

Psychological Distress Among Lebanese Women During the COVID-19 Confinement: Any Mediating Effect of Violence?

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Abstract

Background: Violence among women is associated with poor psychological health and increased internalizing symptoms, such as depression, stress, and anxiety. The primary objective was to evaluate the association of marital conflict, pregnancy status, socioeconomic status, and stressful life events with violence, depression, anxiety, and stress. The secondary objective was to evaluate the mediating effect of violence on psychological distress.

Methods: A cross-sectional study was conducted among 369 women between June 8 and August 1, 2020. The questionnaire was developed on Google Forms and distributed online, using the snowball technique.

Results: Higher marital conflict (Beta=0.159), financial difficulties (Beta=2.572), a history of child abuse (Beta=2.546), and higher violence scores (Beta=0.121) were significantly associated with higher depression scores. Higher marital conflict (Beta=0.358) and having financial difficulties (Beta=3.859) were significantly associated with higher anxiety scores. Higher marital conflict (Beta=0.070) and financial difficulties (Beta=1.483) were significantly associated with higher perceived stress scores. Composite abuse scale partially mediated the association between pregnancy status (25.28%), financial difficulties (7.71%), history of child abuse (21.92%), abuse by a family member (50.50%), and anxiety scale. Also, the composite abuse scale partially mediated the association between marital conflict (21.42%), financial difficulties (14.17%), history of child abuse (20.05%), abuse by a family member (33.57%), and depression scale.

Conclusion: Our main findings suggest that violence mediated the association between pregnancy status, marital conflicts, financial difficulties, and depression and anxiety but did not mediate between these factors and stress. Further studies are needed to understand better the factors that mediate the relations between domestic violence and mental well-being among Lebanese women.

Introduction

Depression, anxiety, and stress are now the leading mental health disorders causing disability, and having a high burden on the health care budget (1, 2). Severe mental health problems are associated with emotional, cognitive, and social abilities that can lead to the vast majority of detrimental consequences (3, 4). Depression is much more common in women than in men due to hormonal changes at different stages during puberty, prior to menstruation, following pregnancy, and at perimenopause (5). A higher prevalence of depression among women is attributed not only to the biological factor but also to environmental and social factors (6–8). Previous literature supported that other risk factors increased the propensity of depression among married women, such as marital conflicts, lack of social support, and marital dissatisfaction (9–11). In addition to the influence of the social environment, other potential risk factors also increased the risk of depression, including a low level of education and financial difficulties (12, 13).

Married women with low income are more likely to encounter financial difficulties, relationship problems, unstable health, and unemployment, which can contribute to the onset of depression (14). A poor relationship with the partner causes intimate partner violence and stress in the marital life; also, and husbands busy with their professions or having extramarital affairs increase the risk for depression in women (7, 15–17). On the other hand, enhanced marital satisfaction has been associated with a lower propensity to develop depressive symptoms (18). Married women undergoing domestic violence, work stress, traumatic experiences, and abused conditions had a higher risk of depression (19).

In addition to depression, women are more likely than men to experience anxiety due to biological, economic, and social factors (20). The hormonal fluctuations associated with menstruation and pregnancy increase the vulnerability of women to mental distress, such as anxiety (21), also affected by social factors, including poverty, conflict at work or with the partner, prolonged working hours, and job dissatisfaction (22, 23). Women of low socioeconomic status continually fear that they will not be able to meet their daily needs and worry about the future, which limits their recreational activities (21). Hence, poverty, combined with a lack of social support, induce a higher risk of anxiety and depressive disorders in women.

Stress, another mental health disorder, is a highly prevalent condition in women, particularly during pregnancy (24). Pregnant women are highly prone to stress due to the feeling of imbalance when they cannot cope with demands and worries (25). Other influential factors of increased risk of stress among women include low socioeconomic status, exposure to violence, stressful life events, lack of social support, and conflicts (26–28).

Previous literature supports the fact that violence among women is related to several factors, including low socioeconomic level, previous violence in the family, pregnancy status, and social isolation (29). Furthermore, women exposed to violence had poor psychological health and increased internalizing symptoms, such as depression, stress, and anxiety (30, 31). Previous studies reported various mediating factors for violence. However, only a few examined the mediating effect of violence on psychological distress in women (32, 33). Our research uses a conceptual model based on a study done by Ceballos et al. (Fig. 1) (29).

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While these problems are reported in the literature and have different health effects, no studies have yet evaluated the magnitude of depression, anxiety, and stress among Lebanese women. Therefore, our primary objective was to assess the association of marital conflict, pregnancy status, socioeconomic status, and stressful life events with violence, depression, anxiety, and stress. Our secondary objective was to evaluate the mediating effect of violence on psychological distress.

