

## Feelings of Loneliness, Emotional Distress and Quality of Peer Relationships during COVID-19: Assessing the Self-Esteem of Young Adults

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### ABSTRACT

**Background:** Interpersonal proximity nurtured a sense of belonging that fulfilled one of our basic psychological tendencies. However, the emergence of the COVID-19 pandemic brought about variational changes that influenced close-knit interactions, leading to physical and psychological adjustments. The aim of the study was to examine the challenges of social isolation during the COVID-19 pandemic, as well as the risks of loneliness and emotional distress influencing one's self-esteem.

**Methodology:** A total of 183 samples participated in an online survey conducted on social media platforms (i.e., WhatsApp and Instagram). The participants were recruited by random sampling methods with the following eligibility criteria: (1) between the ages of 18 and 25 years old; (2) fluent in the English language; and (3) college-enrolled students. Socio-demographic data and standardized questionnaires using the Lubben Social Network Scale, the Social Provisions Scale, the UCLA 3-item loneliness scale, the PANAS scale, and the Rosenberg Self-esteem Scale were measured. A PLS-SEM model was used to assess the study variables.

**Results:** The findings revealed a negative relationship between young adults' self-esteem and feelings of loneliness and emotional distress. Furthermore, a higher provision score that indicated a high quality of peer relationships did not serve as a significant mediation variable for the increasing risks of loneliness and emotional distress associated with low self-esteem.

**Conclusions:** The exploratory study required further investigation into the absence of social proximity and its implicit influence on the psychological well-being of young adults.

**Keywords:** Pandemic, social isolation, peer relationships, loneliness, emotional distress, self-esteem

*(Paper received – 23<sup>rd</sup> March 2023, Peer review completed – 15<sup>th</sup> May 2023, Accepted – 27<sup>th</sup> May 2023)*

### INTRODUCTION

The World Health Organization (WHO) declared the first surge of COVID-19 as a global pandemic on March 11, 2020. [1] The emerging outbreak resulted in an overarching policy that spread its governance into major areas of life, from effective learning environments to workplace conditions and daily social patterns of communication. A social distancing policy, defined as the act of maintaining physical distance (i.e., at least 6 ft apart) within proximal areas or practicing social isolation within living environments, [2] was advocated as an early initiative of effective infection control measures.

The psychological unpreparedness surrounding the government's suddenly imposed restrictions caused people to deal with their own emotional disarray in isolation. Such feelings were compounded by crises such as deep financial losses, unavailing social support, and feelings of anxiety and depression, which created high risks of psychological distress within living environments. Studies indicated that young adults experienced more negative feelings during the pandemic, such as anxiety, depression, and frustration than

in the pre-pandemic period [3]. One common attribute that led to widespread public anxiety was the intolerance of uncertainty regarding the risk factors associated with infectious disease transmission, which caused the fear of contamination. Moreover, many individuals were facing an internal crisis of identity and role confusion during their confined stay in lockdown. While unravelling new virtual methods of learning, young adults found themselves striving for balance while caring for their elderly relatives. As older populations were identified as a high-risk age group for contamination due to deteriorating health conditions, younger individuals were observed to fulfil multiple roles within their home surroundings. As a result, their lockdown routine activities became severely imbalanced, resulting in high degrees of distress and adjustment issues for their maladaptive emotions.

The overwhelming degree of emotional distress experienced by young adults exacerbated prominent feelings of anxiety and loneliness. One of the central predicaments of social isolation was associated with feelings of loneliness. Loneliness was defined as the subjective evaluation of a lack of meaningful social ties [4]. People frequently reported feeling lonely during the pandemic as a result of the drastic social measures that were implemented. This included physical separation from others, the inability to experience the bodily presence of one's peers, or dispositional characteristics such as fear of intimacy or rejection, social skill inadequacies, etc [5].

Research findings revealed that the subjective perception of loneliness had a more profound influence on one's mental health condition than the concept of mass quarantine. Rokach characterized three key components of loneliness. One, it was a universal experience that could be portrayed at any point in a person's life; second, it was a subjective evaluation that varied from person to person; and lastly, it had multifaceted dimensions that manifested in various forms in one's life [6].

