 2 shows the prevalence of various mental health issues (under 9 dimensions of psychiatric symptomologies and global severity index) among the arsenic-affected diseased population. In which significant number of individuals are falling into severe levels of paranoid ideation (frequency=59, %=29.3), interpersonal sensitivity (frequency=55, %=27.3) depression (frequency=51, %=25.4) obsession-compulsion (frequency=49, %=24.5) and hostility (frequency=45, %=22.3). The global severity index confirms a high prevalence of mental health issues (almost 66%) ranging from mild to severe levels.

Table 3

Descriptive Statistics (Mean and Standard Deviation) and t-Ratio comparing Diseased Inhabitants with their Healthy Counterparts on dimensions of Mental Health

| Dimensions of Mental Health | Health Condition | N | Mean | Std. Deviation | t-ratio | Significance |
|---|---|---|---|---|---|---|
| Positive self-evaluation | Healthy | 180 | 34.79 | 2.815 | 35.15 | 0.01 |
| | Diseased | 202 | 20.45 | 4.971 | | |
| Perception of reality | Healthy | 180 | 21.59 | 1.516 | 12.33 | 0.01 |
| | Diseased | 202 | 19.14 | 2.315 | | |
| Integration of Personality | Healthy | 180 | 39.36 | 2.851 | 45.98 | 0.01 |
| | Diseased | 202 | 23.85 | 3.722 | | |
| Autonomy | Healthy | 180 | 21.01 | 1.986 | 36.23 | 0.01 |
| | Diseased | 202 | 11.59 | 3.036 | | |
| Group-oriented attitudes | Healthy | 180 | 32.68 | 2.234 | 32.33 | 0.01 |
| | Diseased | 202 | 22.08 | 4.013 | | |
| Environmental mastery | Healthy | 180 | 29.94 | 2.602 | 32.59 | 0.01 |
| | Diseased | 202 | 19.25 | 3.759 | | |
| Overall mental health | Healthy | 180 | 179.36 | 9.684 | 43.07 | 0.01 |
| | Diseased | 202 | 116.36 | 18.079 | | |

Note. Table 3 shows a significant difference in mental health dimensions of arsenic-affected diseased population with their healthy counterparts. The overall mental health of the diseased population is also found to be significantly poor when compared with their healthy counterparts ($t=43.07$, $p<0.01$).

## DISCUSSION

The prevalence of mental health issues was found to be high in the diseased population from the Arsenic-affected Middle Gangetic plain of Bihar. The result reveals psychological problems among this populace. Many people are falling under severe levels of depression, interpersonal sensitivity, paranoid ideation, obsession compulsion, and hostility. Most people also have mild to remarkable level of distress on various symptoms. Numerous studies have found a substantial link between

chronic arsenic exposure and the development of psychiatric disorders (Guo et al., 2001). Arsenic causes hormonal imbalance and oxidative stress, which leads to a drop in dopamine levels. Dopamine deficiency impairs brain development and causes neuro-behavioral abnormalities. Several investigations have looked into the possible mechanisms that arsenic may use to affect mental health. These pathways include neuro-inflammation, oxidative stress, and abnormalities in the neurotransmitter systems (Singh et al., 2011, Rodriguez et al., 2003). Acute arsenic toxicity reduces acetylcholinesterase activity, resulting in a cholinergic crisis with altered mental status and weakness that can be accompanied by peripheral neuropathy, neuropsychiatric abnormalities, and extrapyramidal diseases (Patlolla & Tchounwou, 2005). Studies have revealed that the most prevalent psychiatric conditions among patients with arsenicosis were anxiety and depression; however, psychological problems are more likely to arise in this population due to lower socioeconomic status, illnesses linked to arsenic poisoning, negative body image, and low self-esteem (Tyler & Allan, 2014).

Compared with the healthy counterparts, the diseased population of arsenic-affected region reported significant differences in all dimensions of mental health. The overall mental health of the diseased population is also found to be poor. With more than 200,000 cases of arsenicosis, nearly 1.5 million people in India have been exposed to high amounts of arsenic. A cross-sectional study of more than 1,169 individuals with arsenicosis between the ages of 18 and 65 showed that 19% of patients experienced a psychiatric problem, compared to the typical 7 % prevalence of mental illnesses in India (de Castro et al., 2009). Arsenic-groundwater poisoning leads to a variety of physical illnesses and the affected individuals often feel easily fatigued, lethargic and weak. Due to their lack of ability to work properly, losing jobs, obstacles to finding new jobs, social rejections, and severe financial difficulties are common in these communities (Khan et al., 2006). These factors could also be understood as affecting the mental health of this population indirectly.

In addition, literature has highlighted several other factors affecting mental health in people exposed to chronic arsenic exposure. The psycho-social aspects of arsenic poisoning, such as social isolation, shame, and disruption of daily life, can worsen psychological distress in those who are afflicted. These physical illnesses can be severe and devastating, which can significantly contribute to psychological distress among affected individuals. Numerous behavioral, psycho-social, and economic repercussions have been linked to long-term arsenic poisoning in affected communities (Majumdar 2024). Long-term exposure to arsenic can cause developmental problems such as physical, cognitive, psychological, sensory, and speech difficulties, and mental retardation (Brinkel et al., 2009).

Nutrient-rich foods and vitamins are often recommended in the treatment of arsenic-induced illnesses as they can boost immunity and aid in recovery. However, this approach can be expensive, particularly for rural families with limited resources, as the cost of medical expenses and the possibility of reduced productivity due to illness can lead to financial instability, worsening the already precarious economic circumstances of these families. In addition, the stress of the financial burden and the anxiety that comes with rising healthcare costs can exacerbate mental health issues, further aggravating the already struggling communities. The convergence of physical, social, psychological, and financial difficulties highlights the necessity for comprehensive public health policies that address the multidimensional impact of arsenic contamination on rural populations by incorporating both preventive and accessible healthcare solutions.

## CONCLUSION

There is a high prevalence of mental health issues in the diseased inhabitants of Arsenic-affected Middle Gangetic plain of Bihar state. The mental health issues on a global severity scale ranged from mild to severe level. The diseased individuals from these regions have poor mental health in all dimensions compared to the healthy inhabitants of the same regions.

## LIMITATIONS

Other psycho-social and demographic factors (like low Socio-Economic-Status, negative body image, low self-esteem, social isolation, shame, loss of job, and disruption of daily life) are possible to adversely impact the relationship between diseased condition and mental health in the residents of arsenic affected regions. These factors have not been examined in the study for their moderating or mediating effect. The study area was confined to Bihar state; however, a larger geographical coverage of the arsenic-affected Middle Gangetic plain including districts from Uttar Pradesh also could have extended the generalizability of the findings.

## STRENGTHS

The study is the few of its kind in the region much needed to promote good health in this population, which highlighted that efforts must go beyond exploring and alleviating the physical consequences. There existed a serious paucity of research exploring the psychological problems of diseased populations from arsenic-contaminated states of India especially Bihar. The present study tried to fill this research gap identified in the literature. The findings underline the need for comprehensive treatments that address both environmental challenges and the psychological well-being of affected communities. The results emphasized the need for multidisciplinary collaboration among environmental scientists, public health specialists, and mental health experts to create comprehensive methods for treating the overall health problems of people residing in the arsenic-affected areas.

## IMPLICATIONS

Findings advocate and call for action in terms of education and sensitization about the mental health difficulties connected with arsenic exposure and its health impacts. The findings call for public health initiatives from the policymakers to address mental health issues and provide these people access to mental health resources and support networks. Community-level efforts to raise awareness about the underlying causes of disease in the region and possible health impacts among this population are highlighted.

## FUTURE SUGGESTIONS

Further research is required to create effective strategies and gain a deeper understanding of the unique mental health issues linked to arsenic exposure. It is suggested that future studies incorporate a wider variety of arsenic-affected locations to improve the validity and relevance of the findings.

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# Role of Loneliness and Cognitive Failure in the Relationship Between Sleep Quality and Psychological Well-Being Among Early Adults

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## ABSTRACT

**Aim:** The present study investigated the relationships between sleep, loneliness, cognitive failure, and psychological well-being, focusing on the mediating roles of loneliness and cognitive failure in the association between sleep quality and psychological well-being.

**Method:** A total of 284 participants, aged 20 to 40, were recruited through purposive sampling and completed measures including the Pittsburgh Sleep Quality Index - Short Form, Psychological General Well-Being Index, UCLA Loneliness Scale, and Cognitive Failures Questionnaire via an online survey. Descriptive statistics, Pearson correlation, and serial multiple mediation analyses were conducted using statistical packages for social science (SPSS) and the PROCESS macro.

**Results:** Findings from the partial mediation analysis indicated that poor sleep quality had a direct negative impact on psychological well-being (effect = -3.53, *SE* = 0.42, 95% CI [-4.35, -2.70]) and indirect effects through loneliness (effect = -0.07, *SE* = 0.03, 95% CI [-0.13, -0.03]) and cognitive failure (effect = -0.47, *SE* = 0.02, 95% CI [-0.09, -0.01]). Furthermore, a significant sequential mediation path was identified, wherein sleep quality influenced well-being through loneliness and cognitive failure (effect = -0.02, *SE* = 0.01, 95% CI [-0.04, -0.01]).

**Conclusion:** The study suggests poor sleep quality reduces psychological well-being through loneliness and cognitive failure in young adults. The present study has practical implications for developing diversified interventions to improve sleep quality and enhance well-being.

*Keywords*: Sleep quality, Loneliness, Cognitive failure; Psychological well-being; Sequential mediation

## INTRODUCTION

Sleep is essential for the healthy functioning of the mind and body. Studies indicated that disturbed sleep patterns lead to many problems, including emotional imbalance, loneliness (Griffin et al., 2020), cognitive problems, and psychological well-being (Freitag et al., 2017). Sleep quality is more important than quantity, yet both are necessary for subjective well-being (Li et al., 2020; Lima et al., 2018). The problem of poor sleep and mental health in adults has become worse day by day (Banthiya et al., 2021). India is the second most sleep-deprived country in

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the world. Approx 21% of Indian adults are suffering from sleep problems (Sharma, 2023), which is a significant factor in disturbed immune, homeostasis (Besedovsky et al., 2019), low psychological well-being (Freitag et al., 2017), poor physical and mental health (Hale et al., 2019). So, it is worthwhile to examine the role of sleep on psychological well-being and the intervening factors through which sleep influences well-being.

Loneliness is a negative experience associated with social interaction and dissatisfaction in quantitative or qualitative ways (Perlman & Peplau, 1981). Various factors influence loneliness, including behavioral and communication skills, social support, and physical biochemistry. Studies on sleep and loneliness revealed that sleep plays a crucial role in balancing the body's biochemistry. Moreover, sleep deprivation and night-time awakening reduce the desire to connect with others and thus increase isolation (Griffin et al., 2020; Smith, 2019). People who experienced poor and less sleep from one night to the next reported increased loneliness (Simon & Walker, 2018). Therefore, here we focus on the directional relationship of sleep quality with loneliness.

Cognitive failure is a subjective assessment of cognitive function. A cognitive impairment occurs when a person makes a mistake in everyday activities. It is characterized by memory loss, decreased awareness, and focused attention (Voortman et al., 2019). A study by Benitez and Gunstad (2012) reported that poor sleep quality over the past month could contribute to a chronic pattern of sleep disturbances that could exacerbate cognitive function and reduce general response speed, performance, cognitive capacities, attention processes, and executive functions. It also affects the cognitive process of simple and complex task performance (Whitney & Hinson, 2010).

Studies indicate that loneliness is associated with poor cognitive function as it keeps the body awake, inhibits it from resting and relaxing, and further reduces activity in the prefrontal cortex, which regulates higher-order cognitive functions (Miller, 2011). Lonely people with impaired cognition also have low productivity, negative emotional experiences, and poor health (Groarke et al., 2020; Smith, 2019). According to Fuhrmann et al. (2021), cognitive function is bi-directionally related to psychological well-being. Psychological well-being is essential to life satisfaction and promotes positive experience, purpose, and direction during transition. It further helps self-organization, complex decision-making, and environmental mastery (De-Juanas et al., 2020). Considering the holistic impact of these variables, there is a need to examine sleep, loneliness, cognitive failure, and psychological well-being simultaneously to understand their interrelationships. It will help to explore and understand the potential path or intervening relationship between sleep and psychological well-being (Megalakaki & Kokou-Kpolou, 2021).

Hence, this study aimed to test a serial multiple mediation model to see the association of sleep quality with psychological well-being and the mediating roles of loneliness and cognitive failure in this association. In this connection, the following objective was formulated:

1. Examine the relationship between sleep quality, loneliness, cognitive failure, and psychological well-being.
2. To examine the mediating role of loneliness and cognitive failure in the relationship between sleep quality and psychological well-being through serial mediation analysis.

## METHOD

### Sample

The data of this cross-sectional survey was collected on 284 early adults (age range 20 to 40 years) through purposive sampling. Participants were

invited via Google form link on the social media platform. After eliminating repetitive responses and outliers, 260 participants were selected. Their mean age was 25.80 (SD 4.32). Each participant gave consent before the data was collected. This study received approval from the institutional ethics committee (ref.no. Dean/2021/EC/3100).

Participants of the study were only normal subjects and free from severe psychiatric illness. Responses of participants with serious psychiatric or medical illnesses, substance use disorders, irregular sleep patterns, recent traumatic events or significant life stressors, women with pregnancy or postpartum effect, and shift work were excluded from the study.

**Measures**

The following types of measures were used:

1. The demographics questionnaire includes participants' age, gender, marital status, living status, education, and occupation. Kuppuswamy's socioeconomic scale was used to measure participants' socioeconomic status (Saleem, 2020).
2. The short form of Pittsburgh Sleep Quality Index (PSQI) assessed participants' sleep habits over the previous month. It is a 13-item scale which consists- sleep latency, sleep duration, sleep efficiency, sleep disturbance, and daytime dysfunctions. All five components together indicated global PSQI. The score ranges from 0 - 15 in which a score of 4 and above indicates poor sleep quality. Spearman correlation between original PSQI and this used short version scale found 0.94 in a study (Famodu et al., 2018).
3. The loneliness experiences of participants were assessed through the UCLA Loneliness Scale (version-03) (Russell, 1996). It is a 20-item and 4-point Likert scale (response range from 'never' to 'often'). Scores ranged from 20 to 80 on this scale. (Russell, 1996). The reliability of the test in this study is $\alpha$=0.85.
4. Cognitive failure questionnaires assessed subjective cognitive errors in the completion of tasks that are important in our day-to-day lives. This scale was originally developed by Broadbent et al. (1982). It is a five-point scale with 25 items. Responses scored from very often (04) to never (0). The overall score ranged from 0-100. In which a high score indicates an increased propensity to cognitive failure (Wallace et al., 2002). The reliability of the test in this study is $\alpha$=.92.
5. Subjective psychological well-being experiences were assessed using the Psychological general well-being developed by H J Dupuy (1984). It has six dimensions: anxiety, vitality, depression, self-control, positive well-being, and overall health. It is a six-point Likert scale with values ranging from "0" to "5" (Chassany et al., 2004). The reliability of this test in this study is $\alpha$=0.90.

**Statistical analysis**

Data analysis was done through SPSS (version 20) and the macro-process (version 3.5). First, descriptive statistics and normality assumptions were checked using the *z* score, Q-Q plot, kurtosis, and skewness. ANOVA, *t* test, Pearson correlation, and a sequential mediation analysis (model no. 06) were performed. A bias-corrected bootstrapping method was also employed to investigate the significance of the mediating effect, which had a 95% confidence interval that did not contain zero, which indicated significant mediation results (Hayes, 2018).

**RESULTS**

Common method bias affects the quality of data and results (Podsakoff et al., 2003). In this study, several variables were measured altogether. Therefore, the

possibility of common method bias might exist here. Harman's one-factor test was conducted to check the variance of one single factor. The result indicates that the variance of a single factor is 18.901%, which is below the threshold of 50%, making it acceptable in this study.

Table 1 displays descriptive statistics for socio-demographic variables (see Table 1). The mean differences in sleep quality, loneliness, cognitive failures, and psychological well-being are shown in Table 2. There was a significant mean difference in marital status for sleep quality ($t$ = -2.01, $p$ = 0.045). Loneliness ($F$ (4, 255) = 4.870, $p$ < 0.001), cognitive failure ($F$ (4,255) = 4.689, $p$ < 0.001), and psychological well-being ($F$ (4, 255)=2.592, $p$<0.037) were all affected by education level. Occupation levels only show a significant mean difference for cognitive failure ($F$ (3,256)=3.75, $p$<0.012).

**Table 1**
Demographic Characteristics of Participants

| Demographic | Level | N | % |
|---|---|---|---|
| Age | Mean± SD (25.80±4.32) | 260 | - |
| Gender | Male | 120 | 46.2 |
| | Female | 140 | 53.8 |
| Marital status | Married | 54 | 20.8 |
| | Unmarried | 206 | 79.2 |
| Education | 10+2 | 9 | 3.5 |
| | U. G | 99 | 38.1 |
| | P. G | 105 | 40.4 |
| | Diploma | 22 | 8.5 |
| | Others | 25 | 9.6 |
| Occupation | Government job | 9 | 3.5 |
| | Private job | 62 | 23.8 |
| | Students | 153 | 58.8 |
| | Others | 36 | 13.8 |
| Living status | With family | 221 | 85 |
| | Without family | 39 | 15 |
| Socioeconomic Status (SES) | Lower | 8 | 3.1 |
| | Upperlower | 41 | 15.8 |
| | Lowermiddle | 65 | 25 |
| | Uppermiddle | 119 | 45.8 |
| | Upper | 27 | 10.4 |

**Table 2**

*Mean, SD, and T-Test of Demographic Variables Considered in the Study*

| Demographic Factors | Sleep | | Loneliness | | Cognitive Failure | | Psychological Well-being | |
|---|---|---|---|---|---|---|---|---|
| Level | Mean (SD) | t-test | Mean (SD) | t-test | Mean (SD) | t-test | Mean (SD) | t-test |
| **Gender** | | | | | | | | |
| Male | 3.68 (-2.01) | 0.153 | 45.13 (8.09) | 1.653 | 37.65 (-18.31) | -0.453 | 64.33 (15.37) | 0.105 |
| Female | 3.64 (-2.21) | | 43.22(10.15) | | 38.65 (-16.98) | | 64.12 (16.77) | |
| **Education** | | | | | | | | |
| 10+2 | 3.55 (2.29) | F (4,255) | 45.66 (7.41) | F (4,255) | 54.88 (17.45) | F (4, 255) | 62.32 (17.73) | F (4,255) |
| U.G. | 3.87 (2.16) | = 1.93 | 46.30 (8.18) | =4.870*** | 40.95 (17.81) | =4.689*** | 61.53 (16.36) | =2.592** |
| P.G. | 3.62 (2.08) | . . | 42.60 (9.94) | η2=.07 | 35.40 (15.96) | η2 =0.068 | 64.93 (15.94) | η2=0.039 |
| Diploma | 4.04 (2.05) | | 46.77 (7.77) | | 40.40 (18.75) | | 63.96 (13.45) | |
| Others | 2.64 (1.91) | | 38.84 (9.60) | | 31.00 (17.26) | | 72.76 (15.27) | |
| **Occupation** | | | | | | | | |
| Government | 3.11 (2.20) | F (3,256) | 46.44 (3.87) | F (3,256) | 52.11 (15.96) | F (3,256) | 55.45 (16.14) | F (3,256) |
| Private | 3.41 (2.02) | =1.102 | 43.14 (8.78) | =1.174 | 34.67 (16.43) | =3.75** | 67.31 (16.49) | =1.869 |
| Student | 3.85 (2.15) | η2=.012 | 44.79 (9.64) | η2=.013 | 37.67 (17.26) | η2=.042 | 63.95 (15.97) | η2=.021 |
| Others | 3.38 (2.12) | | 42.25 (9.37) | | 42.97 (19.20) | | 62.22 (15.43) | |
| **Marital status** | | | | | | | | |
| Married | 3.14 (2.05) | -2.01** | 43.05 (8.38) | -0.934 | 41.57 (18.20) | 1.592 | 67 (14.53) | 1.429 |
| Unmarried | 3.79 (2.12) | | 44.38 (9.51) | | 37.30 (17.35) | | 63.49 (16.45) | |
| **Living status** | | | | | | | | |
| With Family | 3.66 (2.10) | -0.016 | 43.93 (9.56) | -0.706 | 38.37 (17.50) | 0.399 | 64.36 (15.97) | 0.353 |
| Without Family | 3.66 (2.25) | | 45.07 (7.61) | | 37.15 (18.23) | | 63.38 (17.05) | |
| **SES** | | | | | | | | |
| Lower | 3.55 (2.27) | | 43.92 (7.99) | | 39.92 (19.21) | | 62.82 (15.69) | |
| Upper Lower | 3.52 (2.08) | F (4.255) | 44.85 (9.73) | F (4.255) | 38.01 (16.43) | F (4,255) | 63.68 (15.02) | F (4,255) |
| Lower Middle | 3.50 (2.12) | =1.22 | 41.80 (9.31) | =1.465 | 34.35 (16.94) | =1.704 | 67.58 (16.55) | =1.133 |
| Upper Middle | 4.31 (2.11) | η2=.018 | 45.48 (8.65) | η2=.022 | 43.04 (19.85) | η2=.026 | 62.35 (18.97) | η2=.017 |
| Upper | 3.87 (1.95) | | 45.25 (8.27) | | 41.25 (18.44) | | 59.09 (12.33) | |

*Note.* ***p<0.001, **p<0.01, *p<0.05

**Table 3**

Correlation Coefficient of the Study Variables

| Variables | Sleep quality | Loneliness | Cognitive failure |
|---|---|---|---|
| Loneliness | .209** | - | |
| Cognitive failure | .228** | .362** | - |
| Psychological well being | -0.465** | -0.517** | -0.492** |

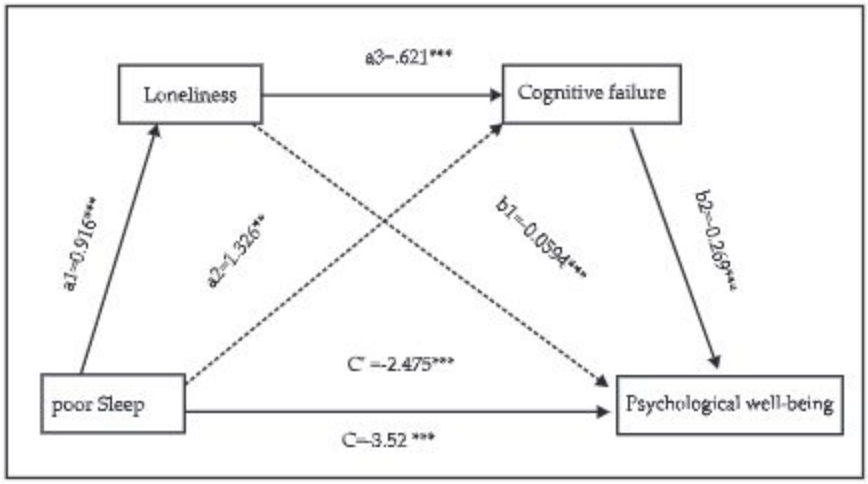
*Note.* **p<0.01, *p<0.05 (two -tailed)

Table 3 displays the correlation coefficient between study variables. According to the table, poor sleep quality is significantly positively associated with loneliness (r=.209) and cognitive failure (r=.228), while negatively related to psychological well-being (r=-.465) at p<0.01 level. Loneliness is also significantly and positively correlated with cognitive failure (r=.362). Loneliness was strongly negatively correlated with psychological well-being (r=-.517). Furthermore, cognitive failure has a moderate negative relationship with psychological well-being (r =-.492) among early adults.