Methods

Study design and sampling

A cross-sectional online study conducted between June 8 and August 1, 2020, enrolled a total of 369 women. The questionnaire used was developed on Google Forms and distributed on social media and WhatsApp groups, using the snowball technique; it required 40 minutes to complete. Eligibility criteria were the following: married women aged between 18 and 51, currently living with their partner, and with internet access. Single, widowed, or divorced women, and those with a fertility problem, were excluded. The inclusion criteria were stated in the consent form at the beginning of the survey. Participation in this study was anonymous and voluntary, and participants received no compensation in return.

Sample size calculation

The Epi info software (Centers for Disease Control and Prevention, Epi Info™) calculated a minimum sample of 233 participants, taking into account a Lebanese female population of 2,294,260 (34), a prevalence of 10.9% women with depression, according to a previous study (35), a confidence level of 95%, and adding a 4% margin of error. A sample of 500 women was targeted to allow for missing values. The final sample size consisted of 369 participants.

Translation procedure

A forward and backward translation was conducted for all the items of the questionnaire. One translator did the translation from English into Arabic, and a second one performed the back translation. Discrepancies between the two English versions were resolved by consensus.

Questionnaire

The online questionnaire consisted of two sections, including closed-ended questions available in English and Arabic. The questionnaire was developed for this study and it is provided as Additional File 1. The first one assessed the sociodemographic details of participants (age, educational level, the region of residence, religion, working status, monthly income, smoking and alcohol status, and physical activity). The monthly income was divided into four levels: no income, low < 1,000 USD, intermediate 1,000–2,000 USD, and high income > 2,000 USD.

The second section consisted of the following measures:

Household crowding index

The household crowding index was calculated by dividing the number of persons living in the household by the number of rooms, excluding bathrooms and kitchen, to assess socioeconomic status (36).

Stressful life events

Negative life events were assessed using three dichotomous questions (Yes/No) about financial difficulties, history of child abuse, and history of family member abuse.

Marital conflict

The Relationship Dynamics Scale was utilized to measure the frequency of conflicts in relationships (37). The scale consists of eight items scored on a 5-point Likert scale, (1 = Never or almost never to 5 = Always) (37). A higher score indicates a higher conflict between partners.

Pregnancy status

The current pregnancy status was assessed using binary questions (Yes/No). The current pregnancy status reflects the ability of women to choose to reproduce or be coerced into an unwanted pregnancy.

Partner violence

Violence was assessed using the Composite Abuse Scale (Revised) – Short Form (CASR-SF). This 15-item scale evaluates the existence, extent, and severity of physical, sexual, or psychological abuse (38). The total score is calculated by summing the 15 responses. Items are graded on a Likert scale from 1 to 6, where a higher score indicates a higher intensity/occurrence of abuse. The author of the questionnaire, Professor Marilyn Ford-Gilboe, granted permission to use the scale.

Psychological distress

Stress, anxiety, and depression were measured using three scales, reflecting psychological distress among women. The Perceived Stress Scale-4 (PSS-4) evaluated the occurrence and intensity of stress. It consists of four questions graded on a Likert scale from 1 to 5. The total score was calculated by summing the four items, ranging from 0 to 16, with higher scores indicating a higher intensity/occurrence of perceived stress (39). The Lebanese anxiety scale (LAS; developed and validated in Lebanon) is a 10-item tool graded on a Likert scale from 1 to 5. It assessed the occurrence and intensity of anxiety. The total score was obtained by summing all the responses, with higher scores indicating higher anxiety (40). The PHQ-9, validated in Lebanon (41), assesses the level of depression. It consists of 9 items graded on a Likert scale from 1 to 4. The PHQ-9 score can range from 0 to 27, with higher scores indicating a more severe depression (42).

All the scales used in this study do not require any license for their use except the CASR-SF where a permission from the author was granted.

Statistical analysis

Data were analyzed on SPSS software version 25 (SPSS Inc., Chicago, IL, USA). A descriptive analysis was performed, using the absolute frequency and percentages for categorical variables and mean and standard deviation for quantitative measures. Student t-test and ANOVA F tests were used to assess the association of continuous variables with two or more levels, and Pearson correlation was used for linear correlation between continuous variables. In the multivariable analysis, four linear regressions were performed, taking stress, anxiety, depression, and violence as the dependent variables, meeting all the assumptions for normality and homoscedasticity. Regressions took into account the variables with a value of $P < 0.2$ in the bivariate analysis to minimize residual confounding.

The PROCESS SPSS Macro version 3.4 model four was used to evaluate the mediation of violence using the CASR-SF through three steps. Step 1 determined the regression coefficient for the effect of marital conflict, household crowding index, pregnancy status, financial difficulties, history of child abuse, and abuse by a family member. Step 2 examined the association between violence and psychological distress (stress, anxiety, and depression), and Step 3 estimated the direct effect of each of the marital

conflict, household crowding index, pregnancy status, financial difficulties, history of child abuse, and abuse by a family member on psychological distress. Each independent variable was entered in a separate model since the variables were not highly correlated. The macro generated bias-corrected bootstrapped 95% confidence intervals (CI) to test the significance of the indirect effect (43, 44). Mediation was considered significant when the CI around the indirect effect did not include zero (44). The mediation effect was calculated by dividing the indirect effect of X by the direct effect of Y. The covariates included in the mediation model were those that showed significant associations with psychological distress in the bivariate analysis.