Various studies indicated that college student populations were more likely to experience higher levels of psychological discomfort. Weiss found that loneliness was associated with low self-esteem, low relational support, and high levels of emotional distress, which included high negative moods such as anger or irritability and low positive moods [7]. Interpersonal relationships played a significant role in the lives of young adults. The physical space occupied within social interactions displayed the perceived levels of attachment, trust, and reciprocal connectivity [8]. The implicit benefits of proximal relationships were a key characteristic of the human brain, as such intimate ties led to the formation of socially integrated bonds that had a positive impact on one's mental health [9]. Although young adults are usually characterized by aspects of social relations such as seeking support and acceptance from others, such relationships may not have always been mutually beneficial in nature. Individuals with poor-quality friendships and the absence of reinforced external factors within their surroundings were likely to experience feelings of anxiety and loneliness, leading to a greater risk of social isolation, which thereby affected their self-esteem [10]. Thus, peer relationship quality was considered a critical indicator for evaluating the shared interpersonal interactions that took place among individuals.

The period of adolescence was characterized by the individual's peer selection process, in which peers were typically appraised and chosen based on shared personality traits. Those experiencing depressive symptoms, for example, were likely to seek a critical appraisal of their social interactions with others [11]. As a result, an adolescent was typically persuaded to form social connections based on the fulfilment of their basic needs and requirements. However, with one's transition to the stages of early adulthood, there was evidence of greater stability within social networks, which tended toward longer-lasting peer relationships. In addition, they were likely to express less rigidity during the formation of new social ties [12].

The peer relationships of young adults were typically characterized by aspects of intimacy, mutual respect, and reciprocity. Studies suggested that intimacy prowess was highly associated with the capacity to self-disclose with near peers [13]. Furthermore, such closely knitted bonds helped in the mediation of any emerging family-related conflicts that were likely to negatively impact an individual's mental health condition. In addition, younger adults were usually surrounded by variational life adjustments in major areas of their lives, such as personal autonomy, living style accommodations, higher education, etc., wherein peers were found to play a dominant role in such decision-making processes. Various studies considered relationship quality to be a major primary determinant of one's mental well-being when compared to other

peer-relational factors such as maintaining trust within peer groups [14]. As a result, friendship quality as an indicator contributed significantly to young adults' psychological adjustment.

The outbreak of the COVID-19 pandemic, however, created a social absence of proximal peer interactions that individuals were experiencing prior to the upliftment of such pandemic-related restrictions. On the one hand, a lack of physical presence hampered long-term sustainable relationships, undermining the fundamental pillars of mutual trust and intimate care. On the other hand, with the rapid deterioration of health conditions and the sudden demise of loved ones, the mental health of varying demographic groups was further spiralling into higher levels of adverse psychological risk. Individuals between the ages of 18 and 30 and those above 60 were claimed to be a vulnerable group suffering higher levels of emotional distress during the lockdown [15]. Research studies found evidence of individual differences within the age-group strata wherein greater emotional distress was likely experienced amongst younger populations as compared to older adults [16]. One leading cause may be the factor of resilience instilled within the elderly population by undergoing greater life-adversarial circumstances than their younger-aged counterparts. However, there was little evidence found to support such an argument.

During the lockdown, the amount of time spent on social media platforms in pursuit of virtual relationships increased significantly. There was a greater likelihood of young adults being victimized by what was known as a "digital epidemic" [17], which created widespread anxiety and distress among them. The crippling nature of posting incorrect information about the pandemic on online platforms, such as incorrectly reporting high population mortality rates, adversely affected mental health conditions. One argued that using digital technologies as a "survival kit" to seek virtual interactions during the lockdown likely caused negative consequences to one's self-esteem [18]. Thus, while using social media as a coping mechanism alleviated psychological discomfort through the pursuit of virtual-based social interactions, compulsive usage had negative consequences [18].

According to the cues-filtered out model, the lack of non-verbal cues such as eye contact, tone, and gestures during virtual seeking platforms like Facebook, Instagram, etc. resulted in poorer quality interactions as compared to face-to-face communications [19], which suggested that greater time usage on such virtual mediums may have led to poorer mental well-being. Several studies supported the findings that physical high-quality interactions significantly affected the level of satisfaction in social relationships [20], the maintenance of one's psychological well-being, i.e., self-esteem and the experience of immediate positive affective feelings. However, on the contrary, findings revealed by another study indicated that text messaging was more frequently used by participants, which revealed greater self-disclosure and led to effective improvements in self-esteem [21]. Thus, future research is required to further investigate the nature of interactions that took place using variant communication modes, i.e., text messages vs. face-to-face communication, in relation to one's self-esteem.

