The relationship between Metacognition and Social Anxiety among Young Adults

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ABSTRACT

Young adulthood is a period marked by increased anxiety related to various factors like personal, environmental and professional stressors. The ability to successfully cope with these stressors is strongly negatively related to mental health outcomes. Furthermore, recent studies indicate a connection between executive function, and anxiety. The current study examines the relationship between Metacognition, and Social Anxiety among young adults. The data was collected online from young adults. For data collection Demographic Sheet, Metacognition Questionnaire (MCQ-30), and Social Anxiety Questionnaire for Adults (SAQ-A) was used. The data were collected from 103 young adults (23 males and 80 females) residing in India. The collected data was then analyzed to find the correlation between the variables using Spearman Correlation. The result indicates that there is a positive correlation between all the 5 dimensions of Metacognition and all the 4 dimensions of social anxiety.

Keywords: *Metacognition, Social Anxiety and Young Adults, Cognitive Self-Consciousness.*

INTRODUCTION

Young adulthood is a period of significant growth and transformation. It is a period in which individuals begin to learn how to become independent and develop approaches that will help them to be successful in later stages of life. However, this period is also marked by an increase in anxious and depressive symptoms related to personal, environmental and professional stressors (Blanco et al., 2008). During this time it is important to recognize the aspects of development that help an individual adjust to change and the various stress factors. The ability to effectively cope with stress is strongly related to mental health outcomes. This study examines the relation between metacognition and social anxiety among young adults.

Social anxiety disorder (SAD) is the persistent fear of, or anxiety about, social performance situations that is out of proportion, in frequency or duration, to the actual threat presented by the situation (National Institute for Health and Care Excellence [NICE] 2013; DSM 5; American Psychiatric Association [APA] 2013). This may lead to events being avoided or endured under extreme suffering (Veale 2003). Due to its high prevalence rates,

SAD is thought to be among the most prevalent anxiety disorders (Furmark 2002; NICE 2013; Kashdan & Herbert 2001; Kessler et al. 2005),highlighting the need for a more thorough understanding of the complexities of social anxiety.

Anxiety may become extremely incapacitating and can even turn into a psychiatric disorder, which can have a negative impact on one's quality of life when it reaches a point where it interferes with functioning (de Visser et al. 2010). Early to late adolescence is when SAD usually begins (Otto et al. 2001; Schneier et al. 1992), and Keller (2003) notes that remission rates are poor. Mental health, general health, energy, and social functioning were all significantly compromised for those who suffered (Acarturk et al. 2009). Studies highlight how SAD is associated with depression (Stein et al. 1990), special phobias (Garber & Weersing 2010; Ohayon & Schatzberg 2010), personality disorder (PD) (Schneier et al. 1992), and general anxiety disorder (GAD) (Mennin, Heimberg & Jack 2000). Additionally, studies show that it may negatively impact social, academic, and ultimately professional performance (Stein & Kean 2000).

Many young people start college during adolescence, which can be a period of intense anxiety (Brady & Kendall 1992).Due to the pressures of school and society, adolescents experience psychological and psychosocial changes that may increase their susceptibility to mental health issues (Bayram & Bilgel 2008). Students' social and academic performance has been connected to mental health problems (Backels & Wheeler 2001), which are becoming a bigger obstacle to academic success (Young 2004).

Numerous variables contribute to the aetiology of SAD, such as genetic (Kendler, Karkowski & Prescott 1999; Stein, Jang & Livesley 2002), environmental (Knappe et al. 2009; Lieb et al. 2000), personality (Schofield, Coles & Gibb 2009), and neurobiological (Mathew, Coplan & Gorman 2001; Tillfors 4).According to studies on the neural bases of emotional reactivity and cognitive regulation in SAD, people with SAD respond to dangerous stimuli with higher levels of negative emotion and poorer cognitive regulation than controls (Goldin et al. 2009).

According to Beck (1976), cognitive distortions lead to a negative assessment of oneself, the environment, and one's hopes for the future. Maladaptive cognitions have been extensively studied and proposed as the sustaining element of social anxiety. This is furthered by Clark and Wells (1995), whose cognitive model highlights the part that particular behaviors—like concern, rumination, and self-focused attention—play in the perpetuation of social anxiety. Three distinct processes play a major role in the disorder's maintenance: post-mortem processing, which involves lingering on unfavorable assessments of previous social events; anticipatory processing, which involves anxiety before entering social situations; and the emphasis on an inner image as perceived by others. All of these elements can be troublesome in a university setting. Along with being self-centered, people with SAD tend to preferentially focus on negative external information, which increases their likelihood of misinterpreting ambiguous interactions as negative and receiving negative social feedback (Rapee & Heimberg 1997). The development and maintenance of social anxiety are thought

to be influenced by selective attention, or bias, towards unfavorable information (Mathews & MacLeod 1994).

