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RESEARCH ARTICLE

EFFECT OF ACADEMIC STRESS, LONELINESS AND LIFE SATISFACTION ON AGGRESSION LEVELS OF STUDENTS: A COVID-19 CONTEXT

Roshni Sengupta

Undergraduate Student, Dept. of Psychology, Adamas University.

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Abstract

The Covid-19 pandemic has forced students to stay in prolonged social isolation and attend online classes, giving rise to newer academic challenges, enhanced feelings of loneliness, and hence, decreased life-satisfaction. These can further heighten aggression in students. Empirical evidence suggests that academic stress has a positively-significant correlation with aggression; although, studies inspecting the correlation of these factors with loneliness and life-satisfaction, in light of the Covid-19 pandemic are scarce. Present study therefore aims to investigate the effect of Academic Stress, Loneliness and Life-Satisfaction on Aggression Levels of Students, from a Covid-19 context. Data were collected in the year 2021, from 215 students (Mean age=20.69, SD=3.60; 59.5% females), attending both online and offline classes by administering (a) Aggression Questionnaire by Bus and Perry (1992), (b) Educational Stress Scale by Sun et al. (2011), (c) UCLA Loneliness Scale by Russell et al. (1978), and (d) Satisfaction with Life Scale by Diener et al. (1985). Data were collected using Google Forms after obtaining consent from participants. Statistical Analysis included Descriptive Statistics, Correlation Analysis, Regression Analysis, and One-Way ANOVA. Findings indicate that aggression of the students is positively associated with educational stress, and loneliness and negatively associated with life satisfaction level. Educational stress and loneliness significantly predict aggression in students, but life satisfaction does not predict aggression. Present findings provide empirical evidence of the contribution of educational stress and loneliness in enhancing aggression in students. Findings have implications in developing intervention modules for behavioural problems among students attending online classes.

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Introduction:-

The widespread outbreak of SARS-Cov 2 causing a worldwide pandemic, has resulted in governments implementing disease containment measures such as school closures, social distancing, and home quarantine. A direct negative impact of these actions is being faced by children and adolescents, especially students, who are being forced to stay in prolonged state of physical isolation from their peers, teachers, extended families, and community networks. In adults, negative psychological effects including confusion, anger, and posttraumatic distress is being caused by the prolonged quarantine (Brooks et al., 2020). A significant result of the Covid-19 pandemic has been the

Corresponding Author:- Roshni Sengupta

Address:- Undergraduate Student, Dept. of Psychology, Adamas University.

shift to online classes. This transition to the “new normal life” has proved to be stressful in terms of academics in case of many students, giving rise to feelings of aggression. Another noteworthy factor that comes into play is loneliness. Even though social isolation isn’t necessarily one and the same with loneliness, early indications in the COVID-19 context indicate that more than one-third of adolescents report high levels of loneliness (Lim. 2020), and almost half of 18- to 24-year-olds are lonely during lockdown. These elements combined, can contribute to decreased levels of life satisfaction in individuals.

Academic Stress among Students

Academic stress or educational stress occurs when academic-related demands prove to be more than what a student is capable to manage, and adapt to (Wilks, 2008). This involves mental distress regarding expected academic challenges or failure, or even fear of the possibility of academic failure. The negative emotional, cognitive, behavioural and physiological process that occurs as a person tries to adjust to or deal with stressors is known as stress (Bernstein, et al 2008). Nonetheless, different individuals perceive stress differently, and the meaning of stress may vary person to person. It is associated with feelings of tension, pressure, or even negative emotions like anger. The stress of time-management, meeting deadlines, participating in extra-curricular activities, and maintaining a social or personal life can prove to be detrimental for a student’s physical and mental health. If a student goes through a tremendous amount of stress in short-term academic situations such as taking a high-stakes admission exam, their information processing and execution may be impaired (Beilock, 2008). Apart from this, unhealthy coping mechanisms such as problematic smartphone usage, especially in students lacking problem-focused coping techniques, can be a result of academic stress (Xu et al., 2019). All of these factors directly lead to poorer performance in academics, resulting in even higher levels of academic stress. A study on final year medical undergraduate students, done by Radcliff and Lester (2003) revealed that one of the major stressors for students was excessive class workload. A study by MacGeorge et al. (2009) shows that academic stress is associated with a variety of negative health outcomes such as depression, anxiety and physical illness.

