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Impulsivity, Trait Mindfulness and Intolerance to Uncertainty as Factors in Cannabis Abuse: A Study on Emerging Adults

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ABSTRACT

The domains of impulsivity that are negative urgency, positive urgency, sensation seeking, lack of premeditation, lack of perseverance, trait mindfulness and Intolerance of Uncertainty have gathered attention due to their association with cannabis abuse. The aim of the present study was to explore relationship between severity of cannabis abuse in level of negative urgency, positive urgency, sensation seeking, lack of premeditation, lack of perseverance, trait mindfulness and Intolerance of Uncertainty among participants with cannabis abuse, to explore the differences in the variables between those consuming cannabis and healthy controls and to explore the gender difference in all the studied variablesamong participants with cannabis abuse. Cross sectional data were collected from different universities in Rajasthan (N=72). A significant positive correlation was found between severity of cannabis consumption and the studied variables negative urgency, lack of premeditation, sensation seeking, lack of perseverance, positive urgency and intolerance to uncertainty. A significant difference was found in level of negative urgency, lack of premeditation, sensation seeking between, lack of perseverance, trait mindfulness and level of intolerance to uncertainty between cannabis abuse group and healthy controls. No significant gender difference was found in the studied variablesamong participants with cannabis abuse. The findings suggest that multiple impulsivity facets, trait mindfulness and intolerance to uncertainty have a significant positive correlation with severity of cannabis abuse and that there is a significant difference in different impulsivity domains, trait mindfulness and intolerance to uncertainty among cannabis abusers and healthy controls.

Key Words: *Negative urgency, Positive urgency, Sensation seeking, Lack of premeditation, Lack of perseverance, Trait mindfulness, Intolerance of Uncertainty*

BACKGROUND

Emerging adulthood is defined as the time period from the end of adolescence to young adulthood which comes with responsibilities of a stable job, work, marriage, and parenthood (Munsey, C. 2006; Arnett, 2000). Experimenting with alcohol and illicit drugs during emerging adulthood is very common; individuals are keen to try different types of drugs like cocaine, alcohol, cannabis, opium, and more leading to a major problem of substance abuse and addiction in young adults (Johnston et al., 2004). According to the World Health Organization (WHO), substance abuse is persistent drug use inconsistent with or unrelated to acceptable medical practice. Due to drug addiction, an uncountable number of people are leading very miserable life in every aspect of their lives. India too is struggling in this vicious cycle of drug abuse, and the number of drug addicts is increasing day by day (Nadeem et al., 2009).One of such drugs is Marijuana. Marijuana is also called pot, weed, ganja, herb, grass, bud, Mary Jane and it is a greenish-gray mixture of the dried flowers and leaves of Cannabis sativa. Some people smoke marijuana in joints;bongs, in pipes, water pipes, in blunts which is marijuana rolled in cigars.(NIDA 2019).

One of the most widely studied and researched, but poorly agreed, personality constructs studied in relation to drug use is Impulsivity. Impulsivity is broadly defined as traits and behaviors that predispose individuals to rash or ill-advised actions (DSM-IV; American Psychiatric Association, 1994). Impulsivity-related traits have more robust relationships with negative marijuana consequences than marijuana use, suggesting impulsivity-related traits are important in differentiating adolescents most likely to experience negative consequences from marijuana use (Vander Veen et al., 2016). A multidimensional measure of impulsivity (the UPPS scale) which is divided into five components Negative urgency, Lack of Premeditation, Lack of Perseverance, Sensation Seeking, and Positive Urgency helps to explain impulsivity through its subdivisions. (Kaiser et al., 2012).

Negative urgency holds an important place in the literature of personality. The term negative urgency has been explained as an individual's tendency to engage in impulsive behavior when they experience feelings of distress; it has been linked with several uncertain problematic behaviors (Depue et al., 1999; Evenden et al., 1999). A growing body of evidence suggests that negative urgency is one of the strongest predictors of various maladaptive behaviors and psychopathologies, including alcohol use and addiction (Hershberger et al., 2020) tobacco use and dependence (Spillane et al.,

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2010; Lee et al., 2015) and problematic cannabis use (Wolitzky et al., 2016; Littlefield et al., 2015).