Metacognitive models exhibit this negative bias as well. "Cognition applied to cognition" (Wells 2007, 18) is the concept of metacognition, which holds that negative ideas and thoughts endure because metacognitions govern cognitions (Wells 2007). Wells and Mathews (1994) developed the S-REF model, which aims to describe the cognitive and metacognitive elements involved in the top-down maintenance of emotional disorders. It emphasizes the role that metacognition plays in the psychopathology and maintenance of emotional disorders. It proposes three levels of cognitive processes: self-knowledge, which can be declarative and procedural; online conscious processing, which is thought to be voluntary and within the individual's awareness; and low level processing, which is automatic and involuntary. Metacognitive strategies, which comprise the rules and thinking abilities necessary to steer the styles of controlled processing and reduce conflict between the intended state and the felt current state, are part of procedural knowledge. The views about our own cognitions, or metacognitive beliefs, are a component of declarative self-knowledge. Negative beliefs, which deal with the uncontrollability of thoughts and the danger and importance associated with them, are distinguished from positive beliefs, which relate to the value of worrying, rumination, and threat monitoring (Wells & Mathews 1994).

There is a correlation between metacognition and the pathological symptoms of anxiety, according to the S-REF model (Wells & Mathews 1996). Recent studies on metacognitive beliefs—particularly negative ones regarding worry—are linked to the persistence of psychological disorders, including those that affect university students (Omid, Somayeh & Saeed 2010; Tajrishi, Mohammadkhani & Jadidi 2011; Yilmaz, Gencoz & Wells 2011).

Since metacognition is thought to be a transdiagnostic component of psychopathologies (Bailey & Wells 2013), it should highlight the diversity within SAD. Additionally, a significant portion of the association typically seen between psychiatric symptoms and cognition should be explained by metacognition (Wells 2000). Additionally, it is anticipated that the biggest independent predictor of social anxiety would be negative attitudes about the risk subgroup and the uncontrollability of thoughts, which is consistent with other studies mentioned above.

Young Adulthood and Mental Health

For many individuals from industrialized countries, the transition from adolescence to young adulthood is a period of significant change and novel life possibilities (Arnett, 2005). This period is described as a culturally constructed phase in the life span that consists of identity, relationship, and career formation for individuals 18 to 25 years of age (Arnett, 2000). For many, this time is filled with exciting opportunities and the majority of young adults have been found to experience improvements in their psychological well-being (Galambos, Barker, & Krahn, 2006). For others, however, this time of change can result in stress as they endure novel academic, social, and professional stressors amidst increasing

societal pressures for autonomy. This transitional period carries a heightened risk for unhealthy stress (Blanco et al., 2008), which can precipitate the onset or recurrence of psychiatric disorders. Eating disorders (Eisenberg, Nicklett, Roeder, & Kirz, 2011; Goldschmidt, Wall, Zhang, Loth, & Neumark-Sztainer, 2016), excessive alcohol use (White & Hingson, 2014), depression and suicidal ideation (Mackenzie et al., 2011), and anxiety (Beiter et al., 2015) have all been identified as prevalent mental health risks for this age group. According to the findings from the American College Health Association National College Health Assessment, the rate of undergraduate students reporting a diagnosis of anxiety or depression has been steadily increasing over the past 10 years (2015). According to the 2016 survey, within the past 12 months, approximately 17% were diagnosed or treated for anxiety (American College Health Association, 2016). Increased adversity and symptoms of depression and anxiety can confer risk for the development of later mental disorders (Gress-Smith, Roubinov, Andreotti, Compas, & Luecken, 2013). Additionally, anxiety and depression are the most prevalent mental health disorders reported among college students (Eisenberg, Gollust, Golberstein, & Hefner, 2007). The long-term consequences of depression and anxiety are severe. If untreated, they can lead to increased risk-taking, substance abuse, suicidal behavior, lack of adherence to medical regimens, and a multitude of health problems (Sin, Yaffe, & Whooley, 2015; Stephens & Joubert, 2001; Zoltán, 2007). Early detection and treatment are vital to reducing the burden of mental health problems in our population (Eisenberg, Hunt, Speer, & Zivin, 2011). College campus settings typically have a rich assortment of resources and supports for students suffering from anxiety or depression. Campuses possess the capability of having a strong positive impact on prevention and intervention in mental health during, and extending beyond, the college years. However, Blanco et al., (2008) has said that many young adults (18 to 25-year olds) are not taking treatment. According to the Healthy Minds study, only 36% of students with a mental health problem received any form of treatment in the previous year (Eisenberg et al., 2011). This lack of treatment represents a huge missed opportunity for decreasing mental illness in this age group. Therefore, it is becoming increasingly important to identify the factors that impact the development and onset of depression and anxiety during this critical time of change and stress in young adults. Doing so could better inform the development of effective prevention and intervention programs for anxiety and depression. Furthermore, it has the potential to illuminate and deconstruct the barriers to help-seeking by providing young adults with different treatment options than the standard therapeutic model.