Statistical significance was set at a value of $P < 0.05$.

Results

Sample description

The mean age of women was 32.5 ± 6.4 years. The majority (83.9%) had a university level of education, 59.9% were employed, 23.3% had no income, and 42.5% practiced physical activities. Only 31.2% of them were smokers, and 10.8% consumed alcohol. The mean duration of confinement was 71.0 ± 42.8 days, and the mean fear of poverty was 5.8 ± 3.2 .

Bivariate analysis: correlates of psychological scales

A significantly higher mean violence score was found in non-pregnant as compared to pregnant women ($M_{\text{non-pregnant women}}=2.18$ vs. $M_{\text{pregnant women}}=0.39$, $P = 0.025$), those with a history of family member abuse ($M_{\text{Yes}}=8.15$ vs. $M_{\text{No}}=1.51$, $P < 0.001$) or a history of child abuse ($M_{\text{Yes}}=4.89$ vs. $M_{\text{No}}=1.45$, $P < 0.001$). Additionally, older age ($r = 0.149$), longer duration of marriage ($r = 0.127$), higher marital conflict ($r = 0.510$), higher stress ($r = 0.123$), depression ($r = 0.259$), and anxiety ($r = 0.141$) were significantly associated with higher violence.

A significantly higher mean depression score was found in non-employed as compared to employed women ($M_{\text{non-employed}}=7.95$ vs. $M_{\text{employed}}=6.41$, $P = 0.031$), those with financial difficulties ($M_{\text{Yes}}=8.74$ vs. $M_{\text{No}}=5.66$, $P < 0.001$), history of child abuse ($M_{\text{Yes}}=10.74$ vs. $M_{\text{No}}=6.35$, $P < 0.001$), or history of family member abuse ($M_{\text{Yes}}=12.54$ vs. $M_{\text{No}}=6.61$, $P < 0.001$). Additionally, higher marital conflict ($r = 0.353$), higher stress ($r = 0.447$), anxiety ($r = 0.785$), and violence ($r = 0.259$) were significantly associated with higher depression.

A significantly higher mean anxiety score was found in non-pregnant as compared to pregnant women ($M_{\text{non-pregnant women}}=14.73$ vs. $M_{\text{pregnant women}}=12.12$, $P = 0.034$), those unemployed ($M_{\text{non-employed}}=16.01$ vs. $M_{\text{employed}}=13.39$, $P = 0.004$), with financial difficulties ($M_{\text{Yes}}=17.22$ vs. $M_{\text{No}}=12.22$, $P < 0.001$), history of child abuse ($M_{\text{Yes}}=17.95$ vs. $M_{\text{No}}=13.80$, $P < 0.001$), or abuse by a family member ($M_{\text{Yes}}=19.19$ vs. $M_{\text{No}}=14.08$, $P = 0.003$). Moreover, higher marital conflict ($r = 0.338$), higher stress ($r = 0.503$), depression ($r = 0.785$), and violence ($r = 0.141$) were significantly associated with higher anxiety.

A significantly higher mean stress score was found in those with financial difficulties ($M_{\text{Yes}}=8.20$ vs. $M_{\text{No}}=6.68$, $P < 0.001$). Also, higher marital conflict ($r = 0.211$), higher depression ($r = 0.447$), anxiety ($r = 0.503$) and violence ($r = 0.123$) were significantly associated with higher stress (Table 1).

Table 1
Bivariate analysis taking the psychological scales as the dependent variables