Positive urgency is explained as a tendency to lose control under positive emotions (Cyders & Smith, 2007). There is empirical evidence that positive mood is often a precursor to many kinds of risky behavior, (Cooper, Agocha, and Sheldon 2000) showed that motivation for drinking was associated with increased involvement in drinking, alcohol-related problems, and risky behavior among college students. It has been found that induced positive mood states increase the risk of impulsive behavior (Yuen & Lee, 2003; Del Boca et al., 2004)

The term sensation seeking is defined as a predisposition to try new and stimulating activities. (Whiteside et al., 2003). Individuals who are addicted to substances also have been seen to have high sensation seeking (Kosten et al., 1994; Bickel et al., 1999). Low level of premeditation is related to high sensation seeking behaviouron problematic drug use (McCabe et al., 2015). Investigations of sensation-seeking in drug abusers alone have shown that the number of drugs used correlates positively with sensation-seeking and that poly drug user has significantly higher scores than users of depressants only. It has been found that high-sensation-seeking cocaine abusers exhibited more severe symptoms of substance abuse, have a more severe psychosocial impairment and are more likely to be poly substance abusers, with an earlier age of onset for substance use and abuse. (Lejuez et al., 2002). Few studies have systematically examined the relationship between substance abuse and sensation seeking in subjects with comorbid neurotic disorders such as anxiety or depression (Ball et al., 1994).

Lack of perseverance is an individual's inability to maintain the level of effort needed during a demanding task. It refers to an individual's inability to remain focused on a task that may be boring or difficult (e.g., "I tend to give up easily") (Whiteside et al., 2003). Individuals high in lack of perseverance show difficulty in completing tasks and working under conditions that need resistance (Whiteside et al., 2003). Significant relationship between positive urgency and lack of perseverance was found, indicating that individuals at low levels of Positive Urgency and Lack of Perseverance drink less on co-use when compared to only alcohol days. Marijuana use has been significantly related to all impulsivity-related traits except lack of perseverance (VanderVeen et al., 2016; Romer et al., 2018).

Lack of premeditation is a tendency to make decisions without considering their consequences; it is consistent with several previous efforts to describe impulsivity. It is explained as the inability to think and reflect on the consequences of a situation or act before experiencing that situation (Whiteside et al., 2003; Madden et al., 1997). Lack of premeditation was significantly important in predicting alcohol-related problems in one study of college students, yet the association was not found in another study of college students. Negative consequences of marijuana use are significantly related to sensation seeking, lack of planning, and positive urgency. Except for lack of perseverance marijuana or cannabis use is significantly related to all impulsivity-related traits (VanderVeen et al., 2016). Cannabis users show a lower degree of certainty before deciding on a task (Solowij et al., 2012).

Another variable that is mindfulness has grown to be a subject of curiosity in understanding mental health of the youth. The term mindfulness has been described as the intentional attention toward experience as it arises in the present moment and is characterized by a non-judgmental, open receptivity toward all phenomena (Bishop et al., 2004). Relation between trait mindfulness and early maladaptive schemas among adult men seeking residential substance abuse treatment demonstrated strong negative associations between trait mindfulness and early maladaptive schemas (Shorey et al., 2015). Trait mindfulness is differentially related to distinct substance use behaviors (Black et al., 2015). In particular, trait mindfulness has been most consistently related to alcohol use behaviors (Murphy et al., 2012), but the relationship has been less consistent for tobacco use (Adams et al., 2012) and marijuana use behaviors (Karyadi et al., 2014).

