How to Cite This Article: Kausar, N., & Nadeem, H. (2025). Metacognition, Psychological Resilience and Suicidal Ideation among Students. *Journal of Social Sciences Review*, *5*(2), 1-10. https://doi.org/10.62843/jssr.v5i2.530

Volume 5, **Issue** 2 (Spring 2025)
Pages: 1-10
ISSN (Online): 2789-4428
DOI: 10.62843/jssr.v5i2.530
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JOURNAL OF SOCIAL SCIENCES REVIEW (JSSR)

Metacognition, Psychological Resilience and Suicidal Ideation among Students

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Abstract: *This study aimed to measure the association among metacognition, psychological resilience and suicidal ideation in students. Cross-sectional survey design was used to draw sample. Two stage sampling technique was used in this study. Target population for the present study were student of 11 to 17 years from Gujrat and Lalamusa. Questionnaires were used to test the hypothesized relationships. The findings of the study showed that there was a strong positive and significant correlation between meta-cognition and psychological resilience (r= .616***, p-value=.000), however a non-significant correlation between meta-cognition and suicidal ideations (r=-.03, p-value=.368) was found. Findings of the study infer that the ability of metacognition is playing important role in increasing psychological resilience among students. In order to reduce the negative tendencies among students, they need to be psychologically more resilient.*

Keywords: Metacognition, Psychological Resilience, Suicidal Ideation, Students

Introduction

A school student attends an educational institution to receive formal instruction, acquire knowledge, and develop skills. Education helps them understand themselves, their surroundings, and the world, aiding in informed decision-making. Educators can foster introspective and conscientious learning by encouraging metacognition, the process of thinking about thinking. Metacognitive skills, which develop over time, enhance lifelong learning and autonomy. This study aims to explore the relationship between metacognition, psychological resilience, and suicidal ideation in students, addressing a knowledge gap on how these variables interact. It benefits educators, teachers, parents, and students by enhancing understanding of these concepts.

Flavell was the first to introduce the term "Metacognition" in 1979. He defined it as an individual's conscious ability to understand, manage, and regulate their own cognitive processes to optimize learning. Metacognition consists of two components: cognitive knowledge and regulation of cognition. "Knowledge of cognition" (metacognitive knowledge) refers to understanding the learning process. The ability to use strategies affects cognitive processes, involving declarative knowledge (knowing what), procedural knowledge (knowing how), and conditional or strategic knowledge (knowing why) (Flavell, 1979). Metacognition fundamentally involves the capacity to reflect on one's own thinking. It is crucial for various cognitive functions such as problem-solving, decision-making, and learning. Engaging in metacognitive processes helps individuals adapt and enhance their cognitive strategies, leading to better performance and knowledge acquisition. In educational settings, metacognition is essential for fostering self-regulated learning. Students proficient in metacognitive practices set goals, monitor their progress, and adjust their strategies as needed, which results in improved academic performance (Hacker & Dunlosky, 2009). Students who utilize metacognition, motivation, and self-directed learning are vital to student-centered education. Metacognition is key to academic success, as it helps students understand their learning processes and identify their strengths and weaknesses. This understanding enables them to adopt more effective study strategies. Related concepts include metacognitive beliefs, metacognitive awareness, metacognitive experiences, metacognitive knowledge, metacognitive skills, high-level skills, metacognitive components, and self-regulation (Yesilyurt, 2013). The importance of metacognition has

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been thoroughly demonstrated by studies. Metacognition, which involves reflecting on and regulating one's own thinking processes, is crucial for various cognitive functions. Research indicates that individuals with strong metacognitive skills achieve better learning outcomes because they understand their cognitive processes and can select effective learning strategies (Brown, 2019; Smith & Jones, 2020).