	Total violence score	Depression score	Anxiety score	Stress score
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Pregnancy status				
Yes	0.39 ± 1.20	6.07 ± 6.03	12.12 ± 6.47	6.83 ± 2.41
No	2.18 ± 6.14	7.15 ± 5.36	14.73 ± 7.45	7.42 ± 2.65
<i>P-value</i>	0.025	0.050	0.034	0.233
Financial difficulties				
Yes	2.91 ± 7.53	8.74 ± 5.75	17.22 ± 7.54	8.20 ± 2.42
No	1.23 ± 3.84	5.66 ± 4.76	12.22 ± 6.46	6.68 ± 2.58
<i>P-value</i>	0.311	< 0.001	< 0.001	< 0.001
Working status				
Yes	1.45 ± 4.44	6.41 ± 4.91	13.39 ± 6.59	7.20 ± 2.53
No	2.76 ± 7.39	7.95 ± 6.05	16.01 ± 8.21	7.58 ± 2.75
<i>P-value</i>	0.320	0.031	0.004	0.292
Monthly income				
No income	2.04 ± 5.19	7.53 ± 5.69	16.58 ± 8.06	7.73 ± 2.45
Low	2.28 ± 6.13	7.49 ± 5.30	14.17 ± 6.58	7.29 ± 2.52
Intermediate	1.33 ± 4.13	6.28 ± 4.92	13.06 ± 6.78	6.94 ± 2.76
High	2.61 ± 8.50	6.87 ± 6.07	13.84 ± 7.82	7.61 ± 2.75
<i>P-value</i>	0.885	0.171	0.007	0.261
History of child abuse				
Yes	4.89 ± 7.51	10.74 ± 6.09	17.95 ± 7.04	7.54 ± 2.51
No	1.45 ± 5.32	6.35 ± 5.04	13.80 ± 7.27	7.32 ± 2.65
<i>P-value</i>	< 0.001	< 0.001	< 0.001	0.480
History of family member abuse				
Yes	8.15 ± 11.74	12.54 ± 6.81	19.19 ± 8.61	7.85 ± 2.69
No	1.51 ± 4.84	6.61 ± 5.10	14.08 ± 7.17	7.32 ± 2.62
<i>P-value</i>	< 0.001	< 0.001	0.003	0.331
Age				
	0.149	-0.066	-0.038	-0.037
<i>P-value</i>	0.004	0.209	0.466	0.473
Household crowding index				
	-0.063	0.014	0.018	0.030
<i>P-value</i>	0.231	0.791	0.733	0.560
Marital conflict				
	0.510	0.353	0.338	0.211
<i>P-value</i>	< 0.001	< 0.001	< 0.001	< 0.001

	Total violence score	Depression score	Anxiety score	Stress score
Duration of marriage	0.127	-0.068	-0.046	-0.017
<i>P-value</i>	0.014	0.192	0.380	0.741
Number of pregnancies	0.074	-0.051	-0.023	-0.011
<i>P-value</i>	0.158	0.332	0.666	0.831
Number of children	0.080	0.002	0.027	0.036
<i>P-value</i>	0.163	0.978	0.637	0.529
Stress	0.123	0.447	0.503	-
<i>P-value</i>	0.018	< 0.001	< 0.001	
Depression	0.259	-	0.785	0.447
<i>P-value</i>	< 0.001		< 0.001	< 0.001
Anxiety	0.141	0.785	-	0.503
<i>P-value</i>	0.007	< 0.001		< 0.001
Total violence score	-	0.259	0.141	0.123
<i>P-value</i>		< 0.001	< 0.001	0.018
*Values marked in bold are significant				

Multivariable analysis

The first linear regression taking the violence score as the dependent variable showed that higher marital conflicts (Beta = 0.485), abuse by a family member (Beta = 2.988), and a higher number of pregnancies (Beta = 1.470) were significantly associated with a higher violence score. Whereas, higher household crowding index (Beta=-1.551) was significantly associated with a lower violence score (Table 2, Model 1).

A second linear regression taking the depression score as the dependent variable showed that higher marital conflicts (Beta = 0.159), financial difficulties (Beta = 2.572), a history of child abuse (Beta = 2.546), and higher violence scores (Beta = 0.121) were significantly associated with a higher depression score (Table 2, Model 2).

A third linear regression taking the anxiety score as the dependent variable showed that higher marital conflicts (Beta = 0.358) and financial difficulties (Beta = 3.859) were significantly associated with higher anxiety scores (Table 2, Model 3).

A fourth linear regression taking the stress score as the dependent variable showed that higher marital conflicts (Beta = 0.070) and financial difficulties (Beta = 1.483) were significantly associated with higher perceived stress scores (Table 2, Model 4).