Intolerance of uncertainty (IU) has been defined as a dispositional characteristic that is a result of a set of negative views and beliefs about uncertainty leading to reacting negatively on the cognitive, emotional, and behavioral levels to uncertain events and situations (Buhr & Dugas, 2009). Literature suggests that IU plays an important role in the onset and course of GAD. Intolerance to uncertainty is a personality trait characterized by a tendency to perceive uncertain situations negatively and make attempts to avoid those (Gorka et al., 2016). This perception believes that uncertainty is unfair, has favorable consequences, and involves an underlying fear of the unknown (Carleton e al., 2012). Intolerance of uncertainty is associated with drinking to manage or avoid negative emotions, and interventions aimed at reducing intolerance of uncertainty may help reduce problematic alcohol consumption among college students (Kraemer., et al 2015). It is also importance to consider intolerance to uncertainty in treatment efforts for individuals experiencing cannabis-related impairment (Jeffrieet al., 2015).

METHODS

Aim and Objectives:

- To examine the relationship between the severity of cannabis abuse and the level of negative urgency, lack of premeditation, sensation seeking, lack of perseverance, and positive urgency along with trait mindfulness and Intolerance to uncertainty in participants with cannabis abuse.
- To explore the difference in the level of negative urgency between participants with cannabis abuse and healthy controls.
- To explore the difference in the level of lack of premeditation between participants with cannabis abuse and healthy controls
- To explore the difference in the level of sensation seeking between participants with cannabis abuse and healthy controls
- To explore the difference in the level of lack of perseverance between participants with cannabis abuse and healthy controls
- To explore the difference in the level of positive urgency between participants with cannabis abuse and healthy controls
- To explore the difference in the level of trait mindfulness between participants with cannabis abuse and healthy controls
- To explore the difference in the level of intolerance to uncertainty between participants with cannabis abuse and healthy controls
- To examine the gender difference in the level of negative urgency, lack of premeditation, sensation seeking, lack of perseverance, positive urgency, trait mindfulness, and Intolerance of Uncertainty among participants with cannabis abuse.

SAMPLE

To assess impulsivity which is defined through different components (negative urgency, lack of premeditation, sensation seeking, lack of perseverance, positive urgency) trait mindfulness, intolerance to uncertainty as factors in cannabis dependence among emerging adults with cannabis dependence and comparing them to healthy controls, snowball sampling technique was used for the study. The inclusion criteria consisted of both male and female participants belonging to the age group between 18-29 years. Participants meeting the criteria of cannabis abuse on a standardized measure from at least 3 months were selected along with healthy participants, which was determined through screening assessments and the Principal Investigator's judgment. Participants with educated up to at least 12th standard with working knowledge of the English language and without any current or past history of severe mental and physical disorder were selected for the study. Other age groups were excluded from the study and the participants not meeting the criteria for dependence on any other substance, below the 12th standard of education level and those with current or past history of treatment for Cannabis Dependence or any other major mental and physical health disorder were excluded from the study.

TOOLS:

Sociodemographic Form (developed by the researcher)

ASSIST (The Alcohol, Smoking, and Substance Involvement Screening Test) World Health Organization (WHO, 2010).

GHQ 12 ITEM (The General Health Questionnaire) (Goldberg et al., 1972)

S-UPPS-P Impulsive Behavior Scale: The Short UPPS scale (Urgency-Premeditation-Perseverance-Sensation Seeking-Positive urgency) (Whiteside et al., 2001)

The Mindful Attention Awareness Scale (Brown et al., 2003)

Intolerance of Uncertainty Scale (IUS) (Freeston et al., 1994)

PROCEDURE OF THE STUDY:

The study took place in Rajasthan. The sample of emerging adults consuming cannabis and healthy controls was drawn from different Universities, de-addiction centers, and online platforms for the research**.** In phase, I in the initial period ethical approval for conducting this research was obtained from the ethics committee of Mahatma Gandhi Medical College and Hospital. Informed consent was obtained from the Department of clinical psychology and the authorities of Mahatma Gandhi University to carry out the research. Participants were recruited for the study based on the inclusion and exclusion criteria. Informed consent and socio-demographic details were taken from all the participants. Initially, the total sample collected was 55 early adults consuming cannabis for the past 3 months, but 19 of them were not able to meet the criteria of the study and hence were screened out. A sample of 50 control groups was selected but 23 of them did not meet the criteria of the study and hence were screened out. Thus a total of 72 participants were included in the final stage of the study. Among which 36 were individuals smoking cannabis and 36 were healthy controls.