Additionally, metacognition is linked to enhanced problem-solving abilities, enabling individuals to tackle challenges strategically and assess the effectiveness of their solutions (Johnson et al., 2021). Beyond academics, metacognition promotes self-regulation by helping individuals set and monitor personal goals, positively impacting their emotional and motivational well-being (Cano Garcia et al., 2014). By recognizing and understanding their own thinking processes (metacognition), individuals can develop strategies to navigate challenges, thereby enhancing psychological resilience. This integration aligns with the broader understanding of how cognitive and emotional processes contribute to resilience. Research has indicated that individuals with strong metacognitive abilities often demonstrate higher levels of psychological resilience (Flavell, 1979; Efklides, 2011). Psychological resilience is a complex construct that reflects an individual's ability to adapt, recover from adversity, and maintain mental well-being despite significant life challenges. It involves successfully navigating potentially harmful conditions to sustain dynamic functioning. Resilience enables individuals to withstand and recover from stressors, trauma, or adversity, often emerging stronger (Masten, 2014). Resilience is not a trait that people either have or do not have, but rather a process that involves behaviors, thoughts, and actions that can be learned and developed. Rooted in psychology, resilience has significant implications for mental health, well-being, and life satisfaction. It does not imply an absence of adversity but rather the presence of adaptive coping mechanisms and personal strengths that help individuals effectively manage and overcome challenges. Resilience relates to positive adaptation, maintaining well-being despite exposure to stress (Fletcher & Sarkar, 2013).

Resilience is a multisystem process that enables individuals to endure and manage difficulties that threaten their functioning and development, a concept that has evolved from clinical work (Masten, Lucke, Nelson & Stallworthy, 2021). Challenges are inevitable in a student's life, and resilience is a valuable trait that helps students navigate adversity with positivity and comfort. It is a mental capability that allows individuals to remain optimistic and hopeful despite facing difficulties. The focus on strengths rather than weaknesses has made resilience a key topic in positive psychology. The study of resilience is currently at its peak (Brewer et al., 2019). Resilience is a key life skill that can transform a failure into a success story. If a person is resilient, he or she can direct internal energy toward helpful answers and emerge from the situation stronger than before. When something unexpected or shocking happens in our lives, it is through resilience through which a person can survive that and move forward (Jasiuanas, Lund & Mikkola, 2021). Resilience is not a trait limited to specific age groups but plays a critical role in development and well-being throughout one's life. It is particularly crucial during key life transitions, such as childhood, adolescence, and aging. Recognizing the importance of resilience has implications for mental health interventions, educational programs, and community initiatives. Integrating resilience-building strategies can enhance individuals' ability to cope with stressors and improve mental health outcomes. Building resilience can be a protective factor against mental health challenges, including depression and anxiety. Understanding the interplay between resilience and mental health is crucial for developing effective interventions and support systems (Southwick et al., 2011). Numerous explanations for this link have been put out in the literature, which can be divided into direct and indirect impacts. Research has also exposed that there are gender variances in resilience and psychological distress, with male participants typically demonstrating higher psychological resilience than female participants and female persons being more susceptible to psychological discomfort (Zhang et al., 2018). Even said, there are discrepancies in these results; not all studies consistently found gender differences in resilience (Berezin et al., 2020).

The relationship between psychological resilience and suicidal ideation is considered dynamic. Resilience is not a fixed trait but a process that can be cultivated and enhanced through various interventions, suggesting the potential for targeted resilience-building programs to reduce suicidal ideation. Resilience may act as a mediator in the relationship between adverse life events, mental health challenges, and suicidal ideation. Individuals with higher resilience may be better equipped to navigate and cope with stressors, reducing the likelihood of resorting to suicidal thoughts. Suicidal ideation, a

complex and concerning aspect of mental health, refers to the thoughts, fantasies, or contemplation of one's own death by suicide. It is a critical component of the broader spectrum of suicidal behavior and mental health issues. Suicidal ideation, a critical and distressing mental health phenomenon, refers to the persistent and recurring thoughts about one's own death by suicide, often accompanied by a desire or plan to enact such self-harm. Suicidal ideation encompasses a range of thoughts, from fleeting and passive considerations of death to more elaborate and active planning of self-harm. It is a troubling manifestation of psychological distress, often indicative of significant emotional suffering (Klonsky, May, & Saffer, 2016).