Living substantially with the new social norm during the period of quarantine led many to experience intense psychological turmoil and greater emotional imbalances. Younger and older people reported experiencing feelings of loneliness and anxiety because of movement restrictions and forced social isolation [22]. Interactions through online media platforms may have served as a temporal guide during such a turbulent situation by alleviating feelings of distress and loneliness as a result of gaining virtual-based social integration [23]. However, due to the perceived degradation in communication quality compared to physical interactions, such social contacts were not perceived as permanent, tenable alternatives. As a result, the psychological discomfort experienced led to negative mental health outcomes.

A significant finding indicated a strong relationship between loneliness and self-esteem. Past longitudinal studies reported a high negative correlation ( $r = -0.72$ ) between loneliness and self-esteem, with low loneliness levels being subsequently related to high levels of self-esteem [24]. In contrast, other studies yielded inconsistent findings that indicated a weaker relationship between the two variables ( $r = -0.50$ ) [25]. Furthermore, it was revealed that college students who experienced loneliness had a difficult time valuing themselves, which resulted in increased social withdrawal out of fear of rejection [26]. This played a significant role as the primary cause of future interpersonal problems. As a result, it should be considered an important indication for future research to investigate the potential risk challenges that impact the

psychological well-being of young college students, which had a greater likelihood to persist in the post-pandemic period.

## METHODOLOGY

### Participants and Procedure

The study collected a total sample of 183 participants through an online survey conducted on social media platforms (i.e., WhatsApp and Instagram). The participants were recruited by random sampling methods from those who met the following eligibility criteria: (1) between the ages of 18 and 25 years old; (2) fluent in the English language; and (3) college-enrolled students. Prior to the commencement of the study, the informed consent of all participants was obtained; thus, participation was kept on a voluntary basis, and confidentiality and anonymity were assured. The participants could withdraw at any time during the study. No monetary rewards were granted. The survey questionnaires were individually administered via Google Forms, wherein the purpose and aim of the study and the measurement scales were displayed to the participants. In order to avoid any interference-response bias due to social desirability effects, the names of the scales were not disclosed to the participants. After the survey's completion, a thorough debriefing was provided, along with the future implications of the study being discussed.

### Measures

#### Sociodemographic details

The survey collected basic demographic details about the participants' name, gender, age, marital status, educational level, and employment status. The participants' anonymity was maintained as a form of confidentiality.

**The Lubben Social Network Scale-6 (LSNS-6):** The Lubben Social Network Scale-6 (LSNS-6), developed by James Lubben [27], was a 6-item self-report questionnaire rated on a 5-point Likert scale used to measure social isolation. It evaluated the perceived levels of social support from family members and peers. The structured answer key format was as follows: none = 0, one = 1, two = 2, three or four = 3, five thru eight = 4, nine or more = 5. The scoring of the scale included a total sum of all six items, ranging between 0 and 30. A score of 12 or lower was interpreted as being at greater risk of social isolation, whereas a higher score indicated high levels of social interactions. The internal reliability of the LSNS-6 item was relatively high (0.83). The scale also demonstrated strong construct validity with correlated measures of health-related behaviours and depressive symptoms.

**The Social Provisions Scale:** The Social Provisions Scale, developed by Carolyn E. Cutrona and Daniel W. Russell [28], was a 24-item self-report questionnaire used to measure one's current quality of peer relations. The scale was rated on a 4-point Likert scale, i.e., strongly disagree, disagree, agree, and strongly agree. The conceptualization of social support were defined by six sub-dimensional constructs [29], which included the reassurance of worth (e.g., I have relationships where my competence and skill are recognized); nurturance (e.g., There are people who depend on me for help); attachment (e.g., I feel a strong emotional bond with at least one other person); social integration (e.g., There are people who enjoy the same social activities I do); guidance (e.g., There is someone I could talk to about important decisions in my life); and reliable alliance (e.g., There are people I can depend on to help me if I really need it). The scoring procedure of the scale indicated a total score for all six items. Some of the items included a reverse scoring method. A higher score indicated that the individual perceived adequate social support from their relationships. The reliability of the scale was considerably high (0.915), with coefficient alphas ranging from 0.67 to 0.76 for the subscales [30]. The instrument had good construct validity for both measures of loneliness and social relationships.

