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Domestic violence and psychological problems in married women during COVID-19 pandemic and lockdown: A community-based survey

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ABSTRACT

Background: Following the declaration of Coronavirus disease-2019 as a pandemic, a nation-wide lockdown was announced in India. This led to increase in psychological problems, especially in women.
Objectives: To assess the prevalence of psychological problems and domestic violence (DV) in married women during the pandemic and lockdown in a panchayat in Southern India and to study the association of socio-demographic and clinical variables with psychological problems.
Materials and methods: A cross-sectional study was undertaken in 209 married women of 18–55 years residing in a village panchayat of northern Kerala, India. Socio-demographic variables and clinical variables, like depressive symptoms, anxiety symptoms, perceived stress and DV, among others, were evaluated. The participants were interviewed by trained community health workers in the post-lockdown period.
Results: The prevalence of depressive symptoms was found to be 10.0 %, anxiety symptoms 7.2 % and perceived stress 66.0 %. Severe DV was reported by 6.2 %; but at least one form of DV was experienced by 25.8 % of the women. Significant positive correlation was observed for DV with depression and anxiety. DV was also found to be a significant predictor of depression (adjusted OR [aOR] = 4.26, $P = 0.006$) and anxiety (aOR=4.34, P=0.02). Being a homemaker (aOR=4.51, $P = 0.03$) and having past history of mental illness (aOR=5.39, $P = 0.03$) were also found to increase the risk for depression significantly.
Conclusion: There is a high prevalence of psychological problems in married women during the pandemic and lockdown. DV was found to be a significant predictor of depression and anxiety in this population.

1. Introduction

In December 2019, Coronavirus disease 2019 (COVID-19) was first identified in China and soon it spread globally (Casagrande et al., 2020). It was declared a pandemic by the World Health Organization (WHO) on March 11, 2020 (WHO, 2020). On March 24, 2020, a nation-wide lockdown was declared in India, that further led to loneliness, reduced access to social support systems and mental health problems like anxiety and depression (Hiremath et al., 2020). Chinese studies reported psychological distress in 35 % and psychological health problems in 18.3 % of the respondents of online surveys, during the pandemic; higher risk was observed in females (Qiu et al., 2020; Zhu et al., 2020). Other studies have found the prevalence of anxiety to be almost 20 % (Moghanibashi-Mansourieh, 2020); depression 33 % and suicidal ideations 5% (Mamun et al., 2021). In an Indian study, almost one-third of the respondents reported a significant psychological impact due to the pandemic; younger age, female gender and comorbid physical illness were significant predictors of the same (Varshney et al., 2020). In a systematic review of 19 studies from eight countries, high rates of anxiety (6.33%–50.9%), depression (14.6%–48.3%), psychological distress (34.43%–38%) and stress (8.1–81.9%) were observed during the pandemic. Female gender, younger age, presence of chronic/psychiatric illness and unemployment were some of the risk factors associated with the measures of distress (Xiong et al., 2020).

The measures taken to curb the spread of COVID-19, including quarantines and social isolation, are associated with psychological consequences like worsening of alcohol abuse and domestic violence (DV). Globally, increase in DV has been reported from various countries

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(Boserup et al., 2020). After the imposition of lockdown, the National Commission for Women India reported a 100 % increase in complaints related to DV (Vora et al., 2020). An analysis of Indian newspaper reports found a surge in DV during the lockdown. It was suggested that loss of employment, financial deprivation, alcohol abuse and being "locked down with the abuser" have resulted in worsening of DV in India (Maji et al., 2021). Various Asian studies have found the prevalence of DV to be high during the pandemic—20.5 % in an online survey from Jordan (Aolymat, 2021) and 45.29 % in a community-based cross-sectional study from Bangladesh (Rayhan and Akter, 2021). An online survey conducted in India during the lockdown reported the prevalence of DV to be 7.4 %. During this period, an increase in DV was reported by 85.7 % of the victims (Sharma and Khokhar, 2021). A Japanese study had observed DV to be a significant risk factor for severe psychological distress during the pandemic (Yoshioka et al., 2021). Higher prevalence of depressive symptoms has been reported in women experiencing DV (Ozyurt and Deveci, 2011).