Table 4 and Figure 1 portray the results of serial mediation analysis of loneliness and cognitive

Figure 1

Serial Multiple Mediation Model




Note:This figure portrays the sequential mediational effect of loneliness and cognitive failure in the relationship between sleep quality and psychological well-being.

Table 4

Serial Multiple Mediation Analysis

| Variables | β | SE | p | BC 95% CI 5000 (bootstrap) | |
|---|---|---|---|---|---|
| | | | | LL | UL |
| Poor sleep→ Loneliness($a_1$) | 0.916 | 0.266 | .000 | .3905 | 1.4416 |
| Poor sleep → Cognitive failure ($a_2$) | 1.326 | 0.486 | .006 | .3684 | 2.2835 |
| Loneliness → Cognitive failure($a_3$) | 0.621 | 0.111 | .000 | .4025 | .8394 |
| Loneliness→ PWB($b_1$) | -0.594 | 0.085 | .000 | -.7616 | -.4262 |
| Cognitive failure→ PWB($b_2$) | -0.269 | 0.0452 | .000 | -.3586 | -.1805 |
| Total effect (c) | -3.529 | 0.419 | .000 | -4.3549 | -2.7048 |
| Direct effect (c') | -2.475 | 0.358 | .000 | -3.1792 | -1.7710 |
| Indirect effect | | | | | |
| Total indirect effect | -.1388 | .0332 | | -.2055 | -.0773 |
| Poor sleep → Loneliness → PWB (Indirect1) | -.0716 | .0258 | | -.1271 | -.0255 |
| Poor sleep → Cognitive failure → PWB (Indirect 2) | -.0470 | .0205 | | -.0926 | -.0126 |
| Poor sleep → Loneliness → Cognitive failure → PWB (Indirect3) | -.0202 | .0075 | | -.0362 | -.0073 |

failure on sleep quality and psychological well-being. The total effect of sleep quality on psychological well-being was significant (c=-3.529), which indicates participants with poor sleep quality were more likely to report low-level psychological well-being.

In addition, all three indirect and direct pathways were also significant. The first indirect path from sleep to psychological well-being is significantly mediated by loneliness (indirect effect coefficient= -0.0716). Second, indirect paths from sleep to psychological well-being through cognitive failure (indirect effect coefficient =-0.047) were also significant. And third indirect effect of sleep to psychological well-being is significantly mediated by both loneliness and cognitive failure (indirect effect coefficient= -0.0202). After managing feelings of loneliness and cognitive difficulties, this connection became less strong but still notable (c1 = -2.475). In conclusion, these results suggest the sequential mediation between sleep and psychological well-being by loneliness and cognitive failure.

## DISCUSSION

The present study tested the serial multiple mediation model to examine the intervening mechanism between sleep and psychological well-being through loneliness and cognitive failure. Results revealed that direct and indirect paths of sleep to psychological well-being are significant, suggesting that sleep quality plays a significant role in psychological well-being directly and indirectly through loneliness and cognitive failure.

This study found that poor sleep quality was negatively correlated with psychological well-being, which is consistent with previous research that found that poor sleep patterns elevated psychological distress and lower psychological well-being and health (Franceschini et al., 2020; Pilcher et al., 1997). The reason behind this is that sleep is the cause of homeostasis and regulates the major life-supporting mechanism, including biochemical functions, which are necessary for good physical and emotional stability and well-being. Sleep is a restorative activity that allows the brain and body to rest. A well-rested body can tolerate and manage stressful situations and daily hassles effectively (Vandekerckhove & Wang, 2018). A study by Zhang et al. (2022) showed that people with sleep-related issues face many psychological problems that increase with age. Zhang et al. state that sleep is a biological process essential for maintaining the body's inherent physical and cognitive functions, which play an important role in reducing perceived stress and chronic conditions. Famous philosopher Benjamin Franklin (1707-1790) mentions that adequate quality sleep is essential for good health, success, and psychological well-being. Moreover, Smith and Lee (2022) pointed out that good sleepers have good well-being, life satisfaction, positive affect, and physical well-being.

Findings of serial mediation analysis revealed a potential mechanism through which sleep quality predicts psychological well-being. The indirect pathways 1 and 2 (see Table 4) demonstrate that loneliness and cognitive failure mediated the relationship between sleep and psychological well-being. Results further demonstrate that person with poor sleep quality report more loneliness, which further reduces their psychological well-being. Sleep deprivation and nighttime awakening increase terrible feelings, irritability, and aggressiveness. Such unfavorable conditions reduce people's willingness to make social connections, keep them socially isolated, and enhance loneliness (Griffin et al., 2020; Smith, 2019). Studies have shown that loneliness increases alertness and vigilance to perceive threats. It keeps the body awake and inhibits it from resting and relaxing, which is the leading cause of many physical and psychological problems (Megalakaki & Kokou-Kpolou, 2021; Varma et al., 2020). Results further suggested that participants with poor sleep

quality are more likely to face a decrement in their cognitive function, which further leads to lower psychological well-being. The association between poor sleep and cognitive failure is consistent with the previous research (Smith et al., 2021). Lack of proper sleep disturbs various brain functions, e.g., general response speed, cognitive capacities, vigilant attention, memory, and problem-solving strategy (Benitez & Gunstad, 2012), which are found to be associated with moods and capacity to complete the daily activity, anxiety, and stress (Gates et al., 2014). Sutton et al. (2022) state that cognitive health-related worry affects psychological well-being.

Findings of significant serial multiple mediation analysis (Table 4) further revealed that poor sleep quality is positively associated with loneliness, which further leads to increased cognitive failure and turns into low psychological well-being. Previous research has shown that sleep is vital for overall health, well-being (Tang et al., 2017), and happiness (Lima et al., 2018). Quality sleep restores body energy, helps maintain social functioning, and enhances emotional regulation. Positive social interaction and communication skills reduce feelings of isolation and enhance connection with others. In lack of proper sleep, social functions are affected through emotional disturbance, influencing loneliness. Such lower emotional and social functions harm cognitive functions (Kyröläinen & Kuperman, 2021; Smith et al., 2021). It worsens attention, processing speed, executive functioning, memory, and recall performance. Furthermore, proper sleep duration improves attention and calculation, alertness, immediate recall, and visual concentration, enhancing global cognitive activity (Arnal et al., 2015; Zhang et al., 2021) and overall psychological well-being.

The t-test and ANOVA findings indicate a significant difference among the education levels for loneliness, cognitive failure, and psychological well-being. One possible explanation is that education offers opportunities for social interaction and engagement, which can enhance cognitive functioning such as executive functioning, problem-solving skills, and coping mechanisms. Educated people are more aware of health and have a greater opportunity to have mental health literacy and a sense of self-worth. Moreover, the result of marital status shows that unmarried people have more sleep problems than married people. Poor sleep hygiene, mental health conditions like stress and anxiety, and a lack of structure in one's routine can contribute to adults' sleep problems.

In addition, a person's occupation significantly affects their cognitive functions. Work-life balance, job dissatisfaction, and a heavy workload are the possible causes. A study by Khumalo et al. (2012) showed that gender and age did not make a difference in psychological well-being, while marital status, education, employment, and environmental setting significantly differentiated psychological well-being. Another study shows that low socioeconomic status, younger age groups, and females are risk factors for adverse mental health (Maffly-Kipp et al., 2021; Santangelo et al., 2021).

This study has both practical and theoretical implications. Health and well-being have emerged as significant problems that need immediate attention and intervention. In this connection, the finding suggests that sleep is an integral part of the daily routine of life. A quality night's sleep helps to reduce many physical and psychological problems. Based on the findings, remedies that improve sleep quality can be suggested, including diet, exercise, and other recreational activities that boost the fundamental biological processes of the body, including sleep. Moreover, engaging in more developmental activities like reading, learning, and brain stimulation would significantly reduce loneliness and cognitive failure, further elevating well-being.

Besides these implications, the present study has some drawbacks. The first drawback is that the present study was cross-sectional and insufficient to draw causal inferences for a large population. A longitudinal research design would better explain the causal relation among variables. Second, the study is limited to only young adults (mean age 25.80) with English proficiency. For generalization, a large and heterogeneous sample might be required. Third, this study is the first in which loneliness and cognitive failure were examined as mediators between sleep and psychological well-being. More studies would be needed to support the present study's findings and explore the intervening process through which sleep affects well-being. Fourth, more intervening variables might affect this complex relation, so future studies should include more categorical and continuous variables in a single study. A study with a mixed method design would provide an elaborate understanding of the relation, so upcoming research must be done through qualitative and quantitative designs.

## CONCLUSIONS

The current study demonstrates that sleep quality, loneliness, cognitive failure, and higher education are significant predictors of psychological well-being. Results of multiple serial mediation analyses revealed that loneliness and cognitive failure partially mediate the relationship between sleep and psychological well-being. Findings suggest that a sleep-based intervention with an awareness program for good habit formation would help enhance psychological well-being and minimize the problems of loneliness and cognitive failure. The study also points out the need for immediate remedies for people facing poor sleep and loneliness.

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### Conflicts of interest

None

### Authors contribution

All authors equally contributed to this study. Madhuri Maurya performed material preparation, data collection, and analysis, and a first draft of the manuscript. Vandana Gupta and Madhuri Maurya wrote the final draft. All authors read and approved the final manuscript.

### Ethical approval and consent to participate

The Institute of Medical Science (IMS) at Banaras Hindu University, Varanasi, India, ethics committee approved the study (no. Dean/2021/EC/3100) ensuring that all ethical standard were met.

All participants in the study signed an informed consent form.

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***Original Research Article***


# Emotional Intelligence and its Association with Social Maturity and Optimism Among Tribal (Munda and Oraon) and Non-Tribal Adolescents of Jharkhand, India

Kumari Sristee[1] and Dharmendra Kumar Singh[2]

## ABSTRACT

**Background:** Adolescence is a time when an individual undergoes various hormonal, emotional and other changes.

**Method:** This study was undertaken to explore the relationship among emotional intelligence, optimism, and social maturity and to assess and compare the level of emotional intelligence, optimism, and social maturity between tribal and non-tribal adolescents of Jharkhand (India). 120 adolescents (60 tribal and 60 non-tribal adolescents) were selected using multi-stage sampling (cluster sampling along with stratified sampling) as a sample for the study. A cross-sectional, correlational and comparative research design was employed in the present study. For data collection, tools such as personal socio-demographic data sheet, Emotional intelligence scale, Optimistic-Pessimistic Attitude Scale, and Social Maturity Scale were used. The data were analyzed using correlation, *t*-value, and regression analysis through SPSS Version22 software.

**Results**: Present study shows a significant positive association among emotional intelligence, optimism, and social maturity. Furthermore, there is a significant difference in the emotional intelligence, optimism, and social maturity levels between tribal and non-tribal adolescents. Non-tribal adolescents showed comparatively higher levels of emotional intelligence, optimism, and social maturity, in comparison to their counterparts.

**Conclusion:** It can be concluded that there exists a significant and positive correlation between emotional intelligence, optimism, and social maturity. The level of these psychological constructs was found to be high in non-tribal adolescents than tribal adolescents. In addition, the emotional intelligence predicted optimism and social maturity.

*Keyword:* emotional intelligence, optimism, social maturity

## INTRODUCTION

Earlier, psychology usually focused on issues related to mind pathology and behavior. However, with the development in the field of applied branches of psychology, psychology started focusing more on positive aspects of behavior. Tribes are the groups of the people who live and work together in a particular geographical area and shares common dialect, culture and religion. Indigenous people are often known as tribes. The tribal population according to census 2011 consists of 104 million in India (Narain, 2019). The tribes as we know are often economically inferior, sometimes uneducated, and far away from the modernity of the

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world. They are the earliest inhabitant of the country and continue to follow their own culture and norms and struggles to make their place in the mainstream of society (Garg, 2017). The concepts such as emotional intelligence, social maturity, optimism, and other concepts gained popularity after the applications of an applied branch of psychology.

Adolescence is a period in the life of an individual when he/she realizes what he/she is and what he/she feels (Andarabi, 2015) Adolescents are more prone to emotional issues. Emotional issues also affect other psychological developments such as optimism, social maturity, etc. Emotional intelligence helps an individual to develop the ability to perceive problems of life in a balanced and integrated way (Jisha, 2016). A study in 2011 revealed that there exists a positive relation between optimism levels of students and their levels of emotional intelligence and the optimism level that students perceive predicts level of emotional intelligence meaningfully (Kumacagiz et al., 2011). Another study conducted in 2022 on 177 people (102 women and 75 men) from the Autonomous Community of Andalusia (Spain) found that emotional intelligence was positively related to optimism and negatively related to pessimism (Molero et al., 2022). Evidenced from the study conducted in 2020, it stated that general emotional intelligence and emotional regulation predicts positively happiness and optimism (Gallardo et al., 2022). Social maturity as defined in some studies says that an individual can develop a pattern of habits, manners, and behaviors that help them to fit themselves according to the norms of the society in which they live (Kalyanidevi & Chaitanya, 2008). It is an ability of an individual that shows their level of adaptiveness, socio-emotional competence, and adaptive functioning (Galambos & Costigan, 2003). Social maturity can also be defined as an ability of an individual to relate oneself to acquaintances, family, neighbors, and social heritage in which they live (Kaur & Kaur, 2017). A study in the year 2018 found that to understand the nature of the social world we live in; emotional intelligence is required. It also states that there exists a significant interaction effect between psychological well-being and emotional intelligence on the score of social maturity (Arora & Sharma, 2018). Optimism is the tendency to have a positive outlook towards the future. Seligman defined optimism as a dynamic component of positive psychology with a close relation to constructive cognition towards the future (Ozpehriz, 2020). Many kinds of research have shown that people who are more optimistic, have better physical health, long life expectancy, emotional maturity, and positive social relationships along with the capability to cope with various stresses of life successfully (Assad, 2007). A similar study conducted in 2020 revealed that there exists a positive relationship between emotional intelligence and social maturity among male and female intellectually gifted adolescents but was found to be non-significant (Kaur, 2020). One of the possible reasons for having non-significant association may be that this study was conducted on a specific group that consisted of adolescents having higher intellectual level than the average population. A correlational and descriptive study was conducted among adolescents suffering from depression and social anxiety showed there exists a significant reverse correlation between emotional and social maturity (Sohrabzadeh & Javadi, 2021). A review of literature related to these concepts reveals that studies carried out by researchers in this regard gives contradictory results. Further, no study is reported on these variables in context to the tribal population of Jharkhand. The research in this field is the need of the hour as tribal adolescents go through various emotional turmoil. Sometimes they even face stigma in the society. Considering the importance of emotional intelligence in today's scenario, optimism, and social maturity is other important concept that needs to be studied

especially in the context of the tribal population that consists of a major part of Indian society. This study will help to fill the research and knowledge gap in the literature and will also give insight into the relationship that exists between emotional intelligence, social maturity, and optimism comprehensively. This study would also help to understand if an individual is emotionally intelligent, and whether it will have any effect on their level of optimism and social maturity.

**Objectives**

The study is being conducted with the following objectives: a) To establish the relationship between emotional intelligence and optimism among tribal and non-tribal adolescents of Jharkhand, b) To establish the relationship between social maturity and emotional intelligence among tribal and non-tribal adolescents of Jharkhand, c) To establish the relationship between social maturity and optimism among tribal and non-tribal adolescents of Jharkhand, d) To assess the difference in the level of social maturity, emotional intelligence, and optimism among tribal and non-tribal adolescents of Jharkhand, and e) To know whether emotional intelligence predicts optimism and social maturity.

**Hypotheses**

To meet the above objectives following hypotheses have been formulated: a) There would be a significant relationship between emotional intelligence and optimism, b) There would be a significant relationship between emotional intelligence and social- maturity, c) There would be a significant relationship between optimism and social maturity, d) There would be no significant difference between the level of social maturity, emotional intelligence, and optimism among tribal and non-tribal adolescents, and e) Emotional intelligence would predict optimism and social maturity significantly.

## METHOD

A cross-sectional, correlational and comparative research design was employed in the present study and was carried out in the Ranchi and Ramgarh districts of Jharkhand. A total of 120 samples consisting of an equal number of tribal and non-tribal population ages ranging between 13-17 years were selected using cluster sampling followed by stratified sampling method. The sample composition has been depicted in Figure1.

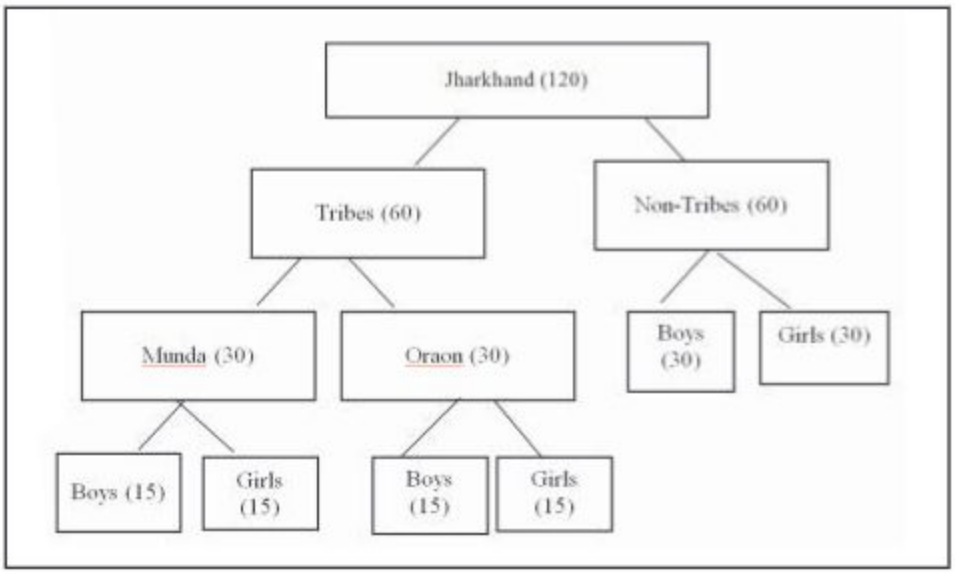


Figure 1- Sample Composition

**Tools and techniques**

**Emotional Intelligence Scale (Singh &Narain, 2014)**

This scale has been developed by Dr. Arun Kumar Singh and Dr. Shruti Narain and consists of 31 items divided into four areas - 1. Understanding emotion, 2. Understanding motivation, 3. Empathy, and 4. Handling emotion. This scale was developed to assess the emotional intelligence of individuals of age 12 years and above. The response was to be given either 'Yes' or 'No.' A score of +1 and 0 was given. The answers of those items which tallied with the answers given in the scoring key were given a score of +1. If they did not tally, they were given a score of 0.

**Optimistic-Pessimistic Attitude Scale (OPAS, Hindi Version, 1998)**

This scale has been developed by D.S Parasar. It consists of 40 items. This scale can be administered in 13 to 25 years. This scale intends to measure the optimistic-pessimistic attitude of the individual which in turn will reflect his belief, personality, and behavior. For items related to optimistic attitude, if the subject chooses 'Agree' he will be given +1 and if he chooses 'Disagree' he will be given 0. For items related to a pessimistic attitude, choosing 'Agree' will result in a score of 0, while choosing 'Disagree' will result in a score of +1.

**Social Maturity Scale (SMS-RN Hindi Version, 1998)**

This scale has been developed by Dr. Nalini Rao. It contains 90 items and it is meant for higher primary, secondary, and pre-university grade students.

It measures (A) Personal adequacy- (1) work orientation (2) self-direction, and (3) ability to take stress. (B) Interpersonal adequacy - (1) communication (2) enlightened trust, and (3) cooperation. (C) Social adequacy- (1) social commitment (2) social tolerance, and (3) openness to change.

For positive items scoring will be done as Strongly Agree=4, Agree=3, Disagree=2, and Strongly Disagree=1. While for negative items scoring will be done as, Strongly Agree=1, Agree=2, Disagree=3, and Strongly Disagree=4.

**Procedure**

As the study population included school going students, different schools of Ranchi and Ramgarh districts of Jharkhand were selected. The school administrations were consulted in order to seek permission to take data from their reputed schools. After seeking their permission, the students were made to understand the process of data collection, relevance and future implications of the study, duration of time required etc. After that a day and time was fixed for collection of data. On different days data was collected from different selected schools. The students who were willing to participate in the study were given the questionnaire. Firstly, they were asked to fill in the socio-demographic detail and then they were asked to sign a consent form. After this they were asked to read the instructions and then items of the questionnaire and answer accordingly. The data was taken in two different sessions as per the convenience of subjects.

**RESULTS**

Data was analyzed using mean, Independent Sample *t*-test, Pearson correlation, and Linear Regression.

Results of study is presented below in tables.

Table 1

Correlation Between Emotional Intelligence and Optimism

| Variables | Emotional Intelligence | Social Maturity |
|---|---|---|
| Optimism | .221* | .184* |
| Social Maturity | .357** | 1 |

Note. *Correlation is significant at the 0.05 level; **Correlation is significant at the 0.01 level

Above table shows that optimism is positively and significantly correlated with emotional intelligence (r=.221, p<.05) and social maturity (r=.184, p<.05) respectively. Hence the first and third hypotheses stands out to be correct that there would be a significant relation between optimism and emotional intelligence and optimism and social maturity respectively. It also shows the positive and significant relationship between emotional intelligence and social maturity (r= .357, p<.01). Therefore, the second hypothesis that states that there would be a significant relationship between social maturity and emotional intelligence is found to be correct.