**UCLA Loneliness Questionnaire (Version 3):** The UCLA Loneliness Scale (Version 3), developed by Russell [31], was used to measure aspects of loneliness among college students as a standard instrument across studies. The scale consisted of 20 items with a four-point Likert scale, i.e., never, rarely, sometimes, and always. The items assessed the frequency with which the participants agreed to the following statements, i.e., "I lack companionship", "How often do you feel left out?" etc. There were nine positively worded and

eleven negatively worded items included in the scale. The scoring procedure for the scale indicated a sum score for all items. Among some of the items, the scores were reversed. A higher score indicated a greater sense of loneliness being experienced by the individual. The internal consistency ranged from .89 to .94 across studies (Russell, 1996), and the test-retest was found to be 0.73 [31], thus suggesting good reliability of the scale. In addition, there was good construct validity with measures of interpersonal relations and well-being.

**Positive and Negative Affect Schedule (PANAS) Scale:** The Positive and Negative Affect Schedule (PANAS) Scale was developed by David Watson and colleagues in 1988 [32]. The scale measured ten positive and ten negative affective states within individuals. The instrument assessed how the person felt at the moment or over the span of a week. The scoring procedure for the scale included a sum score for all the positively framed items, whereas a separate total score was measured for the negatively framed items. For the positive words, a high total score ranging from 10 to 50 indicated experiencing greater positive affect; as for the negative words, a high total score ranging from 10 to 50 indicated experiencing greater negative affect. The internal consistency was high for the positive affect (0.86–0.9) and the negative affect (0.84–0.87). Furthermore, the test-retest scores were high, ranging between 0.79 and 0.81 [32], which indicated that the scale was reliable. The scale also had good construct validity with the Beck Depression Inventory (0.65 for negative affect) and the Hopkins Symptom Checklist (0.74 for negative affect).

**Rosenberg Self-esteem Scale:** The Rosenberg Self-Esteem Scale, developed by Morris Rosenberg [33], was used to measure one's self-esteem. The instrument consisted of a 10-item statement that was measured using a 4-point Likert scale, i.e., strongly disagree, disagree, agree, and strongly agree. There were five items on the scale where the scores had a reverse scoring method. The scoring procedure for the scale included a total sum score for all ten items. A higher score indicated an individual's high level of self-esteem. The scale had a high level of internal consistency (0.92) and test-retest reliability (0.85) [33]. In addition, the convergent validity ranged from 0.56 to 0.83 [33].

### Statistical Analysis

Descriptive statistics were assessed for all the study variables. A structural equation model, particularly a Partial Least Squares Structural Equation Model (PLS-SEM), was used as the study methodology for statistical measurement. The SmartPLS 3.0 software was used to run the aforementioned framework. However, the SmartPLS 3.0 software failed to test the data for normality; as a result, the R software was used in addition to run normality tests, as a requirement of one of the basic assumptions to be met while using the PLS-SEM statistical technique. Furthermore, the data analysis included the assessment of two models, i.e., the measurement (outer) and structural (inner) models, to examine the relationship among the study constructs. The continuous total sum score of the Rosenberg self-esteem scale was used as the criterion variable within the models.

## RESULTS

### Descriptive Statistics

A sample size of 183 participants included in the study (N = 103; 56.3% females; and N = 80; 43.7% males) were between the age groups of 18 and 25 years old, fulfilling in accordance with guidelines that the number of respondents for running a PLS-SEM analysis should be a minimum of 50 observations in order to enable a statistical power probability of 80% for a sufficient R<sup>2</sup> value of 0.25. It was reported that young adults aged 18 years (24%) and 22 years (24.6%) comparatively yielded greater responses to the survey, whereas individuals aged 19 years and 20 years entailed the lowest response rate (6.6%). Moreover, 94% claimed to be married, whereas only 6% were unmarried, of which 77% were employed and the remaining 23% were unemployed.

The responses of the sample participants were analysed by creating forms of data groups using the Smart PLS software. The study included four scales: the UCLA scale (version 3), the PANAS scale, the Social Provisions scale, and the Rosenberg Self-Esteem scale. However, the PANAS scale was measured with two

separate composite scores, i.e., positive affect and negative affect; thus, the predictor variable of emotional distress was measured by using two different indices, i.e., positive affect and negative affect. All the aforementioned scales had a continuous rating scale on the basis of which the responses were indicated with a given range of higher and lower levels, respectively.