Most of the studies assessing psychological problems as well as DV during the pandemic and lockdown have been conducted as online surveys, especially in the Indian setting. In this context, this community-based study was undertaken to assess the prevalence of psychological problems and DV in married women during the COVID-19 pandemic and lockdown in a village panchayat in Southern India. The correlation of DV with psychological problems and the association of socio-demographic and clinical variables with psychological problems were also studied.

2. Materials and methods

2.1. Study design and setting

A community-based, cross-sectional survey was undertaken in a village panchayat of northern Kerala, India, over a period of six months from July 2020 following the lifting of lockdown on 8 June 2020. The approval of the Institutional Ethics Committee was obtained before starting the study. The sample was constituted by married women of 18–55 years residing in the village panchayat during the lockdown period who were willing to give consent for the study. Those whose husbands were staying away from them for the past one year and who were unable to co-operate with the interview due to physical illnesses or psychological problems like mental retardation were excluded. Taking this as a preliminary study, sample size was fixed as 200.

2.2. Sampling strategy

Multi-stage random sampling was done—five wards were selected randomly from the village panchayat and then households were selected randomly from those wards. If there were more than one married woman of age 18–55 years in those households, one of them were selected randomly to participate in the study. The interviews were conducted by Accredited Social Health Activists (ASHA workers)—female community health workers selected from the village itself, who act as a link between community and the health care system (Abhay and Khandekar, 2014)—who were given a one-day training to interview the participants. The importance of obtaining informed consent, ensuring confidentiality during the interview and referring those participants who were victims of DV or whose husbands had alcohol use disorder (AUD) to the Psychiatry department of a tertiary care centre for further help were emphasized during this training. Informed consent was obtained from the participants before recruiting them for the study.

2.3. Variables studied and tools used

Socio-demographic variables like age, educational status, occupational status, socio-economic status and type of family were assessed using pro-forma developed for the same. Clinical variables studied included depressive and anxiety symptoms, DV and history of recent onset/worsening, perceived stress, past and family history of mental illness and AUD in the husband.

Depressive symptoms over the past two weeks were assessed using Patient Health Questionnaire-9 (PHQ-9), a nine-item, self-rated questionnaire which scores each of the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (DSM-IV) criteria for major depression from 0 (not at all) to 3 (nearly every day). Total scores of 0–4 represent no or minimal, 5–9 mild, 10–14 moderate, 15–19 moderately severe and 20–27 severe depression. At a cut-off of $\geq$10, it had 88 % sensitivity and 88 % specificity for major depression (Kroenke et al., 2001). A Malayalam version has been validated for use by health workers (Indu et al., 2018a).

Anxiety symptoms over the past two weeks were assessed using Generalized Anxiety Disorder-7 (GAD-7), a seven-item, self-rated screening tool for GAD, each item being scored from 0 (not at all) to 3 (nearly every day). At a cut-off score of 10, it has 89 % sensitivity and 82 % specificity for identifying cases of GAD. Cut-off points of 5, 10 and 15 represents mild, moderate and severe levels of anxiety. Malayalam version is provided by the authors (Spitzer et al., 2006).

Domestic violence was defined as any form of physical, psychological or sexual violence perpetrated by husband towards a woman, and was measured using the Domestic Violence Questionnaire (DVQ)—a 20-item, self-rated questionnaire which has been developed and validated in the local language, Malayalam. Items assessing acts of DV over the past 12 months are scored based on the frequency of exposure, from 0 to 4 (0–never, 1–once/twice, 2–three to five times, 3–six to ten times, and 4–11 times or more). At a cutoff score of 5, sensitivity was 89.5 % and specificity was 87.2 %. Cronbach's alpha was 0.92 (Indu et al., 2011). This questionnaire has been used in other studies to assess DV in the Indian setting (Indu et al., 2018b).

Perceived stress was defined as the degree to which one's life situations were appraised as stressful over the past one month and assessed using the Perceived Stress Scale; a Malayalam version is provided by the authors. It is a 10-item, self-rated scale with four positive and six negative items. The items are rated from 0 (never) to 4 (very often) for the negative items; the scoring is reversed for the positive ones. The total score ranges from 0 to 40, with higher scores suggestive of greater perceived stress. Satisfactory internal consistency was observed in Indian population (Cronbach's alpha-0.8) (Cohen et al., 1983; Chakraborti et al., 2013).

AUD in the husbands of participants were assessed using the criteria for alcohol dependence according to DSM-IV-TR criteria which were translated to Malayalam, but not validated (American Psychiatric Association, 2000).