Loneliness

Loneliness has been defined as “an enduring condition of emotional distress that arises when a person feels estranged from, misunderstood, or rejected by others and/or lacks appropriate social partners for desired activities; particularly activities that provide a sense of social integration and opportunities for emotional intimacy”. In other words, loneliness is an unpleasant emotional response to the isolation perceived by an individual. It is commonly described as “social pain”, i.e., the psychological phenomenon that motivates an individual to seek social connections. It is usually associated with an unwanted absence of intimacy and connection in one’s life. Loneliness being a subjective emotion, can be felt even when surrounded by other people. Fears of loneliness and isolation are associated with low self-esteem and feelings of being devalued. Loneliness may become more of a concern in the teenage years, as adolescents perceive themselves as lonelier than younger children tend to do (Florian et al., 1989). The causes of loneliness vary amongst people, they generally include social, mental, emotional, and environmental factors.

Social Loneliness:

It is experienced by individuals due to the lack of a wider social network. Feelings of belonging, or membership to a community are absent. Individuals feel that they don’t have friends or allies to fall back on, in times of distress (Rokach et al. 2015).

Emotional Loneliness:

This results from the lack of deep, nurturing relationships with other people. Weiss associated his concept of emotional loneliness to attachment theory. Individuals possess the need for deep attachments, which can be fulfilled by close friends, though more often by close family members such as parents, and later in life by romantic partners (Gallagher et al. 2019).

Family loneliness:

This is a result of lack of close ties with family members. Family loneliness is associated with increased frequency of self harm, not romantic or social loneliness (Elklita et al. 2011).

Romantic loneliness:

This can be experienced by adolescents and adults who lack a close bond with a romantic partner. People in unstable or emotionally cold romantic partnerships can still feel romantic loneliness (Alberta et al., 2016).

Lockdown loneliness:

This refers to "loneliness resulting because of social disconnection due to enforced social distancing and lockdowns during the COVID-19 pandemic and similar other emergency situations" such as the COVID-19 pandemic (Shah et al., 2020).

Life Satisfaction

Life Satisfaction is defined as the way in which individuals express their emotions, feelings (moods), and how they feel regarding their directions and options for the future (Anand et al., 2016). Life Satisfaction is a measure of well-being assessed in terms of mood, satisfaction with relationships, achieved goals, self-concepts, and self-perceived ability to cope with one's daily life. It generally involves a somewhat favourable attitude towards one's life, instead of an assessment of current feelings. One's needs, wants and aspirations are roughly reflected by life satisfaction. It has been measured in relation to economic standing, degree of education, experiences, residence, among many other topics (Scott et al., 2003). Life satisfaction is one component of subjective well-being, along with affective balance (Diener et al., 2021). Life Satisfaction is affected by various internal and external factors like personality, self-esteem, outlook on life, age, life events and experiences, seasonal effects, values, culture, family, career, and social yardsticks.

