Fear of COVID-19 Scale- Associations of Its Scores with Socio-demographics, Anxiety Disorders, and Depression among the Syrian Population: A National Survey

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Abstract

Background: Coronavirus disease 2019 (COVID-19) pandemic affected the psychological stability of people around the world and sparked various mental distresses, one of which is fear. Syrians are experiencing brutal war, economic devastation, and a pandemic crisis. This research identifies the factors associated with high fear of COVID-19 scores among the Syrian population.

Methods: A cross-sectional online survey was distributed between May 5 and May 20 of 2020. A total of 3989 met the inclusion criteria. The questionnaire contained socio-demographic questions, the fear of COVID-19 questionnaire, the patient health 9-item questionnaire, and the generalized anxiety disorder 7-item questionnaire. One way analysis of variance tests was used to compare the distribution of fear of COVID-19 scores between the studied variables. Multiple linear regression models identified factors associated with high mean fear of COVID-19 scores.

Results: Most participants were female 2935 (73.5%), single 3096 (77.6%), student 2397 (60.1%), and residing in Damascus 1412 (35.4%). Multiple linear regression analysis correlated higher mean fear of COVID-19 scores with female gender (B=0.825, p<0.001); being in a relationship or other marital status (B=1.633, p<0.001); poor and moderate economic status (B=0.805, p<0.001); education of secondary school or lower (B=0.879, p=0.003); and living with over 5 household members (B=0.408, p=0.037).

Conclusion: Individuals prone to fear of COVID-19 should be targeted through targeted awareness campaigns and support groups. Mental health providers, researchers, and policymakers must plan a strategic approach to limit the exacerbation of mental health problems such as COVID-19 fear.

Keywords: Mental health; Psychology; Post traumatic Stress disorder; Anxiety; Crisis

Abbreviations

COVID-19: Coronavirus Disease 2019; WHO: World Health Organization; PHEIC: Public Health Emergency of International Concern; PTSD: Post Traumatic Stress Disorder; FCV-19S: The Fear of COVID-19 Scale; SPU: Syrian Private University; PHQ-9: Patient health questionnaire-9; GAD-7: generalized anxiety disorders-7; ANOVA: One way analysis of variance; IRB: Institutional Review Board; SPSS: Statistical Package for Social Sciences; USA: United States of America.

Introduction

Pandemics alter our lifestyle in many ways, such as the recent spread of Coronavirus Disease 2019 (COVID-19). This virus is a single-stranded messenger ribonucleic acid that first emerged in China in December 2019 spreading all over the world, resulting in a never-ending pandemic burdened with the effects of morbidity and mortality [1]. The uncontrollable direct modes of transmission of COVID-19 forced a great deal of change in the daily habits of all communities worldwide. COVID-19 is a serious

threat to humanity's health and was declared by the World Health Organization (WHO) as a Public Health Emergency of International Concern (PHEIC), becoming the centre of attention in various professions [2]. There are live updates of new cases and deaths every second of the day, as well as official briefings and prognostications about future calamity [3]. 22 March 2020 marked the first COVID-19 case officially reported in Syria [4]. The numbers of patients have escalated afterward with Syria entering its third wave [5,6].

In an attempt to limit the consequences of COVID-19, precautionary measures have been declared mandatory by governments, such as physical distancing, self-isolation, and hand washing. During lockdown in Syria, crammed streets have become emptied in a ghostly manner and most flights were ceased. Business conferences, mosques, museums, parks, schools, and universities have been put on hold. Grocery and drug stores are being emptied of medications, hand sanitizer, disinfecting wipes, and over-the-counter herbal remedies. People are saving up food and drink preparing for what seems to be a long quarantine period. The pause of normal daily routines with social distancing and self-quarantine will threaten economic stability given supply and demand-side shocks. As a result of closed businesses and avoidance of public places, less money and fewer goods and services are retrieved.

Studies conducted all over the world aimed to understand the mental and psychological burden evoked by this pandemic [7-19]. According to previous studies anxiety, depression, obsessive-compulsive disorder, Post Traumatic Stress Disorder (PTSD) has been reported as a result of the pandemic [20-22]. Fear in particular is an inducer of the former psychological disorders. It is an underestimated state of mind where the brain anticipates a close danger, leading to undesirable real valid health consequences [23]. Those who did suffer from chronic fear need to be targeted in awareness campaigns and factors related to fear should be identified.