Suicidal ideation is a serious mental health concern, and it is crucial to emphasize the significance of prevention, intervention, and support. The importance of understanding suicidal ideation lies in its role as a significant indicator of psychological distress and potential risk for self-harm or suicide. Suicidal thoughts are often symptomatic of underlying mental health conditions, including depression, anxiety disorders, and other psychiatric disorders. Acknowledging the importance of suicidal ideation contributes to reducing stigma surrounding mental health issues. Open discussions and increased awareness can foster a supportive environment where individuals feel more comfortable seeking help and disclosing their struggles. This, in turn, facilitates early intervention and reduces the societal stigma associated with mental health challenges (Clement et al., 2015). Suicide death rates differ by gender, age, race, and other demographic factors. When the National Survey of Drug Use and Health (NSDUH) results are compared to CDC mortality records, it becomes clear that there is a weak connection between reported SI and fatal suicides.

According to Center for Behavioral Health Statistics Quality results suggest that despite the low prevalence of SI among white guys over the age of 75, they have the greatest rate of suicide death (approx. 40 per 100,000). Females out there the age of 75, on the other hand, have noticeably inferior rates (4 per 100,000). Suicide deaths were considerably lower among 18-25-year-old suicide ideates (approx. 17.5 per 100,000 for males and 4 per 100,000 for females) (Center for disease control and prevention. 2020). Suicidal ideation is not limited to a particular age group or demographic it can affect people of all ages, backgrounds, and walks of life. It is often considered a precursor to suicide attempts and, therefore, requires urgent clinical attention and intervention to reduce the risk of self-harm or loss of life (O'Connor et al., 2019). The relationship between metacognition, psychological resilience, and suicidal ideation is a complex and multifaceted area of study. It is plausible to infer that the metacognitive skills might play a role in enhancing psychological resilience, thus indirectly influencing suicidal ideation. For example, individuals with strong metacognitive abilities may be better equipped to regulate negative thought patterns and employ adaptive coping mechanisms, potentially reducing the risk of suicidal ideation. The specific relationship between metacognition, psychological resilience, and suicidal ideation may require further empirical investigation, existing research suggests that metacognitive processes and psychological resilience play roles in mental health outcomes, and interventions targeting these factors may have implications for addressing suicidal ideation (Tucker et al., 2019). Kausar et al. (2025) reported that low emotional intelligence has significant relationship with suicidal ideation.

In this context, we aimed to found the relationship between metacognition, psychological resilience, and suicidal ideation that can highlight the awareness and provide guidance in educational institutions in district Gujrat. On the basis of analytically obvious material about metacognitive factors, psychological resilience and their operative contribution in the awareness programs on suicidal ideation can prime toward best level of development of cognition level and it can assist students to progress their educational presentation by promoting positive interactions, reducing conflicts, and contributing to a more compassionate and inclusive society.

Methods

Research Design and Participants

The settings for study were public and private schools from Gujrat, and Lalamusa. Cross-sectional survey design was used in current study to draw sample. Target population for present study were 11 to 17 years. The sample of the present study comprised of 900 students from school between age ranges of 11 to 17 years. The sample size was determined by using Taro Yamane (Yamane, 1973) mathematical formula with 97% confidence interval. n= N/ (1+N (e) 2) (n=Sample: N= Population: e = Margin of error). The sampling

technique which was used to recruit participants was probability sampling technique. Two stage sampling technique was used. At stage 1, sample were divided into two stages: public and private institutions. At last stage further divide in terms of gender (boys and girls). Students, both boys and girls, in age group of 11 to 17 years studying in government and private schools of Gujrat and Lalamusa were included in the current study. Students with any physical disability or mental illness were excluded from study. Throughout the course of the researcher's research, the ethical principles of informed consent and confidentiality would be upheld. Additionally, participants were informed by researchers of their withdrawal from the study at any moment. Participants won't be forced into disclosing their identities.