Aggression

Aggression is overt or covert, usually harmful, social interaction that comes with the intent of inflicting damage or other harm upon another individual. However, aggression can be channelized into creative and practical outlets as well (Novi et al., 2020). It may occur either reactively or without any provocation. In humans, various triggers like stress, frustration due to blocked goals, feeling disrespected, etc. can lead to aggression (Amber et al., 2014). Aggression is a behavioural and emotional response made on purpose for the sake of destroying or damaging other persons or things (Kim & Kim, 2007). According to Albert Bandura (1973), it would be more accurate to differentiate the aggressive action in terms of their functional value, and to assume that the infliction of suffering is, at best, a secondary purpose of the aggression. Bandura characterizes aggression as an injurious and destructive behaviour. Aggression can be expressed directly (physical aggression) or indirectly (spreading rumours or psychological insult) (Klaus et al., 2007). Children who are aggressive at early ages tend to show delinquent behaviour during adulthood, in comparison to those students who are not aggressive (Beck, 2004). Later aggression, delinquency, and crime in adulthood, with poor school outcomes and unemployment in adulthood, have been linked with aggression in childhood and adolescence (Brody et al., 2003). Aggression can be expressed physically, verbally, or non-verbally; including anti-predator aggression, defensive aggression (fear-induced), predatory aggression, dominance aggression, inter-male aggression, resident-intruder aggression, maternal aggression, species-specific aggression, sex-related aggression, territorial aggression, isolation-induced aggression, irritable aggression, and brain-stimulation-induced aggression (hypothalamus). The two types of human aggression are "Controlled-Instrumental Subtype" (purposeful or goal-oriented); and "Reactive-Impulsive Subtype" (often elicits uncontrollable actions that are inappropriate or undesirable). Gender plays an important role in human aggression (Tullberg et al., 2011). There are multiple theories that seek to explain findings that males and females of the same species can have differing aggressive behaviours.

A 2011 study investigating the relationship of academic stress with aggression, depression and academic performance of Iranian college students by Khanekheshi and Basavarajappa, revealed that academic stress has a simple significant correlation with the aggression levels ($r = 0.54$) of students, and academic stress and aggression are able to explain 68% of the variance of academic performance. Also, results show that boys and girls are different in terms of aggression and depression. In other words, there exists a multiple correlation of academic stress and aggression with the academic performance of students. Similar findings were obtained in previous studies by Johnson, 1979; Sinha, 2000; Smith, 1998; Struthers, 2000; and Hindshow, 1992. The starting point of many juvenile issues is academic stress, and this has also been associated with aggression (Kim & Chung, 2004; Kim & Lee, 2008). Academic stress is a reason why adolescents adopt aggression as a protective mechanism; this practice can take a negative turn as it may trigger violent behaviour against others. Other than educational stress, peer relations can also influence problematic behaviours associated with aggression, such as substance abuse and violence (Halpern-Felsher, 2009). In order to curb aggressive behaviour, providing systematic and political programs in schools and local communities that can amend negative emotional factors like academic stress, is essential (Park et al., 2014). Aggression also acts as a mediator in the impact of academic stress on smartphone addiction in teenagers (Seo & Bo-Jun, 2018). A 2014 study by Michelle F. Wright shows that higher levels of perceived academic stress lead to late adolescents engaging in more cyber aggression activities. MiJeong Park, Jihea Choi, and Seung-Joo Lim

in their 2014 study assessing the factors affecting aggression in South Korean Middle School Students showed that aggression had significant correlations with academic stress ($r = .21$, $p < 0.001$), and significant explanatory variables for aggression included academic stress ($t = 2.78$, $p = .006$), among other factors. Findings indicated that depression, academic stress, and grade (second grade) influence aggression.

Shute & Walsh's (2005) study examined the relationship between school absenteeism, peer aggression, and loneliness in adolescents. It provides an insight into the relationships between loneliness and levels of aggression for peers. Their study proved their hypothesis on perceived verbal aggression and loneliness to be true, as there was a significant positive relationship between the two, although no significant relationship existed between perceived physical aggression and loneliness. It was found that adolescents experiencing high levels of indirect aggression, reported feeling lonelier, similar to those who were experiencing high levels of verbal aggression. It is seen that physical and verbal aggression are more common in case of males, and social aggression is more frequently seen in females, (Owens et al., 2000), these gender differences were reflected in the study by Walsh et al. (2005) but no difference in verbal aggression was found. Moreover, physical aggression was less frequent and hence it wasn't associated with loneliness. By disparity, both verbal and social aggression levels were found to be significantly associated with loneliness. Lastly, the study by Walsh et al. revealed that verbal aggression was more strongly associated with loneliness in case of girls, indicating that experiences such as name-calling, insulting and teasing is especially isolating for girls. Yavuzer et al. in 2018 examined the relationships amongst aggression, self-theory, loneliness, and depression in emerging adults, by studying undergraduate students. The results showed that loneliness positively and significantly predicts aggression in emerging adulthood. Findings also indicated that loneliness plays a fully mediating role with regard to the relationship between self-theory and aggression.