Table 2

Difference Between Tribal and Non-Tribal Based on Emotional Intelligence, Optimism and Social Maturity

| Variables | Tribal Group (N=60) M± SD | Non-Tribal Group (N=60) M± SD | t |
|---|---|---|---|
| Emotional Intelligence | 21.57±3.280 | 23.15±3.172 | 2.68** |
| Optimism | 25.78±3.72 | 30.02±2.86 | 6.983** |
| Social Maturity | 222.80±20.25 | 270.72±40.84 | 8.14** |

Note: ** Significant at .01 level

Above table shows that there is a significant difference in the level of emotional intelligence (t= 2.68, p< 0.01), optimism (t= 6.983, p<0.01), and social maturity (t= 8.14, p<0.01) between tribal and non-tribal adolescents. It depicts that the level of emotional intelligence, optimism, and social maturity among non-tribal adolescents are comparatively more than that of the tribal adolescents. The formulated null hypothesis that states that there would be no difference between the level of social maturity, emotional intelligence, and optimism among tribal and non-tribal adolescents is not found to be correct as there was a significant difference between the level of emotional intelligence, optimism, and social maturity among tribal and non-tribal adolescents of Jharkhand. So, the last hypothesis is rejected.

Table 3

Regression Analysis

| Predictor (Emotional Intelligence) | R | R Square | Adjusted R Square | Beta Change | F Change | Significance of F Change |
|---|---|---|---|---|---|---|
| Criterion Variable | | | | | | |
| Optimism | .151 | .023 | .015 | .151 | 2.768 | .001 |
| Social Maturity | .332 | .110 | .103 | .332 | 14.619 | .001 |

Note. The above table shows that emotional intelligence predicts optimism (F=2.77) and social maturity (F= 14.62). Predictability of the emotional intelligence is 23% and 11% with regard to optimism and social maturity respectively. So, the last hypothesis that shows that emotional intelligence will predict optimism and social maturity is found to be correct.

## DISCUSSION

The present study was conducted to establish the relationship between emotional intelligence, optimism, and social maturity among tribal and non-tribal adolescents of Jharkhand. And, to compare the level of these variables between tribal and non-tribal adolescents. In the present study, it was found that there exists a positive and significant relationship between emotional intelligence and optimism. The above result is also supported by the studies carried out previously. This result goes in line with the previous studies conducted by Kumacagiz et al. (2011), Tejada-Gallardo et al., (2020) & Molero et al., (2022). An optimistic individual may experience disappointment as well as satisfaction but will have the emotional skills to deal with the situations effectively. A positive and significant relationship was found between emotional intelligence and social maturity. An emotionally intelligent individual can effectively manage and regulate their own emotions as well as that of others. They can behave according to their societal norms. Many similar studies have also found that emotional intelligence enhances the level of social maturity. This result is supported by the studies conducted by Kaur (2020), and Sohrabzadeh

and Javadi (2021). The study also showed a positive and significant correlation between optimism and social maturity. A significant difference was found between the tribals and non-tribals regarding their levels of social maturity, emotional intelligence, and optimism. The level of these variables is higher in non-tribal adolescents in comparison to that of tribal adolescents. The result concords with the previous study carried out by Assad et al., (2007). It may be because optimistic individuals are happier, more successful, and more resilient to stress. They may enhance the level of happiness and positivity in people around them. The difference in the level of emotional intelligence, optimism, and social maturity may be because tribal adolescents have to face stigma, discrimination, isolation, etc. (Garg, 2017) And, non-tribal adolescents are more exposed to the advancements in the field of education, technologies and other fields and have better opportunities than tribal adolescents. opportunities. It was also found that emotional intelligence significantly predicted social maturity and optimism. It can also be said that the more emotionally intelligent an adolescent is, he/she has the capability to handle the turmoil of everyday life which makes him/her socially mature and optimistic.

## CONCLUSION

It was found that there exists a positive and significant relationship between emotional intelligence, optimism, and social maturity. And, there exists a significant difference between the level of emotional intelligence, optimism, and social maturity among tribal and non-tribal adolescents of Jharkhand (India). Also, it was found that emotional intelligence significantly predicted optimism and social maturity.

## IMPLICATIONS

As this study focuses on underprivileged sections of the society, this will help to build up theories that will help in the upliftment of tribal population. A study on emotional intelligence, optimism, and social maturity will help to get insight into those factors that enhance psychological constructs such as emotional intelligence, optimism, and social maturity that will further accelerate the overall development of adolescents. This study will help in the enhancement of human resource development. Also, this study will help the government to work for both tribal and non-tribal adolescents as they are the future of any nation.

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# Pain Catastrophizing and Flourishing Among the Community-Dwelling Older Adults: A Structural Equation Model on the Mediation Effects of Self-Compassion and Resilience

**Sudha R***

## ABSTRACT

**Background:** Aging is a natural process in life. Aging brings with it experience, wisdom, courage, knowledge, and on the flip side pain, illness, and loss. This may bring psychological ill-being and stress. Other than the presence of actual pain, the presence of psychological contributors such as rumination and hopelessness may bring about pain catastrophization. However, the presence of many positive psychology constructs may function as protective factors against pain catastrophization which affects the well-being of older adults.

**Method:** This study attempts to identify if self-compassion and resilience mediate the relationship between pain catastrophization and flourishing. The sample consists of 288 older adults (128 male and 160 females) selected through stratified random sampling from senior citizen community dwellings for older adults.

**Results:** The results indicate that there is a significant negative relationship between pain catastrophization and flourishing, self-compassion, and resilience among older adults.

**Conclusion:** It is concluded that self-compassion and resilience partially mediate the relationship between pain catastrophization and flourishing.

*Keywords:* pain, flourishing, older adults, structural equation model

## INTRODUCTION

Old age is associated with several bodily diseases, aches, and pains, among other problems. Many elderly persons become financially dependent on their offspring when they reach the age of 60 or 65 due to retirement (World Health Organization [WHO] 2022). These issues compound and often have an impact on the well-being of the elderly when coupled with physical diseases, tiredness and exhaustion from decreased functionality, and a sense of uncertainty. Emotional and psychological problems brought on by illness, bereavement, or family problems could add to the load. A lack of well-being or stress, anxiety, despair, and other psychological problems are caused by all these different conditions (Aging in India: State of the Elderly, n.d.).

To manage and enhance their well-being, adults must cultivate positive thoughts and emotions in response to this flood of negativity. A growing issue with aging is aches and pains. Such symptoms are frequently accompanied by anxiety or obsessive thoughts about the discomfort (Lutz & Van Orden, 2020). It is this cumulative onslaught that catalyzes suffering and brings forth what is called pain catastrophization. "An exaggerated negative mental

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set brought to bear during actual or anticipated painful experience" is the definition of pain catastrophization (Sullivan et al., 2001). An individual's explanatory style, or how they interpret and explain events to themselves, gives rise to a clear understanding of their concern for the pain, which is often accompanied by feelings of helplessness or amplification of the pain, all of which contribute to the catastrophization of the pain (Scott, 2006). The discomfort becomes worse for the elderly as they deal with it and because of these negative influxes, their mental health declines (de Mendonça Lima & Ivbijaro, 2013).

Positive psychology, a relatively new area of psychology created by Martin Seligman and associates, suggests that positive well-being is not guaranteed in the absence of negative experiences.. Ensuring "Flourishing," or a mental state marked by healthy emotional and social functioning, is necessary to build well-being. By consciously concentrating on developing and sustaining happy ideas and feelings, one can achieve this state of flourishing, equivalent to an extremely high state of well-being. This state of flourishing can be achieved by deliberately cultivating many positive psychological constructs such as hope, happiness, resilience, compassion, self-compassion, optimism, and more (Seligman, 2002).

This paper attempts to find out if positive psychology constructs such as self-compassion and resilience have a mediating effect on the relationship between pain catastrophization and flourishing among community-dwelling elderly persons.

A brief literature review was conducted by the researchers to better understand the study constructs.. In a research study examining the impact of positive psychology-based intervention modules on senior citizens, Bar-Tur (2021) created a mental fitness program and discovered that it improved senior citizens' overall well-being. According to a review of the efficacy of positive psychology therapies for positive aging, Marks (2021) found that these interventions work best when delivered in senior citizens' homes. In addition, it was stated that these applications of positive psychology are a viable and affordable way to support health promotion initiatives for the elderly. Positive psychology interventions have been shown to mitigate the negative psychological consequences of aging, including loneliness and sadness.

Scheibe et al. (2021) observed in their study on how people responded to the COVID-19 pandemic that older people responded better because they took the opportunity to grow personally throughout the crisis. "The older individuals demonstrated higher resilience scores compared to the younger participants.". Verhiel et al. (2019) found that, of all the positive psychology components, mindfulness and life satisfaction were most essential in their study of the effectiveness of positive psychology intervention for pain intensity and physical limitations among the elderly. Furthermore, it was shown that skill-based therapies emphasizing the development of mindfulness were highly successful in reducing the intensity of pain.

Rowe and Kahn (2017) found in a previous study that interventions improve the process of aging successfully because aging is a multifaceted notion including the physical, social, and psychological domains. According to Reker and Wong (2012), improving the idea of the individual meaning of life can help older people adapt psychosocially. It is argued that this idea of personal meaning consists of two meanings: a situational meaning of life that is dynamic and adapts to the needs of the moment and a global meaning that is generalized. According to Hillman's (2015) comparative study on self-reported well-being, if specific practices are implemented to help develop character strengths and virtues, people between the ages of 82 and 85 may have the highest levels of well-being. In a

positive psychology-based intervention study on COVID survivors, Sudha and Gayatridevi (2021) discovered that interventions centered on compassion, finding a purpose in life, fostering relationships, and elevating positive emotions are successful in lowering detrimental psychological consequences like depression and loneliness.

Based on the above review of literature it can be understood that the elderly are a population that is highly vulnerable due to their physical, and psychological issues. Positive psychology focuses on enhancing positive constructs such as hope, happiness, resilience, optimism, and compassion will affect a contented aging process. It is also clear from the above review that concepts like self-compassion, optimism, hope, and resilience work as protective factors and help cultivate flourishing and well-being in an individual. The author decided to study self-compassion and resilience as mediating factors, as they have been reported to be easily cultivated and have been shown to have higher effects on flourishing (Chan et al., 2022; Austin, et al., 2023).

## METHOD

The present study began with the objectives of identifying the mediation effect of self-compassion and resilience on the relationship between pain catastrophization and flourishing. The hypotheses for the study were as follows: 1) There is a significant relationship between pain catastrophization, flourishing, self-compassion, and resilience 2) Self-compassion and resilience mediate the relationship between pain catastrophization and flourishing

### Sample

The sample comprises 288 older adults selected through stratified random sampling. They were selected from four senior citizens' community living colonies in Coimbatore. These four senior citizen communities were selected as they had a minimum of 1000 elders living in their abode. All the four community dwellings were functioning for more than five years in the city. G power software" was used to calculate the sample size for the study. The sample size for one group was calculated as 232 by keeping the effect size at 0.15, $\alpha$ at 5 %, and power at 80%. One hundred participants from each of these four dwellings were selected randomly. However, many elderly adults could not participate due to ill health, travel to other states, and other personal obligations. Finally, a sample of 288 older adults (128 males and 160 females) in the age group of 60 to 75 years was selected. All of them have been residing in the community-dwelling units for more than two years and all of them participate in community religious activities. Those elders who were unwilling to participate or who had health issues, and those who had to travel out of town during the course of the study were excluded.

### Ethical Clearance

Ethical clearance for the study was sought from the Institutional Human Ethics Committee of the institute of affiliation and procured.

### Tools

The tools for the study included

- The Pain Catastrophizing Scale (PCS) (Sullivan, 1995) consists of 13 items rated on a five-point scale, with three subscales namely, rumination, magnification, and helplessness. Reliability established through Cronbach alpha values is 0.87 and validity is stablished through construct validity (Sullivan, 1995).
- Flourishing Scale (Diener and Biswas-Diener, 2009) consists of 8 items with a 7-point rating scale. The Reliability values of 0.89 and 0.73 were reported by the authors on different populations. The authors also establish sufficient convergent validity (Diner et al., 2009).

- The Self-Compassion Scale (SCS) (Neff et al., 2021) consists of 17 items that assess the self-compassion of youth. The authors of the scale have established test-retest reliability and construct validity of the scale (Neff et al., 2021).
- Brief Resilience Scale (BRS) (Smith et al., 2008), which is made up of 6 tatements, is usedto assess the level of resilience among young adults. The BRS Scale has adequate reliability (a=0.78intra-class coefficient=0.69).

## RESULTS

The data collected was analyzed using the SPSS statistic version 21. he Shapiro-Wilk test of Normality was conducted to ascertain if the sample was normally distributed. For this study, pain catastrophization was taken as the independent variable that influences the dependent variable of flourishing, while self-compassion nd resilience were the mediating variables. Pearson' Product Moment Correlation helped comprehend the interrelationship between variables.

Table 1 shows there is a significant and negative correlation between pain catastrophization with flourishing, self-compassion, and resilience among the elderly. It can be interpreted that as pain catastrophization increases, the flourishing, self-compassin, and resilience levels decrease and vice versa. Hence, the hypothesis, here is a significant relationship between pain catastrophization, flourishing, self-compassion, and resilienceis accepted. In addition, table 1, indicates that there is a significant positive correlation between flourishing, self-compassion, and resilience. It can be interpreted that when the flourishing levels rise, the self-compassion and resilience levels incrase and vice versa.

Next, an attempt was made at the mediation analysis. The "causal steps approach" developed by Baron and Kenny was used to examine the mediation effect of the independent variables. The bootstrap method proposed by Preacher and Hayes was used to assess the mediation effect's statistical significance.

Following three guidelines proposed by Baron and Kenny (1986), the mediating roles of self-compassion (SC) and resilience (R) in the link between pain catastrophization (PC) and flourishing (F) levels were investigated. First, the self-compassion meditation effect was calculated. The first requirement was that there has to be a strong correlation between pain catastrophizing and self-compassion, both of which are independent variables. Second, there must be a substantial relationship between the two variables examined here, namely flourishing, which is the outcome variable, and self-compassion, the

**Table 1**

*Correlation Between Pain Catastrophization and Well-Being*

| Variables | Pain Catastrophization | Flourishing | Self-Compassion | Resilience |
|---|---|---|---|---|
| Pain Catastrophization | 1 | | | |
| Flourishing | -0.62** | 1 | | |
| Self-compassion | -0.45** | 0.72** | 1 | |
| Resilience | -0.39** | 0.64** | 0.86** | 1 |

*Note* : N= 288

**Significant at the 0.01 level

mediator variable. The third condition is that there ought to be a reduction in the strength of the correlation between the two variables when the mediator variable is under control. A reduction in the strength of this relationship is recognized as an indication of partial mediation, and the absence of the relationship, that is no correlation, is a sign of complete mediation. Three regressions are used to test the mediation:

- The independent variable predicts the dependent variable
- Independent variable predicts the mediator
- Independent variable and mediator together predict the dependent variable

The impact of the mediation of self-compassion on the interrelationship between pain catastrophization and flourishing scores was investigated in the model that was developed to determine whether the required conditions were met. We generated four different regression equations, which are shown in Figure 1. The same trio of actions were repeated for the second mediator variable, namely resilience.

The mediation regressions are presented in Table 2.

Table 2 indicates the direct and indirect effects through regressions. The symbols denoted are represented in figure 1 to clarify the mediation relationships. It can be seen that both 'd' and 'e' denote the third regression equation for mediation analysis. It can be observed that the Beta values of "d" (- 0.38) are lesser than the direct relationship of 'a' (- 0.62), which indicates a partial mediation by self-compassion in the relationship between pain catastrophization and flourishing. Also, the Beta values of 'e' (- 0.44) are lesser than the direct relationship 'a' (- 0.62), indicating a partial mediation of resilience in the relationship between pain catastrophization and flourishing. The rule of thumb says that when the regression equation indicates that the independent variable and mediator predicting the dependent variable is lesser than the equation when the independent variable predicts the dependent variable, there is partial mediation (Baron & Kenny, 1986). In both cases, self-compassion and resilience hence partially mediate the relationship between pain catastrophization and

**Table 2**

Regression Coefficients for the Mediation Model With Self-Compassion and Resilience as Mediators

| Variables | Beta | *t* | Significance | Effect | Symbol |
|---|---|---|---|---|---|
| Pain catastrophization- flourishing | -0.62 | -13.37 | 0.000 | Direct | a |
| Pain catastrophization- self-compassion | -0.45 | -8.49 | 0.000 | Direct | b |
| Pain catastrophization- resilience | -0.39 | -7.25 | 0.000 | Direct | c |
| Pain catastrophization- self-compassion-flourishing | -0.38 | -9.21 | 0.000 | Indirect | d |
| Pain catastrophization- resilience-flourishing | -0.44 | -10.31 | 0.000 | Indirect | e |
| Pain catastrophization-self-compassion-resilience-flourishing | -0.37 | -9.20 | 0.000 | Combined indirect | f |

flourishing. It can be interpreted that adults who have better self-compassion and resilience have better flourishing levels despite pain catastrophization. A comparison of values shows that self-compassion leads to better flourishing than only resilience. Moreover, the combined mediation effects are calculated by controlling self-compassion and resilience values as mediators. This yields a still lower beta value (denoted by f, -0.37) indicating that the combined mediating effect of self-compassion and resilience partially mediate the relationship between pain catastrophization and flourishing. Hence the hypothesis, "Self-compassion and resilience mediate the relationship between pain catastrophization and flourishing" is partially accepted. The same relationship is depicted in Figure 1.

**Figure 1**

Mediation Model for the Relationship between Pain Catastrophization and Flourishing


*Note:*

a. is the direct relationship between pain catastrophization and flourishing.

b. is the direct relationship between pain catastrophization and flourishing.

c. is the direct relationship between pain catastrophization and resilience.

d. is the indirect relationship between pain catastrophization, self-compassion and flourishing.

e. is the indirect relationship between pain catastrophization, resilience and flourishing.

## DISCUSSION

The present study concludes that older adults who have a high level of pain catastrophization, have lower levels of resilience, flourishing, and self-compassion. Better levels of resilience, flourishing, and self-compassion lead to lower levels of pain catastrophization. The results section above clearly indicates that self-compassion and resilience partially mediate the relationship between pain catastrophization and flourishing. That is, self-compassion and resilience help to mediate the relationship between pain catastrophization and flourishing. That is, when older adults have high levels of pain catastrophization, still the presence of self-compassion and resilience helps to partially overcome the ill effects of pain catastrophization. Pain among the elderly is a common feature (Dagnino, & Campos, 2022). Physical pain often manifests itself in various psychological aspects such as stress and anxiety, depression, or also simply catastrophization of the pain due to high levels of worry about the pain and its intensity (Quartana, et al., 2009). Such catastrophization often has a detrimental effect on the well-being of the elderly. (Zhang, 2024). Having the guarding factor of positive psychology constructs such as self-compassion and resilience helps the elderly adults attain better flourishing in their lives (Allen & Leary, 2010; Birnie, et al., 2010). A supportive finding by Parsons et al. (2022) revealed in their scoping review that there is a dearth of analysis of the factors involved in the relationship between pain and flourishing, and recommended more studies analyzing this relationship. Similar findings were reported by a study where positive psychology concepts of gratitude and kindness-building activities were given to elderly participants (above 50 years old) who suffered from arthritis. These constructs were very effective in reducing the pain intensity and in reducing the psychological

contributors to pain in the participants. (Hausmann et al., 2018). Furthermore, Gilmour (2015) analyzed the relationship between pain and flourishing and reported that having higher levels of pain reduced the activity levels of the elderly.

The present study is an effort as it tries to identify the factors controlling the relationship between pain catastrophization and flourishing among older adults. There are a few limitations to this study as it uses a limited number of participants and tests only limited psychological issues of the elderly. Further studies using the same intervention can look to overcome these limitations.

## CONCLUSION

The study "Pain Catastrophizing and Flourishing among the Community-Dwelling Older Adults: A Structural Equation Model on the Mediation Effects of Self-compassion and Resilience" yields the following conclusions:

- There is a significant negative relationship between pain catastrophization with flourishing, self-compassion, and resilience among older adults. As the pain catastrophization levels increase, the flourishing decreases.
- The relationship between pain catastrophization and flourishing is mediated partially by self-compassion and resilience.
- It can be concluded that factors such as self-compassion and resilience mediate the relationship between pain catastrophization and flourishing.

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# Depression, Anxiety, Stress, Resilience, and Perceived Parental Attachment in Adolescent Offspring of Men with Alcohol Dependence Syndrome

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## ABSTRACT

**Background:** Alcohol dependence is a family disorder as it affects the entire unit of the family and not just the patient. Children, especially adolescents growing up in alcoholic homes are vulnerable to various mental health problems due to higher chances of exposure to adverse experiences such as domestic violence, abuse, neglect, and financial concerns along with disturbed parent-offspring relationships.

**Method:** To examine the effect of parental alcohol use on stress, depression, anxiety, resilience, and perceived parental attachment of adolescent offspring, 50 adolescents were recruited. Their fathers were undergoing treatment at various deaddiction centers in Delhi for alcohol dependence syndrome as per International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10). The adolescents were made to undertake the Children of Alcoholic Screening Test (CAST-6), Connor-Davidson Resilience Scale (CD RISC-25), Depression Anxiety Stress Scale (DASS 21), and Parental Attachment Scale (PAS) after due assent and consent from parents.

**Results:** The adolescent participants were found to have a higher incidence of depression, stress, and anxiety as compared to the general population of the same age group. Resilience was found to have contribution from the strength of parental attachment and acted as a protective factor against depression. The perceived emotional responsiveness of non-alcoholic parents was significantly higher. The strength of attachment with the non-alcoholic parent and emotional responsiveness in particular had a significant negative correlation with the severity of anxiety, depression, and stress. A study with a large sample size is warranted to assess if impaired perceived parental attachment mediates the effect of parental alcohol use on resilience and depression, stress, and anxiety of the adolescent offspring.

*Keywords:* adolescent children of alcoholics, resilience, perceived parental attachment, depression, anxiety

## INTRODUCTION

United Nations sustainable development goals of 2015 include good health and well-being at number three after poverty alleviation and zero hunger (*Sustainable Development Goals, n.d.*). Health and well-being targets include promoting mental health and well-being. Prevention of mental health problems and early intervention are important in bringing down the prevalence of psychiatric morbidities. Around 19.1% of the Indian population

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is aged 15-24 years, making it a crucial target group for mental health promotion (*Youth in India, 2017*).

A healthy childhood serves as the foundation for a well-adjusted and healthy adulthood and a healthy childhood entails good parent-child relations and absence of parental substance use, protection from physical abuse, and emotional neglect (Merrick et al., 2017). Healthy parental attachment is linked with better adjustment and good mental health in children and adolescents (Spruit et al., 2020).

Alcohol use disorder is one of the most prevalent psychiatric morbidity in the Indian population with a prevalence rate of 4.6 % with adult men having almost double the prevalence rate (Gururaj et al., 2016). Apart from various physical and psychiatric problems in the individuals using alcohol, it creates negative social and psychiatric consequences for the families of such individuals (Eashwar et al., 2020).

