



Social isolation and depression in Covid times in Indian college students: tracing the dots in a suburban sample

Abstract

Background and aims: Depression has been previously linked with solitude and lack of social interaction. Social isolation has been a part of many lives during the Covid-19 pandemic times. Students especially have experienced major upheaval during this time, almost overnight having to switch to an online mode of learning from their tried-and-true offline classroom mode of learning. In addition, suddenly, they were bereft of their friends, their peers, and isolated, albeit of necessity, but isolated none the less leading to feelings of loneliness and depression. The current research aims to find the association, if any, between social isolation and depression among college students. **Methods:** The present work studies social isolation, in terms of feelings of loneliness as assessed by UCLA Loneliness Scale and depression as assessed by Beck Depression Inventory (BDI)-II in a sample of 100 Indian college students (50 males and 50 females), residing in suburban Kolkata. **Results:** Results of data analysis indicated a statistically significant strong positive correlation ($r=0.627$, $p<0.01$) between loneliness and depression scores. Analysis of variance (ANOVA) revealed significant variations in loneliness scores between different levels of depression as per BDI-II ($F=23.841$, $p<0.01$). Sex differences were not statistically significant for either variable. **Conclusions:** The present research thus presents evidence in support of the original supposition that prolonged social isolation and loneliness are connected to depression as well as their possible long-term implications on health.

Keywords: Loneliness, Solitude, Levels of depression, Pandemic, Mental health.

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INTRODUCTION

Social isolation became a regular aspect of human life since the Covid-19 pandemic outbreak; from youngsters in schools, colleges, universities, or those in varied professional spheres, or those retired, or otherwise based in homes, social isolation was a part of most people's lives. Research evidence exists in support of varied impact of natural and imposed social isolation on persons young and old, including longevity, and potency of isolation, whether subjective or objective, being more concerning than heavy smoking, and obesity.[1-4] Recent research in the context of the Covid-19 pandemic have also shown mental health consequences of social isolation for individuals, including an indirect effect of loneliness on depression by way of boredom and repetitive negative thinking.[5] In this light, the present research was conceptualised to explore whether social isolation would be linked to depression in a sample of undergraduate and postgraduate students, who are typically engaged in high levels of social interactions.

Social isolation is defined as the absence of connection with others, be it voluntary or enforced.[6] Loneliness refers to a more subjective aspect of cognitive or emotional discomfort from the state of being alone, be it real or perceived. In the light of the formal definitions, it may be surmised that

loneliness is the psychological experience of persons, who are socially isolated, physically, or virtually. Loneliness has been equated to perceived social isolation, rather than objective social isolation.[7] While social isolation may be a situational and/or conditional happenstance, loneliness could reveal the experiential aspect of individuals in such circumstances. The frequent feeling of desolation, not getting the desired human contact often characterises loneliness. Holt-Lunstad *et al.*[1] also linked loneliness and social isolation as contributing risk factors for mortality in a detailed literature review of various factors of influence and impact of isolation. Hakulinen *et al.*[8] observed a higher risk of acute myocardial infarction among those with a history of social isolation and loneliness compared to those who were not isolated. Such research is indicative of the serious health consequences of social isolation and loneliness among varied populations across the world.

Covid-19 pandemic saw over four crore people tested for infection in India.[9] A country-wide lockdown and quarantine for those infected have caused various psychological problems. Other than lockdown, policies of social distancing, limited numbers of social gathering even after pandemic, curfew times, wearing masks, and most importantly, being social isolation.[10] The degree of

social isolation in India during the pandemic varied from complete hermit-like solitary living to vacationing as soon as travel restrictions were lifted. In the present research, the exploration of loneliness from social isolation, was not categorised on whether the isolation was exclusively enforced, or chosen, or partially both. The present study investigates a possible link between loneliness and depression in a sample of young adults, undergraduate and postgraduate students, who were spending college life at home, in the 'online' mode.

METHOD

Sampling

Purposive sampling technique was used to collect data from college/university students enrolled in graduate or postgraduate courses; total sample size was 100, containing 50 males and 50 females, as self-reported by participants, residents of suburban Kolkata region.

Inclusion/exclusion criteria

The population used in the research study is specifically in the age group of 17-25 years. Participants were from non-clinical populations, i.e., those with any diagnosed psychiatric conditions were not included in the study.