In phase II the participants were administered the UPPS-P Impulsive Behavior Scale, (MAAS) The Mindful Attention Awareness Scale, and the Intolerance of Uncertainty Scale (IUS). The data was collected from the state of Rajasthan through different

Universities and online platforms for the research. Legal and ethical considerations were taken into account while doing data collection.

DATA ANALYSIS

Data was analyzed using IBM SPSS 28. Both descriptive and inferential statistics was used such as Percentage, Frequency, Standard Deviation, Mean, Independent sample t-test, and Pearson r correlation.

RESULTS

Table 1: Pearson correlation of severity of substance abuse with all the variables

VARIABLES	CAS	NU	LPM	SS	LPE	PU	M	ITOU
CAS	1	.464**	.377*	.419*	.646**	.541**	.024	.471**

Note. CAS(Cannabis abuse severity), NU (Negative urgency),LPM (Lack of premeditation),SS(sensationseeking),LPE(Lackofperseveration),PU(positiveurgency),M(mindfullness),ITU(intolerance to uncertainty)
*$p < .05$. **$p < .01$

Table 2: t-Test results comparing cannabis smokers and non-cannabis smokers on the study variables

	Cannabis smokers		Non Cannabis smokers			
Variables	M	SD	M	SD	T(70)	p
NU	11.33	2.673	7.44	1.949	7.055	.01**
LPM	10.47	2.249	7.53	2.490	5.266	.01**
SS	10.78	2.416	8.33	2.746	4.010	.01**
LPE	8.17	2.261	7.11	1.545	2.312	.024*
PU	10.75	3.316	10.03	3.256	.933	.354
M	3.4241	1.02751	4.7222	.79435	-5.997	.01**
ITU	86.33	16.105	58.33	20.483	6.448	.01**

Note. NU (Negative urgency), LPM (Lack of premeditation),SS (sensation seeking),LPE(Lack of perseveration),PU(positive urgency),M(mindfulness),ITU(intolerance to uncertainty), *M(mean), SD(standard deviation)*
*$p < .05$ **$p < .01$

Table 3: t test results comparing male and female on study variables

	Male		Female			
Variables	M	SD	M	SD	T	p
NU	11.0952	2.58660	11.6667	2.84521	-.617	.535
LPM	10.4762	2.01542	10.4667	2.61498	.012	.990
SS	10.8571	2.57460	10.6667	2.25726	.230	.819
LPE	8.1429	2.30837	8.2000	2.27408	-.074	.942
PU	10.3333	3.55434	11.3333	2.96808	-.890	-1.00000
M	3.6349	.89209	3.1289	1.15867	1.481	.50603
ITOU	85.67	16.178	87.27	16.520	-.290	-1.600

Note. NU (Negative urgency),LPM (Lack of premeditation),SS (sensation seeking),LPE(Lack of perseveration),PU(positive urgency),M(mindfulness),ITU(intolerance to uncertainty), *M(mean), SD(standard deviation)*
*$p < .05$ **$p < .01$

DISCUSSION

The first objective of the study examined the relationship between the severity of cannabis abuse and the level of negative urgency, lack of premeditation, sensation seeking, lack of perseverance, and positive urgency along with trait mindfulness and Intolerance of Uncertainty among participants with cannabis abuse. Results which can be seen from table 1 found a significant positive correlation between cannabis abuse severity and negative urgency ($r=0.464$, $p<0.01$), indicating that as the severity of cannabis consumption increases that is high risk of experiencing severe problems (health, social, financial, legal, relationship) negative urgency, explained as an individual's tendency to engage in impulsive behavior when they experience feelings of distress also increases. The current findings were supported by previous works of literature, as a study found that negative urgency emerged as the best predictor, relating to substance use and made it clear that negative urgency is related to all substance use outcomes (Alison et al., 2012).Another study found negative urgency as a unique moderator of the daily relationship between cannabis and alcohol consumption (Daro et al., 2022).