Roth (2010) has described substance use as a family disease due to its huge impact on the entire family (as cited in Sarkar et al., 2016). Among family members, children are among the most vulnerable to such harmful impact due to more emotional dependence on parents and limited social support outside of the family context. Alcohol use in parents is linked to physical and sexual abuse of children, along with emotional neglect (Hosman et al., 2009). This results in impaired parental attachment and robs the children of an important source of emotional support that is momentous during the forming years of adolescence and early adulthood.

Parental alcohol use has been linked with insecure attachment style of offspring with the parent using alcohol (Cavell et al., 1993; Hazarika & Bhagabati, 2018). The body of literature on parental alcohol use and parent-child attachment has a consensus on the negative impact of alcohol use by parents on the quality of parental attachment.

Global as well as Indian studies have consistently reported various emotional and behavioral problems in children with parental alcohol use problem (Anda et al., 2002; Huq et al., 2021; Iacopetti et al., 2019; Mansharamani et al., 2018; Omkarappa & Rentala, 2019).

A positive and fulfilling relationship with caregivers is a major determinant of resilience in children. Any factor like parental alcohol use which can affect the parent-child relationship negatively can potentially reduce resilience. Studies report that children of alcoholic parents have significantly lower resiliency scores as compared to the children of non-alcoholics. The gender of alcoholic parents was not found to have any significant impact on the resilience of the children (Redlin & Borchardt, 2019). On the other hand, in his doctoral thesis, Navarro (2014) did not find any significant difference in resilience between children of alcoholics and non-alcoholics (Navarro, 2014).

Considering the established interrelation of perceived parental attachment, resilience, and aspects of mental health, studies exploring the same in the Indian context are scarce. To the best knowledge of the authors, no published study has explored the interplay of these constructs in the offspring of fathers with alcohol dependence syndrome. The role of non-alcoholic parents in alcoholic households has also not been researched enough. A study on the same is expected to reveal if paternal alcohol use is associated with lower resilience and lower mental health of the adolescent offspring and this knowledge can guide early intervention for this vulnerable population.

## METHOD

### Sample

Fifty adolescent offsprings (females=54%, n=27) of male patients with alcohol dependence syndrome (ADS) as per ICD 10 criteria were selected through purposive convenience sampling. Their fathers were undergoing treatment at various inpatient deaddiction centers in New Delhi. The participants

were aged between 13 to 19 years and could read Hindi. The participants with self or parent-reported intellectual disability, epilepsy, or any chronic physical illness or physical disability were excluded. Adolescents with parents with a history of psychosis, or any other substance use except tobacco, chronic physical illness, or physical disability were also excluded from the present study. The mean age of the participating adolescents was 15.88 ± 2.25 years. The majority of participants were from the middle socio-economic stratum (n=33, 66%), urban background (n=33, 66%) and nuclear families (n=37, 74%).

**Tools**

*Socio-Demographic Questionnaire*

A questionnaire was prepared to obtain socio-demographic details of the participants which includes - age, gender, education, type of school, informants, family type, etc. This tool captured the pertinent variables that might have a bearing on the measures used in the present study.

*Children of Alcoholic Screening Tool-6 (CAST-6)*

It is an abbreviated version developed by Hodgins et al. (1993) of the original 30-item scale by Jones (Hodgins et al., 1993). It has six binary response (yes/no) items and was used to ascertain that the participants identify themselves as offsprings of alcoholic fathers. A cut-off score of 3 was taken as mentioned in various studies (Elgán et al., 2021). It was translated into Hindi for use in the present study.

*Depression, Anxiety, Stress Scale 21 (DASS-21)*

The Hindi version of this tool was used to assess the level of depression, anxiety, and stress in the participants. The participants can be categorized into normal or mild, moderate or severe symptoms categories as per the score obtained (Lovibond & Lovibond, 1995).

*Connor-Davidson Resilience Scale 25 (CD RISC-25)*

The Hindi version of this scale was used to measure the resilience of the participants (Davidson, 2020).

*Parental Attachment Scale (PAS)*

Fouladi et al. (2006) developed PAS to assess the nature of the perceived attachment of children with their parents. It has 23 items each in paternal and maternal sub-scales, evaluated on a five-point Likert scale. The scale has four domains namely, emotional responsiveness, rejecting, defensiveness, and forgiveness (Fouladi et al., 2006). It is not available in Hindi and was translated for the present research, omitting the four items of forgiveness dimension which is more pertinent to participants living apart from their parents. A higher score on each dimension shows a positive aspect of that attachment dimension. The scale was separately assigned for both the parents giving three dimensional scores and a total PAS score for each of the parents.

**Procedure**

After approval from the Institute Review Board and Ethics Committee of Atal Bihari Vajpayee Institute of Medical Sciences (ABVIMS) and Dr. Ram Manohar Lohia (RML) Hospital, in New Delhi, various inpatient deaddiction centers of New Delhi, including ones at a tertiary hospital were approached. The management of the centers and the patients were informed about the purpose of the present study. Participants who met inclusion criteria were selected from the pool. Informed assent/consent was obtained from the minor/major participants and consent was obtained from either of their parents. The sociodemographic questionnaire, CAST-6, DASS-21, CD RISC-25, and PAS were administered in one session as per the convenience of the participants.

**Statistical Analyses**

Statistical Package for Social Sciences v.23 (SPSS

Software | IBM, n.d.) was used to analyze the data collected. Descriptive statistics were employed to analyze the socio-demographic and other psychological measures. After ascertaining the respective assumptions for parametric tests, appropriate parametric or non-parametric tests were employed. Wilcoxon signed-rank test was used to compare the scores for father and mother on the dimensions of PAS which were not normally distributed. Related-sample t test was used for the dimensions that were normally distributed. Mann-Whitney U test was employed for comparing gender differences in the study measures which were not distributed normally across the gender groups and the independent sample t test was used for normally distributed measures.

## RESULTS

The mean score on CAST-6 was found to be 4.7 (SD=1.0) with the minimum score being 3 which was also the cut-off for identifying children of alcoholics. It indicates that all of the participants realized that their fathers had a drinking problem. Figure 1 shows the categorization of the participants as per the severity of stress, anxiety, and depression based on the DASS 21 scores. The proportion of participants screening positive for stress, anxiety, and depression (mild or higher severity) was found to be 58%, 68%, and 78%, respectively. Table 1 summarizes the sociodemographic details of the participants of the present study.

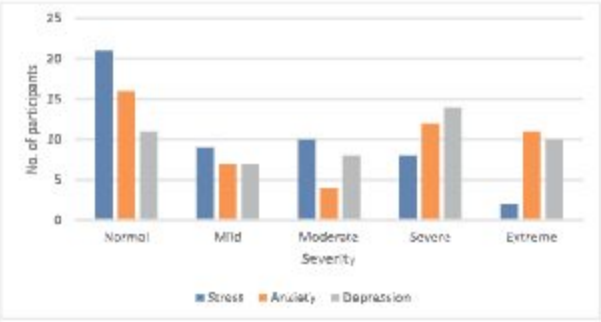


Figure 1: Severity of Stress, Anxiety, and Depression Among the Adolescent Participants

**Table 1**

*Sociodemographic Details of the Participants*

| Characteristics | n | Percentage |
|---|---|---|
| Gender | | |
| Female | 27 | 54 |
| Male | 23 | 46 |
| Religion | | |
| Hindu | 43 | 86 |
| Muslim | 5 | 10 |
| Christian | 2 | 4 |
| Socioeconomic status | | |
| Lower | 17 | 34 |
| Middle | 33 | 66 |
| Upper | 0 | 0 |
| Residence | | |
| Rural | 17 | 34 |
| Urban | 33 | 66 |
| Family type | | |
| Nuclear | 37 | 74 |
| Joint | 13 | 26 |

The descriptive statistics of the study variables and the Spearman correlation between them are shown in Table 2. The findings reveal a weak negative correlation between resilience and depression ($p<0.05$). Resilience has weak correlations with total paternal and maternal attachment scores, suggesting the role of positive parental attachment in fostering resilience in adolescent offspring. Adolescents with stronger attachment with their mothers tend to have stronger attachment with their fathers too ($r=.67$, $p<0.01$). The anxiety and depression scores have a weak negative correlation with perceived maternal attachment (PAS_M) indicating the protective role of attachment with non-alcoholic parents as a protective factor against anxiety and depression. The perceiver paternal attachment (PAS_F), however, does not have a

significant correlation with any of the dimensions of DASS 21. Among the dimensions of PAS, the maternal rejection dimension of PAS has a significant moderate correlation with stress, anxiety as well as depression scores, suggesting maternal acceptance to be the most important protective factor against these conditions in the offspring of alcoholic fathers.

**Table 2**

Descriptive Statistics and Spearman Correlations for the Study Variables

| Variable | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Resilience | 64.3 | 15.63 | - | | | | | | | | | | | |
| 2. Stress | 8.3 | 4.79 | -.05 | - | | | | | | | | | | |
| 3. Anxiety | 6.46 | 4.65 | .03 | .70** | - | | | | | | | | | |
| 4. Depression | 8.78 | 4.80 | -.30* | .55** | .63** | - | | | | | | | | |
| 5. ER_F | 30.22 | 8.57 | .27 | -.13 | -.16 | -.10 | - | | | | | | | |
| 6. ER_M | 32.04 | 32.04 | .30* | -.01 | -.25 | -.08 | .67** | - | | | | | | |
| 7. R_F | 22.32 | 6.17 | .15 | -.23 | -.11 | -.26 | .08 | -.02 | - | | | | | |
| 8. R_M | 21.68 | 6.63 | .16 | -.50** | -.45** | -.49** | .06 | .20 | .71** | - | | | | |
| 9. D_F | 16.3 | 6.30 | .24 | -.01 | .04 | -.12 | .40** | .28* | .20 | -.03 | - | | | |
| 10. D_M | 18.08 | 5.23 | .31* | -.01 | -.06 | -.13 | .56** | .39** | -.09 | -.02 | .58** | - | | |
| 11. PAS_F | 68.84 | 14.52 | .34* | -.17 | -.10 | -.23 | .73** | .48** | .54** | .31* | .79** | .50** | - | |
| 12. PAS_M | 71.8 | 13.73 | .39** | -.26 | -.39** | -.39** | .59** | .76** | .39** | .63** | .39** | .57** | .67** | - |

*Note :* ER=Emotional responsiveness, R= Rejection, D= Defensiveness dimensions of PAS. PAS= total parental attachment score on PAS. F indicates scores for the father while M indicates scores for the mother of the participants

*= significant at 0.05 level, **=significant at 0.01 level

**Table 3**

Results from Comparison of Scores on Dimensions of Parental Attachment Scale (PAS) Between Mothers and Fathers of the Participants

| Variable | Mean difference/ Test statistic[z] | t/Standardized test statistic[#] | Sig.(2-tailed) |
|---|---|---|---|
| ER_F-ER_M | -1.82 | -2.09 | .041 |
| R_F-R_M | .64 | 1.12 | .269 |
| D_F-D_M[z] | 314.0 | 3.01 | .003 |
| PAS_F-PAS_M | -2.96 | -1.92 | .060 |

Note. ER=Emotional responsiveness, R= Rejection, D= Defensiveness dimensions of PAS. PAS= total parental attachment score on PAS. F indicates scores for the father while M indicates scores for the mother of the participants

# Wilcoxon signed rank test as D_F and D_M distributions were not normal

Comparative analyses were done between the perceived attachment scores towards the alcoholic parent i.e. the father and the non-alcoholic parent which is the mother. Table 3 illustrates the result of these analyses. The t-test results reveal a significant difference between the perceived emotional responsiveness of the alcoholic (ER_F) and the non-alcoholic parent (ER_M), with the non-alcoholic parent being more emotionally responsive. The output of the Wilcoxon signed rank test on the defensiveness dimensional score reveals more defensiveness towards the alcoholic parent ($p<0.01$)

The difference between the scores of male and female participants on various measures was analyzed to see if a gender difference exists in study variables as shown in Table 4. The results suggest that female participants found both of their parents to be less emotionally responsive as compared to the male participants. The total perceived attachment scores for both parents show a consistent pattern, with sons showing stronger perceived attachment to both parents compared to daughters. Adolescent sons were more defensive of their mothers as compared to their daughters. The other comparisons did not yield significant results.

**Table 4**

Comparison of the Study Variables between Female and Male Participants

| Variable | Female | | Male | | *t*/ Std. test statistic# | Sig. (2-tailed) |
|---|---|---|---|---|---|---|
| | Mean/Mean rank# | SD | Mean/Mean rank# | SD | | |
| Resilience | 62.7 | 14.5 | 66.2 | 17.0 | -.78 | .44 |
| Stress | 18.8 | 8.5 | 14.0 | 10.3 | 1.81 | .08 |
| Anxiety | 12.7 | 8.6 | 13.1 | 10.2 | -.15 | .884 |
| Depression# | 26.4# | | 24.5# | | -.45 | .653 |
| ER_F | 27.1 | 7.2 | 33.9 | 8.7 | -3.04 | .004 |
| ER_M | 29.9 | 6.8 | 34.6 | 9.0 | -2.22 | .039 |
| R_F | 22.9 | 4.7 | 21.7 | 7.6 | .70 | .486 |
| R_M | 21.9 | 5.3 | 21.5 | 8.1 | .20 | .845 |
| D_F# | 22.1# | | 29.5# | | 1.79 | .074 |
| D_M# | 20.1# | | 31.9# | | 2.86 | .003 |
| PAS_F | 64.7 | 13.4 | 73.7 | 14.6 | -2.25 | .029 |
| PAS_M | 68.0 | 10.9 | 76.3 | 15.5 | -2.20 | .033 |

*Note:* ER=Emotional responsiveness, R= Rejection, D= Defensiveness dimensions of PAS. PAS= total parental attachment score on PAS. F indicates scores for the father while M indicates scores for the mother of the participants

# Mann-Whitney U test used as Depression, D_F and D_M distributions were not normal across the genders

## DISCUSSION

Existing literature suggests a negative impact of parental alcohol use on the mental health of children with a higher prevalence of stress, anxiety, and depression in children of alcoholic parents than general adolescent population. However, in the present study, the prevalence of clinical levels of stress, anxiety, and depression is much higher than that reported by various studies on children of alcoholics. The fathers of the participants in the present study had a much more serious level of alcohol dependence that warranted inpatient deaddiction services as compared to the studies by Omkarappa and Rentala. Being in a rehabilitation facility also means being out of employment. These factors might have contributed to the higher prevalence of psychological morbidity in the participants of the present study. The positive association of resilience with total perceived attachment scores for mothers as well as fathers reiterates the importance of secure parental attachment as a contributor to resilience.

The *t* test shows a stronger attachment of the participants with their mothers as compared to their fathers. However, the result fell short of the significance marginally ($p$=0.06<0.05). The participants also reported higher perceived emotional responsiveness in the mothers as compared to the fathers. Thus, adolescent offspring tend to have better attachment with the non-alcoholic parent as compared to the alcoholic parent. In their study on Goan adolescents, D'costa and Lavalekar also observed withdrawal from and avoidance of the alcoholic parent. The total perceived attachment with the mother who is the non-alcoholic parent in the present study, has a significant negative correlation with the anxiety and depression scores highlighting the importance of attachment with the non-alcoholic parent as a protective factor against these conditions.

Exploration of data from the lens of the gender of the participants revealed no differences in depression, anxiety, stress, and resilience scores between male and female participants. The female participants reported both of their parents to be emotionally less responsive as compared to the male participants. A possible reason is the perceived inconsiderate overburdening of daughters with household work. The mothers need to take care of extra responsibilities due to the non-availability of the fathers and take up paternal roles as well, leading to the transfer of maternal roles to the daughters of the household to some extent as observed in a qualitative study by Nattala et al. At the same time, the male participants were more defensive of their mothers.

## CONCLUSION

The present study aimed at exploring depression, anxiety, stress, resilience, and perceived parental attachment in adolescent offspring of men with alcohol dependence. The results revealed that the adolescents in such households are more vulnerable to mental health problems irrespective of their gender. The role of parental attachment in resilience was highlighted. The attachment with a non-alcoholic parent was found to be stronger than that with an alcoholic parent. Attachment with alcoholic parents was indicated to be a protective factor against anxiety and depression. A larger sample study is warranted to explore the factors that affect the perceived parental attachment in adolescent offspring of alcoholic parents with a comparison between children of alcoholic fathers and alcoholic mothers.

## CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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# A Systematic Literature Review of Empathy in Psychopathy and Autism Spectrum Disorder: Is it Same or Different?

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## ABSTRACT

**Background:** A persistent deficit in social interaction manifested in various contexts is one of the main diagnostic characteristics for two psycho-pathological conditions—autism spectrum disorder (ASD) and Psychopathy. Research suggests that deviance in empathy plays a significant role in maintaining such deficits in social interactions.

**Objective:** The purpose of this paper was to explore whether the empathy associated with ASD and psychopathy differed in significant ways through a systematic literature review.

**Methods:** Three databases, i.e., Scopus, Pub-Med, and PsychInfo, were utilized for relevant study records. Altogether 138 records were identified out of which 16 studies were retained after complete screening of all records based on inclusion and exclusion criteria.

**Results:** A qualitative synthesis of these 16 studies revealed an association of lower cognitive empathy with ASD and lower affective empathy with psychopathy. An intriguing link between affective empathy and higher moral understanding was also found. The review also reveals a lack of studies in this area.

**Conclusion**: The review highlights an important distinction in the absence of empathy as experienced in ASD and psychopathology. The study results have implications for psychotherapeutic interventions for ASD and psychopathy.

*Keywords:* Autism spectrum disorder, Anti-social personality disorder, empathy, morality, psychopathy, disorders

## INTRODUCTION

Any behavior to be labeled pathological should have characteristics of deviant behavior, i.e., tending away from categorized 'standard or normal behavior' (Davis, 2010). It should also effect one's adaptability in society and pose distress or danger to oneself and others (DSM-5, American Psychiatric Association, 2013). Under DSM 5, autism spectrum disorder (ASD) is categorized under neurodivergent disorders. Although psychopathy is not mentioned under DSM 5, a similar condition known as Anti-Social Personality Disorder (ASPD) is categorized under personality disorders. Due to the similarity and comorbidity between psychopathy and antisocial personality disorder, these two terms are used synonymously. Regardless of that, they do have subtle yet important differences which characterize them as two different conditions. Psychopathy is theorized to be an intrinsic personality and affective deficient-

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based disorder, while antisocial personality disorder is predominantly diagnosed based on a set of behaviors (Abdalla-Filho & Völlm, 2020).

ASD and Psychopathy share an important characteristic of persistent deficient social interaction in multiple facets of building and maintaining interpersonal relationships. In both conditions, studies suggest a presence of atypical empathy ( Batson, 2010; Singer & Lamm, 2009; Rumble et al., 2009). Atypical empathy is a state where the normal functioning of empathy, i.e., to understand and resonate with others' emotional state, is defective (Batson, 2010). Empathy is a social, affective state and has two main components—understanding others' state of mind and resonance with their affective state (Hall & Schwartz, 2018). The two stated components of empathy help in its functional role of 'knowing' and 'feeling' what others are feeling (Shah et al., 2019).

Deviant empathy manifests in certain atypical mannerisms during interactions (Van Dongen, 2020). Psychopathy and ASD both show atypical mannerisms during social interactions, but the nature of interactions in these two conditions shows a wide range of variation (Lockwood et al., 2013). Accounts of experience while interacting with an individual with a high psychopathic trait are completely different from those of a person with an autism spectrum. Experiences of interaction with a psychopath have recorded people to have a feeling of dread, fear, and 'the chills' (Hare, 1996), whereas people have given accounts of their interactions with people with ASD as awkward or overwhelming (Berman et al., 2018; Lipinski et al., 2020). While the experience of interaction in both of these disorders is in a way deviating from what is considered to be a 'normal interaction,' the nature of these deviant social interactions is completely different. One way of defining these experiences is what others perceive after reading the emotional expressions of these individuals. In both the disorders, psychopathy and ASD, studies show that individuals show a range of inappropriate affect (Hart et al., 2012; Zane et al., 2017).

Inappropriate affect has been studied within the population with psychiatric disorders. Although such affective states can be difficult to study due to their subtle differences, there are still some prominent behavioral features that make it evident. Inappropriate affective states, like 'shallow affect', are primarily associated with psychopathic traits. This type of affect is described as an individual lacking any kind of emotional depth or range in emotional expression (Hart et al, 2012). People are also described to be emotionally shallow and show no genuine empathy or remorse for the suffering of others (Blair, 2005). ASD is also associated with inappropriate affect, but the individual does not show an extreme lack of but rather a flattened, blunted, or reduced affect (Zane et al., 2017). While there is still much work required in this area, the question remains how the same etiology, i.e., deficient empathy, could lead to two distinct affective responses.

One apparent condition associated with ASD is the inability to pick up social cues, empathy is yet again one of the main factors necessary for the recognition of social cues (Von Dem Hagen et al.,2013). The absence of such functioning makes maintaining social relationships much harder and is also seen to impact social-emotional connection bonds (Hobson, 2009). The ability to recognize social cues is associated not just with maintaining healthy relationships but has also been seen to be useful for deliberate manipulation (Hawes et al., 2014). One major difference between ASD and psychopathy is the presence and the absence of manipulation. Psychopathy has always been characterized by highly manipulative tendencies (Hare, 1996) and an enhanced ability to pick up social and emotional cues (Dawel et al., 2012), whereas ASD is seen to be devoid of any manipulative tendencies (Chevallier

et al., 2012). Psychopathic traits are infamously linked with the inability to establish long-term, meaningful relationships (Patrick et al., 2009). The ASD is also linked with having difficulties in maintaining relationships (Lord et al., 2018).

Psychopathy and ASD are categorized as having dysfunctional empathy. Although they have the same etiology, the deviant social behaviors manifested are completely different, which are also their respective diagnostic features. Deviation in social interactions is a very broad term as seen above, there are multiple layers of deviations in social interactions. Psychopathy and ASD both differ drastically in terms of the multifaceted social interaction and relationship with other individuals. The core objective of this paper is to evaluate the differences in the empathy present in psychopathy and ASD, which seem to have consequences on the manifestation of varied social behavior. This paper aims to bring all the studies done on the same topic from different paradigms such as psychological, neurological, philosophical, and criminology to get a comprehensive picture of empathy relating to the two disorders, and their functional importance on a social level.