Table 2
Multivariable analysis

Model 1: Linear regression model taking the <i>total violence score</i> as the dependent variable					
Variable	Unstandardized Beta	Standardized Beta	P	95% Confidence Interval	
Pregnancy status	-0.848	-0.038	0.405	-2.851	1.154
Marital conflict	0.485	0.524	< 0.001	0.398	0.572
Financial difficulties	0.069	0.006	0.898	-0.998	1.137
Number of pregnancies	1.470	0.335	< 0.001	0.919	2.021
Abuse by a family member	2.988	0.135	0.008	0.803	5.172
Woman monthly income					
Low vs no income	1.120	0.081	0.223	-0.685	2.924
Intermediate vs no income	0.782	0.061	0.382	-0.977	2.540
High vs no income	1.309	0.084	0.129	-0.382	3.000
Household crowding index	-1.551	-0.114	0.012	-2.759	-0.343
Variables entered in the models: Pregnancy status, marital conflict, financial difficulties, duration of marriage, woman age, woman work status, number of pregnancies, number of children, partner smoking status, abuse by a family member, history of child abuse, monthly income and household crowding index.					
Model 2: Linear regression model taking the depression scale as the dependent variable and the total violence score as the independent variable					
Variable	Unstandardized Beta	Standardized Beta	P	95% Confidence Interval	
Pregnancy status	-0.696	-0.035	0.511	-2.778	1.387
Marital conflict	0.159	0.194	0.004	0.051	0.267
Financial difficulties	2.572	0.241	< 0.001	1.466	3.677
History of child abuse	2.546	0.174	0.001	1.033	4.058
Total violence score	0.121	0.137	0.045	0.003	0.240
Variables entered in the models: Pregnancy status, marital conflict, financial difficulties, duration of marriage, woman age, woman work status, number of pregnancies, number of children, partner smoking status, abuse by a family member, history of child abuse, monthly income, household crowding index and total violence score.					
Model 3: Linear regression model taking the anxiety scale as the dependent variable and the total violence score as the independent variable					
Variable	Unstandardized Beta	Standardized Beta	P	95% Confidence Interval	
Pregnancy status	-2.183	-0.080	0.137	-5.065	0.698
Marital conflict	0.358	0.314	< 0.001	0.209	0.508
Financial difficulties	3.859	0.260	< 0.001	2.329	5.388
Total violence score	0.018	0.014	0.833	-0.146	0.181
Variables entered in the models: Pregnancy status, marital conflict, financial difficulties, duration of marriage, woman age, woman work status, number of pregnancies, number of children, partner smoking status, abuse by a family member, history of child abuse, monthly income, household crowding index and total violence score					
Model 4: Linear regression model taking the stress scale as the dependent variable and the total violence score as the independent variable					
Variable	Unstandardized Beta	Standardized Beta	P	95% Confidence Interval	

Model 1: Linear regression model taking the <i>total violence score</i> as the dependent variable					
Pregnancy status	-0.576	-0.059	0.316	-1.705	0.553
Marital conflict	0.070	0.173	0.019	0.012	0.129
Financial difficulties	1.483	0.280	< 0.001	0.884	2.083
Total violence score	-0.029	-0.066	0.373	-0.093	0.035
Variables entered in the models: Pregnancy status, marital conflict, financial difficulties, duration of marriage, woman age, woman work status, number of pregnancies, number of children, partner smoking status, abuse by a family member, history of child abuse, monthly income, household crowding index and total violence score					
Note: Values marked in bold are significant					

Mediation analysis

Table 3 presents the mediation analysis conducted on perceived stress, anxiety, and depression. The CASR-SF partially mediated the association between pregnancy status (25.28%), financial difficulties (7.71%), history of child abuse (21.92%), abuse by a family member (50.50%), and anxiety. Also, the CASR-SF partially mediated the association between marital conflicts (21.42%), financial difficulties (14.17%), history of child abuse (20.05%), abuse by a family member (33.57%), and depression. No mediation effect of the CASR-SF was found between the independent variables and perceived stress (Table 3).

Table 3
Mediation analysis

Step 1: Taking the anxiety scale as the dependent variable and the composite abuse scale as a mediation factor										
Predictors	Mediating variable			Dependent variables						Mediating effect of composite abuse scale
	Composite abuse scale			Anxiety and abuse scales			Anxiety scale			
	Beta	t	p	Beta	t	P	Beta	t	p	
Model 1: taking the household crowding index as the independent variable										
Household crowding index	-1.37 [-2.73;-0.01]	-1.98	0.047	1.17 [-0.53;2.87]	1.35	0.17	0.78 [-0.95;2.52]	0.88	0.37	-
Composite abuse scale				0.28 [0.15;0.41]	4.31	< 0.001				
Model 2: taking the marital conflict scale as the independent variable										
Marital conflict scale	0.53 [0.45;0.61]	12.50	< 0.001	0.47 [0.33;0.61]	6.66	< 0.001	0.47 [0.36;0.59]	8.02	< 0.001	-
Composite abuse scale				0.004 [-0.14;0.14]	0.05	0.95				
Model 3: taking the pregnancy status as the independent variable										
Pregnancy status	-2.88 [-5.33;-0.43]	-2.32	0.02	-3.56 [-6.69;0.43]	-2.24	0.02	-4.46 [-7.65;-1.27]	-2.75	0.006	25.28%
Composite abuse scale				0.31 [0.16;0.45]	4.24	< 0.001				
Model 4: taking the financial difficulties as the independent variable										
Financial difficulties	1.46 [0.27;2.65]	2.41	0.01	4.28 [2.84;5.72]	5.85	< 0.001	4.62 [3.16;6.07]	6.25	< 0.001	7.71%
Composite abuse scale				0.22 [0.10;0.35]	3.61	0.0003				