### Checking for Assumptions of Structural Equation Model (SEM)

#### Normality Assumptions

**Table 1: Univariate Normality using Anderson-Darling Test**

Scale Variables	Normality ( p value)	Skewness	Kurtosis
Higher social provision	0.0933	-0.179	-1.46
Lower social provision	<0.001	-2.345	4.95
Greater degree of loneliness	8e-04	1.51	1.36
Lower degree of loneliness	0.4638	0.26	-1.39
Less positive affect	0.0546	-1.0	0.25
More positive affect	0.1172	0.3	-1.54
More negative affect	0.0024	1.34	0.79
Less negative affect	0.8653	-0.29	-0.89
Low esteem	0.0056	-1.77	2.94
High esteem	0.2055	0.38	-1.37

In Table 1, the null hypothesis stated that the data followed a normal distribution. As the p-values of the given variables, i.e., higher social provision (0.0933), a lower degree of loneliness (0.4638), less positive affect (0.0546), more positive affect (0.1172), less negative affect (0.8653), and high esteem (0.2055), were greater than the significance level of 0.05, we failed to reject the null hypothesis. However, for a given set of variables, i.e., lower social provision (<0.001), a greater degree of loneliness (8e-04), more negative affect (0.0024), and low esteem (0.0056), the p values were seemingly less than the significance level of 0.05, which indicated that the stated null hypothesis should be rejected. As a result, due to insufficient evidence to reject the null hypothesis, a multivariate normality test was further conducted.

**Table 2: Multivariate Normality (MVN) using Royston Test**

Test	H	p value	MVN
Royston	50.99276	4.168144e-08 (<0.05)	NO

In Table 2, the null hypothesis stated that the data followed a multivariate normal distribution. However, as the p value, i.e., 4.168144e-08 was seemingly less than the significance level of 0.05, we concluded to reject the null hypothesis, and thus, the assumption of multivariate normality was rejected. We thereby assumed that the data was not normally distributed.

**Table 3: Descriptive Statistics**

	N	Mean	SD
Social Provisions Scale	183	73.727	10.013
Loneliness Scale	183	46.060	11.385
PANAS - Positive Scale	183	33.732	7.956

PANAS - Negative Scale	183	25.923	7.217
Self-esteem Scale	183	27.596	5.691

In Table 3, the descriptive statistics included the mean and standard deviation of the measurement scales for a total of 183 observations.

**Table 4: Correlation Test**

	Scale Variables	r score	Hypothesis
Loneliness	H1: Loneliness & Self-esteem	-0.079	Yes
Emotional Distress	H2: Positive affect & Self-esteem	0.526	Yes
	H2: Negative affect & Self-esteem	-0.418	

In Table 4, the correlation coefficients were tested for the hypothesized study variables. H1 indicated a negative relationship ( $r = -0.079$ ) between feelings of loneliness and self-esteem. Hence, H1 was supported. Furthermore, H2 indicated a negative relationship between emotional distress and self-esteem. A correlation of  $r = 0.526$  between positive affect and self-esteem and of  $r = -0.418$  between negative affect and self-esteem stated a moderate relationship between the two separate constructs. A positive correlation suggested low positive affect which indicated low self-esteem, whereas a negative correlation suggested high negative affect which indicated low self-esteem. Thus, H2 was supported.

**PLS Path Model Estimation**

The PLS-SEM analysis included the measurement and structural models. The data was measured using composite sum scores as represented by latent variables. The outer model (i.e., the measurement model) described the relationship between the latent constructs and their respective indicators (Figure 5), whereas the inner model (i.e., the structural model) evaluated the relationship among the latent constructs (Fig 6).