Metacognition in Young Adulthood

All of the adult cognitive development researchers (Armon, 1984; Basseches, 1984; Fischer, 1980; Fischer, Hand, & Russel, 1984; Kohlberg, 1990; Labouvie-Vief, 1992; Pascual-Leone, 1984) believe that the mature adult must develop stronger cognitive structures in order to successfully solve complex problems. Piaget's (1972) formal-logical thinking should therefore be followed by the postformal stage.

While postformal operations allow for a subjective selection among more internally consistent formal-operational subsystems, formal operations need logical consistency. Labouvie-Vief (1992) posits that the adaptive value of mature cognition arises from the interplay between the methodical application of formal logic and practical reasoning, which incorporates logic with experience and context.

There are several theories about how the brain develops beyond adolescence. Two of these ideas will be the subject of our current discussion: systematic/metasystematic thought (Commons, Armon, Richards, & Schrader, 1989; Richards & Commons, 1990) and relativistic/dialectical mind (Sinnott, 1984, 1989; Kramer, 1989, 1990). In order to function at the postformal level, metasystematic cognition is defined by Richards and Commons (1990) as the capacity for intersystemic comparison, system change, and system relation determination. Kramer (1990) asserts that generic postformal thought qualities align with the relativistic /dialectical school of thought's core ideas. Acceptance of relativism, management of contradiction and acceptance of it, and integration of systems or frames of reference are some examples of these traits.

Flavell (1979) defined metacognition as the cognition of one's own cognition, manifested in experiences and knowledge that are specifically related to metacognition. Whereas metacognitive experiences involve concepts and sensations that arise online, metacognitive knowledge (Schrader, 1999, 2003; Tappan, 1990) refers to material we recollect from memory. Brown, Bransford, Ferrara, & Campione (1983) defined metacognitive control as the act of organizing, observing, and managing one's own thoughts.

When it comes to the growth of metacognitive processes, a number of cognitive developmental experts contend that individuals get increasingly self-aware and introspective as they mature. According to Labouvie-Vief (1994), an inward orientation can be a suitable indicator of growth during adulthood, and metacognition becomes more explicit, potent, and efficient as people mature (Kuhn, 2000). Consequently, older folks are likely to grow better at controlling their cognitive functioning than younger adults.

Adults might also use higher-level monitoring, such as epistemic cognition (Kitchener, 1983; King & Kitchener, 2004), when the come across with difficult problems. This type of monitoring involves an individual's understanding of their own knowledge boundaries, degree of certainty, and standards for knowledge. Controlling cognitive processes in unclear issue resolution requires both epistemic and metacognitive processes. However, online awareness alone is insufficient for epistemic cognitive processes; they also require reflection on the reasoning process (Efklides, Demetriou, & Metallidou, 1994). It is possible to argue that the development of relativistic dialectical/thinking is linked to reflection on mental processes since the fundamental elements of epistemic cognition are incorporated in this thinking.

A number of researchers (Pascual-Leone, 1990; Levinson, 1990; Dittman-Kohli &

Baltes, 1990; Baltes & Staudinger, 1994) discuss self-reflective cognition in relation to mechanisms of growth into adulthood. Although this idea is not quite the same as metacognitive reflection, they define it more as a reflection on existential life events. Nonetheless, it is plausible to believe that dialectical and relativistic thinking necessitates intentional mental reflection.

Significance of the study

Young adulthood is an important time for lifelong decision making, and the transition from adolescence to adulthood exposes them to the challenges of the world with new roles and responsibilities. Some of them will even begin to financially support themselves and start a family. As they pursue higher education, professional life, new roles and responsibilities and establish intimacy the way they perceive about all these things will differ based on their experiences. Sometimes in this process they may face anxiety and it might become a problem for them. And because of that many areas like career development, personal life, etc. will be affected. So, it is important to understand what are the factors influencing Social Anxiety and how to overcome these problems.

Therefore, this study will be focusing on finding out the relationship between Metacognition, and Social Anxiety. In this study we will try to uncover and understand the relationship between these variables. It will also be beneficial to overcome social anxiety as if we understand the relationship between these variables we can control/reduce an individual's Social Anxiety by developing various plans and strategies to overcome the problem and further an interventional study can be conducted to find out the before and after effect of the strategies.

Scope of the study

There is no empirical evidence to correlate metacognition, and social anxiety. The previous researches have studied the relationship among adolescents, but researches were conducted on young adults keeping these two variables in mind. The present study will help us understand and study the relationship between metacognition, and social anxiety among young adults. This research will lay a foundational basis for the future research on exploring the relationship between metacognition, and social anxiety and will add on to the existing literature by exploring the relationship between parenting styles and social anxiety.