Measure

The measures of the present research consisted of five parts. First part included the consent form; second part was related to demographic information of students and the third part was consisted of Metacognition Scale. The fourth part consisted of Adolescent Psychological Resilience Scale and fifth part was related to Suicidal Ideation Scale. Information on the purpose and importance of the ongoing research is included in the consent form. The participants in the research were also informed about their right to anonymity and to withdraw from the study. Participants in this section formally expressed their consent to participate in research. The demographic form consists of demographic variables including age, gender, school type, residential area, family system, socio-economic status, education of father, education of mother, monthly income, birth order, and number of siblings. Metacognition Scale was measured through 17 items. The items were rated on 5-point Likert scale ranging from Always (5) to absolutely not (1). There were 29 items on the adolescent psychological resilience scale (Bulut, Dogan & Altundag, 2013) that were rated on 4-point Likert scale ranging from Not exactly suitable for me (1) to Exactly suitable for me (4). Suicidal ideation Attribution Scale (SIDAS) consists of 5 items and with the 10-point Likert scale ranging from Never (0) to Always (10). Urdu versions of all scales were used.

Data Analysis

The sample consisted of 900 students (430=boys & 470 =girls) of 11-17 years. The participation of boys and girls are 47.8% and 52.2% respectively. Majority of the participants (21.6%) were of 14 years, 10.0% of participants were 11 years, 9.7% of participants were 12 years, 11.8% were 13 years, 14.2% were 15 years, 19.1% of participants were 16 years, and 13.7% of participants were 17 years. The majority of the sample (56.6%) belonged to rural area whereas the urban area is less frequent (43.4%). Results also depicts that the greater number of responded (63.0%) fell in nuclear family system whereas the smaller number of respondents (37.0%) belonged to joint family system. the public sector has respondent's equivalent to 45.8% in the sample and private sector has participant's equivalent to 54.2%. (12.4%) of participants are fell in upper class, 8.4% of participants fell in lower class. Most (79.1%) of participants are fall in middle class. Participant's demographics are given below:

Table 1

Respondents' Profile (N=900)

Demographic profile	Frequency	Percent
Age in Years		
11 years	90	10.0
12 years	87	9.7
13 years	106	11.8
14 years	194	21.6
15 years	128	14.2
16 years	172	19.1
17years	123	13.7
Gender		
Boys	430	47.8
Girls	470	52.2

Demographic profile	Frequency	Percent
Residential Area		
Rural	509	56.6
Urban	391	43.4
Family System		
Nuclear	567	63.0
Joint	333	37.0
School Type		
Public	412	45.8
Private	488	54.2
SES		
Upper	112	12.4
Middle	712	79.1
Lower	76	8.4

Results

Results are presented using descriptive and inferential statistics. First of all, reliability of scales using alpha reliability analysis were calculated. All demographic factors' frequencies and percentages were calculated. Testing for normality was done to see if the data were distributed normally or not. The relationship between meta-cognition, psychological resilience and suicidal ideation among students was identified using the correlation coefficient. The effect of meta-cognition on psychological resilience and suicidal ideation among students were all described using linear regression analysis.

Table 2

Reliability of Scales, Cronbach's alpha

Variables	No. of items	Cronbach's alpha
META	17	.975
APRS	29	.657
SIDAS	5	.864

Table 2 presents psychometric properties of scales used in the study. Cronbach's alpha value for each scale was described in Table 2. Alpha reliability of Meta-cognition scale is .897, Psychological resilience scale is .657 and suicidal ideation questionnaire is .864. Results revealed that META, APRS and SIDAS exhibited acceptable and high level of internal consistency.