2.4. Analysis

Analysis was done using SPSS Version 27 (IBM Corp., 2020). Descriptive statistics of the sample—mean (standard deviation [SD]) for continuous variables and proportion for categorical variables—is provided. Prevalence of depression, anxiety, perceived stress and DV are provided. As the scores of the scales were not normally distributed, Spearman's rank correlation coefficient was used to assess correlation of DV with psychological problems. The polychotomous variables were dichotomized taking the class which included 50 % of the participants as the cut-off. Univariate analysis was done to assess the association of the socio-demographic and clinical variables with depression and anxiety. Multivariate logistic regression was done including the variables which had a P value $\leq$ 0.10 on univariate analysis, to adjust for the confounders.

3. Results

3.1. Descriptive statistics

There were 209 participants. Of those approached for the interview, 11 subjects refused to give consent; while six subjects were excluded as their husbands were working abroad and five were excluded as they were separated from their spouse, for more than one year. The mean age was 36.21 years (SD = 8.05). Majority belonged to the age group 30–39 years (44.5 %), were educated up to high school (42.1 %), were homemakers (60.8 %), belonged to below poverty line (BPL) socio-economic status (51.7 %) and came from nuclear families (56.9 %). Past history of mental illness was reported by 8.6 % and family history of mental illness by 6.7 % of the participants. AUD in husbands was seen in 3.8 % of the participants. See Table 1.

3.2. Prevalence of psychological problems and DV

The prevalence of depressive symptoms was found to be 10.0 % (95 % Confidence Interval [CI] = 6.3–14.9 %)—mild depression 8.6 % and moderate depression 1.4 %. Mild anxiety symptoms were seen in 7.2 % (95 % CI = 4.1–11.6 %); while moderate perceived stress was observed in 66.0 % (95 % CI = 59.2–72.4) of the sample. DV—as assessed using a cutoff score of 5 or more—was reported by 6.2 % (95 % CI = 3.4–10.4 %); but the prevalence of those who had experienced at least one item of DVQ was 25.8 % (95 % CI = 20.0–32.3 %). Of this, 11.1 % reported the onset and 5.56 % worsening of DV during the lockdown. See Table 2.

3.3. Correlation of DV with psychological problems

The correlation of DV with psychological problems were assessed. DVQ scores showed significant positive correlation with PHQ-9 scores ($\rho = 0.446$, $P = 0.0001$) and GAD-7 scores (ρ=0.533, $P = 0.0001$). PHQ-9 scores showed significant positive correlation with GAD-7 scores (ρ=0.637, $P = 0.0001$) and PSS scores (ρ=0.155, $P = 0.03$).

Table 1
Descriptive statistics of the study sample.

Variable		No. (%) N = 209
Age groups	20–29 years	44 (21.1)
	30–39 years	93 (44.5)
	40–49 years	58 (27.8)
	≥ 50 years	14 (6.7)
Educational status	Illiterate	1 (0.5)
	Primary school	13 (6.2)
	High school/SSLC	88 (42.1)
	Pre-degree/+2	69 (33.0)
	Degree	32 (15.3)
	PG/Professional	6 (2.9)
Occupational status	Housewife	127 (60.8)
	Unskilled labourer	17 (8.1)
	Skilled labourer	24 (11.5)
	Self-employed	22 (10.5)
	Private sector	16 (7.7)
	Government sector	3 (1.4)
Socio-economic status	Below poverty line	108 (51.7)
	Above poverty line	96 (45.9)
	Others	5 (2.4)
Type of family	Nuclear	119 (56.9)
	Joint	79 (37.8)
	Extended	11 (5.3)
Past history of mental illness	Yes	18 (8.6)
	No	191 (91.4)
Family history of mental illness	Yes	14 (6.7)
	No	195 (93.3)
Alcohol use disorder in husband	Yes	8 (3.8)
	No	200 (95.7)

Table 2
Prevalence of psychological problems and domestic violence in married women.