The relationship between the severity of cannabis abuse and lack of premeditation. Results which can be seen from table 1 found a significant positive correlation between cannabis abuse severity and lack of premeditation ($r=0.419$, $p<0.05$), indicating that as the severity of cannabis consumption increases that is high risk of experiencing severe problems (health, social, financial, legal, relationship) lack of premeditation, explained as an individual's tendency to make decisions without considering their consequences also increases. Through extensive research and literature, the result was supported and it was found that premeditation is a risk factor for individual differences in problematic substance use among young adults, (McCabe et al., 2015). Another similar finding found that lack of premeditation was significantly related to illicit substance use in young adulthood (Shin et al., 2013).

The significant relationship between the severity of cannabis abuse and sensation seeking was also examined. The result which can be seen in table 1 found a significant positive correlation between cannabis abuse severity and sensation seeking ($r=0.377$, $p<0.05$), indicating that as the severity of cannabis consumption increases that is high risk of experiencing severe problems (health, social, financial, legal, relationship) sensation seeking, defined as predisposition to try new and stimulating activities also increases. Previous literature supports the current findings; a study found that sensation-seeking is strongly associated with cannabis problems (Kearns et al., 2022).

The present study examined the correlation between the severity of cannabis abuse and lack of perseverance. Results can be seen in table 1 that there was a significant positive correlation between the severity of cannabis abuse and lack of perseverance ($r=0.646$, $p<0.01$), indicating that as the severity of cannabis consumption increases that is high risk of experiencing

severe problems (health, social, financial, legal, relationship) lack of perseverance, defined as individual's inability to maintain the level of effort needed during a demanding task also increases. Our findings are supported by previous literature where a huge account of researchers has found a direct relationship between the degree of cannabis abuse and lack of perseverance. A study suggests that specific impulsivity facets are prospectively associated with cannabis problems and lack of perseverance is most prominent (Kearns et al., 2022).

The present study focused to examine the relationship between the severity of cannabis abuse and positive urgency. The result which can be seen in table 1 states that a significant positive correlation was found between cannabis abuse severity and positive urgency ($r=0.541$, $p<0.01$), indicating that as the severity of cannabis consumption increases that is high risk of experiencing severe problems (health, social, financial, legal, relationship) positive urgency, defined as individual's tendency to lose control under positive emotions also increases. In support of current findings, many studies have been done on positive urgency and its relation with cannabis abuse. In a study, it was found that positive urgency was associated with the problematic use of cannabis, and the chances of cannabis addiction increased (Romer et al., 2018).

The study aims to examine the relationship between the severity of cannabis abuse and trait mindfulness. Results that can be seen from table 1 found no significant correlation between the severity of cannabis consumption and trait mindfulness($r=0.024$) which is increased focus in the present moment in a non-judgmental manner. In adjunction with the current findings, a study found that the mindfulness facet was not a significant moderator of substance use behavior (Karyadi et al., 2014). Another study found no relationship between trait mindfulness and motivation to change cannabis use (Lin et al., 2021).

The present study also examined the relationship between the severity of cannabis abuse and intolerance to uncertainty. Results that can be seen from table 1 found a significant positive correlation between cannabis abuse severity and intolerance to uncertainty ($r=0.471$, $p<0.01$), indicating that as the severity of cannabis consumption increases that is high risk of experiencing severe problems (health, social, financial, legal, relationship) intolerance to uncertainty also increases. Previous research that supported the current findings stated that adolescent cannabis users scored higher on intolerance to uncertainty (Moreno et al., 2021).