Instruments

Beck Depression Inventory (BDI)-II

This is a 21-item, self-report rating inventory. It measures symptoms of depression. It relies on the theory of negative cognitive distortions, mainly associated with depression. It can be administered on a normal population as well as a clinical one. This can be diagnosed in a population with an age of 13 or more. Scoring was done manually by adding all scores. The scoring remains the same for all items. Each item in the questionnaire is rated on a four-point scale, which is from zero to three. The scoring range is as follows: zero to 13: minimal depression, 14-19: mild depression, 20-28: moderate depression, and 29-63: severe depression.[11]

UCLA Loneliness Scale

This is a 20-item scale, which measures the subjective experience of loneliness, using a four-point Likert scale.[12] At first it was negatively worded but later it was made positively worded by researchers for better calculation. Scoring was done manually by adding all the scores. Higher scores mean the person suffers from higher levels of loneliness. This too is a four-point scale ranging from zero to three.

Procedure

The research was conducted during the country-wide lockdown phase, in the national and regional effort to contain the spread of Covid-19. Therefore, electronic media had to be used for collection of the data. Standard questionnaires of Beck Depression Inventory (BDI)-II and UCLA Loneliness Scale were electronically circulated among college and university students. The research was done with due ethical clearance,

following standard ethical guidelines. Informed consent was obtained prior to collection of data. Raw data were thereafter scored manually with the scoring guidelines of the scales. The scored data were statistically analysed with IBM SPSS, using Pearson's product moment correlation coefficient, to see if there existed any statistically reliable association between loneliness and depression, and analysis of variance (ANOVA) to see if there existed variations in loneliness by levels of depression, including descriptive statistics relevant to each level.

RESULTS

The analysis of data revealed mixed findings. No statistically significant sex differences were found for both loneliness and depression (Table 1).

In the effort to assess whether there existed any significant association between loneliness and depression, Pearson's product moment correlation (Table 2) was computed and the results yielded statistically significant positive correlation ($r=0.627$, $p<0.01$) between the two variables.

This correlation output is indicative of higher levels of loneliness corresponding to higher levels of depressive experiences, in the present sample.

One-way ANOVA (Table 3) with variations in loneliness in different levels of depression yielded $F(3, 96)=23.441$, $p<0.01$, indicating significant difference in loneliness scores of persons with varying levels of depression (minimal, mild, moderate, severe), scores on loneliness progressively increasing across the four levels of depression, with lowest average from the minimal depressed group, to the highest average for the severely depressed group (mean $[M]=14.8$, standard deviation $[SD]=9.24$, and $M=37.91$, $SD=10.98$ respectively); therefore, null hypothesis regarding no significant effect of depression on loneliness, is rejected.

Post hoc comparison

Tukey's honestly significant difference (HSD) test for multiple comparisons (Table 4) found that the mean difference of loneliness score was statistically significant between minimal, and mild, moderate and severe levels of depression respectively, ($p<0.01$, 95% confidence interval $[CI]=[-19.989, -5.368]$, $p<0.01$, 95% $CI=[-29.221, -12.554]$, $p<0.01$, 95% $CI=[-32.772, -13.446]$). However, there was no statistically significant difference in mean loneliness scores between any pair of mild, moderate, and severe levels of depression ($p=0.112$ [mild, moderate], $p=0.057$ [mild, severe], $p=0.956$ [moderate, severe], respectively).

DISCUSSION

The present research, in line with much of the previous research literature, establishes a link between loneliness, presumably rising out of lockdown linked social isolation, and depression in the sample of undergraduate and postgraduate students who participated in the research. To summarise, the present research revealed a statistically significant positive correlation between loneliness and depression, in line with previous research findings in the existing literature. Looking deeper, the present research findings also indicate statistically

Table 1: Descriptive statistics and t test for sex differences in loneliness and depression

Variables	Sex	Mean	SD	t	Significance (p value)	Significance decision
Loneliness	Female	26.2	14.115	1.822	0.071	Not significant
	Male	21	14.422			
Depression	Female	15.12	10.253	1.266	0.209	Not significant
	Male	12.62	9.48			

SD: Standard deviation.

Table 2: Descriptive statistics and Pearson's product moment correlation for loneliness and depression

Variables	Mean	SD	r	Significance (p value)	Significance decision
Loneliness	23.6	14.436	0.627	<0.01	Significant
Depression	13.87	9.904			

SD: Standard deviation.