Step 1: Taking the anxiety scale as the dependent variable and the composite abuse scale as a mediation factor										
Model 5: taking the history of child abuse as the independent variable										
History of child abuse	3.20 [1.58;4.81]	3.89	0.001	3.33 [1.27;5.39]	3.18	0.001	4.07 [2.02;6.12]	3.91	0.001	21.92%
Composite abuse scale				0.23 [0.10;0.35]	3.52	0.005				
Model 6: taking the history of family member abuse as the independent variable										
history of family member abuse	6.35 [4.13;8.58]	5.62	< 0.001	2.95 [-0.03;5.93]	1.94	0.05	4.45 [1.54;7.35]	3.01	0.002	50.50%
Composite abuse scale				0.23 [0.10;0.36]	3.49	0.005				
Step 2: Taking the depression scale as the dependent variable and the composite abuse scale as a mediation factor										
Predictors	Mediating variable			Dependent variables						Mediating effect of composite abuse scale
	Composite abuse scale			depression and abuse scales			depression scale			
	Beta	t	p	Beta	t	P	Beta	t	p	
Model 1: taking the household crowding index as the independent variable										
Household crowding index	-1.37 [-2.73;-0.01]	-1.98	0.047	0.68 [-0.55;1.92]	1.09	0.27	0.30 [-0.98;1.59]	0.46	0.64	-
Composite abuse scale				0.28 [0.18;0.37]	5.91	< 0.001				
Model 2: taking the marital conflict scale as the independent variable										
Marital conflict scale	0.53 [0.45;0.61]	12.50	< 0.001	0.28 [0.17;0.38]	5.25	< 0.001	0.34 [0.25;0.43]	7.72	< 0.001	21.42%

Step 1: Taking the anxiety scale as the dependent variable and the composite abuse scale as a mediation factor										
Composite abuse scale				0.12 [0.01;0.23]	2.21	0.02				
Model 3: taking the pregnancy status as the independent variable										
Pregnancy status	-2.88 [-5.33;0.43]	-2.32	0.02	-1.47 [-3.72;0.76]	-1.29	0.19	-2.31 [-4.65;0.01]	-1.95	0.051	-
Composite abuse scale				0.29 [0.18;0.39]	5.51	< 0.001				
Model 4: taking the financial difficulties as the independent variable										
Financial difficulties	1.46 [0.27;2.65]	2.41	0.01	2.54 [1.47;3.60]	5.85	< 0.001	2.90 [1.81;4.00]	5.21	< 0.001	14.17%
Composite abuse scale				0.24 [0.15;0.33]	5.36	< 0.001				
Model 5: taking the history of child abuse as the independent variable										
History of child abuse	3.20 [1.58;4.81]	3.89	0.001	3.64 [2.17;5.11]	4.86	< 0.001	4.38 [2.89;5.86]	5.78	< 0.001	20.05%
Composite abuse scale				0.23 [0.13;0.32]	4.91	< 0.001				
Model 6: taking the history of family member abuse as the independent variable										
history of family member abuse	6.35 [4.13;8.58]	5.62	< 0.001	4.20 [2.06;6.34]	3.86	0.001	5.62 [3.51;7.73]	5.24	< 0.001	33.57%
Composite abuse scale				0.22 [0.12;0.31]	4.61	< 0.001				
Step 3: Taking the perceived stress scale as the dependent variable and the composite abuse scale as a mediation factor										
Predictors	Mediating variable		Dependent variables				Perceived stress scale	Mediating effect of composite abuse scale		
	Composite abuse scale		Perceived stress and abuse scales							

Step 1: Taking the anxiety scale as the dependent variable and the composite abuse scale as a mediation factor										
	Beta	t	p	Beta	t	P	Beta	t	p	
Model 1: taking the household crowding index as the independent variable										
Household crowding index	-1.37 [-2.73;-0.01]	-1.98	0.047	0.24 [-0.38;0.87]	0.77	0.43	0.17 [-0.44;0.80]	0.56	0.57	-
Composite abuse scale				0.04 [0.001;0.09]	2.04	0.04				
Model 2: taking the marital conflict scale as the independent variable										
Marital conflict scale	0.53 [0.45;0.61]	12.50	< 0.001	0.10 [0.04;0.15]	3.67	0.003	0.09 [0.05;0.14]	4.17	< 0.001	-
Composite abuse scale				-0.009 [-0.06;0.04]	-0.33	0.73				
Model 3: taking the pregnancy status as the independent variable										
Pregnancy status	-2.88 [-5.33;-0.43]	-2.32	0.02	-0.81 [-1.99;0.37]	-1.34	0.17	-0.90 [-2.07;0.27]	-1.50	0.13	-
Composite abuse scale				0.03 [-0.02;0.08]	1.08	0.27				
Model 4: taking the financial difficulties as the independent variable										
Financial difficulties	1.46 [0.27;2.65]	2.41	0.01	1.45 [0.91;1.98]	5.34	< 0.001	1.49 [0.96;2.02]	5.55	< 0.001	-
Composite abuse scale				0.03 [-0.01;0.07]	1.36	0.17				
Model 5: taking the history of child abuse as the independent variable										
History of child abuse	3.20 [1.58;4.81]	3.89	0.001	0.06 [-0.70;0.82]	0.15	0.87	0.20 [-0.54;0.96]	0.54	0.58	-