Based on the significance of the study, this research can be further conducted on young adults by developing intervention strategies to check their Social Anxiety, differences can be found by taking into consider their age range, the differences among the three variables can be found out, this study can also be conducted on other gender category and the differences between male, female and other gender category can be compared.

Review of literature

The study 'Metacognition, cognition and social anxiety: A test of temporal and

reciprocal links' was conducted in 2022 by Henrik Nordahl, Frederick Anyan, Odin Hjemdal, and Adrian Wells b.c. The findings suggest that negative social self-beliefs may be a

byproduct of metacognition and are compatible with metacognitive beliefs generating social anxiety and social self-beliefs.

Hans M. Nordahl, Henrik Nordahl, Ph. D., and Adrian Wells (2016) conducted a study titled "Metacognition and Perspective Taking Predict Negative Self-Evaluation of Social Performance in Patients with Social Anxiety Disorder," and the findings suggested that metacognitive beliefs must be included in psychological models, particularly those that form the basis of the self-concept.

The role of anxiety sensitivity and metacognitive beliefs in the prediction of social anxiety was studied by Karim Golmohammadi, Somayyeh Mantashloo, and Zahra Tavana in 2016. The study's findings revealed that social anxiety is influenced by both anxiety sensitivity and metacognitive beliefs in an individual.

"The relationships between metacognition, anticipatory processing, and social anxiety" was the topic of a 2015 study by Stephanos P. Vassilopoulos, Andreas Brouzos, and Nicholas J. Moberly. The findings offer preliminary support for the idea that people who tend to have favorable beliefs about anticipatory processing also tend to engage in anticipatory processing, which may heighten social anxiety.

In 2014, Kenneth Connelly conducted research on "The Role of Metacognition in Social Anxiety Disorder (SAD)". Each hypothesis was validated by the findings, which also identified three metacognitive predictors of social anxiety.

A research on Metacognitive Processes In Social Anxiety: A Path Analysis was carried out by Ryan Patrick Hosey in 2012. The results together imply that social anxiety-related cognitive processes interact dynamically. Furthermore, these results support Wells' model of psychological distress.

Paul H. Lysaker, Molly Erickson, Jamie Ringer, Kelly D. Buck, Antonio Semerari, Antonio Carcione, and Giancarlo Dimaggio (2011) investigated Metacognition in schizophrenia: the relationship of mastery to coping, insight, self-esteem, social anxiety, and various facets of neurocognition. The results demonstrated that the high-mastery group had more insight than the other groups, felt more accepted by peers than the intermediate-mastery group, and preferred to contemplate and discuss stresses. compared to the other two groups.

Dr. Lorne M. Hartman in 1983 studied A metacognitive model of social anxiety: Implications for treatment. The end result is a reduced ability to experience other people. The new approach here is intended to enable the patient to comprehend, value, and share the emotions, ideas, and experiences of other people.

Research Gap

It is important for an individual to have a reflection about what they have been thinking or the thoughts that have been running in his/her mind. Numerous studies have been carried out on these two variables as well as with various other variables to determine the relationship between trait anxiety and other factors, taking into account the mediating role of metacognition, the impact of other factors and metacognition on anxiety and worry, and the

role of metacognition in social anxiety in adults and adolescents. But there is a dearth of empirical evidence to find the relationship between metacognition and social anxiety among young adults. Hence, the present study aims to bridge the gap and add on to the literature.

Research Questions

    1) Is there a relationship between Metacognition and Social Anxiety?

Methodology of the proposed research

Aim

    "To study the relationship between Metacognition, and Social Anxiety among young adults".

Objectives

1) To study the relationship between metacognition and social anxiety among young adults.

    a) To study the relationship between (Lack of) cognitive confidence and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

    b) To study the relationship between Positive Beliefs about Worry and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

    c) To study the relationship between Cognitive Self-Consciousness and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

    d) To study the relationship between Negative Beliefs about Uncontrollability and Danger and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

    e) To study the relationship between Need to Control Thoughts and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

Hypotheses

Ho1 - There is no significant relationship between metacognition and social anxiety among

young adults.

a) Ho1(A) - There is no significant relationship between (Lack of) cognitive confidence and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

b) Ho1(B) - There is no significant relationship between Positive Beliefs about Worry and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

c) Ho1(C) - There is no significant relationship between Cognitive Self-Consciousness and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

d) Ho1(D) - There is no significant relationship between Negative Beliefs about Uncontrollability and Danger and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

e) Ho1(E) - There is no significant relationship between Need to Control Thoughts and the 5 dimensions of Social Anxiety - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure.