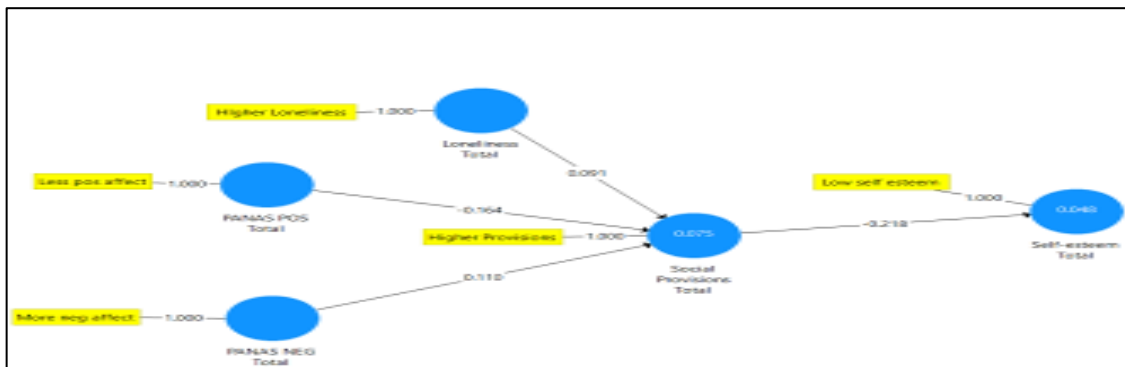
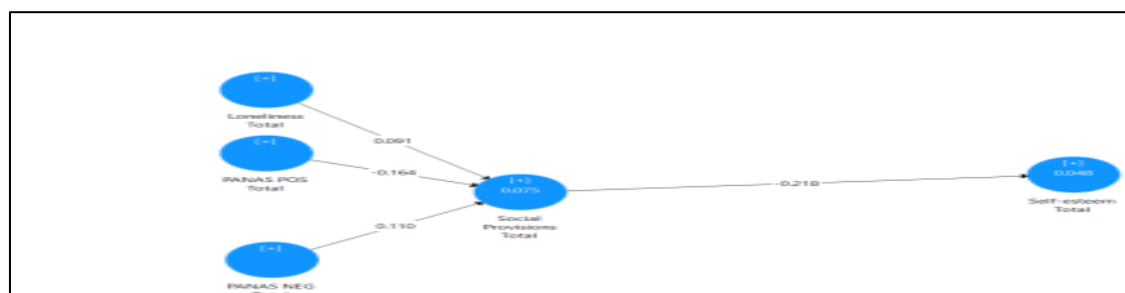


Figure 5 (above) and Figure 6 (below)



**Measuring Internal Consistency**

Cronbach's alpha was most frequently used as an index measure of internal consistency. However, composite reliability was considered an indicator with high face measurement and a good estimator in PLS path models with great robustness. In Table 5, all respective values were equal to 1, which indicated a value above the threshold of 0.90. This implicated the possibility of a higher level of redundant items, which resulted in lower construct validity. Thus, such results were deemed to be less satisfactory.

**Table 5. Reliability Test - Composite Alpha**

Scales	Composite Alpha
Loneliness Scale	1.000
PANAS Neg Scale	1.000
PANAS Pos Scale	1.000
Social Provisions Scale	1.000
Self Esteem Scale	1.000

**Discriminant validity**

The validity index of the Heterotrait-Monotrait Ratio (HTMT) of correlations was characterized as a good robustness measure for identifying significant differences in factor loadings. The index was regarded as a better validity measure than the traditional Fornell-Larcker criterion. Thus, it was suggested that the HTMT index was sufficient for evaluating the discriminant validity of the model. As a result, Table 6 showed that the HTMT values were below the threshold level of 0.85, which indicated that discriminant validity was good.

**Table 6: Validity Test: Heterotrait–Monotrait Ratio (HTMT)**

	Loneliness Total	PANAS NEG Total	PANAS POS Total	Self-esteem Total	Social Provisions Total
Loneliness Total					
PANAS NEG Total	0.282				
PANAS POS Total	0.27	0.519			
Self-esteem Total	0.134	0.429	0.537		
Social Provisions Total	0.156	0.232	0.245	0.216	

**Formative Structural Model (Inner Model)**

The latent variables had more than one indicative relationship as predictors of the outcome variable in the study (i.e., loneliness, PANAS Pos, PANAS Neg). Thus, the assumptions of the structural model were further examined.

**Indicator Multicollinearity Assessment**

The variance inflation factor (VIF) statistic was used to determine whether or not there was a multicollinear relationship between the predictor variables. Thus, the collinearity issue was examined while testing for regression analyses to avoid any bias caused by the presence of redundant items. The relative threshold value for multicollinearity was less than 5 or 10. Thus, Table 7 presented the VIF values for all indicators, showing no collinearity between the predictor variables.



**Table 7: Multicollinearity Statistics (VIF) for indicators**

Loneliness	PANAS NEG	PANAS POS	Social Provisions	Multicollinearity (VIF>5 or >10)
1.054	1.361	1.350	1.000	No

**Table 8: Results of Coefficient of Determination (R<sup>2</sup>), Predictive Relevance (Q<sup>2</sup>) & SRMR**

	R <sup>2</sup> value	Q <sup>2</sup> value
<b>Social Provisions Total</b>	0.075	0.040
<b>Self-esteem Total</b>	0.048	0.045
	SRMR value	
<b>Saturated Model</b>	0.000	
<b>Estimated Model</b>	0.156	