Psychological problem		No. (%) N = 209
Depression	No	188 (90.0)
	Mild	18 (8.6)
	Moderate	3 (1.4)
Anxiety	Minimal	194 (92.8)
	Mild	15 (7.2)
Perceived stress	Low stress	71 (34.0)
	Moderate stress	138 (66.0)
Domestic violence (DV)	No	155 (74.2)
	Mild DV (Score 1–4)	41 (19.6)
	Severe DV (Score ≥ 5)	13 (6.2)

3.4. Predictors of psychological problems

The association of socio-demographic and clinical variables with depression was assessed by univariate analysis. Having lower educational status (crude OR [cOR] = 3.80, $P = 0.008$), being a homemaker (cOR=4.35, $P = 0.01$), past history of mental illness (cOR=5.87, $P = 0.004$), family history of mental illness (cOR=4.19, $P = 0.04$) and DV (cOR=5.83, $P = 0.0001$) were found to be significant risk factors. Perceived stress was found to increase the risk of depression by more than three times, but it failed to attain statistical significance (cOR=3.40, $P = 0.05$). See Table 3. On multivariate logistic regression (LR), being a homemaker (adjusted OR [aOR] = 4.51, $P = 0.03$), having past history of mental illness (aOR=5.39, $P = 0.03$) and DV (aOR=4.26, $P = 0.006$) were found to be significant predictors of depression. See Table 4.

On univariate analysis, none of the socio-demographic variables were found to be significantly associated with anxiety. DV (cOR = 4.97, 95 % CI = 1.68–14.71, $P = 0.004$) and AUD in husband (cOR=9.40, 95 % CI=2.00–44.14, $P = 0.014$) were found to be significant risk factors. On LR, only DV was found to be a significant predictor for anxiety (aOR=4.34, 95 % CI=1.32–14.31, $P = 0.02$).

Age <30 years (cOR = 0.48, 95 % CI = 0.24–0.94, $P = 0.03$) was found to be significantly associated with lower perceived stress, while lower educational status ((cOR=2.12, 95 % CI=1.18–3.82, $P = 0.01$) was found to be a significant risk factor for high perceived stress, on univariate analysis; but none of the variables showed statistical significance on LR.

4. Discussion

4.1. Psychological problems

This study found that depressive symptoms were reported by 10.0 %, mild anxiety symptoms by 7.2 % and moderate perceived stress by 66.6 % of married women of 18–55 years, during the COVID-19 pandemic and lockdown. DV was reported by 6.2 % of this population, while 25.8 % had experienced at least one type of DV during the pandemic and lockdown. Very few studies had assessed psychological problems in female population; many studies on women were done either in pregnancy, or in peri-partum period. One such multi-national study done in European countries found the prevalence of depressive symptoms in pregnant and breast-feeding women to be around 15 % and generalized anxiety symptoms in about 11 % (Cuelemans et al., 2021). A Spanish study evaluating the gender differences of emotional responses to COVID-19 pandemic reported depressive syndrome in 39.9 % females (Garcia-Fernandez et al., 2021). In a study done on Tunisian women, extremely severe depression and anxiety were seen in 57.3 % of women. High rate of DV was also reported in this sample (14.8 %) during the lockdown period (Sediri et al., 2020). Studies done in general population have evaluated psychological problems in women separately. One such study found the prevalence of depressive and anxiety symptoms in women to be 16.9 % and 22.1 %, respectively, higher than that in men

Table 3
Univariate analysis of socio-demographic and clinical variables for depression.

Variable		Depression No. (%) N = 21	No depression No. (%) N = 188	OR (95 % CI)	*P* value
Age groups	< 30 years	3 (14.3)	41 (21.8)	0.60 (0.17–2.13)	0.42
	≥ 30 years	18 (85.7)	147 (78.2)		
*Educational status	Up to HS	16 (76.2)	86 (45.7)	3.80 (1.34–10.79)	0.008
	> PDC/+2	5 (23.8)	102 (54.3)		
*Occupational status	Homemaker	18 (85.7)	109 (58.0)	4.35 (1.24–15.27)	0.01
	Employed	3 (14.3)	79 (42.0)		
SES	BPL	14 (66.7)	94 (50.0)	2.00 (0.77–5.18)	0.15
	APL/Others	7 (33.3)	94 (50.0)		
Type of family	Nuclear	12 (57.1)	107 (56.9)	1.01 (0.41–2.51)	0.98
	Others	9 (42.9)	81 (43.1)		
*Past history of MI	Yes	6 (28.6)	12 (6.4)	5.87 (1.93–17.85)	0.004
	No	15 (71.4)	176 (93.6)		
*Family history of MI	Yes	4 (19.0)	10 (5.3)	4.19 (1.19–14.79)	0.04
	No	17 (81.0)	178 (94.7)		
AUD in husband	Yes	1 (4.8)	7 (3.7)	1.29 (0.15–10.99)	0.58
	No	20 (95.2)	180 (96.3)		
*Domestic violence	Yes	13 (61.9)	41 (21.8)	5.83 (2.26–15.01)	0.0001
	No	8 (38.1)	147 (78.2)		
Perceived stress	Yes	18 (85.7)	120 (63.8)	3.40 (0.97–11.96)	0.05
	No	3 (14.3)	68 (36.2)		