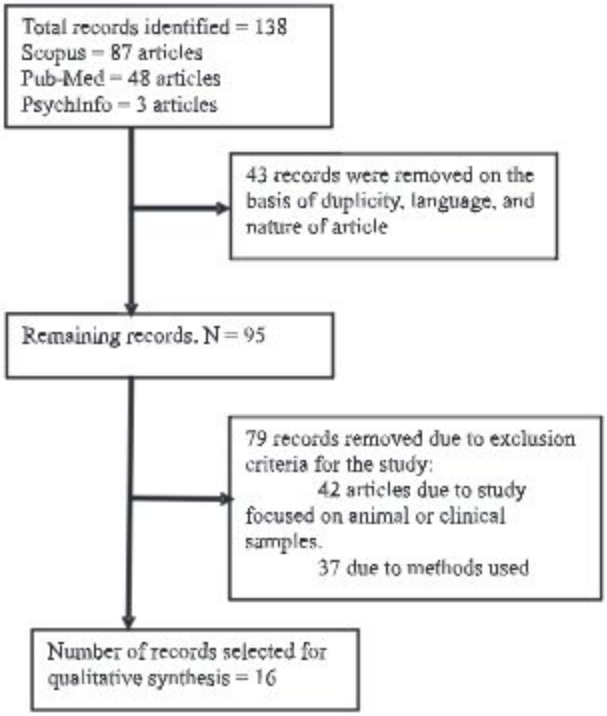
## METHOD

We used a systematic literature review to answer the research questions. Preferred reporting items for systematic and meta-analysis guidelines (PRISMA) were used for the selection of study records (Moher et al., 2009). Figure 1 depicts the PRISMA model used in the present study. Inclusion and exclusion criteria were solidified to extract research records. We selected records that were in the English language and were conducted on human participants. Both qualitative and quantitative methods were included. Criminology and neuroscience records that used non-human subjects, studies with vague sample descriptions, psychometric studies, and studies focusing on therapy and counseling were excluded from our review as these studies did not meet the objectives of our research.

Three databases, Scopus, Pub-Med, and PsychInfo, were explored for relevant study records using the search terms "Psychopathy AND Autism AND Empathy." Altogether 138 records were identified, 87 records came from the Scopus database, 48 from PubMed, and 3 from PsychInfo (as of May, 2023). We removed 43 records based on language, duplicity, and nature of the article. Thus, we were left with 95 records. We excluded 79 records based on the exclusion criteria set for the study. Finally, we were left with 16 records for the qualitative review.

Figure 1.

PRISMA flowchart depicting the flow of study




Reference: Moher D, Liberati, Tetzlaff J, Altman DG, The Prisma Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PloS Med 6(7): e1000097. doi: 10.1371/journal.pmed1000097

## RESULTS

The results of the study are provided in Table 1. The findings of the study provided a comprehensive explanation for the differences in empathy for psychopathy and ASD. It also suggested how the same etiology, i.e., defect in empathy, elicits different manifestations of deviant social behaviors. The result of the review suggests that this is due to deficits in two different sub-components of empathy, a) affective empathy, which is seen to be a deficit in psychopathic traits, and b) cognitive-perspective taking (empathy), which tends to be deficient in ASD (Jones et al., 2010; Lockwood et al., 2013). The differences between these two sub-components of empathy are quite prominent.

ASD and psychopathy are both empathy deficit disorders with deviant social behavior (Lockwood et al., 2013). Although they are completely different mental disorders, certain similar characteristics bind them together. Manifestations of atypical empathy in different aspects, such as mirroring responses show that both ASD and psychopathy show deficiencies in mirroring responses also known as somatosensory and motor responses, like traits are associated with not being responsive to contagious yawning (Sun et al., 2022; Helt et al., 2021). ASD and Psychopathy also show a negative association with emotion attribution (Jones et al., 2009). After conducting a deeper analysis of the studies conducted on this topic, the findings suggested that there might be a certain overlap of deficient empathy neural systems in ASD and psychopathy (Skjegstad et al., 2022). Neural studies also suggest overlap in etiology and a certain level of genetic similarities but none of these similarities are statistically significant (O'Nions et al., 2015; Jones et al., 2009; Skjegstad et al., 2022). When these two disorders are studied broadly, they both show many similar patterns. However, when studies are conducted at a detailed level do differences between the two become apparent.

Empathy is divided into two components, one referred as 'cognitive perspective-taking', a process used to identify and understand others' mental state, while the other is associated with the resonance of emotions called 'affective resonance' (Jones et al., 2010; Lockwood et al., 2013). These two components are also shown to have two different neural pathways, where Affective empathy reflects a stronger association with the social-emotional area (Ventral anterior insula, orbitofrontal cortex, amygdala, and pregenual anterior cingulate), and Cognitive empathy is associated with social-cognitive processing (Brainstem, superior temporal sulcus, ventral anterior insula) (Cox et al., 2011). When these components of empathy are studied in ASD and psychopathy, that is where the differences in these two disorders are reflected. Psychopathy is associated with higher 'cognitive perspective taking' as compared to ASD, but when it comes to 'affective resonance' ASD shows a higher association with it than psychopathy (Lamm et al., 2016; Vyas et al., 2017; Jones et al., 2010; Lockwood et al., 2013). These studies are further followed by some neurological evidence, which suggests that certain parts of the brain, which are associated with empathy show a much more reduced activation in psychopathy as compared to ASD traits (Sun et al., 2022; Noppari et al., 2022).

An assertion has been made that affective empathy has been associated with one's 'agency' on moralistic attitude and behavior, even with the absence of cognitive empathy (Aaltola, 2013). Although there is no direct evidence suggesting these associations there has been speculation on the difference in moral approaches between ASD and psychopathy traits. These studies indicate that psychopathy has reduced moral judgment as compared to autistic traits, whereas, ASD was indicated to have increased concern and arousal of emotions such as guilt and regret (Vyas et al., 2017; Jameel et al., 2019)

Table 1

Summary of Studies included in the Synthesis

| Author | Sample | Tools | Results |
|---|---|---|---|
| Sun et al., (2022) | 19 male offenders with high psychopathic traits, 20 males with high-functioning autism, and 19 healthy controls. | Vocal expression task, Facial mask task and fMRI | Somatomotor, "mirroring" of vocal and facial positive and negative emotional expressions was altered in both experiment groups. Somatosensory and motor responses were reduced in psychopathy offenders than in the ASD group. |
| Skiegstad et al., (2022) | The total sample size 133, 47 males and 66 Females, age range of 18 to 40 years | Sound processing experiment - set of 500 ms sound recording; 70 human voice sounds and 70 non-human voice sounds (animal, artificial, natural/environmental sound) | Primary psychopathy shows neural deficits in all social processing sub-networks and a lack of affective empathy. There were no deficits in empathy and affective neural processing mechanisms. There were some observed deficit neural overlap between ASD and secondary psychopathy but it was not statistically significant. |
| Noppari et al., (2022) | 20 individuals with ASD, 19 violent offenders with psychotic traits. | Phillips Ingenuity TF Pet/MR 3 T Scanner. | ASD and psychopathy have similar (Grey Matter Volume) GMV in motor areas when compared to controls. Offenders with psychopathic traits have lower GMV in frontotemporal areas associated with social cognition as compared with ASD participants<br>. |
| Jones et al., (2010) | 96 male participants aged 9- 16 years with psychopathic tendencies, conduct problems, and ASD. | Child symptoms inventory 4 (CSI); Adolescent symptom inventory 4 (ASI); Inventory of callous/ Unemotional Traits (ICU) | Boys with ASD were associated with lower Cognitive Perspective-taking. Boys with psychopathic tendencies were associated with a deficit in affective empathy. |
| Jones et al., (2009) | 642 twin pairs, 98 pairs of monozygotic (MZ) boys, 89 pairs of MZ girls, 126 pairs of dizygotic, dizygotic (DZ) boys, 104 pairs of DZ girls, and 225 pairs of opposite-sex twins | The Anti-social process screening device (APSD); The childhood Asperger syndrome test (CAST); Task to assess emotion attribution through 25 vignettes adapted from available literature | Psychopathy and ASD, both show a negative phenotypic association with emotion attribution<br>Moderate and non-significant amount of genetic overlap between ASD and psychopathy |

| Author | Sample | Tools | Results |
|---|---|---|---|
| Bird and Viding (2014) | - | - | This model suggests emotional contagion develops by associative learning, effective states of another, corresponding others' affective state with self. This emotional contagion converts into empathy by activating the self-other switch, where the affective state experienced by themselves is tagged to belong to others. |
| Lockwood et al., (2013) | 55 adults in the age group of 18-33 years (55 females and 55 males) | Theory of mind (TOM) animation task to test cognitive perspective taking; Self-assessment making faces task to test affective resonance task; Self-report psychopathy scale-short form (SRP-4-SF); The Autism Spectrum Quotient (ASQ). Toronto Alexithymia Scales (TAS) | ASD traits were associated with reduced cognitive perspective-taking but not affective resonance. Psychopathic traits were associated with reduced affective resonance but not cognitive-perspective taking. |
| Aaltola (2014) | - | - | Individuals without a capacity for higher-order thought, like in certain conditions or disorders. Where they might have some trouble with Theory of mind but are capable of affective empathy, in these cases, those individuals are seen to be capable of moral agency. |
| Oliver et al., (2016) | 90 healthy individuals with a mean age of 21.7 years (54 females and 36 females) | Multifaceted empathy test (MET) Psychopathic personality inventory-revised (PPI-R). Autism Spectrum Quotient (AQ). | Cold-heartedness, elicitation of empathic concerns, and affective sharing are negatively correlated with psychopathic traits. No significant relationship between emotional empathy and ASD traits. |
| Lockwood (2016) | - | - | Vicarious experience is seen to be related to measure. Vicarious experience appears to be atypical in both psychopathy and ASD. Both disorders are related but are deficient in different aspects of empathy. |
| Jameel et al., (2019) | 20 high-scoring and 18 low-scoring individuals with autistic traits. 21 high scoring 19 low-scoring individuals with psychopathic traits | The "counter factual judgment" task. The interpersonal reactivity index (IRI) | Individuals with High vs. Low autistic traits blamed characters more for their mistakes. Those with High vs. Low psychopathic traits gave low scores for moral judgment of guilt and regret. |

| Author | Sample | Tools | Results |
|---|---|---|---|
| Vyas et al., (2017) | 828 universities were recruited through opportunistic sampling (58.60% were females) Participants were screened via self-report questionnaire for psychopathy and autism | Utilitarian decision-making task; The interpersonal reactivity index (IRI); Maslach burnout inventory (MBI). | Psychopathic traits had lower emotional but normal cognitive empathy ratings.<br>High autistic trait groups reported higher personal distress.<br>Psychopathic traits judged the wrongdoing less harshly as compared to autistic trait group |
| Helt et al., (2021) | 100 college students of ages 18-23 (50 females and 47 females) | The autism-spectrum quotient; The psychopathic personality inventory revised (PPIR); The interpersonal reactivity index (IRI); Applied Science Laboratories (ASL) desktop eye tracker; Computer to present stimulus; | ASD and psychopathic traits are less likely to yawn contagiously.<br>Participants with high autistic traits and high psychopathic traits have non-overlapping patterns of susceptibility to contagion. |
| Cox et al., (2011) | 38 healthy adults | The interpersonal reactivity index (IRI), where the dimension of personal distress and fantasy subscale were excluded; Siemens Allegra 3-T scanner; R-fMRI | Affective empathy reflected stronger association with social-emotional areas (ventral anterior insula, orbitofrontal cortex, amygdala, and pregenual anterior cingulate).<br>Cognitive empathy was associated with social-cognitive processing (Brainstem, superior temporal sulcus, ventral anterior insula) |
| Lamm et al., (2016) | - | - | Empathy is shared emotions with others, but correct distinction between self and others representation is essential. Reduction in other-oriented responses could lead to ASD traits. Deflecting in affective sharing leads to psychopathic traits. |

## DISCUSSION

ASD and Psychopathy both are characterized as disorders deficient in social interaction. This problem in social behavior is often subjected to the presence of atypical empathy (Singer & Lamm, 2009; Batson, 2010). One of the findings of the study was that there is a lack of proper functioning of empathy in ASD and Psychopathy (Lockwood et al., 2013). Further analysis suggested that there are subtle differences in the atypical functioning of empathy in both of these cases (Jones et al., 2010 & Lockwood et al., 2013). The difference between the two disorders was associated with each of two components of empathy i.e. affective empathy and cognitive empathy or cognitive perspective-taking (Jones et al., 2010 & Lockwood et al., 2013).

The review question was first formulated due to the presence of what initially appears to be the same diagnostic characteristics and etiology i.e. atypical functioning of empathy. One might assume that social behavior should manifest similarly, but evidences suggests that to be not true (Oliver et al., 2016). ASD and Psychopathy, both are associated with deficits in social interactions. This is also quite evident in their outwardly manifested social behavior, which is most often observable in low-functioning and sometimes even in high-functioning individuals. Social behavior of ASD and Psychopathy, which were manifested as a result of atypical functioning of empathy is very distinct. Interactions with individuals with ASD and Psychopathy would be two completely different experiences due to the variance in their reflective affective state (Berman et al.,2018 & Lipinski et al., 2020). Along with this behavior such as picking up social cues and manipulation (Dawel et al., 2012; Chevallier et al., 2012; Whitbourne, 2017), maintenance of long relationships (Pollmann et al., 2009 & Patrick et al., 2009) indicate these two disorders to be distinct from each other. A gap in the literature was seen here, where a proper study needs to be done to make a conclusive distinction between different affective styles such as shallow and flattened. As of now these similar affective states with nuanced differences are used interchangeably, with no proper definition or distinction, which made it difficult to come to a conclusive difference in affective states.

The main question of the paper, i.e., why does the same etiology of deviant empathy lead to a distinct set of social behaviors? The answer lies in the sub-processes and atypical functioning of one of these empathy components in the two social deficit disorders, psychopathy and ASD. Atypical functioning of affective resonance or affective empathy is associated with psychopathy and atypical presence of cognitive perspective-taking or cognitive empathy is associated with ASD. Both of which lead to the manifestation of two different behavioral characteristics. Empathy as a social affective tool, functions to maintain proper social interaction, which is essential for building relationships with other individuals. (Refer to Table 1.) Bird & Viding (2014) gave 'The self to the other' model according to which emotional contagion is the precursor of empathy. Emotional contagion develops through associates. The initial step is the perception of others' emotions and feeling it yourself, followed by the self-other swift, where the person separates their emotional responses as different from others' emotions (Bird & Viding, 2014). This model elaborately explains cognitive functioning in play, leading to an understanding of the other person's mental state, affective resonance, and distinguishing between self and others' emotional states (Bird & Viding, 2014). This model paves the way for the two sub-components of empathy i.e. a) affective resonance and b) cognitive perspective-taking. Leading to this, there are studies that provide evidence for these subprocesses of empathy to be associated with different brain regions that work towards different goals but ultimately perform the function of empathy (Cox et al., 2011).

Atypical processing of affective resonance or affective empathy is associated with psychopathy, whereas ASD is associated with the presence of atypical Cognitive perspective-taking or cognitive empathy (Lamm et al., 2016; Vyas et al., 2017; Jones et al., 2010; Lockwood et al., 2013). These studies have also been studied on a neurological level, where these two sub-processes of empathy are associated with different brain regions. Neurological studies also provide evidence that suggests the presence of atypical functioning in two sub-processes of affective and cognitive empathy in psychopathy and ASD respectively (Cox et al., 2011) (Refer Table 1).

The presence of a deficit in either of these two is not just associated with unconscious motor behavior such as yawning but also with higher conscious behaviors such as manipulation and reflective affective state of the individual during an interaction. Along with these, affective empathy is linked with moral agency in a philosophical argument (Altola, 2013). To establish a more fundamental scientific foundation, some studies show that individuals with the psychopathic trait are associated with low moral judgment and tend to show low remorse and judge wrongdoing less harshly, whereas an individual with ASD shows an opposite reaction, where they show more guilt, remorse and also tend to judge the wrongdoing more harshly for various tasks (Vyas et al., 2017; Jameel et al., 2019). Cognitive perspective-taking also on its right serves important functions, where it helps with picking up social cues and understanding one's mental state (Dawel et al., 2012) which is important in conducting one's behavior according to the mental state of another individual. This also explains how an abundance of these processes, where one can have an elaborate understanding of others' mental states could help one to manifest extreme behavior of manipulation.

The academic literature is well-versed in the importance of empathy and functioning in social interactions and relationships. There is also a vast body of literature studying the association of empathy and its importance in moral behavior, surprisingly very few have targeted these sub-components of empathy and their role in social and moral behavior. Especially with how it explains the difference between psychopathy and ASD. Psychopathy has been associated with regularly breaking the moral code and criminal behavior. This paper is an effort to combine relevant studies and associate them in a way that will explain the importance of these sub-components while also filling a few gaps in the literature. This also provides a future direction to put more focus on the functional characteristics of the sub-processes of empathy, affective, and cognitive empathy. This could lead us to certain cues important for better social relationships and an even more profound understanding of the nature of moral behavior and its association with empathy.

The first limitation of this paper includes language, since only papers written in the English language were selected, richer information present in any other language was lost (refer to Figure 1.) This could have led to missing out on other valuable studies and we could have missed out on important studies, which would have added immense value to this paper. Another limitation is that the review did not take cultural differences into account while selecting the paper, neglecting its major role in the shaping of how the symptoms are manifested. While this acts as a limitation for this paper, it also provides a further direction. Studies can be done to explore the very same objective while taking cultural differences into account. The topic of empathy and its related psychological disorders has extreme importance in major fronts of social life. It essentially dictates how an individual conducts oneself in society and they are the elemental processes essential for moral behavior. This paper serves as a medium for a better understanding of

empathy and psychological disorders associated with empathy: ASD and Psychopathy creating awareness for both. Every step taken towards the deeper exploration of psychological and biological mechanisms of these disorders brings us closer to understanding their specific needs. This knowledge equally contributes to interventions aimed at managing these disorders.

## CONCLUSION

The article offers an extensive understanding of the differences between cognitive and affective empathy. It elaborates on the nuanced association between these two components of empathy and psychopathological disorders, specifically ASD and psychopathy. The prominent role of empathy in social context is highlighted, along with how differences in empathy in ASD and psychopathy manifest in different sets of socially deviant behavior. Such detailed and elemental understanding of etiological differences could help in raising awareness and developing treatment plans that target specific requirements of each individual disorder.

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# Neural Mechanisms of Post-Traumatic Growth: A Comprehensive Review

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**ABSTRACT**

Research, over the last decade, has highlighted the consequences of stressful or traumatic events. However, research on significant outcomes that are positive resulting from severe conditions is growing. Experiences of changes that are positive and arising from major life crises and struggles are referred to as Post-TraumaticGrowth (PTG). By reviewing the literature, this study aims to raise awareness of and encourage knowledge of the phenomenon of Post-Traumatic Growth (PTG) and its neurological networks (areas of the brain that play a major role in an individual's post-traumatic growth). The MRI scan revealed a neural connection between the dorsolateral prefrontal cortex and post-traumatic growth, and the study's findings also revealed that higher PTG individuals had robust connectivity between the superior parietal lobule (SPL) and supramarginal gyrus (SMG) of the parietal lobe of the cerebral cortex. These findings suggest that people who have experienced more psychological growth after trauma may have stronger connectivity in terms of functions *between memory in the CEN and social processing in the Supramarginal Gyrus.*

***Keywords:*** neural mechanism, trauma, PTSD, post-traumatic growth, PTG

## INTRODUCTION

The journey of life brings many unpredictable situations in an individual's life, these uncertain situations sometimes leave behind good memories when you feel happy about the events at that moment and sometimes bad memories where you feel exhausted, traumatic, stressed, frustrated about the event or circumstances. These traumatic experiences profusely create ups and downs in a person's life, and their mental, physical, or social health gets affected. It was observed that a person who experiences trauma can feel a wide range of emotions immediately after the event or it can persist for a long term (Leonard, 2020). There is a high probability that a period of human development with intense childhood emotional and behavioral concerns leads to the emergence of mental health disorders (Keshavan et al., 2014). Physical and mental health difficulties during emerging and later adulthood may be caused due to early life adversities including long-lasting stress during childhood (Nusslock & Miller, 2016). It is important to understand the brain mechanism during these traumatic experiences to understand better what brain areas are more vulnerable to mental health challenges during any stressful or adverse situation. Genetics, social context, and childhood adversities are significant influencers of mental health problems (Aas et al., 2016). Brain areas that are active while responding to traumatic or adverse situations are also significantly involved in developmentally based changes during

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adolescence and young adulthood (Frounfelker, 2013). The present paper focuses on the brain areas that play a major role during traumatic experiences. The researcher intends to explore the neurobiology of post-traumatic stress disorder (PTSD) and post-traumatic growth (PTG) in the present review paper.

**Rationale For the Present Review**

Previous studies show evidence for the neurobiological correlates of trauma and PTSD, In Indian literature no reviews have been conducted inspecting the brain areas that are associated with or influence post-traumatic growth exclusively. The present research intends to focus on brain areas that play a major role during post-traumatic growth by reviewing the literature. Findings of this review may address the research questions: What is Trauma; What is the neurobiology of Trauma; What is PTSD; The neurobiology of PTSD; What is PTG; The neurobiology of PTG; Brain areas associated with PTG?

**Objectives**

1. To understand and explore the concept of trauma and the neurobiology of trauma
2. To understand and explore the concept of PTSD and the neurobiology of PTSD
3. To understand and explore the concept of PTG and the neurobiology of PTG.

## METHOD

Understanding the neurobiological mechanisms of trauma, post-traumatic stress disorder (PTSD), and post-traumatic growth (PTG) is crucial for developing effective interventions and treatments. This review adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to systematically identify pertinent literature and summarize the findings. The aim is to explore how neurobiology contributes to the understanding of trauma, PTSD, and PTG. The selected reviews shed light on the intricate neurobiological processes associated with trauma, PTSD, and PTG. By summarizing these findings, this review contributes to a deeper understanding of how neurobiology influences the development and manifestation of trauma-related disorders and resilience.

Eligibility Criteria: Studies available on PubMed and Google Scholar with the keywords "Trauma", "Neurobiology", "PTSD", "Posttraumatic growth", "post-traumatic growth", and "Neural mechanism" and the last search for each database was in July 2022. Articles with a primary focus on neurobiology, studies evaluating the neurobiological aspects of trauma, PTSD, or post-traumatic growth, and articles that provide analysis or interpretation of neurobiological mechanisms related to trauma, PTSD, or post-traumatic growth.

**Search Strategy**

By employing a structured search strategy and applying specific inclusion criteria, relevant articles from PubMed and Google Scholar were identified. Filters, including publication date, article type, language, study design, species, full-text availability, peer-reviewed status, and medical subject headings (MeSH) terms, were utilized to refine the search and ensure the selection of articles met the predetermined criteria. Through this rigorous search and selection process, the systematic review seeks to provide a robust synthesis of the current literature on the neurobiology of trauma, PTSD, and PTG, ultimately contributing to a deeper understanding of these phenomena and their underlying neural mechanisms.