The research focus to explore the difference in the level of negative urgency, lack of premeditation, sensation seeking, lack of perseverance, and positive urgency along with trait mindfulness and intolerance of uncertainty between participants with cannabis abuse and healthy controls. The results which can be seen from table 2 suggest that there is a significant difference in level of negative urgency between cannabis abuse group and healthy controls ($t=7.055$, $p < .01$). This indicated that participants with cannabis abuse scored higher ($M=11.33$, $SD= 2.673$) on negative urgency than healthy controls ($M=7.44$, $SD=1.949$). The result is consistent with prior studies that show Neuroticism, Negative Urgency, and Distress Tolerance all demonstrated significant relations with substance use outcomes. It was also seen that negative Urgency achieves statistical significance as a predictor of all substance use outcomes (Alison et al., 2012).

The difference in the level of lack of premeditation between participants with cannabis abuse and healthy controls. Which can be seen from table 2 shows a significant difference in level of lack of premeditation between cannabis abuse group and healthy controls ($t=5.266$, $p < .01$) this indicated that participants with cannabis abuse scored higher ($M=10.47$, $SD= 2.249$) on lack of premeditation than healthy controls ($M=7.53$, $SD=2.490$). Through previous research the current findings are supported, a study found that young adults who have an impulsivity trait of lack of premeditation may engage in illicit substance use since they fail to consider adverse long-term consequences of substance use when peer and social environments provide opportunities to use illicit substances (Flora et al., 2005).

The present study also explores the difference in the level of sensation seeking between participants with cannabis abuse and those without any substance dependence. Results which can be seen from table 2 found that there is a significant difference in level of sensation seeking between cannabis abuse group and healthy controls ($t=4.010$, $p < .01$), this indicated that participants with cannabis abuse scored higher ($M=10.78$, $SD= 2.416$) on sensation seeking than healthy controls ($M=8.33$, $SD=2.746$). It is well documented in the literature that sensation seeking, a tendency to seek excitement and risk-taking increases an individual's chance to use illicit substances during young adulthood (Zuckerman et al., 1994).

The difference in the level of lack of perseverance between participants with cannabis abuse and healthy controls, which can be seen in table 2 found a significant difference in level of lack of perseverance between cannabis abuse group and healthy controls ($t=2.312$, $p < .05$) this indicated that participants with cannabis abuse scored higher ($M=8.17$, $SD= 2.261$) on lack of perseverance than healthy controls ($M=7.11$,

SD=1.545). Previous researchers have also found some similar findings to support the result. In a study, it was found that lack of perseverance was positively associated with 1-year cannabis use problems (Kearns et al., 2022).

The study explores the difference in the level of positive urgency between participants with cannabis abuse and healthy controls. The results which can be seen in table 2 states no significant difference was found in level of positive urgency between cannabis abuse group and healthy controls (t =0.933, p> 0.05) indicating that there is no significant difference in level of positive urgency between participants with cannabis abuse (M=10.75, SD= 3.316) and healthy controls (M=10.03, SD=3.256).Many previous researchers have focused on positive urgency as a moderator for substance abuse and as an impulsivity trait in cannabis smokers and have identified mixed results. Some pieces of literature found that for positive urgency (PU), such that individuals at low levels of Positive urgency drank less on co-use with cannabis (compared to alcohol-only) days supporting the result that there is no indication of a difference in scores of positive urgency among cannabis smokers and healthy controls (Waddell et al., 2021).