Inclusion Criteria

1) Individuals aged between 18-25.
2) Male and female participants.
3) Participants must be either pursuing or completed Under Graduation.
4) Participants who are physically fit.
5) Participants should not have received any kind of psychological diagnosis or intervention before.
6) Participants who lived with their biological parents at home during their formative years..

Exclusion Criteria

1) Individuals who do not match the age criteria.
2) Participants who belong to the other gender categories.
3) Participants who have not done Under Graduation.
4) Participants who are not physically fit.

5) Participants who have received any kind of psychological diagnosis or intervention before.
6) Participants who lived with their step parents at home during their formative years.

Sample

The sample for this study are Young Adults, data was collected from both male and female Young adults, the sample size was 103 (Male - 23 and Female - 80) and the samples were selected through Simple Random Sampling. Data was collected online - Google forms. Firstly, the consent was taken from the participants and the purpose of the study was explained to them. Participants were briefed about the confidentiality. The demographic details along with the questionnaires were presented to the participants following which the data was collected.

Research Design

A survey research design was used where the research variables were assessed through a self report questionnaire and later analysed using the statistical tool. The research was conducted on both male and female young adults and three tests would be administered on each individual, them being Metacognition Questionnaire (MCQ-30), and Social Anxiety Questionnaire for Adults (SAQ-A). These are all paper pencil tests.

Tools

1) Demographic information sheet - The demographic information sheet will be used to collect selected demographic details of the participants, such as age, gender, and education, etc.
2) Metacognition Questionnaire (MCQ-30) - Wells and Cartwright-Hatton (2004)
3) Social Anxiety Questionnaire for Adults (SAQ-A) by Caballo, Salazar, Arias, and CISO-A Research Team, (2010)

Procedure for data collection

The data was collected from young adults. Data was collected online - Google forms. Firstly, the consent was taken from the participants and the purpose of the study was explained to them. Participants were briefed about the confidentiality. The demographic details along with the questionnaires were presented to the participants following which the data was collected.

Statistical Techniques

The data was analyzed using JASP software, and appropriate Descriptive and inferential statistics was used. Descriptive statistics was identified in terms of the means and standard deviations, identifying trends and distributions of scores. Inferential statistics such as the "z" test, correlation and regression was used to understand more about the variables.

Ethical guidelines

1) Respondents were informed about the nature of the study and took consent to voluntarily participate in the research.
2) Participants were assured about the anonymity and confidentiality of the responses given by them.

Results

In developmental psychology, metacognition is one of the more recent concepts. This general word encompasses a number of concepts, such as cognition-related beliefs, cognition-related knowledge, and thought monitoring. Every day, people participate in metacognitive exercises. Effective learning is facilitated by metacognition, which has also been linked to IQ. Higher order thinking, which encompasses efficient regulation of the cognitive processes involved in learning, is referred to as metacognitive states. However, excessive self-reflection is a symptom of social anxiety.

The present research was conducted to study the relationship between Metacognition and Social Anxiety among young adults. The total sample for this study was 103 (N= 103) , among them 80 were females and 23 were males. The age of the sample ranges from 18 to 25. Preliminary statistical analysis for the variables to know the distribution of (a) Metacognition, and its sub variables - (Lack of) Cognitive Confidence, Positive Beliefs about worry, Cognitive Self-Consciousness, Negative Beliefs and Need To Control Thoughts, (b) SocialAnxiety and its sub variables - Interactions with strangers, Speaking in public/Talking with people in authority, Interactions with the opposite sex, Criticism and embarrassment, Assertive expression of annoyance, disgust or displeasure. The analysis showed that skewness and kurtosis is around zero for the main variable and for all sub variables. It shows that in the current study, all the variables are normally distributed.

Table 1: Presents the correlation (r) between(Lack of) Cognitive Confidence and dimensions of Social anxiety

Variables (Lack of) Cognitive Confidence	Interactions with strangers	Speaking in public/Talking with people in authority	Interactions with the opposite sex	Criticism and embarrassment	Assertive expression of annoyance, disgust or displeasure
Spearman's rho	.256	.267	.214	.268	.284

r-value					
	.009	.006	.030	.006	.004
R					
	0.330	.328	.217	.300	.303
R^2					
	.109	.108	.047	.090	.092
Mean Square					
	297.977	272.017	155.018	268.438	251.625
F					
	12.351	12.170	5.006	9.974	10.193
df					
	1	1	1	1	1
p					
	<.001	<.001	.027	.002	.002

*p< .05, **p< .01,

The result presented in Table 1 indicates the relationship between metacognition and Social Anxiety. The obtained "r" values of (Lack of) Cognitive Confidence and Interaction with strangers (r=.256, p=.009), Speaking in public/Talking with people in authority (r=.267, p=.006), Interaction with the opposite sex (r=.214, p=.030), Criticism and embarrassment (r=.268, p=.006), and Assertive expression of annoyance, disgust or displeasure (r=.284, p=.004) indicates a positive correlation between these factors. This is due to the possibility that young people' anxiety during social interactions, embarrassment, and disgust or dislike are all related to a mistrust of their attention, perception, and memory.