General services in Syria are indigent, the health care system is running on the bare minimum, hospitals and medical specialists are debilitated, and many patients are left without care. Syria is sinking in drastic poverty, it is estimated that 89% of the population falls under the poverty line. One recent study conducted by the same institution, Syrian Private University (SPU) reported an increase in prevalence of poor and moderate economic status among participants from 6.9% and 34.8% to 10.4% and 38.1% respectively, over the space of just a month [24]. Since Syria represents third-world countries attributed to the effects of warfare, economic recession, as well as COVID-19 pandemic, the psychological response in this nation is certainly pivotal to. Several studies validated The Fear of COVID-19 Scale (FCV-19S) in various languages and assessed factors related to FCV-19S [25-29]. However, one study conducted at the same institution (SPU) assessed the fear of COVID-19 among the Syrian population and identified a cut-off score to differentiate adults with extreme fear from those with a normal fear reaction [30]. Therefore, this study aims to identify potential factors associated with high FCV-19S scores to help target vulnerable populations in Syria during the rapid global rise of the COVID-19 pandemic.

Materials and Methods

Participants

The sample size calculated was 2401 participants based on a margin of error of 2%, and a confidence interval of 95%, for a population of 17, 500, 657 people using a sample size calculator [31,32]. Inclusion criteria for the study were that participants be aged 18 years and above, who can understand Arabic, and residing in Syria. Incomplete surveys were excluded from the final sample.

Study design and setting

A web-based cross-sectional study was conducted in Syria from May 2 to May 14 of 2020. The questionnaire was distributed through various social media platforms including Facebook, WhatsApp, and Telegram. Participants were provided with a brief explanation of the aims of the study and were ensured anonymity. Informed consent was obtained from participants before enrollment.

Adaptation of FCV-19S into Arabic

The validation of the Arabic version of the FCV-19S was assessed in a previous study conducted at the same institution (SPU).

Measurements

The questionnaire contained 4 sections:

1. Socio-demographic information questions included gender, age, residence, educational level, occupation, economic status, social status, and the number of household members. A health consideration was pointed out with a question about the history of chronic diseases.

2. The Arabic version of the FCV-19S was used to assesses the fear of COVID-19 among the population. It consists of 7-items with a 5 point Likert scale ranging from 1 to 5: strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4), and strongly agree (5). The score ranges from 7 to 35. A higher value indicates a higher expression of fear towards COVID-19.

3. The Arabic version of the Patient Health Questionnaire 9-item (PHQ-9) was used to assess depression severity among participants [33]. Items on the PHQ-9 were rated on a 4-point Likert scale, with 0=not at all, 1=several days, 2=more than half the days, 3=nearly every day, providing a 0-27 severity score range. The scores were categorized into 5 groups: none (0–4), mild (5–9), moderate (10–14), moderately severe (15-19), and severe (20–27) [34].

4. The Arabic version of the Generalized Anxiety Disorder 7-item (GAD-7) was used to assess anxiety severity among participants [35]. Items on the GAD-7 were rated on a 4-point Likert scale, with 0=not at all, 1=several days, 2=more than half the days, and 3=nearly every day, providing a 0-21 severity score range. The Gad-7 is a self-rated scale used to evaluate the severity of the 4 most common anxiety

disorders Generalized Anxiety Disorder, Panic Disorder, Social Phobia, and Post Traumatic Stress Disorder. The scores were categorized into 4 groups: none (0-4), mild (5-9), moderate (10-14), and severe (15-21) [36].

The questionnaire is available in appendix 1.

Ethical approval

The study was approved by the Institutional Review Board (IRB) of the Faculty of Medicine at SPU.

Statistical analysis

Descriptive statistics were used to examine the demographic characteristics of participants in the sample. Mean, standard deviation, and percentages were reported. A dichotomous variable was created out of the total GAD-7 using the cutoff point of 10 to assess anxiety. A dichotomous variable was created out of the total PHQ-9 using the cutoff point of 10 to assess depression. The t-test was applied to compare the mean FCV-19S score against socio-demographic variables (gender, residence, GAD-7, PHQ-9, and chronic diseases). One way analysis of variance (ANOVA) tests were applied using the f-test to compare the distribution of FCV-19 scores against socio-demographic variables (age, social status, education, occupation, economic status, and the number of household members). Multiple linear regression was used to obtain factors associated with high mean FCV-19S scores. Moreover, the regression coefficient (B) and 95% confidence interval (95%CI) were proclaimed, as well as the Odds Ratio (OR). The data were analyzed using the IBM SPSS version 25.0 (IBM Corp, Armonk, NY, USA). The significance level was set at $p<0.05$.

Results

Participants' characteristics

Of 5000 total participants invited to take part in the study, 4,430 gave informed consent. A final sample size of 3989 participants (response rate=79.8%) met the inclusion criteria for the study. Most participants were female 2935 (73.5%), single 3096 (77.6%), students 2397 (60.1%), and residing in Damascus 1412 (35.4%). Participant ages ranged from 18 to 70 years, with the age group 18-25 years representing a majority of 2870 (71.9%). A total of 416 (10.4%) and 1522 (38.1%) participants stated they had poor and moderate economic status respectively. 556 (15.9%) mentioned a history of chronic diseases (Table 1).