The present study aimed to explore the difference in the level of trait mindfulness between participants with cannabis abuse and healthy controls. The results can be seen from table 2 that there was a significant difference in level of trait mindfulness between cannabis abuse group and healthy controls (t =-5.99, p=*p* < .01), this indicated that control group scored higher (M=4.72, SD=0.79) on trait mindfulness than participants with cannabis abuse (M=3.42, SD= 1.02), with Supporting the current findings, it was found in previous research that Mindfulness was associated with a lower likelihood of lifetime alcohol and marijuana use, supporting that mindfulness is present at a lower level in cannabis smokers as compared to healthy controls (Robinson et al., 2014). Another study found that higher trait mindfulness was associated with less cannabis use (Lin et al., 2021).

The difference in the level of intolerance to uncertainty between participants with cannabis abuse and healthy controls was explored. The result findings which can be seen in table 2 found a significant difference in level of intolerance to uncertainty between cannabis abuse group and healthy controls (t =6.44, *p* < .05), this indicated that participants with cannabis abuse scored higher (M=86.3, SD= 16.10) intolerance to uncertainty than healthy controls (M=58.3, SD=20.48). In support of the results, literature stated intolerance to uncertainty is positively related to cannabis problems, highlighting the importance of considering IU in treatment efforts for individuals experiencing cannabis-related impairment (Jeffries, E. R. 2015). Some studies also showed mixed results suggesting that IU is a feature of addiction but does not necessarily play a unique role (Garami et al., 2017) and therefore Further research is needed to explore the difference in the level of intolerance to uncertainty between participants with cannabis abuse and healthy controls and how intolerance to uncertainty is related to cannabis abuse.

The research literature on impulsivity facet found that sex differences in impulsivity are present, although very few studies have focused on these differences after controlling the effects of sex. The present study aimed to explore the gender difference in the level of negative urgency, lack of premeditation, sensation seeking, lack of perseverance, positive urgency, trait mindfulness, and Intolerance of Uncertainty among participants with cannabis abuse. The results which can be seen from table 3indicated no significant difference (t= -0.617, p > 0.05) between male (M=11.09, SD= 2.58) and female (M=11.66, SD= 2.84) participants consuming cannabis in the level of negative urgency (tendency to engage in impulsive behavior when they experience feelings of distress). In lack of premeditation (tendency to take decisions without considering their consequences) no significant difference was found (t = 0.012, p> 0.05) between male (M= 10.47, SD=2.01) and female (M= 10.46, SD=2.61) participants consuming cannabis. The results found no significant difference (t = -0.23, p > 0.05) between male (M=10.85, SD= 2.57) and female (M=10.66, SD= 2.25) participants consuming cannabis in the level of sensation seeking (tendency to try new and stimulating activities). No significant difference was found in level of lack of perseverance (inability to focus on a task performance) (t = -0.074, p> 0.05) between male (M=8.14, SD= 2.30) and female (M=8.20, SD= 2.27) participants consuming cannabis. The result findings indicated no significant difference (t =-0.890, p > 0.05) between male (M=10.33, SD=3.55) and female (M=11.33, SD= 2.96) participants consuming cannabis in the level of positive urgency (tendency to lose control under positive emotions). This is supported by previous pieces of literature, in a study, no significant sex differences were found for self-discipline and deliberation facets that are related to the lack of perseverance. (Costa et al., 2001). In another study, it was found that Negative marijuana consequences were only significantly related to sensation seeking, lack of planning and positive urgency and gender was not a significant moderator of any relationships (J. Davis et al., 2016). Another promising finding on Understanding Race and Gender Differences in Delinquent Acts and Alcohol and Marijuana Use was that no gender differences are present in the initiation of alcohol and cannabis use

during adulthood but, there is a negative and significant effect for African Americans and the initiation of alcohol use (James et al., 2007).

The results found no significant difference ($t = 1.48$, $p > 0.05$) between male (M=3.63, SD=0.89) and female (M=3.12, SD=1.15) participants consuming cannabis in the level of trait mindfulness (increased focus in the present moment in a non-judgmental manner). Concerning gender difference in trait mindfulness among cannabis smoker's fewer pieces of research have been done and most of the researches have been done on mindfulness based treatment for cannabis abuse in a finding. A papers based on one randomized controlled trial study failed to find gender differences in the efficacy of mindfulness based therapies for substance use, (Kaz et al., 2013). In another study to examine sex difference before and after mindfulness based treatment it was found that females were more engaged than males in the class and respond in a better way (Bluth et al., 2017). These findings support the result and make strong clarification that there is no significant gender difference in trait mindfulness among cannabis smokers.