Step 1: Taking the anxiety scale as the dependent variable and the composite abuse scale as a mediation factor										
Composite abuse scale				0.04 [-0.001;0.09]	1.90	0.058				
Model 6: taking the history of family member abuse as the independent variable										
history of family member abuse	6.35 [4.13;8.58]	5.62	< 0.001	0.14 [-0.95;1.25]	2.66	0.79	0.43 [-0.62;1.49]	0.81	0.41	-
Composite abuse scale				0.04 [-0.003;0.09]	1.81	0.07				

Discussion

To our knowledge, this study is the first to assess the factors related to psychological distress among Lebanese women during the COVID-19 confinement. The results showed that marital conflicts and financial difficulties were associated with high stress, anxiety, and depression, while higher violence was related to higher depression among women. Also, violence was a mediating factor between pregnancy status and anxiety and between marital conflict and depression.

In this study, marital conflicts were related to higher depression, anxiety, and stress among women. Consistently, previous findings have also associated high levels of psychological distress with marital dissatisfaction (45–48). A recent study conducted in China during the COVID-19 pandemic showed that emotional well-being in married people was lower than in unmarried people (49). Evidence suggests that stressful or life-threatening events, such as natural disasters, can lead to a decline in the quality of relationships due to stress and conflict or, instead, improve the quality of relationships and intimacy (50–52). Also, during the COVID-19 confinement, several factors can lead to increased tension between romantic partners confined together, such as disturbed everyday activities, the fear of the pandemic, loss of physical activity, loss of outside social networks, lack of access to non-essential health services, and reduced physical interaction in overcrowded households (53). Previous studies have shown that the persistence of tense verbal or non-verbal exchanges between partners can lead to physiological and psychological changes, eventually progressing to disease states (54, 55). Once health conditions develop or intensify, they can be experienced as a traumatic life occurrence or persistent stress, resulting in adverse mental health consequences, such as depression and anxiety (56). Our results also showed that marital conflicts were associated with higher violence, consistent with those of previous studies (57–59). The severity of marital conflicts ranges from minor disagreements to disputes that partners cannot overcome, which harms their relationship and could lead to violence (60).

This study showed that violence was associated with higher depression among women, in agreement with previous studies showing that women subject to behavioral, physical, and sexual violence by an intimate partner were more likely to exhibit signs of depression (61–63). The core mechanisms that explain why violence can cause subsequent depression in women are traumatic and psychological stress reactions (64). Sustained psychological stress due to social threats or rejection can affect women's cognition, mood, and behavior, leading to symptoms of depression (65). Also, domestic environments have become a suitable place for intimate partner abuse because of lockdown restrictions (66). Abusive individuals may use the confinement to exert power over the vulnerable ones, especially women (66). Lockdown restrictions can contribute to increased stress and further lead to exacerbation of anxiety, depressive symptoms, and violence (67). Thus, the perpetrator disturbed psychological health could adversely affect that of abused individuals (67). The persistent exposure of vulnerable persons to abusive individuals constrains the victim to cope with the situation, which further aggravates depressive symptoms (68).

Our findings revealed that financial difficulties were associated with higher depression, stress, and anxiety, consistent with those of a recent study showing a correlation between financial hardship and emotional impact due to the pandemic (69). Other studies

have also reported that financial difficulties due to the lockdown might impair mental health and increase the incidence of psychological stress (70–72). During times of crisis and confinement, women face plenty of problems, including high risks of economic poverty. Also, they are over-represented in health services, continue to do most unpaid household care jobs, and face increased risks of violence, assault, or harassment (73). Additionally, their employment, businesses incomes, and living conditions could be more vulnerable than men to the predicted systemic economic effects of the pandemic, placing them at greater risk of financial instability. All these issues have a considerable impact on the health and psychological well-being of women (73). Psychological difficulties expected by financial pressures include higher psychological distress and intensified issues and relations with family members, friends, and in the workplace (74).

Our results showed that a higher number of pregnancies and abuse by a family member were related to higher violence against women. Similarly, other studies found that a large family is a risk factor for frequent domestic violence, empowered by lower socioeconomic status, deprivation of maternal care, neglect of children, lack of family planning, and parenteral conflict (75–78). Furthermore, a history of child abuse was related to higher depression among women, consistently with other findings (79–82). Hence, the loss of attachment and the absence of a secure life were the main features for women to experience depression (83, 84). Moreover, women victims of childhood abuse are more likely to endure violence later in their life (85–87). Identifying women with a history of childhood abuse and assaults would provide efficient maternal care and increase awareness against domestic violence.