The table also represents the regression analysis results of the variables Metacognition and Social Anxiety. The obtained "R^2" values of (Lack of) Cognitive Confidence and Interaction with strangers (R= .330, R^2= .109, df =1), Speaking in public/Talking with people in authority (R= .328, R^2= .108, df=.1), Interaction with the opposite sex (R= .217, R^2= .047, df =1), Criticism and embarrassment (R= .300, R^2 = .090, df =1), and Assertive expression of annoyance, disgust or displeasure (R= .303, R^2= .092, df =1). Further, results of regression ANOVA revealed that all the dimensions predicted had F values ranging from 12.351 to 5.006 which are significant at .01. Thus, it means that (Lack of) Cognitive Confidence is a predictor of Social Anxiety.

Table 2: Presents the correlation (r) between Positive Beliefs about Worry and dimensions of Social anxiety

Variables Positive Beliefs about Worry	Interactions with strangers	Speaking in public/Talking with people in authority	Interactions with the opposite sex	Criticism and embarrassment	Assertive expression of annoyance, disgust or displeasure
Spearman's rho	.306**	.236*	.288**	.195*	.208*
p-value	.002	.016	.003	.049	.035
R	.300	.274	.312	.257	.234
R^2	.090	.075	.097	.066	.055
Mean Square	246.886	189.853	319.747	196.919	149.737
F	10.023	8.196	10.889	7.129	5.828
df	1	1	1	1	1
p	.002	.005	.001	.009	.018

*$p< .05$, **$p< .01$*

The result presented in Table 2 indicates the relationship between Metacognition and Social Anxiety. The obtained "r" values of Positive Beliefs about Worry and Interaction with strangers (r=.306, p=.002), Interaction with the opposite sex (r=.288, p=.016), Speaking in public/Talking with people in authority (r=.236, p=.016) , Criticism and embarrassment (r=.195, p=.049), and Assertive expression of annoyance, disgust or displeasure (r=.208, p=.035) indicates a positive correlation between these factors. This is because the belief that worrying has many advantages, like: Improving motivation, preventing negative outcomes, protecting against negative emotions, and reflecting a positive personality trait, may be linked to young adults' anxiety when they interact with people, feel embarrassed, and express disgust or displeasure.

The table also represents the regression analysis results of the variables Metacognition and Social Anxiety. The obtained "R^2" values of Positive Beliefs about Worry and Interaction with strangers (R=.300, R^2= .090, df =1), Speaking in public/Talking with people in authority

(R= .274, R^2= .075, df=.1), Interaction with the opposite sex (R= .312, R^2= .097, df =1), Criticism and embarrassment (R= .257, R^2= .066, df =1), and Assertive expression of annoyance, disgust or displeasure (R=.234, R^2= .055, df =1). Further, results of regression ANOVA revealed that all the dimensions predicted had F values ranging from 10.889 to 5.828. So Interaction with strangers, Speaking in public/Talking with people in authority, Interaction with the opposite sex and Criticism and embarrassment are significant at .01 and Assertive expression of annoyance, disgust or displeasure is significant at .05. Thus, it means that Positive Beliefs about Worry and Interaction with strangers is a predictor of Social Anxiety.

Table 3: Presents the correlation (r) between Cognitive Self - Consciousness and dimensions of Social anxiety

Variables Cognitive Self-Consciousness	Interactions with strangers	Speaking in public/Talking with people in authority	Interactions with the opposite sex	Criticism and embarrassment	Assertive expression of annoyance, disgust or displeasure
Spearman's rho	.033	.112	.106	.135	.073
p-value	.740	.259	.288	.173	.464
R	.043	.132	.107	.158	.097
R^2	.002	.018	.012	.025	.009
Mean Square	5.128	44.282	37.926	74.901	26.020
F	.190	1.800	1.181	2.598	.967
df	1	1	1	1	1
p	.664	.183	.280	.110	.328

*p< .05, **p< .01

The result presented in Table 3 indicates the relationship between Metacognition and Social Anxiety. The obtained "r" values of Cognitive Self-Consciousness and Interaction with strangers (r=.033, p=.740), Speaking in public/Talking with people in authority (r=.112,

p=.259), Interaction with the opposite sex (r=.106, p=.288), Criticism and embarrassment (r=.135, p=.173), and Assertive expression of annoyance, disgust or displeasure (r=.073, p=.464) indicates a positive correlation between these factors. This is because young people who experience cognitive self-consciousness—a condition in which they are consumed by their thoughts—may experience anxiety while interacting with others, feel ashamed, and express disgust or dislike.