**Path Coefficient**

By using the SMARTPLS software, we evaluated the path coefficients of the respective latent variables via the bootstrapping method. As PLS-SEM was relied upon to be a non-parametric statistic, the bootstrapping method was used to test the results, i.e., path coefficients, Cronbach’s alpha, R<sup>2</sup> values, etc., to determine the level of statistical significance. In addition, we used the bias-corrected and accelerated (BCa) Bootstrap method to estimate the nonparametric confidence intervals. The hypothesis testing was summarized in Table 9 and Figure 7. The results indicated that the predictor variables, i.e., Loneliness total, PANAS NEG total, and PANAS POS total, did not significantly predict the variable social provision total (t statistics <1.96; p value > 0.5). However, at the significance level of 0.05, the variable Social Provisions Total predicted the Self-Esteem Total (beta value = -0.218; t statistics > 1.96; p = 0.001).

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
Loneliness Total -> Social Provisions Total	0.091	0.066	1.382	0.168
PANAS NEG Total -> Social Provisions Total	0.110	0.091	1.213	0.226
PANAS POS Total -> Social Provisions Total	-0.164	0.097	1.679	0.094
Social Provisions Total -> Self-esteem Total	-0.218	0.065	3.357	0.001

Figure 7

**Table 9: Hypothesis testing and its significance**

Variables	Path Coefficient	SD	T Statistics	P Values	2.50%	97.50%
<b>Loneliness Total -&gt; Social Provisions Total</b>	0.091	0.066	1.393	0.164	-0.035	0.227
<b>PANAS NEG Total -&gt; Social Provisions Total</b>	0.110	0.088	1.251	0.211	-0.060	0.277
<b>PANAS POS Total -&gt; Social Provisions Total</b>	<b>-0.164</b>	<b>0.092</b>	<b>1.777</b>	<b>0.076</b>	<b>-0.340</b>	<b>0.035</b>
<b>Social Provisions Total -&gt; Self-Esteem</b>	<b>-0.218</b>	<b>0.065</b>	<b>3.367</b>	<b>0.001</b>	<b>-0.339</b>	<b>-0.096</b>

The mediation analysis was performed to assess the potential mediating role of the variable social provisions, i.e., the quality of peer relationships, among the predictor variables of the model, i.e., Loneliness, PANAS NEG and PANAS POS (see Table 10). In accordance with the Preacher and Hayes (2008) approach, the analysis was not biased by any such distributional assumptions (Hairs et al., 2013), which were often seen in parametric methods such as regression analysis.

**Table 10: Mediation Analysis**

Hypothesis		Total Effect	P value	Direct Effect	P value	Indirect Effect	$\beta$ value	p value
H3a	Loneliness Self-esteem	-0.020	0.203	0.044	0.472	Loneliness->Social Provisions->Self esteem	-0.020	0.195
H3b	PANAS NEG Self esteem	-0.024	0.252	-0.212	0.002	PANAS NEG->Social Provisions->Self esteem	-0.024	0.276
H3c	PANAS POS Self esteem	0.036	0.184	0.427	0.000	PANAS POS->Social Provisions->Self esteem	0.036	0.207

The two-step method was based on the following bootstrapping procedure:

Step 1: Checking for a direct relationship.

In this step, the analysis was performed by eliminating the mediating variable from the model and then running the bootstrapping procedure on the observed data. As a result (see Figure 8), it was indicated that the two predictor variables, i.e., PANAS NEG and PANAS POS had a significant direct relationship with the criterion variable, i.e., self-esteem ( $\beta = -0.212$ ,  $p = 0.002$ ;  $\beta = 0.427$ ,  $p = 0.000$ ) at the significance level of 0.05. The variable loneliness, on the other hand, revealed no such direct association with the variable self-esteem at the significance level of 0.05.

	Original Sample (O)	P Values
Loneliness Total -> Self-esteem Total	0.044	0.472
PANAS NEG Total -> Self-esteem Total	-0.212	0.002
PANAS POS Total -> Self-esteem Total	0.427	0.000

**Figure 8**

Step 2: Checking for an indirect relationship.

In this step, we again performed the bootstrapping procedure by incorporating the mediating variable into the model. The results shown in Figure 9 claimed no mediatory role among the study variables ( $p > 0.5$ ).

### DISCUSSION

The present study investigated three proposed hypotheses, and the findings of the results were summarized in Table 11. The results indicated a weak negative correlation between feelings of loneliness and self-esteem among college students, supporting the H1 statement. Moreover, a moderately negative correlation existed between feelings of emotional distress and self-esteem on both composite dimensions (i.e., positive & negative affect) of the PANAS scale. In addition, with respect to the Ho3 statement, it was found that the high quality of peer relationships served as an insignificant mediator variable for feelings of higher loneliness and emotional distress as predictors for low self-esteem.