A 2014 study on Workplace Aggression and its association with Life Satisfaction by Hills & Joyce showed that exposure to external aggression was negatively associated with satisfaction with life and self-rated health. A study by Denson, Pedersen, Ronquillo & Miller (2008) studied the Trait Displaced Aggression and Life Satisfaction of adults and found that trait displaced aggression and decreased life satisfaction are negatively associated with each other. Further, perceived stress acted as a mediator between aggression and life satisfaction. In 2001, Scott et al. performed a study to examine the relationships between life satisfaction and violent behaviours among 5,032 adolescents. Results indicated that carrying a weapon; carrying a gun; carrying a weapon at school; physical fighting; physical fighting at school; physical fighting that required physician treatment; drinking and driving; riding with a drinking driver; having property stolen/damaged at school; feeling unsafe while at, going to or returning from school; and being injured/ threatened with a weapon were associated ($p=.05$) with reduced life satisfaction. Park, Choi, Park, & Kim performed a study to compare self-esteem, perceived life satisfaction, depression and aggression according to the experience of suicidal impulse in adolescents, in 2011. Data were collected from 249 middle and high school students. It was found that self-esteem, perceive life satisfaction, depression, and aggression differed significantly between the suicidal impulse group and non-suicidal impulse group.

Empirical evidence suggests that academic stress has a positively significant correlation with aggression; although, studies inspecting the correlation of these factors with loneliness and life-satisfaction, in light of the Covid-19 pandemic are scarce.

Present study therefore aims towards investigating the effect of Academic Stress, Loneliness and Life-Satisfaction on Aggression Levels of Students, under a Covid-19 context.

Methods:-

Participants:

Data were collected from 215 students (Mean age=20.70; SD=3.60; 59.50% of them were females), attending both online and offline classes. The sample consisted of high school students, undergraduate students, post-graduate students, and Ph.D. students, majority of them were undergraduates (74%). A total of 70% of the entire sample was attending online classes, and the rest were either attending classes offline, or in a blended mode.

Tools Used:

Buss-Perry Aggression Questionnaire (BPAQ)

The Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) consists of 29-items, 5-point scale from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). Here, item level factor analyses across three samples confirmed the presence of only 4 factors, involving Physical Aggression, Verbal Aggression, Anger, and

Hostility. Internal consistency for total score is ranged from .72 to .89. Retest reliability for the BPAQ over nine weeks is satisfactory (correlations ranged from .72 to .80. Construct validity for the Buss-Perry scale is supported, to some extent, by their relative associations with other self-report measures of personality traits.

Educational Stress Scale for Adolescents (ESS-A)

The Educational Stress Scale for Adolescents (ESS-A; Sun et al., 2011) is a 16-item measure of academic stress that was designed to address issues relevant to Asians. The five latent variables assessed by this measure include pressure from study, workload, grade-related worry, self-expectation, and despondency. The 5-point Likert-type response scale ranges from (1) "Strongly disagree" to (5) "Strongly agree" with total scores ranging from 16 – 80 and higher scores indicating more stress. Sun et al. (2011) reported an internal consistency reliability of .81 among their sample of 2,000 Chinese adolescents and moderate to good test-retest reliability at more than 2 weeks based on the interclass correlation coefficients ranging from .44 to .67.

UCLA Loneliness Scale

The UCLA Loneliness Scale (Russell et al., 1978) is a 20-item scale designed to measure one's subjective feelings of loneliness as well as feelings of social isolation. Participants rate each item as either O ("I often feel this way"), S ("I sometimes feel this way"), R ("I rarely feel this way"), N ("I never feel this way"). The measure is highly reliable, both in terms of internal consistency (coefficient α ranging from .89 to .94) and test-retest reliability over a 1-year period ($r = .73$). Construct validity is supported by significant relations with measures of the adequacy of the individual's interpersonal relationships, and by correlations between loneliness and measures of health and well-being. Confirmatory factor analyses indicate that a model incorporating a global bipolar loneliness factor along with two method factors reflecting direction of item wording provides a very good fit to the data across samples

Satisfaction with Life Scale (SWLS)

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a 5-item scale designed to measure global cognitive judgments of one's life satisfaction. Participants indicate how much they agree or disagree with each of the 5 items using a 7-point scale that ranges from 7 (strongly agree) to 1 (strongly disagree). The SWLS is shown to be a valid and reliable measure of life satisfaction, suited for use with a wide range of age groups and applications, which makes possible the savings of interview time and resources compared to many measures of life satisfaction.