The table also represents the regression analysis results of the variables Metacognition and Social Anxiety. The obtained "R^2" values of Cognitive Self-Consciousness and Interaction with strangers (R=.043, R^2= .002, df =1), Speaking in public/Talking with people in authority (R= .132, R^2= .018, df=.1), Interaction with the opposite sex (R= .107, R^2= .012, df =1), Criticism and embarrassment (R=.158, R^2= .025, df =1), and Assertive expression of annoyance, disgust or displeasure (R= .097, R^2= .009, df =1) Further, results of regression ANOVA revealed that all the dimensions predicted had F values ranging from 2.598 to .190 which were not significant. Thus, it means that Cognitive Self-Consciousness is not a predictor of Social Anxiety.

Table 4: Presents the correlation (r) between Negative Beliefs about Uncontrollability and Danger and dimensions of Social anxiety

Variables Negative Beliefs about Uncontrollability and Danger	Interactions with strangers	Speaking in public/Talking with people in authority	Interactions with the opposite sex	Criticism and embarrassment	Assertive expression of annoyance, disgust or displeasure
Spearman's rho	.328	.267	.358	.368	.345
p-value	<.001	.006	<.001	<.001	<.001
R	.330	.312	.334	.369	.354
R^2	.109	.097	.112	.136	.125
Mean Square	298.359	245.979	366.931	406.330	343.268
F	12.369	10.880	12.710	15.905	14.436

df					
	1	1	1	1	1
p					
	<.001	.001	<.001	<.001	<.001

*p< .05, **p< .01

The result presented in Table 4 indicates the relationship between Metacognition and Social Anxiety. The obtained "r" values of Negative Beliefs about Uncontrollability and Danger and Interaction with strangers (r=.328, p=<.001), Interaction with the opposite sex (r=.358, p=<.001), Criticism and embarrassment (r=.368, p=<.001), Assertive expression of annoyance, disgust or displeasure (r=.345, p=<.001), Speaking in public/Talking with people in authority (r=.267, p=.006) also indicates a positive correlation between these factors. This is because young adults who hold negative ideas about the importance, danger, and uncontrollability of thoughts get uneasy when interacting with others, feel ashamed, and exhibit disgust or dislike.

The table also represents the regression analysis results of the variables Metacognition and Social Anxiety. The obtained "R^2" values of Negative Beliefs about Uncontrollability and Danger and Interaction with strangers (R= .330, R^2= .109, df =1), Speaking in public/Talking with people in authority (R= .312, R^2= .097, df=.1), Interaction with the opposite sex (R= .334, R^2= .112, df =1), Criticism and embarrassment (R= .369, R^2= .136, df =1), and Assertive expression of annoyance, disgust or displeasure (R= .354, R^2= .125, df =1) Further, results of regression ANOVA revealed that all the dimensions predicted had F values ranging from 15.905 to 10.880 which are significant at .01. Thus, it means that Negative Beliefs about Uncontrollability and Danger is a predictor of social anxiety.

Table 5: Presents the correlation (r) between Need to Control Thoughts and dimensions of Social anxiety

Variables Need to Control Thoughts	Interactions with strangers	Speaking in public/Talking with people in authority	Interactions with the opposite sex	Criticism and embarrassment	Assertive expression of annoyance, disgust or displeasure
Spearman's rho	.267**	.174	.184	.220*	.354
p-value	.006	.078	.062	.025	<.001

R					
	.262	.188	.162	.220	.336
R^2					
	.069	.035	.026	.048	.113
Mean Square					
	187.474	89.746	86.357	144.806	309.722
F					
	7.434	3.715	2.729	5.146	12.846
df					
	1	1	1	1	1
p					
	.008	.057	.102	<.001	<.001

*p< .05, **p< .01

The result presented in Table 4.5 indicates the relationship between Metacognition and Social Anxiety. The obtained "r" values of Need to Control Thoughts and Interaction with Strangers (r=.267, p=.006), Speaking in public/Talking with people in authority (r=.174, p=.078), Interaction with the opposite sex (r=.184, p=.062), Criticism and embarrassment (r=.220, p=.025), Assertive expression of annoyance, disgust or displeasure (r=.354, p= < .001) indicates a positive correlation between these factors. This is due to the fact that focusing on intrusive thoughts causes young adults to get uneasy while interacting with others, feel ashamed, and behave in distaste or discomfort.