APL – above poverty line, AUD – alcohol use disorder, BPL – below poverty line, HS – High school, MI – mental illness, PDC – Pre-degree Course, SES – socio-economic status.
* *P* value < 0.05.

Table 4
Multivariate logistic regression of predictors of depression.

Variable	aOR (95 % CI)	*P* value
Educational status	2.85 (0.92–8.87)	0.07
*Occupational status	4.51 (1.18–17.18)	0.03
*Past history of mental illness	5.39 (1.22–23.90)	0.03
Family history of mental illness	0.88 (0.18–4.32)	0.88
*Domestic violence	4.26 (1.52–11.92)	0.006
Perceived stress	2.60 (0.68–9.95)	0.16

* *P* value < 0.05.

(Shahriarirad et al., 2021); while an Indian study, done in the initial two weeks following the onset of lockdown, observed depressive symptoms in 22.8 %, anxiety symptoms in 20.5 % and stress in 12.3 % of the women (Verma and Mishra, 2020). Thus, depressive and anxiety symptoms as well as stress were found to vary widely in different studies from different geographical areas and at different time periods in relation to lockdown. These studies were all online studies, had used convenience sampling or snowball sampling and had used different types of questionnaires like the PHQ-9 or Depression Anxiety Stress Scales (DASS). These factors could have led to the wide variation in prevalence of these symptoms. A systematic review of community-based studies on depression during the COVID-19 pandemic estimated the pooled prevalence of depression to be 25 % (ranging from 7.45% to 48.30%). On sub-group analysis, it was found that the studies that used Self-Rating Depression Scale or PHQ-9 had lower prevalence of depression compared to those using DASS or the World Health Organization-Five Well-being Index (Bueno-Novitol et al., 2021). In the present study, PHQ-9 and GAD-7 were used and the prevalence was less compared to studies that used other questionnaires like DASS (Sediri et al., 2020). Other studies using PHQ-9 and GAD-7 had yielded comparable results (Cuelemans et al., 2021; Shahriarirad et al., 2021). All the studies mentioned above were conducted online, either using convenience sampling or snowball sampling. This could have led to sampling bias and an inflation of the prevalence of psychological problems and domestic violence in these studies.

4.2. Domestic violence

World over, many countries have reported increasing prevalence of DV during the COVID-19 pandemic and subsequent lockdown (Kumar, 2020). By comparing the calls received by the police for DV, before and after the beginning of social distancing in the United States of America, studies have reported an increase in domestic violence by 5.3 % (Hsu and Henke, 2021) to 7.5 % (Leslie and Wilson, 2020). An online survey conducted on 15,000 Australian women using questionnaires found that 4.6 % had experienced physical or sexual violence; while 5.8 % experienced coercive control and 11.6 % at least one form of emotionally abusive, harassing or controlling behaviour (Boxall et al., 2020). In India, in a cross-sectional online survey conducted in 94 married men and women (of whom 58.5 % were women), 7.4 % had reported DV during lockdown. In this study, no validated questionnaire was used to assess DV (Sharma and Khokhar, 2021). In the present study, 209 married women were evaluated using a validated questionnaire by trained health care workers and the prevalence of DV was observed in 6.2 %, while 25.8 % reported at least one form of DV, during the pandemic and lockdown. The National Family Health Survey-5 (NFHS-5), India—2019–20 reported the prevalence of any form of spousal physical and/or emotional and/or sexual violence experienced by ever-married women of 18–49 years over the past 12 months in Kerala to be 10.1 % (International Institute for Population Sciences and ICF, 2021). The fieldwork of this survey was completed in Kerala by December 2019 itself, before the onset of the pandemic. As compared to the findings of NFHS-5, the prevalence of any form of spousal violence in the present study was found to be higher, 25.8 %, which suggested an increase in the prevalence of DV during the lockdown.