Our results showed that violence mediated the association between pregnancy status, marital conflicts, financial difficulties, and depression and anxiety but did not mediate between these factors and stress. Contrary to our findings, a recent study conducted in Lebanon during the COVID-19 lockdown among 502 adults found that female gender and physical violence at home were associated with higher stress during the pandemic (88). It also showed that a previous higher socioeconomic status was associated with higher stress, while current financial wellness was correlated with lower stress (88). However, a previous study among 215 mothers found that stressful life events were directly linked to psychological distress, particularly depression through domestic violence, while marital and pregnancy statuses were not related to the presence of domestic violence (29). Several other studies found that dissatisfied married women would present a high risk of mental distress (89–91). The sudden disruption of routine due to the COVID-19 outbreak has affected the populations globally, leading to exacerbation of stress in the majority of people. However, the Lebanese people exhibited psychological resilience during the confinement, as they had faced and continue to endure political instabilities, a decline of essential services, in addition to several types of violence (92); they adapt to abuse and work through it more than they oppose it (92). Regarding gender equality in Lebanese society, women continue to face discrimination at numerous levels, such as decision-making structures, socio-cultural values, and security issues. Men are raised in a manner that gives them a sense of authority over women and makes them expect women to recognize their superiority. Thus, unhappy marriages, marital conflicts, and economic insecurity make women more vulnerable to mental problems (48, 60, 80). Future studies are necessary to determine the psychological distress faced by Lebanese married women, particularly during confinement.

Limitations

This study has several limitations. Its findings could not be generalized to the entire Lebanese female population due to the small sample size. Also, its cross-sectional design makes it difficult to find causal relations. The study relies on self-report data, which may be biased by memory recall and social desirability effects. A selection bias is also likely because the sample was not randomly chosen but rather obtained using the snowball sampling method. Residual confounding bias is also possible since there could be variables linked to psychological distress that were not measured. The violence scale was not validated in Arabic among women prior to our investigation.

Conclusion

Our main findings suggest that violence mediated the association between pregnancy status, marital conflicts, financial difficulties, and depression and anxiety but did not mediate between these factors and stress. During the COVID-19 pandemic, reducing the effect of stress in relationships and attempting to solve existing conflicts are essential steps to assist partners and

families to adapt to new and challenging conditions. Further studies are needed to understand better the factors that mediate the relations between domestic violence and mental well-being among Lebanese women.

Abbreviations

COVID-19: Coronavirus disease of 2019, USD: United States dollar, CASR-SF: The Composite Abuse Scale Revised – Short Form, PSS-4: Perceived stress scale short version, LAS: Lebanese Anxiety Scale, PHQ-9: Patient Health Questionnaire, SPSS: Statistical Package for Social Sciences, CI: Confidence Interval, SD: Standard deviation.

Declarations

Ethics approval and consent to participate

The Psychiatric Hospital of the Cross ethics committee approved the study protocol (HPC-018-2020). Online Informed consent was obtained from each participant involved in this study on the first page of the questionnaire.

Consent for publication

Not applicable.

Availability of data and materials

Data can be made available under reasonable request form the corresponding author.

Competing interests

The authors have nothing to disclose.

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Authors' contribution

CH designed the study; CH, DM, SBM, JA drafted the manuscript; CH and PS carried out the analysis and interpreted the results; PS, HS, DK, NL, JA assisted in drafting and reviewing the manuscript; CH, DM, DK, NL, JA, and SBM were responsible for data collection; HS edited the paper for English language, PS supervised the course of the article. All authors reviewed and approved the final version of the manuscript.

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Figures

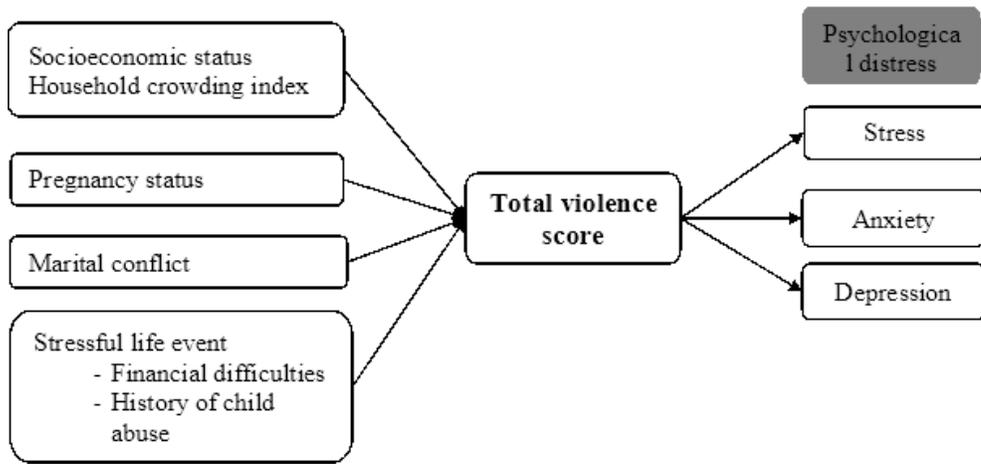


Figure 1

Conceptual model of risk factors associated with violence and the psychological effects among women