**Selection process**

The selection process of articles for inclusion in the systematic review involved the following steps:

*Screening Titles and Abstracts*

Initially, titles and abstracts of retrieved articles were screened based on the predefined inclusion criteria. Articles that did not meet the criteria were excluded at this stage.

*Full-Text Assessment*

Articles that passed the initial screening underwent a full-text assessment to determine their eligibility for inclusion. This involved obtaining and reviewing the full text of each article to assess whether it meets the inclusion criteria in detail.

*Application of Inclusion Criteria*

Each article was assessed against the specific inclusion criteria outlined in the systematic review protocol. This includes determining whether the article focuses on neurobiological aspects of trauma, PTSD, or post-traumatic growth and whether it provides analysis or interpretation of neurobiological mechanisms related to these phenomena.

*Independent Review*

The selection process involved two reviewers, each independently assessing the eligibility of articles. Any discrepancies or disagreements between reviewers were resolved through discussion and consensus.

*Final Selection*

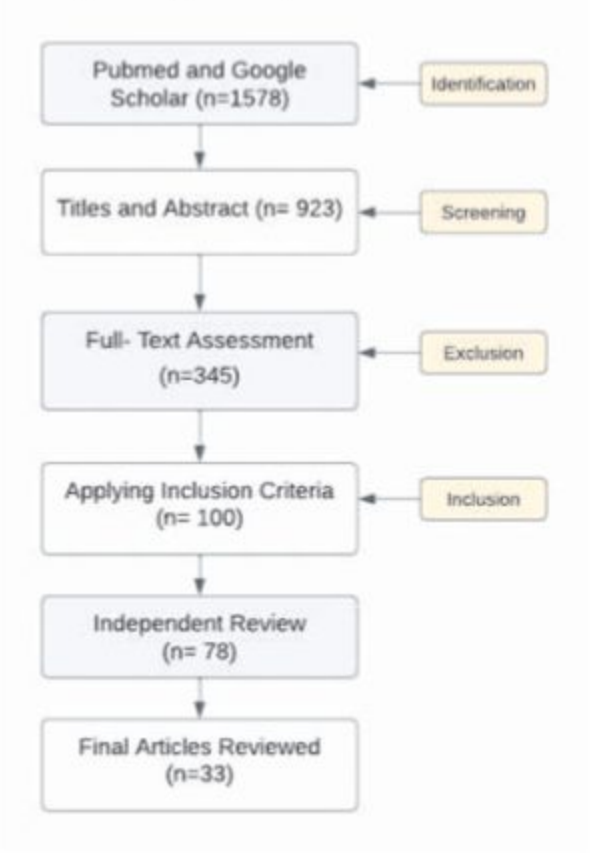
Articles that meet all inclusion criteria were included in the systematic review. The final selection comprised33 articles that provide relevant insights into the neurobiology of trauma, PTSD, and post-traumatic growth. Figure -1 represents the diagrammatic view of the selection process of selected articles.

**Data Collection Process**

The data collection method for the selected articles in the systematic review involves the following steps:

Figure 1

*Diagrams Representing Selection Criteria*




*Identification of Relevant Data*

Once the articles were selected for inclusion, relevant data pertinent to the objectives of the systematic review were identified. This includes data related to the neurobiological aspects of trauma, PTSD, and post-traumatic growth, as well as any analysis or interpretation of neurobiological mechanisms provided in the articles.

*Data Extraction*

Data extraction involves systematically collecting relevant information from each selected article. This includes details such as study characteristics (e.g., study design, sample size), participant characteristics (e.g., demographics, clinical characteristics), intervention details, outcomes measured, and key findings related to neurobiology.

*Data Coding and Organization*

The extracted data was coded and organized according to the predetermined objectives of the study. This helps to standardize the data collection process and ensures that all relevant information is captured consistently across articles.

*Data Verification*

To ensure accuracy and reliability, the extracted data was verified by a second reviewer through cross-checking against the original articles.

## RESULTS AND DISCUSSION

The results of the systematic review of 33 studies are organized under the following sub-headings based on the objectives of the study.

### What is Trauma

Trauma is a life-changing event with negative, sometimes lifelong consequences. It can be defined by the individual's reaction to the situation (Anniballe, 2012), not just defined by the event. The initial or ongoing reactions of trauma generally include flashbacks, intrusive and distressing memories, self-blame, guilt, shame, anxiety, fear, depression, physical pain, chronic pain, dissociation, avoidance, or emotional numbing; however, each individual responds differently (Wilson et al., 2020). There are four common responses to trauma as reported in the literature: fight, flight, freeze, and appease. The brain and body responds by "fighting back or fleeing" a dangerous situation automatically (Anniballe, 2012).

Freeze response refers to 'tonic immobility'. In this, the nervous system is activated but the person is not able to 'fight or flee'. 'Appease' known as 'accommodation', is when the individual's brain and body respond by going along with the situation. Trauma survivors reported being more confused as to why they responded like that while experiencing freeze and appease response. However, the neurobiology of trauma reminds us that these responses are normal and are the body's survival mechanism. Trauma begins when the normal coping mechanisms of an individual such asa sense of control, connection, meaning, and safety are overwhelmed by any event or situation (Anniballe, 2012).

Psychological trauma is felt emotionally and physically and affects brain circuitry. It is a form of 'chronic traumatic stress' which alters the human stress response system. An individual's subjective perception' is an important key factor of psychological trauma including 'severity of the trauma exposure, prior trauma, the involvement of interpersonal relationships and developmental stage' (Rosenzweig et al., 2017). Any damage to a brain's executive functionality caused by emotional trauma results in the development of falsifications, distortions, and deregulations of cognitive functions (Giotakos, 2020).

### Neurobiology of Trauma

The 'Limbic system' is the "fear center" of the brain, which stores the emotional responses to experiences. Amygdala stores the 'trauma responses' and memory;thus individuals have a lot of emotions while recalling any traumatic experiences. Traumatic events activate the 'amygdala' which interferes with the 'hippocampus'. The 'hippocampus' is involved with recall of long-term memory. Therefore, individuals who witnessed trauma reported fragmented memory, which is an entirely usual way of understanding and processing distressing events. That means individuals may not be able to recall the particulars of any event or if they remember, their recall may not be sequential. (Anniballe, 2012)

The 'hypothalamus- pituitary- adrenal axis' is known as a stress response system in humans which gets triggered by actual or perceived threats. The 'first responder', Thalamus, being a gatekeeper of all the 'incoming sensory inputs' gives information to

Amygdala. The thalamus rapidly screens the information for danger to activate the pituitary gland that releases hormones. The hippocampal memory system provides information from its past memory of threats to the amygdala. The 'prefrontal cortex' and hippocampus play a major inhibiting role in the hypothalamic- pituitary- adrenal(HPA) axis when threat subsides. The HPA axis releases a 'cascade of chemicals and hormones', when the amygdala gets an alarm for a threat, to the body so that an individual survives the threat by 'fighting or fleeing'. Without any thoughtful decision, these are immediate reactions. The 'HPA axis' then returns to its pre-threat status, when the real or perceived danger passes. (Rosenzweig et al., 2017)

**What is Post-Traumatic Stress Disorder (PTSD)**

It is a psychological disorder that may develop when subsequentlyundergoing or witnessing severely threatening or distressing events (Bonnano, 2004). It can occur from prolonged exposure to trauma or after a single threatening situation. Individuals diagnosed with PTSD report poor physical health like musculoskeletal, gastral, and immunological disorders (Karstoft et al., 2015). Witnessing a life-threatening event or experience that is perceived to pose serious injury to self or others, causes psychological trauma in an individual's life. These experiences followed by deep horror, anxiety, fear, and helplessness may lead to developing PTSD. Researchers report that each individual responds to trauma in their unique way and that not only depends on stressors but also depends on the unique characteristics of an individual (Yehuda & LeDoux, 2007). Sherin and Nemeroff (2011) grouped psychological trauma into three reactions: i) 'Reminders of exposure (intrusive thoughts, nightmares, and flashbacks); ii) Activation (impulsivity, irritability, insomnia, etc.); and iii) Deactivation (avoidance, withdrawal, confusion, dissociation, etc.)'

**Neurobiology of PTSD**

Changes in 'neuroendocrine, neurochemical, and neuroanatomical structures' in the brain network are all involved in the neurobiology of PTSD.

*Endocrine Factors*

The 'Hypothalamic-Pituitary-Adrenal Axis (HPA axis)' is a major coordinator of 'mammalian neuroendocrine stress response systems', and this is where humans respond to stress. Whenever there is a stressful situation, the neurons of the Hypothalamic paraventricular nucleus (PVN) secrete 'Corticotropin-releasing hormone (CRH)' to stimulate the production of 'Adrenocorticotropin (ACTH)' from the Pituitary gland (Sakellariou & Stefanatou, 2017). ACTH in turn stimulates the Adrenal cortex to release Glucocorticoids. To coordinate and manage stress physiologically, glucocorticoids play a major role as the central modulator of the brain, immune functionality, and metabolism. The adrenal cortex releases cortisol hormone that provides feedback to the 'hypothalamus and anterior pituitary negatively to regulate the amount of cortisol in the body (Sherin & Nemeroff, 2011).

Other parts of the brain also modulate the HPA axis, as the amygdala and aminergic brainstem neurons stimulate the release of CRH; whereas, the hippocampus and prefrontal cortex inhibit the release of CRH. Constant exposure to glucocorticoids results in a reduction of dendritic branching, spine loss, and a decrease in neurogenesis. (Sakellariou & Stefanatou, 2017)

*Neurochemical Factors*

Catecholamine, serotonin, amino acids, peptides, and opioid neurotransmitters were discovered to have aberrant regulation in PTSD individuals. (Sakellariou &Stefanatou, 2017).

The catecholamine, noradrenaline, and dopamine have effects like increased pulse, BP,and high levels of arousal which are physiological in nature. Fear conditioning and storing fear memories are two harmful impacts of these neurotransmitters (Rege, 2017). Serotonin plays a homeostatic role in

different brain areas which are crucial for traumatic experiences like the amygdala, hippocampus, and prefrontal cortex. Studies on PTSD patients report that a decrease in serotonin levels may disturb the relationship between the 'amygdala and hippocampus' which is dynamic (Sherin & Nemeroff, 2011). Gamma Amino Butyric Acid (GABA) is an inhibitory neurotransmitter which moderates physiological reactions to stress and anxiety. Patients with PTSD report a decrease in the amount of GABA in their body. Corticotropin is a neuropeptide that contributes to exaggerating stress response, increases numbing, analgesia, and dissociation during stressful or traumatic events(Sakellariou &Stefanatou, 2017).

*Neuroanatomical Factors*

Brain imaging techniques on PTSD patients showed an impact on the 'anterior cingulate cortex (ACC)', insula, hippocampus, amygdala, and 'orbitofrontal region of the prefrontal cortex'. Patients with PTSD have smaller hippocampus, which is a common symptom of the disorder. The hippocampus is important for stress response, declarative memory, fear extinction, and conditioning in the human body. Constant stress or sustained cortisol secretion may result in a diminishing of hippocampal neurogenesis.

The Amygdala is crucial for emotional processing and acquisition of fear responses. In the pathophysiology of PTSD, it acts as a mediator between stress reactions and emotional learning. Although no strong evidence for structural changes in the amygdala has been found, studies have found hyperresponsiveness to stressful stimuli or trauma recollections (Shin et al, 2006).

The 'Medial prefrontal cortex' has an inhibitory role in stress responses and emotional reactivity. It also inhibits acquired fear responses thus mediating the extinction of conditioned fear. The subcallosal cortex, 'anterior cingulate cortex (ACC)'and 'medial frontal gyrus' make up the medial Pre-frontal cortex (PFC). In patients with PTSD, there was a decrease in prefrontal cortex volume, including ACC volume (Rauch et al., 2003; Shin et al., 2006). The severity of PTSD symptoms is correlated with the reduction of ACC volume (Corbo et al., 2005).

What isPTG

Existing literature has emphasized the negative outcomes of the consequences of stressful or traumatic events and their experiences. In the past decade, evidence gathered has suggested that adversities or negative events can produce positive outcomes (Fujisawa et al., 2015). Post-Traumatic Growth (PTG), a term coined by Tedeschi and Calhoun describes such positive change. It refers to the growth or positive changes by individuals who undergo adversity but later arise stronger or wiser (Tedeschi & Calhoun, 2004). Resilience and post-traumatic growth are different as resilience refers to the process of bouncing back to the pre-trauma selves from a traumatic event whereas post-traumatic growth refers to the positive change of an individual when they experienced the traumatic event. Researches support that less resilient people show high post-traumatic growth as they are likely to be affected at the basic level (Oginska-Bulik & Kobylarczyk, 2016). Research on post-traumatic growth emphasized more on the psychological perspective rather than on neural. Therefore, the neurological processes or networks underlying post-traumatic growth remain unclear (Fujisawa et al., 2015).

The concept of post-traumatic growth gives us direction and guidance on what it looks like in general to grow after trauma, what it looks like for someone to tap into post-traumatic growth and healing and transformation after experiencing trauma or after working through post-traumatic stress symptoms.

**Dimensions of PTG**

Five dimensions of post-traumatic growth have

been stated by Tedeschi and Calhoun: an appreciation of life, stronger relationships, personal strength, openness to new possibilities, and spiritual growth (Tedeschi & Calhoun, 2004a). There are fewer possible chances to grow in all five areas, but there can be a significant effect on an individual's life if the growth is observed in even one or two aspects (Weir, 2020).

The first dimension of PTG is a new sense of personal strength. After experiencing trauma, a person might realize that they are more resilient than their pre-trauma selves or they might accept that they have more courage and determination than they could have ever imagined (Collier, 2016).

The second dimension is an enhanced sense of importance in relationships. Major trauma is relational and it happens at the hands of other human beings, it's common that a person might look for good people in their lives or they come to have additional gratitude or a sense of importance for the healthy relationships that they have experienced after trauma. It's natural to search for support from those close to us, relying on them to help us regulate our emotions, and assist in healing by listening and acknowledging our pain and trauma(Tedeschi & Calhoun, 2004b).

The third dimension is a new sense of appreciation for life because trauma flips our whole world upside down. It threatens the existence and survival of an individual, who experienced a traumatic event, in this world (Tedeschi & Calhoun, 2004b).

The fourth dimension of post-traumatic growth is related to appreciating what we do have and appreciating all the goodness in life, i.e., improved connection spiritually or religiously. Trauma survivors would turn to the spiritual realm for support, inspiration, and guidance from God or higher powers. Spiritual stories, symbols, rituals, and different ways of making sense of the world are helpful in terms of growing from trauma and working through it (Tedeschi & Calhoun, 2004b).

The fifth dimension of post-traumatic growth is a new sense of opportunity in life. Trauma challenges us to look at the world in new ways, and in doing so we start to see new opportunities. Perhaps one of the most common ways of seeing new opportunities in life after trauma is being able to help somebody else who has experienced the same thing or having a deeper sense of sensitivity for someone else's emotions or what someone else may have experienced. There is a way that trauma forces us to reconsider our sense of identity and in doing so, is likely to increase the number of opportunities that we might see within our life (Tedeschi & Calhoun, 2004b).

**Neurobiology of PTG**

Previous research studies on the neurology of traumatic events and PTSD focused on negative rather than positive outcomes or growth after trauma. Existing literature used electroencephalography to gather evidence for the association of activity of the frontal lobe of the brain and post-traumatic growth in accident survivors (Rabe et al., 2006). Various other studies used Magnetic Resonance Imaging (MRI) and found that an increase in insular volume is associated with a greater perception of growth (Lewis et al., 2014). Researchers predicted that regions of the brain that are associated with cognition and other 'social affective functions' showed high functional activity during PTG (Fujisawa et al., 2015).

The possible neural mechanism of PTG could be related to neuroplasticity (the brain's ability to change and adapt in response to experiences). The prefrontal cortex, which is involved in 'executive functions such as decision making and emotion regulation', is reported to become more active or better connected to other brain regions in individuals who experience PTG. Another neural mechanism of PTG involves changes in the 'brain's stress response system'. Research supports that exposure to stress can cause changes in the

hypothalamic-pituitary-adrenal (HPA) axis (the body's response to the stress system). However, in individuals who experience PTG, it has been suggested that the HPA axis becomes more resilient to stress over time, leading to greater psychological resilience and growth. Furthermore, the role of social support has been of great significance as it activates reward-related regions of the brain such as the striatum, which is associated with PTG (Eckstrand, et al., 2021). Social support leads to feelings of belongingness and connectedness, which are important factors in psychological growth. A study used functional magnetic resonance imaging (fMRI) and reported that individuals with high PTG following a traumatic event showed greater activation in the anterior cingulate cortex (ACC) during cognitive reappraisal task. The ACC is involved in emotion regulation and cognitive control. These findings suggest that people who experience PTG may have enhanced emotion regulation abilities (Eckstrand, et al., 2021). Few studies report the activation of the amygdala and hippocampus in the brain of individuals who experienced PTG. The amygdala is involved in emotional processing whereas the hippocampus is involved in memory and learning. These findings support that individuals who experience PTG have an enhanced ability to regulate emotions and have greater activation in the hippocampus when recalling traumatic events compared to those who did not experience PTG (Felmingham et al., 2014).

Magnetic Resonance Angiography (MRA) on brain areas indicated that PTGI scores were positively correlated with 'rostral prefrontal cortex' (rPFC) and 'superior parietal lobule'(SPL) in the central executive network (CEN) (Fujisawa et al., 2015). PTGI scores and resting state neurons in rPFC do not show any significant correlations. These results indicate that higher psychological growth was exhibited by people who had stronger activity in rPFC and SPL within the left central executive network. A positive correlation was also found between PTGI scores and the functional connectivity of SPL (superior parietal lobule) and Supramarginal Gyrus (SMG). Supramarginal gyrus is involved in the process called mentalizing (reasoning about the mental state of others) (Saxe & Kanwisher, 2003; Fujisawa et al., 2015). Few studies reported that the PTGI score was positively related to delta-rGMV in the right 'dorsolateral prefrontal cortex' (DLPFC). The subscore on the "relate to others' component of PTGI is significantly associated with the peak of regional gray matter volume (r-GMV) of 'right DLPFC'. The peak of rGMV indicates the highest significant change in gray matter volume (Nakagawa et al., 2016). It was also reported that while recovering from PTS (Lyoo, 2011), during resilience (Van der Werff et al., 2013), coping (Rahdar & Galvan, 2014), and responding to stress, DLPFC plays an important role, which means DLPFC is highly activated during these processes. It is also important to explore other areas of brain which participates during PTSD, the reduction in the 'gray matter volume' was found among the PTSD patients in 'anterior cingulate cortex' (ACC), 'ventromedial prefrontal cortex (VMPFC)' and the 'left middle temporal gyrus' (L-MTG) as compared to those did not develop PTSD even after experiencing trauma (Kuhn & Gallinat, 2013).

**Brain Areas associated with PTG**

The results of the above discussion statethat post-traumatic growth is positively correlated with the activity of the 'right prefrontal cortex (rPFC) and superior parietal lobule (SPL) within the left central executive network (CEN)' as a part of the 'resting state nucleus (RSNs)'. As compared to individuals with lower psychological growth, individuals with higher growth after stressful or traumatic events may have stronger activation in working memory regions (Fujisawa et al., 2015; Nakagawa et al., 2016). It was also found that there was stronger connectivity between the superior parietal lobule (SPL) and supramarginal gyrus (SMG) among people with higher growth after distressing or

traumatic experiences (Fujisawa et al., 2015). It was also found that changes in regional gray matter volume (rGMV) in the dorsolateral prefrontal cortex (DLPFC) affect resilience and coping' in response to stress and "relating to others", a factor of PTG. Understanding the neural basis of PTG helps an individual to recover resiliency and prevent them from developing PTSD (Nakagawa et al., 2016).

Including the above-mentioned brain areas, several different brain areas are associated with post-traumatic growth. Some of the key areas are as follows:

Prefrontal Cortex- The prefrontal cortex is involved in 'executive functions', such as 'decision making', 'emotional regulation' and 'working memory'. Studies report that individuals who experience PTG may have increased activity in the PFC, which may help them better regulate their emotions and cope with stress (Nakagawa et al., 2016).

Anterior Cingulate Cortex (ACC)- The ACC is involved in emotion regulation and error detection. Research has suggested that increased activation of the ACC may be associated with PTG, possibly indicating greater emotional processing and learning from traumatic experiences(Eckstrand, et al., 2021).

Hippocampus- the hippocampus is involved in memory consolidation and retrieval. Studies have shown that individuals who experience PTG may have greater activation in the hippocampus during memory recall, which may help them process and integrate the traumatic experience into their narrative (Felmingham et al., 2014).

Amygdala- this part of the brain is involved in emotional processing, particularly fear and anxiety. While some research has suggested that increased activation of the amygdala may be associated with PTSD, other studies have found that individuals who experience PTG may have decreased activation in the amygdala, and possibly greater emotional resilience (Felmingham et al., 2014).

Striatum- This part of the brain is involved in reward processing and motivation. Social support has been shown to activate the striatum, and this activation may be associated with PTG (Eckstrand, et al., 2021).

## CONCLUSION

Trauma is a life changing event with lifelong consequences, mostly negative. Psychological trauma is felt emotionally and physically, and it affects brain circuitry. The hypothalamus-pituitary-adrenal axis initiated by actual or perceived threat is known as a stress response system in humans.

'Post-traumatic stress disorder' is a psychological disorder that may develop after experiencing severely threatening or traumatic events. The abnormal regulation in catecholamine, serotonin, amino acids, peptides, and opioid neuro-transmitters was found in PTSD patients. Brain areas like the hippocampus, amygdala, 'anterior cingulate cortex (ACC), insula, and orbitofrontal region' in the prefrontal cortex are affected in PTSD patients.

PTG refers to the growth or 'positive trans-formations' by people who endure adversity but later emerge stronger or wiser. There are five dimensions of PTG; appreciation of life, relating to others, new possibilities, personal strength, and spiritual changes. Growth in any one or two areas would lead to significant changes in an individual's life.

It was found that people who report psychological growth have an increase in rGMV in the DLPFC. A positive correlation was found between PTGI scores and the 'functional connectivity of SPL (superior parietal lobule)' and Supramarginal Gyrus (SMG). Stronger activity in SPL and rPFCwithin the left CEN report higher psychological growth, indicating the neural connection of post-traumatic growth.

Research on brain areas associated with PTG is still in its early stages, and the neural mechanism underlying post-traumatic growth is complex and multifaceted, involving changes in brain function and changes in social support and psychological processes. However, some studies identified areas of the brain that may be involved in PTG. Further research is required to understand these mechanisms fully and how they contribute to post-traumatic growth.