Procedure:

Data were collected in an online survey method using Google Forms. Convenience sampling procedure was followed. Informed consent was obtained from each participant before collecting data. The information schedule contained information asking about the participants' name (in initials), age, sex, academic qualification, and mode of study adopted by their respective institution. After data collection, data were cleaned and then analysed using appropriate statistical methods.

Statistical Analysis:

Descriptive Statistics was done to summarize the data. Correlation Analysis & Regression Analysis were done to explore the relationship among the variables. Finally, One-Way ANOVA was done to investigate the group differences in the relationships among the study variables.

Results:-

Descriptive statistics

Table 1:- Mean and Standard Deviation of educational satisfaction, loneliness, life satisfaction and aggression levels of students (n=215).

Variables	Mean	SD
Educational Stress	56.40	15.70
Loneliness	37.43	17.60
Life Satisfaction	16.50	7.63
Anger	23.14	6.14
Physical Aggression	27.14	9.07
Verbal Aggression	17.22	4.98
Hostility	28.56	7.37

Association between Educational Stress, Aggression, Loneliness and Life Satisfaction level

Correlation Analysis revealed that anger, physical aggression, verbal aggression and hostility level of the students is positively associated with educational stress, and loneliness and negatively associated with life satisfaction level.

Table 2:- Correlation matrix showing the relationship between educational satisfaction, loneliness, life satisfaction and aggression levels of students (n=215).

Variables	1	2	3	4	5	6	7
1. Educational Stress	1.00						
2. Loneliness	.71**	1.00					
3. Life Satisfaction	-.60**	-.62**	1.00				
4. Anger	.61**	.57**	-.38**	1.00			
5. Physical Aggression	.62**	.62**	-.42**	.78**	1.00		
6. Verbal Aggression	.53**	.47**	-.28**	.71**	.75**	1.00	
7. Hostility	.70**	.70**	-.54**	.74**	.77**	.72**	1.00

**p<0.01

Prediction of Aggression levels by Educational Stress, Loneliness & Life Satisfaction

Multiple Regression Analysis showed Educational Stress and Loneliness significantly predicts Anger (Adjusted R square=0.40), Physical Aggression (Adjusted R square=0.44), Verbal Aggression (Adjusted R square=0.30) and Hostility (Adjusted R square=0.57). However, Life satisfaction does not predict Anger (p=0.50), Physical Aggression (p=0.72), Verbal Aggression (p=0.14) and Hostility (p=0.15).

Group differences with respect to aggression levels of students

Moreover, One-Way ANOVA with Satisfaction levels as predictor and Aggression Levels as the outcomes were done based on the ratings given by the participants in the satisfaction scale.

Results reveal that people who are most dissatisfied with their lives have scored the highest in Anger, Physical Aggression, Verbal Aggression and Hostility (p<0.001). ANOVA graphs show that people who were somewhat satisfied with their lives experience lower levels of aggression for all domains, and vice versa. There exist statistically significant differences among the satisfaction levels with respect to the aggression levels.

Table 3:- One-way ANOVA showing the satisfaction wise group differences with respect to the aggression levels of students (n=215).