In intolerance of uncertainty (reacting negatively on cognitive, emotional, and behavioral level to uncertain events and situations) no significant difference was found ($t = -0.29$, $p > 0.05$) between male (M=85.6, SD=16.17) and female (M= 87.2, SD=16.5) participants consuming cannabis. Another variable that is intolerance of uncertainty and its gender difference was explored in the present study; the result findings that can be seen from table 3 indicated no significant gender difference in the level of intolerance to uncertainty in cannabis smokers. In support with the result, studies relating to anxiety, distress tolerance and intolerance to uncertainty are discussed. A study to examine gender differences among individuals diagnosed with DSM-IV lifetime cannabis use disorder (CUD) found that men with lifetime CUD were more likely than women to be diagnosed with any psychiatric disorder, any substance use disorder and antisocial personality disorder, whereas women with CUD had more mood and anxiety disorders (Khan et al., 2013). Another study on association between marijuana use and anxious mood liability in adolescence found no gender difference among adolescence (Rusby et al., 2019) which supports our result that there is no significant gender difference in the level of intolerance to uncertainty in cannabis smokers. Though the previous studies have shown mixed results, more researches should be done concerning gender difference in intolerance to uncertainty among cannabis abuse individuals.

Our results are consistent with the prior researches and a similar conclusion was reached that there is no significant gender difference in that level of negative urgency, lack of premeditation, sensation seeking, lack of perseverance, positive urgency, trait mindfulness, and Intolerance of uncertainty among participants with cannabis abuse.

CONCLUSION

A significant positive correlation was found between severity of cannabis consumption and the studied variables negative urgency, lack of premeditation, sensation seeking, lack of perseverance, positive urgency and intolerance to uncertainty. A significant difference was found in level of negative urgency, lack of premeditation, sensation seeking between, lack of perseverance, trait mindfulness and level of intolerance to uncertainty between cannabis abuse group and healthy controls. No significant gender difference was found in the studied variables among participants with cannabis abuse. The findings suggest that multiple impulsivity facets, trait mindfulness and intolerance to uncertainty have a significant positive correlation with severity of cannabis abuse and that there is a significant difference in different impulsivity domains, trait mindfulness and intolerance to uncertainty among cannabis abusers and healthy controls.

LIMITATIONS

The current study is limited only to the geographical area of Rajasthan. Racial and ethnic diversity was lacking in the sample, making it important to imitate the results using diverse samples. Male and female samples were unequal. Sample size was relatively smaller in the present study. The duration of cannabis abuse wasn't considered.

CLINICAL IMPLICATION

Study facilitates further understanding of personality factors as predisposing factors to substance use severity and pin planning management. Study helps to develop prevention and intervention impulsivity traits, mindfulness and intolerance to uncertainty should be considered as important factors to reduce substance use behavior and problems. One implication is that, when considering an individual's level of risk, it may be important to take into account the level of negative urgency, lack of premeditation, sensation seeking, lack of perseverance, positive urgency, and intolerance to uncertainty.

FUTURE SUGGESTIONS

Sample should be collected from a larger regional area to increase the generalizability of the study. Future work would benefit from addressing the matter to more comprehensively examine the role of various personality factors in cannabis use behavior. More work should be done to examine and explore various other

variables that could mediate or, moderate the relationship between impulsivity, mindfulness, and intolerance to uncertainty with substance use severity.

Future studies need to clarify the mechanism linking Negative Urgency, lack of premeditation, sensation seeking, lack of perseverance, positive urgency, mindfulness, and intolerance to uncertainty to risky behavior at the moment.

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