**Limitations of the Study**

While exploring the neurobiological mechanisms underlying post-traumatic growth (PTG), several limitations emerged within the scope of the reviewed studies:

The predominant reliance on cross-sectional studies limits our ability to establish causality or determine the sequential relationship between brain changes and PTG. The inclusion of longitudinal investigations is necessary to determine whether alterations in brain activity precede or follow the experience of PTG, providing a more comprehensive understanding of its neurobiological foundations.

The diverse participant samples across the reviewed studies, characterized by variations in trauma exposure, demographic attributes, and clinical profiles, present challenges in generalizing findings to specific populations or trauma types. The heterogeneous nature of these samples may influence the observed neurological correlates of PTG, complicating the derivation of universally applicable conclusions.

Assessing PTG poses inherent difficulties due to its subjective nature and multifaceted dimensions. Variability in assessment tools or definitions across studies leads to discrepancies in findings and hampers cross-study comparisons. The absence of standardized assessment protocols or consensus on PTG definitions opens the scope of further evaluation of the context.

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*Case Report*


# The role of temperament traits in selective mutism: A single case study

**Nuzhath Athaullah[1] and Srigowri Rajesh[2]**

## ABSTRACT

**Aim:** This study explores the role of temperament traits in selective mutism. Selective mutism is a childhood anxiety disorder characterized by consistent failure to speak in specific social situations despite the ability to speak comfortably in other settings. While previous research has examined various factors contributing to selective mutism, the influence of temperament traits remains underexplored. The current study aims to fill this gap by investigating how specific temperament traits may contribute to the onset and maintenance of selective mutism.

**Method:** Using a single-case design, a 12-year-old female diagnosed with selective mutism was examined. The assessment included parent reports, direct observations, and standardized psychological assessments. The child's temperament traits were evaluated in terms of negative affectivity, effortful control, shyness, discomfort, and approach.

**Results:** Preliminary findings suggest the presence of specific temperament traits may be relevant to the development of selective mutism. This study contributes to the existing literature by shedding light on the role of temperament traits in selective mutism.

*Keywords:* Selective Mutism, Temperament, Case Study, Internalizing Problems, Externalizing Problems

## INTRODUCTION

Selective mutism is currently classified as an anxiety disorder, according to the American Psychiatric Association (APA, 2013). However, children with selective mutism may exhibit symptoms that extend beyond anxiety, leading them to stay silent for various reasons. Such reasons may include seeking attention and privileges from caregivers, avoiding stressful situations or responsibilities, reducing anxiety and fear, and expressing defiance. ((Cohan et al., 2006); (Hesselman, 1983);(Labbe. E & Williamson. A, 1984). In some cases, mutism may also have underlying biological factors (Arie et al., 2007;Barhaim, 2004)

Selective mutism (SM) is a persistent and debilitating psychiatric disorder in which a child fails to speak in situations where speaking is expected, such as at school or in other public settings. (APA, 2013). The aetiology of selective mutism is believed to be influenced by various factors, including temperamental traits, that contribute to the presentation and maintenance of the condition. Children with a predisposition towards anxiety-related temperamental characteristics may exhibit heightened emotional reactivity, inhibition, and behavioural withdrawal in social settings. (Gensthaler et al., 2016) The aetiology is unknown but most likely multifactorial. These temperamental traits, combined with adverse

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early life experiences, can shape their cognitive and behavioural responses, leading to the development of selective mutism as a maladaptive coping mechanism in challenging social situations.

The current research study focuses on investigating how specific temperament traits contribute to the manifestation and persistence of Selective Mutism in a single case study. In a study on the relationship between behavioural inhibition and selective mutism, the results indicated behavioural inhibition does indeed predispose one to selective mutism (Gensthaler et al., 2016). In another study by Muris et al. (2023), it was found that symptoms of selective mutism (SM) were strongly associated with social anxiety and an anxiety-prone temperament, specifically behavioural inhibition. Limited research on temperament and selective mutism has been conducted, and this study attempts to qualitatively highlight the various temperament traits that contribute to the aetiology of selective mutism.

**Case summary**

The case study presents a 12-year-old female studying in the 7th grade in a private school following the Cambridge IGCSE syllabus. She was born out of a consanguineous union, full-term, normally delivered, achieving age-appropriate motor and speech milestones. The onset of illness was around the age of 4 ½ years when she was in Grade 1. It was reported that there was an incident where she refused to attend school on the second day of kindergarten. Despite her continuous crying, her mother insisted on taking her to school, resulting in significant emotional distress. Following this incident, the child displayed signs of being upset with her mother, began refusing to eat, and experienced episodes of involuntarily urinating herself. It was reported that she hesitated to openly communicate her needs, even when hurt. Her mother, who was experiencing depressive symptoms, reported being quite strict and punitive with the child.

She does not talk to new people and appears apprehensive in unfamiliar situations. Interactions with others proved challenging, as she takes more amounts of time, approximately 2 hours, before initiating a conversation with a familiar person. Frequently, her responses were delayed, and she would express fear when asked to speak to new people. Even after sufficient time had passed since meeting someone new, she still hesitated from engaging in conversation.

At age 5, the child experienced negative peer interactions, including verbal insults, physical pushing, and social neglect, yet she refrained from disclosing this experience to her mother or others. It wasn't until she reached the age of 6 that she began to express her needs more openly. However, she continued to face difficulties initiating conversations, and she felt more comfortable interacting with children younger than herself. Her self-consciousness was particularly evident during communication, as she feared making mistakes or saying something incorrect. AF would speak only with her parents, brother and paternal grandmother at home and did not speak at school or in any other environment.

Since childhood, her mother used reinforcements for even simple regular tasks, which left a lasting impact where she heavily relies on external reinforcements, such as eating junk food, YouTube, or games, or for basic self-care tasks. Furthermore, her parents' habit of comparing her to her cousins triggered anger outbursts.

Due to these concerns, parents consulted a private hospital, where she was diagnosed as having social anxiety disorder. They did not seek any intervention for the same until they attended a parent training program, after which she was taken to a private psychological clinic in 2022. She received a diagnosis of selective mutism from a clinical psychologist.

## METHOD

### Participants

One 12-year-old child (Participant A) was diagnosed with selective mutism.

### Tools

- Child Behaviour Checklist (CBCL): Obtained parent-reported data on behavioural characteristics.
- Early Adolescent Temperament Questionnaire –Revised (EATQ-R): Assessed temperament dimensions, including negative affectivity, effortful contol, shyness, discomfort, and approach.

### Procedure

- Informed consent was secured from the Participant's parents.
- Parent-report questionnaires (EATQ-R and CBCL) completed by Participant' parents

### Data Analysis

- isual representations using line graphs, bar graphs, and Venn diagrams.

## RESULTS

**Figure 1**

Line graph demonstrating CBCL scores


The line graph of CBCL domains demonstrates significantly elevated scores in Withdrawn, Social Problems, and Aggression, all falling within the clinical range, indicating potential emotional and social difficulties.

Figure 2

Line graph showing EATQ-R scores


The line graph of EATQ-R scores highlights high levels of shyness, inhibitory control, aggression, frustration, and surgency.

Table 1

Table showing temperament traits that are shared in EATQ and CBCL

| EATQ-R | CBCL | Common Temperament Traits shared between the EATQ-R and CBCL |
|---|---|---|
| ● Activation Control<br>● Attention<br>● Fear<br>● Frustration<br>● Surgency<br>● Inhibitory Control<br>● Depression | ● Anxious / Depressed<br>● Somatic Complaints<br>● Thought Problems<br>● Attention Problems<br>● Rule Breaking Behaviour | ● High Shyness / Social Problems<br>● High Aggression<br>● High Withdrawal / Low Affiliation |

The Table shows the common temperament traits shared between the EATQ -R and CBCL.

## RESULTS AND DISCUSSION

The T scores of externalizing (aggression) and internalizing (withdrawn, social problems) problems, both falling within the clinical range, may contribute to selective mutism. The Venn diagram represents common temperament traits shared between EATQ-R and CBCL, including High Shyness / High Withdrawal Problems, High Aggression, and High Social Problems/Low Affiliation.

The case study highlights externalizing and internalizing problems, along with other temperament traits that may play a role in maintaining the condition. The present findings are consistent with previous literature, showing associations between selective mutism and opposition-defiance/aggression behaviours (Steinhausen & Juzi, 1996) and significant internalizing and externalizing problems (Kristensen, 2000). In a study by (Muris et al., 2021), behavioural inhibition to the unfamiliar (BIU) is characterized by restraint in engaging with the external world and avoiding unfamiliar situations, which is similar to participant A's temperament traits of high shyness and withdrawal scores.

The findings also suggest that externalizing behaviours observed in children with Selective Mutism (SM) may stem from a variety of underlying causes, according to Vogel et al. (2024), extending beyond fear-related responses. While temper tantrums are commonly linked to fear, a significant subset of children with SM exhibit aggressive behaviours that are more indicative of oppositional defiant disorder (ODD). This distinction is crucial as it highlights that not all children with SM experience elevated anxiety levels; some display aggression that includes physically harming parents, suggesting a different behavioural profile.

In addition, Andersson & Thomsen's (1998) findings on trauma and social factors provide context for understanding the child's condition, linking her selective mutism to both early experiences and ongoing socio-environmental factors. The role of child temperament in shaping emotional outcomes, specifically, children with high negative emotionality and behavioural inhibition, are at greater risk for developing anxiety and depressive symptoms, according to Marakovitz et al. (2011). In the current case, understanding the child's temperament is crucial. The child's temperament may predispose her to heightened emotional sensitivities, potentially exacerbating existing challenges. This suggests that interventions should not only focus on managing her behaviour but also on addressing temperamental vulnerabilities. Children with high levels of inhibition and negative emotionality are more prone to developing internalizing disorders. Diliberto & Kearney (2016) identified distinct factors of internalizing and externalizing behaviours in children with selective mutism (SM): anxious and oppositional behaviours. The anxious factor, as described by Diliberto & Kearney (2016), includes characteristics such as fearfulness, social withdrawal, and nervousness—traits that are consistent with the internalizing problems observed in the current study. The presence of high social withdrawal and internalizing symptoms (e.g., withdrawn behaviours and social problems) in the clinical range underscores the role of anxiety in SM. Conversely, the oppositional factor characterized by argumentativeness, temper tantrums, and demands for attention also finds resonance in the study's findings. The externalizing behaviours noted, such as aggression, contribute to the understanding of how these behaviours may intersect with the anxiety-based characteristics of SM.

## CONCLUSION

The study's findings highlight that both internalizing (e.g., withdrawn behaviours, social problems) and externalizing (e.g., aggression)

problems, along with specific temperament traits like high shyness and behavioural inhibition, are present in children with selective mutism (SM). The results align with existing literature, indicating that SM can be associated with a range of emotional and behavioural issues. The presence of high levels of internalizing and externalizing problems, alongside temperament characteristics such as high shyness and aggression, suggests a complex interplay of factors contributing to SM.

## LIMITATIONS

Parent-report data is subject to response bias, which can affect the accuracy of reported behaviours. Furthermore, the generalizability of findings to other children with selective mutism is limited due to individual differences in temperament, which can influence the presentation and severity of the condition.

## IMPLICATIONS

The study highlights the importance of recognizing temperament traits, such as high shyness, withdrawal, and aggression, in a child with selective mutism. These findings underscore the importance of addressing both emotional and behavioural dimensions in interventions for children with SM, recognizing the potential overlap between anxiety and aggression in this condition. Tailoring interventions based on these individual characteristics can lead to more effective support and improve overall functioning.

### Conflict of interest statement

The authors declare no conflicts of interest regarding the research, authorship, and/or publication of this article. No financial, personal, or professional relationships influenced the study.

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***Letter to the editor***


# Overview of Achievement in Clinical Psychology since Inception

Dwarka Pershad, PhD, DM&SP

Being in the field of Clinical Psychology for more than half a century, I was pondering the following questions: (1) Do we have sufficient research work to cite and to report in the reference sections, during scientific communications? (2) Have we developed our own psychometric/psychodiagnostic instruments for clinical and research use?

To answer these questions, I reviewed the first three issues of the Indian Journal of Clinical Psychology, volume 49 from the year 2022, following which I thought it is appropriate to write a brief account of the emergence of clinical psychology in the country, the number of institutes offering training in clinical psychology, and the quorum of the eligible professionals for practice and employment in teaching and non-teaching centres.

**Emergence of Clinical Psychology**

Scientific psychology has seen steady growth since its inception in the early twentieth century when an independent department of academic psychology was started at Calcutta University in 1916. In 1951, a one-year training program in clinical psychology was introduced at the Banaras Hindu University and was then discontinued. The first, two-year postgraduate course in Clinical Psychology started in 1955 at the AIIMH, Bangalore (now known as the National Institute of Mental Health and Neuro Sciences –NIMHANS). The course was named, Diploma in Medical Psychology (DMP), later termed Diploma in Medical and Social Psychology (DM&SP) and is currently recognized as M. Phil in Clinical Psychology. The third institute, where clinical psychology emerged was BM Institute, Ahmadabad (discontinued after a few years of commencement), and the fourth course was started then at the Hospital for Mental Diseases, Ranchi-Bihar now called Central Institute of Psychiatry Kanke, Ranchi, Jharkhand.

The National Education Policy (2020) has scraped the M.Phil, increasing the likelihood of having to give an appropriate name to the degree that is offered after a two-year post-graduation course. The Indian Association of Clinical Psychologists (IACP) must consider whether to equate this course with a PsyD, which is unlike a Ph.D. The former is a time-limited degree followed by a mandatory internship for a specified period, making it highly relevant to practice and teaching. A Ph.D. however, takes a longer duration, and an internship is not required making it suitable for research, academia and practice.

By now nearly 60 institutions are offering RCI-recognized training in clinical or rehabilitation psychology (including professional diplomas, and M Phil). PsyD is operational only at a few training centres namely Sweekar Academy of Rehabilitation Sciences, Secunderabad, and Amity University, Noida. Many institutes that are offering M Phil are running PhD programs in clinical psychology/ psychology.

More than 500 students (20 to 30% male and 70 to 80% females) graduate from an M Phil or PDCP degree, annually. By now, nearly 3000 clinical psychologists are registered and licensed by the RCI to practice and work as specialists in the field. Unfortunately, all trained personnel are not opting

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for RCI registration and licensing, reasons for which vary from migration to change in the line of work, thus resulting in a lowered manpower in the field.

**What is the Rehabilitation Council of India (RCI)?**

The RCI was set up as a registered society in 1986. In September 1992, the RCI Act was enacted by Parliament and it became a Statutory Body on 22 June 1993 with an amendment made in the year 2000. The mandate given to RCI was to regulate and monitor services given to persons with disability, to standardize syllabi for different academic courses, and to maintain a Central Rehabilitation Register of all qualified professionals and personnel working in the field of Rehabilitation and Special Education. The Act also prescribes punitive action against unqualified persons delivering services to persons with disability. Unlike universities in the country, the RCI is responsible for developing curriculum periodically and maintaining uniformity in its delivery, admission, the conduct of exams, maintaining the teacher-student ratio, and appointing faculty and other staff in the institutions that are offering RCI-recognized training in clinical psychology and other fields of rehabilitation. RCI also maintains a register of trained personnel and is responsible for issuing, and renewing licenses to practice.

**What We Have Achieved?**

Clinical psychology has a history of over six decades of its existence in India. We are trying to evaluate this profession on the following parameters: (1) publication of the journal, (2) Cultural adaptation of psychological tests, and therapeutic procedures/ counseling.

*Publication of journal*

The first official journal of the Indian Association of Clinical Psychologists, 'Indian Journal of Clinical Psychology' (IJCP) was published in Chandigarh in the year 1974 under the editorship of Dr. S K Verma from the Postgraduate Institute of Medical Education and Research, Chandigarh He continued to run the journal twice a year for 10 years till 1983. The number of articles published in each issue ranged from 8 to 10. This journal assumed popularity amongst researchers from the university departments of psychology as there were no other official journals of psychology in India. From the year 2021, the periodicity of the journal increased from twice a year to 4 times a year to accommodate the pendency of the articles, each issue containing 15-20 research articles. Dr T B Singh and his team must be applauded for this achievement. Publications are important for Clinical psychologists for a few reasons such as mandatory requirements for employment opportunities, promotions, academic curriculum of higher degrees and other registration-related needs. Thus, an increase in the frequency of publication of the IJCP is a great initiative.

*Citation of References*

We all agree that articles written by Indians for Indians should be promoted and Indian quotes and references should be cited as far as possible, wherever required. To give an overview of the prevailing situation, the author is reporting below the review of three issues of the IJCP-2022 (n=45 articles). It indicated that each issue comprised an editorial on an important issue for the clinical psychologists working in the country. Case reports and book reviews were underrepresented (1 each). Theoretical or review articles were adequately represented (n=3) and most articles were original papers based on research. The table shows that 26 of the 45 articles cited foreign references excessively (more than 90%). Twenty-four percent of the articles cited all foreign references. More than 4 articles [09%] cited 6 or more Indian references. The reasons for the excessive use of foreign references could be: 1) topics were such that no Indian work was done, 2) published literature could not be traced in resources material, and 3) to be on par with international researchers/readers.

**Table 1**

Citation percentage of Foreign References

| *Reference type* | *Percentage of References* | *Frequency* | *Percentage* |
|---|---|---|---|
| Foreign references | 90-100 | 26 | 58 |
| | 80-89 | 11 | 24 |
| | Less than 79 | 08 | 18 |
| Indian References | 0 | 11 | 24 |
| | 1-5 | 30 | 67 |
| | 6 and above | 04 | 09 |

Range of cited references 6 to 90, Mean references: 29.4, Mean foreign references; 26.6; Mean Indian references =2.8

*Use of Indian tools and techniques*

Tests and techniques are referred to here as psychological tests and psychotherapeutic/ counselling procedures. Thousands of psychological tests have been adapted in India to suit the particular requirements of the researchers (Behere, Pershad, Singh, 2022, pp33). National Library of Education and Psychological Tests (2019) has mentioned hundreds of psychological tests developed or adapted in India for practical use. However while reviewing three issues of the IJCP-2022, largely foreign tests were used in the articles (n=72; 32 studies) whereas the number of Indian tests used was 13 (either developed or standardized in India, 4 studies). It is time to reconsider if enough importance is given to test construction and standardization along with regular usage of tests in clinical work and research as well as training of the trainees in research and publication. It is a serious concern if the tools are not culturally adapted to suit the lived experiences and values of the individual.

## CONCLUSION

This communication aimed at reviewing, what we have achieved in the field of clinical psychology from its inception when the first two years, of the post-MA program, was started at NIMHANS Bangalore, leading to DPM/DM&SP/MPhil clinical psychology. There is an increase in the number of training institutes and, the number of professionals with a regulatory body overseeing the progress. The official publication of the Indian Association of Clinical Psychologists is doing well. However, there is a need to encourage and train the students in developing and standardizing assessment methods and interventions for the Indian population instead of blindly using foreign tools and interventions.

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***Book Review***


# Understanding Yoga Psychology: Indigenous Psychology with Global Relevance

Kiran Kumar K. Salagame

Book Reviewed: Paranjpe, A.C. (2023). Understanding Yoga Psychology: Indigenous Psychology with Global Relevance (1st ed.). Routledge India.

Patanjali's *Yoga Sūtra* is the basis for this book. But it is not another translation or a commentary on it. As the author states his intention is to present it "as a system of psychological theory and practice" (p.15). Therefore, he does not follow the conventional way of discussing the contents of the Yoga Sūtra which has four parts viz., *samādhi pāda, sādhana pāda, vibhūti pāda,* and *kaivalya pāda*. Instead, he selects and organizes the contents of these quartets in nine chapters to suit his purpose. They are as follows: (1) Introduction and Context of Inquiry. (2) The Worldview of the Veda and Upanishads: The background for Samkhya and Yoga. (3) Samkhya System: The conceptual framework of Patanjali's *Yoga Sūtras*. (4) Patanjali's eight-fold path (Astanga Yoga): General outline and basic concepts. (5) The concept of afflictions (*kleśa*) and *Kriyā Yoga* to deal with them. (6) The transformation of consciousness in Samādhi (I): An account from inside the text. (7) The transformation of consciousness in Samādhi (II): Looking from outside it. (8) Yoga as Self-realization. (9) Back to the context: Where does Yoga psychology stand today in psychology? Then at the end there is a "Postscript: Where do we go from here?" In the beginning the author has also provided a glossary of important terms. In the end there is an Appendix which has a list of the well-known traditional Indian commentators on the Yoga Sūtra from whose works he draws his insights about the psychological aspects embedded in the sūtras besides his own understanding and reflections.

The author spent the first three decades of his life in India as a citizen by birth and had his training in modern psychology in the University of Pune. Subsequently he went on a Fulbright Post-doctoral Fellowship to Harvard University to work with Eric Ericson on self and identity. Later he migrated to Canada and settled teaching psychology in Simon Fraser University at Vancouver for another three decades and now he is a Professor Emeritus. Therefore, he calls himself a "cultural halfie" borrowing a "self-descriptive term coined by an American Anthropologist Leila Abu-Lughold to describe her bicultural background" (p.4). This has enabled him to approach yoga as an insider to the Indian spiritual tradition and at the same time as a psychologist living in the west on the contemporary developments related to yoga teaching, research, and practice. This unique stance is a major strength of the author that adds value to the book.

For those who are not familiar *sūtra* is a very brief statement on a subject or an idea consisting of only a few words ranging from just two at the minimum to eight or ten at the maximum. But they are coded and loaded with lot of information needing decoding. Therefore, decoding of the information contained in the sūtra requires going beyond just the meaning of the Sanskrit words used to grasp the correct meaning and significance. This requires certain amount of scholarship in Sanskrit language, proper familiarity with the intricacies of the Vedic tradition and also some level of yoga practices. Though the author is modest in not claiming much spiritual experiences his well-known previous works in the

Reviewer, FIACP, Formerly Professor of Psychology, University of Mysore

field of Indian Psychology speaks of his authority on the subject.

One should note that yoga as a set of procedures to be practiced has been in existence in India for millennia. Patanjali only selected what he thought best out of them, organized, and presented them in a systematic way. Therefore, it is deemed more as a 'manual' or 'to-do' book and focused more on the practical aspects and discussed less about the philosophical aspects and the conceptual framework. Hence, if we have to understand Yoga as a psychological system it is necessary that the foundational assumptions and ideas that constitute the worldview within which yoga practices emerged, developed, and sustained are properly brought to the fore and explained. As I perceive, the central aim of this book is just that and the author has endeavored to elucidate the framework throughout the book.

To achieve the above aim the author initially takes a bird's eye-view of the present state-of-the-art of 'Psychology in India' which is nothing but 'modern psychology' and then goes on to elucidate the overall "context of this inquiry" in Introduction (Chapter 1). The first chapter is devoted to the many issues and challenges involved in understanding and approaching one set of ideas, concepts, and practices developed in the background of a spiritual worldview in one culture (India) from the perspective of practitioners and researchers in a different culture (western) characterized by a majority material worldview. In this chapter the author discusses the many aspects of the Indian worldview and socio-cultural context in whose framework yoga developed. It examines a variety of issues related to understanding Yoga as psychology in relation to sociology of knowledge and the ontological and epistemological differences between the western worldview and the Indian worldview.