Variables	F	df	p-value
Anger	10.40	6, 208	.001
Physical Aggression	11.40	6, 208	.001
Verbal Aggression	8.41	6, 208	.001
Hostility	18.60	6, 208	.001

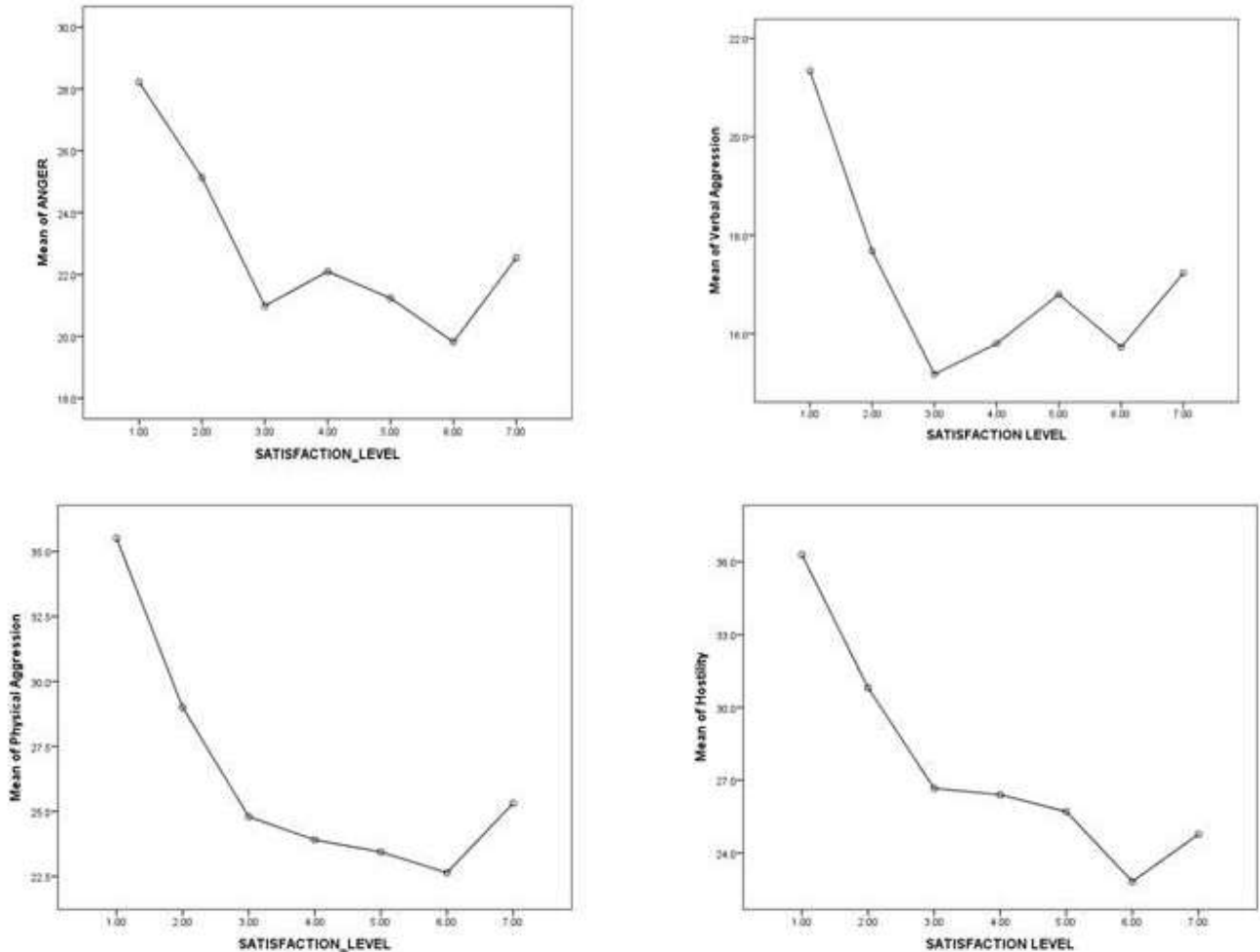


Figure 1:- Means plot showing the satisfaction level with respect to aggression levels of students.