4.3. Correlation of DV with psychological problems and Predictors of psychological problems

DV showed significant positive correlation with depressive symptoms and anxiety symptoms, which suggested worsening of depression and anxiety with increasing severity of DV. Significant positive correlation was also observed for depressive symptoms with anxiety symptoms and perceived stress.

Predictors for depression, anxiety and perceived stress were evaluated. For depression, even after adjusting for significant sociodemographic and clinical variables, DV was found to increase the risk for depression by more than four times (aOR = 4.26, P = 0.006). Being a homemaker (aOR = 4.51, P = 0.03) and having a past history of mental

illness (aOR = 5.39, P = 0.03) were found to increase the risk of depression by about five times. After adjusting for other variables, DV was the only significant variable that increased the risk for anxiety by more than four times (aOR = 4.34, P = 0.02). After multivariate analysis, none of the variables showed significant association with perceived stress. Other studies have observed that unemployed status and prior psychiatric history increased the risk of depression, anxiety and stress (Solomou and Constantinidou, 2020; Gopal et al., 2020; Verma and Mishra, 2020). In a systematic review, unemployment and presence of psychiatric illnesses were found to be associated with psychological distress, among other risk factors like younger age group and presence of chronic illnesses (Xiong et al., 2020). A meta-analysis had observed younger age, unemployed status and history of stressful situations to be associated with depression. Depression and anxiety were also found to be associated with each other (Bueno-Novitol et al., 2021). In the present study also, high correlation was observed between depression, anxiety and perceived stress. A narrative review had reported that women who were experiencing DV were especially at high risk for development of mental health problems (Almeida et al., 2020). A Tunisian study done in women observed that violence against women during lockdown was associated with increased scores of depression, anxiety and stress (Sediri et al., 2020). The present study also found that DV was associated with increased risk of depression and anxiety. In a recent editorial of the Asian Journal of Psychiatry, it was observed that the rates of suicide in females increased during the pandemic (Tandon, 2021a). Exacerbation of DV and psychological problems during the pandemic could contribute to suicides or attempted suicides in females.

4.4. Strengths and limitations of the study

Almost all the studies reported are based on online surveys, which are inherently associated with sampling bias and excludes persons who are not familiar with the usage of computer/internet. The present study was conducted in the community, based on multi-stage random sampling, immediately following the lockdown and the participants were interviewed by trained community health workers. To our knowledge, this is the first community-based study conducted in the post-lockdown scenario in India, without relying on web-based interview strategies. This ensures generalizability of the findings. Still, the data, especially regarding DV and AUD in spouse, could be underestimated because of the social desirability bias, which is expected in such situations. Moreover, the questions used for assessment of AUD in spouse was not validated.

4.5. Future directions for research

Further, longitudinal studies should be undertaken to evaluate the change in prevalence of these conditions over time, with the worsening in the phases of spread of the pandemic and complete or partial re-introduction of lockdown. Qualitative studies can be undertaken to explore how the psychosocial and economic issues arising out of the pandemic and lockdown have affected AUD in males and the experience of DV in women. Tandon (2021b) observed that the disadvantaged and vulnerable populations, like women, experienced the worst outcomes during COVID-19 pandemic. Specific strategies to address these psychosocial issues as well as their psychological consequences faced by women have to be planned, executed in the community and evaluated.

5. Conclusions

In India, during the COVID-19 pandemic and lockdown, the prevalence of depressive symptoms in married women of 18–55 years is found to be 10.0 %, anxiety symptoms 7.2 % and perceived stress 66.0 %. The prevalence of DV was found to be 6.2 %, while almost one in four of the women reported experiencing at least one form of DV during this period. There was significant positive correlation between DV, depressive and anxiety symptoms. DV was also found to be a significant predictor of depressive and anxiety symptoms in this population, after adjusting for other variables.

Source of funding

None.

Ethical statement

Approval of the Institutional Ethics Committee has been obtained for the study.

Consent

Informed consent has been obtained from the participants before recruiting them for the study.

Author's statement

All those who have made significant contribution to this study have been given authorship. Pankajakshan Vijayanthi Indu, Harish M Tharayil, Anithakumari Ayirolimeethal and Varsha Vidyadharan were involved in the conception and design of the study, acquisition of data/analysis of data and interpretation of data. Binsu Vijayan was involved in the conception and design of the study, and acquisition of data. All the authors contributed to drafting, revision and final approval of the version to be submitted.

Declaration of Competing Interest

The authors report no conflicts of interest.

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