	Original Sample (O)	P Values
PANAS NEG Total -> Social Provisions Total -> Self-esteem Total	-0.024	0.252
PANAS POS Total -> Social Provisions Total -> Self-esteem Total	0.036	0.184
Loneliness Total -> Social Provisions Total -> Self-esteem Total	-0.020	0.203

Figure 9

Table 11: Summary of Hypotheses Testing

Hypotheses	Accepted (Yes/ No)
H1: There would be a negative relationship between feelings of loneliness and self-esteem among college students.	YES
H2: There would be a negative relationship between emotional distress and self-esteem among college students.	YES
Ho3: There would be no significant relationship between high feelings of loneliness and high emotional distress among college students' self-esteem mediated through high quality of peer relationship	YES

The rationale for using high-quality peer relationships as a mediating variable According to the socio-emotional selectivity theory, young individuals operate with unique "search engines" to form their inner group of trustees. Such groups were measured by factors of interpersonal trust, which formed the basis of high-quality peer relationships [35]. However, less meaningful peer relationships adversely affected one's level of trust [36], leading to maladaptive behavioural and emotional patterns such as loneliness and psychological conflicts [37]. Thus, the study focused on young adults, particularly college-aged populations, as peer relationships played a key role in influencing their decision-making abilities, and facilitated better emotional adjustment [35].

With the new alternative social impediments imposed (i.e., social distancing, lockdown), which served as social interaction barriers and as an impediment to individual personal growth among college students during the COVID-19 pandemic, there were other confounding factors that were thought to be associated with lower levels of self-esteem. Some of the factors included home environments, academic achievements, stress-related factors, etc [38]. According to research findings, the parental influence was found to have a significant impact on a child's emotional regulation in terms of personal growth, as well as associated factors such as peer relationships. However, considering the imposition of the "stay-at-home" policy, findings revealed that parents indeed had an influential role to play in their child's emotional adjustment to their surroundings. One of the indicators was physical separation, which led to certain changes in one's quality of relationships [39]. Furthermore, while at home, family members were more frequently sought out for morale support. At the university level, interpersonal ties among college students were primarily peer relationships [35]; however, under varied circumstances, such claims may be refuted.

### CONCLUSIONS

The study aimed to investigate the absence of peer physical contact and the associated high risks of psychological distress during lockdown, as well as its impact on one's self-esteem. The exploratory findings

of the study had a few implications: feelings of emotional distress, which were defined as having less positive affect (i.e., excited, enthusiastic, proud) and more negative affect (i.e., hostile, distressed, scared), measured by the PANAS scale, had a significant predictive relationship with levels of self-esteem, as found in previous research studies. As a result, a high quality of peer relationships was considered a poor mediating variable when examining the association between emotional distress and self-esteem among young college students. The current exploratory study, however, will require more rigorous studies to be carried out in the future, with a focus on the underlying implications of how a closely integrated network aids young adults, particularly college students, in their personal and social adjustment to new life adversarial circumstances.

There were certain limitations to the present study: (1) Self-report standardized measures, such as questionnaires, were highly likely for participants to respond in a socially desirable manner. (2) There was no assessment of confounding variables such as stress levels, medical history, or the family lifestyle environment that may have influenced one's self-esteem. (3) We used an average score for the Social Provisions scale; therefore, its underlying indicators, i.e., six subscales were not properly examined in determining their influence on one's level of self-esteem.

Some of the future directions and implications that could be possibility considered by other studies:

- The ability to identify the implementation of a groundwork school task or technology-based programmes that aim to facilitate peer communication, such as the inclusion of group-based class activities or projects that engage peer social communication skills.
- Another implication that could be included is that parents should encourage their children to engage in social interactions and be mindful of their inner-group activities in order to closely monitor their psychological well-being.
- Further research into the impact of peer interactions in the lives of other age group members during such adversarial circumstances is needed to determine the generalizability of the results.
- Future research should take into account various self-report measures to assess friendship quality and determine the replicability of results.
- Furthermore, to investigate social media consumption as an effective coping mechanism in order to moderate its relationship with feelings of loneliness and psychological distress.

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Acknowledgements – Nil; Conflict of Interest – Nil; Funding – Nil