Coming to the specifics, what I found different in this book is the author's attempt to firmly ground Patanjali's work in the context of spiritual inquiry that commenced in ancient India in the Vedic tradition and demonstrating the antecedents of Yoga as found in the Vedas and Upanishads in Chapter 2 and then situating Patanjali's work in the metaphysical and ontological framework of the Samkhya system in Chapter 3. Often there is a tendency among many scholars and researchers to approach Patanjali's system as having no relation to the earlier Vedic tradition because of its scientific character without any reference to theistic ideas except in the concept of *Ishwara pranidhana*. The author has rightly pointed out that by the time Patanjali wrote the Yoga Sūtras around 2$^{nd}$ century BCE Yoga was already an established tradition and even Buddha who lived a few centuries earlier to Patanjali had also practiced yoga. Therefore, when one reads the Yoga Sūtra one does not find much theoretical information which can provide a clear conceptual framework for one's undertaking. Hence, chapters 2 and 3 serve this purpose very well.

The author's discussions about *puruṣa* and *prakṛti, sthūla and sūkṣma*, and *tanmātra;* the evolutionary ideas of Samkhya and of modern science; Samkhya and 'hard problem of consciousness' in chapter 3 are illustrations of author's efforts to bridge the gap between Indian thought and contemporary developments in science and psychology. For example, the author points out that "the Sāṁkhya perspective on the relation between Puruşa and Prakṛti is parallel to what Stapp (2009) (p.46)" a contemporary theoretical physicist "has proposed as a theory of *psychophysical phenomena* (emphasis added) and Nagasawa and Wager (2016) refer to as a *priority cosmopsychism* (emphasis added)" (p. 45).

Such observations not only remove the misconceptions which are perpetuated since ages that Indian thinking is primitive, they also help to bring the foundational ideas and concepts developed within the Indian context nearer to

contemporary developments in cosmology and psychology. Thus, these two chapters together can also be regarded as a very meaningful introduction to indigenous Indian psychological thought as a whole because a lot of information related to the fundamental philosophical differences between scientific psychology and Indian psychology are covered here. These chapters are very significant because they clarify many fundamental concepts and constitute the theory part of Yoga psychology.

The chapters 4 and 5 – "Patanjali's eight-fold path (Astanga Yoga): General outline and basic concepts" and "The concept of afflictions (*kleśa*) and *Kriyā Yoga* to deal with them" elucidate the practice part.

The chapter 4 deals with the eight-fold path of Yoga which is the crux of the practice and widely known. While within the Indian tradition these are considered sacrosanct and must be followed, in contemporary times introduction of Yoga in the west by some Indian spiritual masters is not as per Patanjali's prescription. In this chapter the author has shown how many of the aspects of eight-fold path can be related to contemporary psychological concepts of cognition, affect, and conation. There is an elaborate discussion on the concept *pratyahara* (withdrawal of senses and turning inward). This is the beginning of true yoga practice because that involves reversing the natural outgoing tendency of the mind. That is, from *bahirprajña* to *anthaprajña*. A proper psychological understanding of this process is essential for the practice of *dhāraṇa, dhyāna,* and *samādhi*.

Most people are familiar with Ashtanga Yoga of Patanjali. But Patanjali also discusses "Kriyā Yoga" in the 2nd quartet of Yoga Sūtra called "Sadhana Pāda." This is the focus of chapter 5. Now-a-days the term Kriyā Yoga has come to be associated with the teachings of Paramahamsa Yogananda who founded the Integral Fellowship in USA. His lineage is traced back to what is known as Dattatreya sampradaya in India which ushered in Guru-Shishya parampara. But the Kriyā Yoga that Patanjali discusses is different and it appears to be the primary part in his system. Often this does not get highlighted in literature.

Kriyā Yoga according to Patanjali refers to *tapas* (practice of austerity). *swādhyāya* (self-study) and *Ishwara pranidhana* (surrendering to the Lord). The author has highlighted in the chapter how one can deal with *kleśa* (afflictions) through the practice of Kriyā Yoga. Kleśa refers to *raga* (attractions/ approach), *dvesha* (repulsion/avoidance), and *abhinivesha* (tendency to cling to life). All human suffering is explained by Patanjali in terms of these three concepts. They are like higher order factors of emotion and motivation. They can be further broken-down into primary factors. These three primary emotions serve as fundamental motives for all our activities and contributes for *avidya*, which is the root cause for suffering and prevents us from realizing our true Self and thus attain *ātyantika sukha*, everlasting happiness. These are very important from a psychological point of view because if one has to achieve the final goal of yoga one has to overcome kleśas.

The elaborate discussions on afflictions and the ways to deal with them in the chapter 5 is a very significant contribution by the author to understand Yoga psychology. If one understands the intrinsic logic involved between the kleśas and the procedures recommended to overcome them it is possible to create an indigenous framework for understanding many clinical issues and develop interventions strategies for counseling and therapy based on the yoga Sūtra. In this direction there is already some attempts made by Raghu Ananthanarayanan (2022) which the author recommends. One may also refer to Satish and Shah (2021) and Tripathi (2021).

The chapters 6 and 7 – "The transformation of consciousness in Samādhi (I): An account from

inside the text" and "The transformation of consciousness in Samādhi (II): Looking from outside it" are very crucial because a lot of developments are taking place in transpersonal psychology and consciousness studies at the moment. A lot of work has been conducted on the states of consciousness and researchers have compared the different stages of samādhi described by Patanjali with other such descriptions available in other spiritual traditions. A best example of that is a publication dating back to a few decades (see Wilber, Engler, and Brown, 1986). Here in chapter 6 the author has endeavored to clarify the different stages of samādhi enunciated by Patanjali in psychological terms which has implications for understanding the varieties of meditative phenomena.

However, it is in Chapter 7 we find very interesting insights about how some of the western psychologists came very nearer to Indian thinking in their understanding about different states of awareness but stopped short of fully realizing the human potential as enunciated in the Indian traditions as a whole and in the Yoga Sūtra in particular. With his extensive knowledge and scholarship of modern psychology the author has highlighted the aspects in the thinking and views of Edmund Husserl, Jean Piaget, and Carl Jung which are compatible with yoga psychology and at what point their views diverge. For example, he discusses about Husserl's techniques of phenomenological reduction and *epoche* and compares it with the yogic steps and their effects. Similarly, he discusses about the differences between Jung's concept of consciousness and his refusal to accept it without an ego at the center unlike the idea of a Pure Consciousness which is beyond any sense of personal identity. These insights are very useful particularly in the field of transpersonal psychology because many researchers employ Husserl and Jung in understanding phenomena associated with yoga practices particularly dharana, dhyana, and samādhi.

What is more surprising is the author's efforts to bring in Piaget also in this discussion. Those who know the author in person are aware of his encyclopedic knowledge about the history and development of psychology and about the biographical and historical background of the works of many of the pioneering psychologists. That is in display here also when he discusses about Piaget's personal belief in the immanence and transcendence of God. The author states as follows: "Here it should be obvious that Piaget's views of God are entirely in sync with the Sāṁkhya-Yoga view of Purusa as both immanent and transcendent. This is as close as one could get in terms of commonality in fundamental principles between the views of a prominent contemporary psychologist on the one hand and Yoga psychology on the other. Beyond this fundamental principle, however, Piagetian and Yoga psychologies move in different directions." (p.99). Then the author shows how Piagetian belief in immanence and transcendence influenced the development of his theories on moral development and also cognitive development. It will be interesting to pursue research on Piaget and Patanjali. Some post Piagetian researchers have conducted studies on levels of cognitive development beyond the formal-operational stage. They have noted that there can be two more stages – dualistic and unitary thought. It is suggested that Samkhya-Yoga Systems are products of dualistic level and Vedanta is a product of unitary level. Beyond this level is the Pure Consciousness (Ajaya, 1983). It is worth pursuing further research in this direction.

The Chapter 8 is "Yoga as Self-realization." In this chapter the author is at his best because he is a veteran in discussing ideas related to self and identity. The author is well-known for his extensive contributions in the field of Indian psychology and his work titled *Self and Identity in Modern Psychology*

*and Indian thought* (Paranjpe, 1998) will remain a classic and most frequently referenced work on this subject for many years to come. In this chapter the author has discussed all the concepts related to self. Most importantly the distinction between self-actualization and self-realization which is basic to understand Yoga psychology in particular and Indian psychology in general is very well elucidated. In this chapter the author has clearly shown the difference between the two and draws our attention to "Maslow's turn from self-actualization to self-transcendence (p.124)."

I personally would prefer to bring in this chapter in the beginning along with the first three which provide a comprehensive theoretical perspective. That would make many of the points in later chapters much clearer to readers. Though the author had his own reasons to place it in the end, as a reviewer, my recommendation for the readers is first get an overall sense of Yoga psychology by reading this chapter and then go on to read all the other chapters.

Chapter 9 is "Back to the Context: "Where does Yoga psychology stand in psychology today?" In this chapter in "...finding a place for Yoga psychology in the current academic context" the author examines the "major trends in contemporary psychology" – Skinner's radical behaviorism, cognitive psychology, psychoanalysis, and transpersonal psychology. In this process his reflections on 'mainstream psychology' are thought provoking. Finally, the author sees hope in the newly emerging 'contemplative approaches to psychology' as the possible place to locate Yoga psychology. There are also two sections which are interesting – "the unwitting role of the 'science' of psychology in contributing the disdain for Yoga psychology" and "the colonial hangover of psychology in India today and the need for decolonization." A lengthy section on "the mainstream of psychology" critically examines what it is all about and towards the end the author highlights how it is different from Yoga psychology. He states thus: "To put it in a nutshell assuming that the characterization of the mainstream of psychology is historically and philosophically grounded in reductionism is correct Yoga psychology stands in sharp contrast with the core of the mainstream of contemporary psychology." (p.138).

Another feature is commitment of mainstream of psychology "to continued amassing of empirical data with the implicit hope that it will develop into a grand nomological net, which will accurately describe the entire set of facts in the field of psychology and beyond." (p.138). The author says as long as this is the main business in mainstream of psychology the "gaze remains exclusively 'extrospective' focusing on the 'other one." He adds, "such an enterprise is radically different from that of Yoga psychology which is not only 'introspective' but also aims at the principal goal of self-transformation." (p.138). If it is so then how do we go about doing Yoga psychology differently? The author's answer for this is as follows. "To that end, Yoga psychology needs to adopt a different orientation, which may be called *contemplative.*" (p. 138). The last section of the chapter discusses the emergence of "contemplative approaches to psychology."

The last part of the book is, "Postscript: Where do we go from here?" It is not a chapter but it is an extension of his views and reflections from the Chapter 9 as applied to Indian context. He is concerned about the way psychology in India has been pursued and the indigenous Yoga psychology is neglected. He advocates for a shift in research strategy in yoga studies. He states thus:

> "Empirical research on the benefits of the physical aspects of Yoga has already become an international enterprise. It is going forward on its own steam and may sustain in coming years. What needs attention is phenomenological research on the experiential aspects

(*antar aṅga*) of Yoga. A methodologically sophisticated investigation of the experiences of the advanced yogis is urgently needed." (p. 145).

In support of this recommendation the author cites the ongoing work conducted in Sri Krishnamacharya Yoga Mandiram at Chennai and more specifically the work of Sri Raghu Ananthanarayanan (see Reference) a disciple of Sri Krishnamacharya and his son Sri T. K. V. Desikāchār, on *Antaraṅga-Yoga*. Further, the author also recommends change in pedagogy of psychology. His opinion is as below:

> "Pedagogical shift in teaching is needed following the recent developments in contemplative approaches to psychology. This can be a complement to the purely didactic and impersonal approach that prevails in educational systems at large. This is particularly relevant to psychology." (p.145).

The author's recommendations are timely because contemporarily research on yoga has been pursued from different perspectives in mainstream psychology which includes clinical, cognitive, neuropsychological, humanistic, and trans-personal. The researchers tend to develop their hypotheses from the conceptual framework of these perspectives and approach yoga practices as independent variables to be studied for their effects or outcome in relation to those hypotheses. Then what we understand about yoga is not necessarily the same as Yoga intended in the spiritual context. Such an approach necessitated to draw a distinction between Psychology of yoga and Yoga psychology (see Salagame, 2010). Durganand Sinha (1965) pointed out that there is a difference between treating culture as a "target" and culture as a "source" in cross-cultural studies. The former involves controlling the socio-cultural variables that affect the main hypotheses and outcome of a study. On the other hand, in the latter socio-cultural factors, ideas, concepts, etc., are given importance as sources to generate hypotheses to conduct a study. Considering this distinction Yoga as a system of psychological theory and practice has many insights which can help to generate many hypotheses to conduct research. For this what is essential is to approach the contents of Yoga Sūtra in a way that renders them amenable to formulate research questions and hypotheses. This book helps a lot for this purpose.

One important omission in this book that cannot escape anyone's notice who is familiar with Patanjali's text is about the *vibhūti pāda*. In this quartet Patanjali discusses in detail about the practice of *dhāraṇa, dhyāna, samādhi* and of a state called *samyama*. According to Patanjali samyama is the key to actualize the dormant psychic powers in human beings known as *siddhi* which are of eight types. As per the teachings of all spiritual masters from ancient to modern times human beings are capable of developing infinite power and infinite knowledge through the practice of yoga. At the same time, they are all vary of displaying it and discussing about it. As Patanjali has pointed out acquisition of such powers can also create bondage and hence suffering. Hence, renunciation of even these powers is recommended by him in this quartet in sūtra 51 to come out of all bondage to attain *kaivalya* which is the ultimate goal of yoga sādhana. Otherwise, the infinite powers can lead to downfall (sūtra 52). However, many a spiritual masters do use such powers with due discretion with full control and with a sense of detachment. Therefore, there is no harm in discussing about *siddhi*. It is strange that the author does not discuss about this anywhere. He does not even make a reference to it let alone giving reasons for this glaring omission. I feel the book is an incomplete presentation of Patanjali's Yoga psychology because of this.

In conclusion, the book can be considered as falling in the genre of earlier works (see Coster, 1934; Abhedananda, 1960; Rao, 2017; Ananthanarayanan,

2022) which focused on highlighting Yoga as psychology with particular reference to Patanjali's system. In each chapter the author has put his best efforts to show how yoga as a system of psychology stands in its own right by comparing it with many aspects of contemporary psychology. He has also attempted to bridge the gap wherever it is appropriate and relevant in each chapter by drawing parallels between the Samkhya-Yoga ideas and contemporary thinking in philosophy, physics, and psychology. One can build upon the valuable insights present in this book.

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# Obituaries

## In the Memory of Dr. Ram Gopal Sharma

### Mentor of many Clinical Psychologists: Affectionate, Loving, Caring & the Most Liked Teacher

July 1936 – October 2023

Dr. Ram Gopal Sharma (Fellow 40), was one of the founding members of Indian Association of Clinical Psychologists, who also served the IACP as the second Hon. General Secretary. Dr. R.G. Sharma did his early schooling in Mathura (U.P.), and obtained his Graduate and Post Graduate degrees in Psychology from Agra University. He subsequently joined as a second batch trainee (1963-1965) of 'Diploma in Medical & Social Psychology' at H.M.D. (now C.I.P), Ranchi.

He was awarded a Ph.D. degree for his research work on 'Nutrition and Mental Retardation' under the supervision of Dr. K. Bhaskaran (1970), following which he joined as a faculty member at CIP, Ranchi in July 1971. He served CIP till 1993 and after his superannuation, he joined the Department of Psychiatry, Institute of Medical Sciences, BHU Varanasi in December 1993 and served this department till 1998. Post retirement, he settled in Varanasi where he lived with his family until his passing on the 18th of October, 2023.

During tenure at CIP he was awarded the WHO fellowship for specialised training in the area of Community Mental Health and Behaviour Therapy at 'Institute of Psychiatry' London.

A Total of 30 Ph.D. research studies were carried out under his supervision and he has around 50 research publications to his credit in various national and international journals.

He was a very good friend, a father figure and guardian to all his students under guidance and supervision. Apart from being a good teacher, he was a polite and gentle; full of compassion and humility, who will always be remembered fondly by a generation of students and colleagues.

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# In the Memory of Dr Surya Gupta

1941 - 2023

It is with profound grief that we notify the readers, Dr. Surya Gupta, a distinguished former Additional Prof. Clinical Psychology (NSC/ Neurosciences Centre) who worked at Clinical Neuropsychology, Neurosciences Centre, All India Institute of Medical Sciences (AIIMS), New Delhi, passed away in December 2023 at the age of 82. Earlier, he worked as an Assistant Professor at Clinical Psychology (NSC) at AIIMS, New Delhi. He served the discipline with passion and dedication for over 35 years and superannuated in 2003. He strengthened the practice of Clinical Neuropsychology with commendable contributions like the AIIMS Comprehensive Neuropsychological Battery for Adults, Children and Dementia. It is noteworthy that he was able to get funding for the projects from ICMR which is not an easy task for Para-Clinical/Para-Medical Professionals like ours (as term by Sneh Bhargava Commission) which is the true nomenclature followed at AIIMS for professional functioning. He worked diligently as a part of multidisciplinary team at the Centre.

Born in 1941 at a small town named Bulandshahr, in Western Uttar Pradesh, Dr. Gupta came from a humble family. He was the third among seven siblings. His father migrated to the district headquarters and became a Teacher of Urdu/Persian Language at the Dayanand Ango-Vedic Inter College. It was a family deeply rooted in education and culture, with five of the seven siblings assuming academic careers.

In his early years, back in 1955, as a 14-year-old, he had to stop formal schooling to assist his father in a family side business of a "book shop". In the ensuing 3 years, he completed his Intermediate through non-formal schooling. During this period, he also developed an undying love for books and words, which was evident from his prolific linguistic skills. Dr. Gupta exhibited an innate curiosity and passion for understanding the intricate workings of the human mind from an early age.

He did his graduation and Post-Graduation in Psychology, from the NREC College Khurja which was a prominent seat of learning in the district (Estt. In 1901). His quest for learning human behavior took him to Aligarh Muslim University from where he completed his Post Graduate training in Applied Psychology. His external examiner and later to be mentor, guide and godfather Prof. Jaswant Singh Neki recognized the spark in him and took him under his wing to Punjab Mental Hospital, Amritsar and had a profound impact on Dr. Gupta. On Prof. Neki's insistence from Amritsar, he went to the then All India Institute of Mental Health (now known as NIMHANS), in Bangalore and completed his further training in Medical and Social Psychology in 1967. He worked at the GB Pant Hospital for two years and finally joined AIIMS, New Delhi in 1969. The services of clinical neuropsychology at AIIMS were established in 1969 under the tutelage of Dr. Surya Gupta. He conducted clinical neuropsychological assessments, taught the discipline to DM (Neurology), MCh (Neurosurgery), and MD (Psychiatry) students, along with guiding research assignments allotted to postgraduate students of the above mentioned three departments (in areas involving the neuropsychological workup).

His pioneering work in the field of Neuropsychology resulted in the genesis of four Neuropsychological Test batteries for Hindi population to localize and lateralize of brain lesions in Adults and Children and a Dementia Scale for the elderly. He started the "Group for the Advancement of Psychology in India", and tirelessly worked for proper recognition of the specialty of Clinical Psychology and Clinical Neuropsychology in the country. For fifteen years he ran a bi-monthly newsletter by the name of "Psyche-Care News" under GACPI. His passion for writing resulted in his writing a monthly column called "Psychology for Everyday Life" in the Deccan Herald, which ran for almost a decade. Armed with a keen intellect and a compassionate heart, Dr. Gupta embarked on a career dedicated to unraveling the mysteries of the brain and enhancing the lives of countless individuals.

Dr. Surya Gupta leaves behind a legacy of excellence professionally, and compassion in his personal life. His contributions to the field of Clinical neuropsychology will endure for his successors.

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# In the Memory of Mrs. Satrupa Tyagi

1978 - 2023

We are deeply saddened by the premature demise of Mrs. Satrupa Tyagi, who was only 46 years old, a beloved clinical psychologist and educator, who left for her heavenly abode in 2023 after a very brave fight against combined complications from gallbladder surgery and diabetes. A late resident of Shalimar Garden, Ghaziabad, she maintained a commendable private practice in that place, offering psychological therapy and counseling to needy individuals.

She had an academically commendable career, passing out with an M.Phil in Clinical Psychology from Ranchi Institute of Neuropsychiatry & Allied Sciences (RINPAS), Ranchi, in 2004 and post-graduation from Guru Jambheshwar University, Hisar, in 2001. Mrs. Tyagi was a NET-qualified professional too. She started her career at the Institute of Human Behaviour and Allied Sciences (IHBAS), New Delhi. Dr. Satrupa's interest in teaching made her join AMITY University, Noida, as an Assistant Professor from 2006-2008 where she guided and motivated many students in the field of psychology. Later, she again joined IHBAS, serving as a clinical psychologist for three years, from 2008 to 2011, after which she took on the part of being a school counselor at J.D. Goenka Public School and DPS Rajnagar in Ghaziabad.

She was dedicated to the well-being of her clients and provided care with compassion, both in her professional surroundings and in her private practice.

She was committed to practicing clinical psychology and being involved in the Indian Association of Clinical Psychology. She frequently gave talks about her research and works at academic conferences and national conferences, earning the esteem of her peers for her dedication and wisdom. Everyone who came into contact with her, whether on a personal or professional level, were impressed by her warm and grounded character.

Even in the face of deteriorating health, she worked very sincerely and never wavered in her dedication to the mental health community or her work. Her professionalism, kindness, and caring legacy will always inspire everyone who knew and worked with her. Her cherished ones, dear friends, and the numerous people she met through her practice, teaching, and advocacy ensure that her memories endure. Although Mrs. Tyagi's absence will be felt deeply, her contribution to clinical psychology will live on in many memories.

May she rest in peace.

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# Greetings from the New Editorial Team!

Dear Authors, Reviewers, Subscribers, and Members of IACP,

At the outset, we express our sincere gratitude to the IACP for the opportunity to serve the association. We appreciate your patience during the journal's transition phase, and we remain committed to enhancing its quality and showcasing the valuable contributions of our members.

We extend our heartfelt thanks to the previous editorial team for their outstanding work and achievements in elevating the journal to its current standard. We pledge to uphold these accomplishments and strive to reach new heights.

We kindly seek the support and encouragement of all members as we embark on this journey with the editorial board.

Thank you!

**Dr. M. Manjula**
**Dr Paulomi M Sudhir**
**Dr Ravikesh Tripathi**