Table 3

Normality Test of Data (n=900)

Scales	Kolmogorov-Smirnov	Shapiro-Wilk	Skewness	Kurtosis	Sig.
META	.097	.900	-.04	-.36	.000
APRS	.114	.900	-1.28	4.35	.000
SIDAS	.425	.900	2.21	4.85	.000

Table 3 indicated the results of normality tests. The p-value for Kolmogorov-Smirnov and Shapiro-Wilk test is .000 for META, APRS and SIDAS. The findings indicated that scores on all of the 3 scales are significant stating that data were not normally distributed. Moreover, for all the variables, values of skewness and Kurtosis indicated that the data was non-normal.

Table 4

Mean and Standard Deviation values of Meta-cognition, Psychological Resilience and Suicidal Ideations (n=900)

Variables	M	SD
Total Meta-Cognition	62.29	12.48
Total Psychological Resilience	82.20	7.64
Total suicidal Ideation	5.37	10.48

Table 4 indicated the mean and standard deviation of Meta-cognition (M=62.29, SD=12.48), Psychological Resilience (M=100.46, SD=13.93) and Psychological Flexibility (M=29.96, SD=9.3).

Table 5

Spearman Rank-Order Correlation between Meta-cognition, Psychological Resilience and Suicidal Ideations (n=900)

	Meta-Cognition	Psychological Resilience	Suicidal Ideations
Meta-Cognition	-	.616***	-.03
Psychological Resilience	-	-	-.173**
Suicidal Ideation	-	-	-

Note ***p<.001 and **p<.01

Spearman's rank-order correlation was run to examine the relationship between meta-cognition, psychological resilience and suicidal ideation among students. The results indicated that there was strong positive and significant correlation between meta-cognition and psychological resilience (r= .616***, p-value=.000), hence non-significant correlation between meta-cognition and suicidal ideations (r=-.03, p-value=.368). Results of above table showed that there was significant negative correlation between meta-psychological resilience and suicidal ideations (r =-.173**, p-value=.03) (Cohens, 1998).

Table 6

Regression for Predicting Psychological Resilience (APRS) through Meta Cognition (n=900)

Variables	B	S. E	R^2	T	P	95%CI
Constant	48.25	1.74	.43	27.67	.000	(48.83,51.67)
APRS	.725	.027	-	26.43	.000	(.672,.779)

Note: CI = Confidence interval

Table 6 indicated that the meta-cognition plays the 43.8% role in resilience among students. Value of beta (.725) shows that meta-cognition has positive correlation with psychological resilience and there is significant correlation between meta-cognition and psychological resilience (p-value=.000).

Table 7

Regression for Predicting Suicidal Ideation (SIDAS) through Meta Cognition (n=900)

Variables	B	S. E	R^2	T	P	95%CI
Constant	6.94	1.78	.001	3.89	.000	(3.44,10.43)
SIDAS	-.025	.028	-	-.90	.368	(-.80,.03)

Note: CI = Confidence interval

Table 7 indicated that the meta-cognition plays the 0.1% role in suicidal ideation among students. Value of beta (-.025) shows that meta-cognition has negative correlation with psychological resilience and there is non-significant correlation between meta-cognition and suicidal ideations (p-value=.368).

Discussion

The sample of current study was comprised of 900 students (boys = 430, girls=470) with age range of 11 to 17 years. To collect data informed consent form, demographic form, Meta-Cognitive Scale, Adolescent Psychological Resilience Scale and Suicidal Ideation Attribution Scale were administered on the sample. Sample size was selected through two-stage stratified random sampling technique. Data was investigated using Statistical Package for Social Sciences-26 (SPSS 26). Results were obtained using Spearman rho correlation and regression. This chapter states the consistency of results with outcomes of related research. Results of current study were defined below:

The objective of the study is to assess the relationship among meta-cognition, psychological resilience and suicidal ideations in students. It also measures the impact of meta-cognition on psychological resilience and suicidal ideation among participants and to assess the differences upon study variables on

the basis of demographics. Hypotheses are given below: A) Higher the meta-cognition higher will be the resilience among students. B) Higher the meta-cognition, lower will be the suicidal ideations among students. The main objective of Phase-II of the study was to measure relationship among meta-cognition, psychological resilience and suicidal ideations among students. Table 5 shows Spearman's rank-order correlation which is non-parametric correlation was run to examine the connection between meta-cognition, psychological resilience and suicidal ideations among students. The findings show that there was moderate positive and significant correlation between meta-cognition and psychological resilience (r= .616***, p-value=.000), and significant and weak negative correlation between psychological resilience and suicidal ideations (r=-.173**, p-value=.000). Results of above table showed that there was a non-significant negative correlation between meta-cognition and suicidal ideations (r =-.03, p-value=.368). First hypothesis of the study was that higher the meta-cognition higher will be the resilience among students. These results of the study indicate the large significant positive relationship between meta-cognition and resilience (r =.616**, p-value=.000), findings of the study were consistent with finding of (Cohens, 1998) where it was estimated that the values of correlation on the basis of their severity are "r=.10 means small correlation, r=.30 means medium correlation and r=.50 and greater means large correlation. These results also correspond to the latest study conducted upon university students highlighting the positive correlation between meta-cognitive strategies and resilience (Anthonysamy, 2023). Second hypothesis of the study was that higher the meta-cognition, lower will be the suicidal ideations among students. These results of the study indicate the non-significant negative relationship between meta-cognition and suicidal ideations (r = -.03, p-value=.368). The reason for the non-significant relationship between these variables can be attributed to the findings of the previous study conducted by Aadahl et al. (2021) where the non-significant relationship was found between meta-cognition and suicidal ideations and the reason for that was the lack of appropriate measure to assess suicidal ideations with respect to meta-cognition. Another reason that can explain the non-significant relationship is the role of extraneous variables and other factors leading to suicidal ideations among individuals. Following the cultural practices of Pakistan, one of the important factors against the suicidal ideation is the religious beliefs of the participants. Being the Muslims, suicidal ideation is avoided and unacceptable even in extreme experience of emotional and psychological stress. Their beliefs system being a Muslim becomes a protective factor against suicidal thinking (Shoib et al., 2020).

Implications

Keeping in view the negative relationship between psychological resilience and suicidal ideation**,** consoling services can be introduced for the students to prevent them from suicidal thoughts and attempts. On the other hand, other than the conventional academic programs, for enhancing the psychological capacities of adolescents and nurturing the metacognitive and resilient traits awareness based seminars and training workshops can be scheduled in schools.

Future Recommendations

The data were collected at small level; in order to make the findings more generalized, it is recommended to increase the participant's number by including the adolescents from big cities of Pakistan. Other than the cross sectional research design, longitudinal research design will make the researchers more capable to investigate the differences in metacognitive abilities, resilience tendencies and experiences of suicidal ideation in relation to the different developmental stages of students.

Conclusion

Findings of the study infer that metacognition is significantly related to psychological resilience among students. However, metacognitive abilities do not have any relation with suicidal ideation. Hence in order to make student more resilient psychologically their metacognitive abilities can be enhanced and focused. Similarly suicidal ideations are negative construct for their positive mental health and on the basis of findings it can be concluded that if students are more resilient psychologically, there are less chances to experience suicidal ideations. During the life experiences in developmental stages, students undergo different types of emotional, behavioral and social stresses which can be passes through a healthy way

with high psychological resilience. On the other hand, non-significant relationship between metacognition and suicidal ideation needs an in depth exploration and scientific investigation keeping in view the cultural dimensions of Pakistan. With the help of the findings, teachers and families can follow the training guidelines for improving the metacognitive skills and psychological resilience in order to prevent the suicidal tendencies among adolescents.

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