Table 3: Descriptive statistics and ANOVA for loneliness by levels of depression

Source Variable	Mean	SD	F	Significance (p value)	Significance decision
Minimal	14.8000	9.24717	23.841	<0.01	Significant
Mild	27.4783	13.70424			
Moderate	35.6875	12.37050			
Severe	37.9091	10.97684			

ANOVA: Analysis of variance, SD: Standard deviation

Table 4: Tukey's honestly significant difference (HSD) test for multiple comparisons (post hoc comparison) for loneliness across levels of depression

Levels of depression (1)	Levels of depression (2)	Significance level	95% confidence interval (lower)	95% confidence interval (upper)
Minimal	Mild	<0.01	-19.9885	-5.3680
	Moderate	<0.01	-29.2213	-12.5537
	Severe	<0.01	-32.7719	-13.4463
Mild	Minimal	<0.01	5.3680	19.9885
	Moderate	0.112	-17.6548	1.2363
	Severe	0.057	-21.0673	0.2056
Moderate	Minimal	<0.01	12.5537	29.2213
	Mild	0.112	-1.2363	17.6548
	Severe	0.956	-13.5859	9.1427
Severe	Minimal	<0.01	13.4463	32.7719
	Mild	0.057	-0.2056	21.0673
	Moderate	0.956	-9.1427	13.5859

significant difference in loneliness scores of persons with varying levels of depression (minimal, mild, moderate, severe), loneliness scores being lower in the minimal depressed group of participants, and being noticeably higher for the severely depressed group of participants.

The present research found no gender difference in experienced levels of loneliness and depression as reported by the participants. Previous research literature with regards to gender influence on loneliness and depression is mixed; while some researchers have found higher levels of loneliness and depression experienced by males compared to females, others have found the reverse, and yet others have found no differences at all.[1,13-16] Review of the

research literature indicates a reliable association between social isolation and loneliness with poor cardiovascular and mental health outcomes, in a multitude of studies covered in systematic review by Leigh-Hunt *et al.*[17] Li and Tang[18] in a thorough study with over three thousand older adults found that respondents who were lonely and living alone, and those who were highly isolated and lonely reported notably higher anxiety, stress, worry, depressive symptoms, and loneliness, compared to participants who were neither lonely nor isolated, during the Covid-19 pandemic.

In this context, the notion of social support must be discussed. Cohen[19] described 'social support' as "a social

network's provision of psychological and material resources intended to benefit an individual's ability to cope with stress." Research evidence also links social support to depression. The lack of perceived social support has been repeatedly linked to depression.[20-22] Gable and Bedrov[23] noted lower reports of social support among persons who were lonely or socially isolated. Considering the enforced or voluntary quarantine situations during the pandemic, with minimal opportunities for social interaction, the possibility of receiving social support was severely restricted. Those who could have potentially benefited from the cushioning that social support provides, could not shield their anxieties and subjective feelings of loneliness in such circumstances, in the absence of the same.

The study thus indicates the necessity for revisiting the notions of human interaction, and mental health, and what potential interventions might be sought, should there be major impedances. Isolation, be it voluntary or not, tends to influence how the human organism lives, and functions in society. Prior research has noted the wide-ranging impact of social isolation and loneliness on varied health parameters, physical and psychological in nature. The Covid-19 pandemic times have seen the unprecedented shutting down of life as one knows it.

In terms of larger implications, while the present research was in the context of the global Covid-19 pandemic-induced social isolation situation and consequential loneliness, the construct of loneliness has a much larger presence in the general population as well. Almost four decades back, Peplau and Perlman[24] estimated one-fifth of the population experiencing feelings of loneliness. And with noted research evidence linking loneliness and social isolation to mortality, it deserves serious consideration.

Summary, conclusion, limitations, and implications

The present research along with the support from previous scientific literature reminds us of the mental health counterpart to major policy decisions, be it related to pandemic or other. Therefore, while physical (and consequently social) isolation may appear reasonable for containment of infectious diseases in apparent evaluation of alternatives, its mental health consequences apart from economic and overall social ones, also deserve attention and considered assessment. Another concern is whether the impact shall be temporary and disappear with regular life having been resumed or have long-term consequences of any kind may be worth exploring.

The core limitation of the present study was the sample being restricted to undergraduate and postgraduate students. Also, no aspect for intervention could be accommodated into the study which was conducted in a limited timeframe. Future research could address these limitations, by including a larger and more heterogeneous sample, and accommodating interventions in the study.

Implications for the present study, especially with the undergraduate and postgraduate students extends the concern for their mental health, and how social isolation

connects to that, as well as potential long-term impact, which could be planned with longitudinal approach, preferably including interventions, where deemed suitable and/or necessary.

AUTHOR CONTRIBUTIONS

MM: Concept, design, literature review, execution, data analysis, manuscript writing, manuscript revision;
AC: Concept, design, literature review, data collection, manuscript writing.

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