Discussion:-

This study set out to empirically test the assumption that, from a Covid-19 Context, academics-related stress, loneliness and life-satisfaction partake in a significant correlation with aggression levels (anger, physical aggression, verbal aggression and hostility) in students. Academic Stress is said to be positively associated with, and significantly predict aggression and it was indeed found that educational stress in students is positively associated with all the domains of aggression (i.e., anger, physical aggression, verbal aggression and hostility). Aggression is also seen to be predicted by educational stress in the present study. This suggests that, in the pandemic situation, presence of educational stress due to various factors like transition to online learning and rapidly increased screen-time is playing a major role in enhancing feelings of anger, physical and verbal aggression, and hostility in students. An explanation to this finding could be that students facing academic stress are adopting unhealthy coping mechanisms which isn't permitting them to positively cope with said stress. This negative experience in turn frustrates the individual trying to achieve their goals and might lead to spells of anger and violence. This finding is conforming to a prior study performed by Khanekheshi et al. on the Relationship of Academic Stress with Aggression and Academic Performance of College Students, in 2011. It is also known that cognitive load diminishes problem-solving capacity, giving rise to stress (Sengupta, 2023).

Prior research has established that loneliness is associated with aggression, and present study shows that loneliness is not only positively associated with anger, physical aggression, verbal aggression and hostility, but all these domains of aggression are also predicted by the feelings of loneliness. The explanation for this finding could be that the pandemic situation has left students with no choice but to stay in physical and social isolation for over a year and this has a direct detrimental impact on their psychological well-being. Not being able to physically spend time with

peers, friends, acquaintances and family members in their very formative years can lead to persistent feelings of negativity, hence resulting in bouts of aggression. This finding is confirming to prior studies conducted by Walsh et al. (2005), and Yasemin et al. (2019) on Perceived Peer Aggression, and Loneliness; and Relationships amongst Aggression, Loneliness, and Repression in emerging adults, respectively.

Lastly, it was found that, in students, Life Satisfaction is negatively associated with anger, physical aggression, verbal aggression and hostility, although, life satisfaction does not predict any of the domains of aggression. In other words, life satisfaction and aggression may negatively coexist, but the former doesn't foretell the latter. An explanation for this is that aggression may be predicted by several other psychological and situation factors (e.g., depression, parental pressure, self-efficacy), and these perceived feelings of aggression may lead to decreased life satisfaction, and not the other way around. This finding is confirming to a prior study conducted by Hills et al. on workplace aggression and its association with life satisfaction, in 2014. Thus, all findings are in line with empirical studies.

Findings have implications in developing intervention modules for behavioural problems and anomalies among students attending online classes. Effective strategies for managing academic stress in students can be taken up by educational institutes as blended learning is coming into practice, and students are going through another phase of transition, giving rise to another set of new academic challenges. Present study also contributes towards understanding factors enhancing aggression in students, and has implications in student counselling and adolescent mental health.

A significant limitation of the research relates to the chosen sampling method. Convenience sampling method was used due to time and money constrictions, which might have decreased the statistical validity. Another limitation is the distribution of sample as it predominantly consisted of Indian undergraduates, which might be overshadowing the variations in responses (if any) by school students, postgraduates or Ph.D. students.

Although present research analysed variables like educational stress, loneliness, and life satisfaction, future studies could incorporate other variables such as depression, career maturity and self-efficacy as further predictors of academic stress-induced aggression. Parental pressure can be a promising predictor of academic stress-induced aggression in an Indian context. It is also recommended that future research be carried out to further investigate the variation in responses by school and college students; and online versus offline learning.

Conclusions:-

Present findings provide empirical evidence of the contribution of educational stress and loneliness in enhancing aggression (anger, physical aggression, verbal aggression, and hostility level) of students, from a Covid-19 perspective. It is important to note that life satisfaction doesn't predict aggression even though it is negatively correlated to it.

Declarations

There is no conflict of interest. Data was collected after obtaining written, informed consent from all participants.

Competing Interests

The author has no relevant financial or non-financial interests to disclose.

Author Contributions

The author has contributed to the study conception and design; as well as read and approved the final manuscript.

Ethics Approval

This study was performed keeping in mind all relevant ethical considerations and was approved by the research committee of the Department of Psychology, Adamas University, Kolkata.

Consent to Participate

Written, informed consent was obtained from all individual participants included in the study.

Consent to Publish

The authors affirm that human research participants provided informed consent for publication.

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