The table also represents the regression analysis results of the variables Metacognition and Social Anxiety. The obtained "R^2" values of Need to Control Thoughts and Interaction with Interaction with strangers (R= .262, R^2= .069, df =1), Speaking in public/Talking with people in authority (R= .118, R^2= .035, df=.1), Interaction with the opposite sex (R= .162, R^2 = .026, df =1), Criticism and embarrassment (R= .220, R^2 = .048, df =1), and Assertive expression of annoyance, disgust or displeasure (R= .336, R^2= .113, df =1) Further, results of regression ANOVA revealed that all the dimensions predicted had F values ranging from 12.846 to 2.729. Interaction with strangers, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure are significant at .01. Thus, it means that Need to Control Thoughts is a predictor of Interaction with strangers, Criticism and embarrassment and Assertive expression of annoyance, disgust or displeasure. Whereas, Speaking in public/Talking with people in authority and Interaction with the opposite sex are not significant. Thus, it means that Need to Control Thoughts is not a predictor of Speaking in public/Talking with people in authority and Interaction with the opposite sex.

Discussion

Metacognition is one of the latest constructs in the field of developmental psychology. It is an umbrella term that includes various constructs like beliefs about cognition, knowledge about cognition and monitoring thoughts. Individuals engage in Metacognitive activities everyday. Among individuals with social anxiety, the metacognitive process leads to recurrent attempts to evaluate one's own value and effectiveness in reaction to even marginally pertinent assessment scenarios. Rather than an adaptive integration of internal and external processes, perception, execution, and mental processes become chaotic in a closed-loop of self-reflection. A good example of this phenomena is the centipede story. When the centipede decides that walking is a desired talent to learn, he only succeeds in tripping over himself since he is more concerned with his walking technique than his destination. Likewise, the individual with social anxiety exhibits excessive self-reflection. The focus of attention moves from the surroundings to oneself, particularly with regard to performance, arousal, and evaluation.

This study set out to explore the relations between Metacognition and Social Anxiety. Overall, we found a significant relationship between Metacognition and Social Anxiety among young adults. To our knowledge, this study is similar to the other studies conducted in this field because Henrik Nordahl, , Frederick Anyan, Odin Hjemdal, and Adrian Wells b.c - 'Metacognition, cognition and social anxiety: A test of temporal and reciprocal links' were the findings suggests that negative social self-beliefs may be a byproduct of metacognition and are compatible with metacognitive beliefs that generate social anxiety and social self-beliefs. In another study by Karim Golmohammadi, Somayyeh Mantashloo, and Zahra Tavana - The role of anxiety sensitivity and metacognitive beliefs in the prediction of social anxiety found that an individual's anxiety sensitivity and metacognitive beliefs both affect social anxiety. In 2015 Stephanos P. Vassilopoulos, Andreas Brouzos, and Nicholas J. Moberly conducted a study to find out the relationships between metacognition, anticipatory processing, and social anxiety and which sought to determine the connections among metacognition, anticipatory processing, and social anxiety, provided some initial evidence in favor of the hypothesis that individuals who have positive attitudes toward anticipatory processing also tend to engage in it, which may exacerbate social anxiety.Lastly, Kenneth Connelly conducted research on "The Role of Metacognition in Social Anxiety Disorder (SAD)" and the findings identified three metacognitive predictors of social anxiety.

Summary and Conclusion

The study examined the connection between young adults' social anxiety and metacognition. Aims to study the correlation between the two variables among young adults.
Significant Findings:
- There is a significant positive relationship between (Lack of) Cognitive Confidence and all the dimensions of Social Anxiety.
- There is a significant positive relationship between Positive Beliefs about Worry and all the dimensions of Social Anxiety.

- There is a significant positive relationship between Cognitive Self-Consciousness and all the dimensions of Social Anxiety.
- There is a significant positive relationship between Negative Beliefs about Uncontrollability and Danger and all the dimensions of Social Anxiety.
- There is a significant positive relationship between Need to Control Thoughts and all the dimensions of Social Anxiety.

Conclusion

- Metacognition helps us to be effective learners and has also been related to intelligence. Higher order thinking is referred to as metacognitive states, and it involves having effective control over the cognitive processes that go into learning.
- Metacognitive behaviors include preparing for a specific learning task, keeping track of anxiety, and assessing progress towards task completion. Studying metacognitive development and activity is important because it can help us understand how to best prepare students to effectively use their cognitive resources through metacognitive control.
- Metacognition plays a significant role in effective learning. The data were collected from 103 young adults (23 males and 80 females) residing in India.
- The result indicates that there was a significant positive relationship between all the 5 dimensions of Metacognition and all the 5 dimensions of Social Anxiety.
- Further study can be done on all other factors which might contribute to social anxiety and gender differences can be found out.

Limitations of the Study

1) The influence of the uncertain situations due to novel coronavirus (COVID19) spread should be considered, while using this research as reference for further exploration or further research.
2) The study's inclusion criteria do not lend itself to generalization. This study will only be limited to Young Adults.
3) Lack of prior study findings had restricted knowledge.

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