FCV-19S responses

The FCV-19S scores ranged between 7 and 35, the mode score was 14, and the mean score was 18.5 (± 6.009). Participants' responses to the FCV-19S are shown in Table 2.

Most of the participants were neutral towards the emergence of COVID-19 (39%), but still felt uncomfortable thinking about it (30.8%). The vast majority of participants (49.7%) disagree about getting sweaty hands when thinking about COVID-19 and about being afraid of dying due to the infection (39.6%). COVID-19 news seems to cause anxious and nervous feelings in (26.8%) of the population. Participants mostly did not have trouble sleeping because of anxiety from COVID-19 (47%) and did not feel palpitations thinking about COVID-19 (46.2%).

One way ANOVA tests

A series of one way ANOVA tests revealed that mean FCV-19S scores differed significantly across: gender (p-value=0.009), age (p-value=0.003), social status (p-value=0.042), education level (p-value< 0.001), economic status (p-value<0.001), and number of household members (p-value<0.001) (Table 3).

Factors associated with FCV-19S

Multiple linear regression associated high FCV-19S scores with 5 socio-demographic characteristics: female gender (vs. male, β=0.825, p<0.001); being in a relationship or other marital status (vs. single, β=1.633, p<0.001); poor and moderate economic status (vs. good and excellent, β=0.805, p< 0.001); education of secondary school or lower (vs. college/university and above, β=0.879, p=0.003); and over 5 household members (vs. of 0-5, β=0.408, p=0.037) (Table 4).

Discussion

Syria braces itself for yet another unwelcome surprise, in a series of calamities that have struck the country in its ongoing conflict since 2011. A country that has scarcely survived a destructive war to then be dumped into a pandemic, burdened with the mental health of millions of Syrians. Studying the psychological response of fear against COVID-19 is a point of interest. This report highlights one of the psychological responses, the fear of COVID-19, during the first Syrian lockdown. This period signifies the effects of lockdown and the considerable hardships endured by Syrians.

Gender (%)		Age (%)		Social status (%)		Economic status(%)	
Male	Female	18-25	2870(71.9%)	Single	3096(77.6%)	Excellent	251(6.3%)
1054(26.4%)	2935(73.5%)	26-34	685(17.2%)	Married	714(17.9%)	Good	1800(45.1%)
		35-44	261(6.5%)	Other	179(4.5%)	Moderate	1522(38.1%)
		45-54	121(3%)	Single	3096(77.6%)	Poor	416(10.4%)
		55<	52(1.4%)				
Chronic disease(s) (%)		Education (%)		Education (%)		Household members (%)	
Yes	556(13.9%)	Primary School	21(0.5%)	Health care worker	259(6.5%)	Alone	54(1.4%)
No	3433(86%)	Intermediate School	115(2.9%)	Government institution	239(6%)	1-5	2474(62%)

		Secondary school	370(9.3%)	Private institution	202(5.1%)	>5	1461(36.6%)
		College/University	3271(82%)	Business	202(5.1%)		
		Master's degree	185(4.6%)	Health care worker	259(6.5%)		
		PhD	27(0.7%)	Military	35(0.9%)		
				Student	2397(60.1%)		
				Other	655(16.4%)		
				Military	35(0.9%)		

Table 1: Socio-demographic characteristics: (n=3989).

Totally agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Totally disagree (%)	
394(9.9)	951(23.8)	1557(39.0)	826(20.7)	262(6.5)	1-I am often afraid of the emerging Covid-19
461(11.6)	1228(30.8)	1115(28.0)	906(22.7)	279(7.0)	2-I feel uncomfortable when I think about the new Covid-19
206(5.2)	119(3.0)	719(18.0)	1983(49.7)	962(24.1)	3-My hands get sweaty when I think about the new Covid-19
370(9.3)	463(11.6)	892(22.4)	1579(39.6)	685(17.2)	4-I am afraid of dying due to infection with the emerging Covid-19
559(14.0)	1070(26.8)	1002(25.1)	968(24.3)	390(9.8)	5-I feel anxious and nervous when I follow news or posts about Covid-19 on social media
229(5.7)	152(3.8)	688(17.2)	1875(47.0)	1045(26.2)	6-I cannot sleep because of my anxiety about infection with the emerging Covid-19
242(6.1)	211(5.3)	670(16.8)	1843(46.2)	1023(25.6)	7-I feel my heart racing and palpitations when I think about the emerging Covid-19

Table 2: Participants response to FCV-19S.

Characteristics		Number of Participants (%)	Fear score M(SD)	F-test/ T-test	P-value
Gender	Male	1054 (26.4)	17.8 (6.68)	14.975	<0.001
	Female	2935 (73.6)	18.69 (5.73)		
Age group (years)	18-25	2870 (71.9)	18.09 (5.88)	11.749	<0.001
	26-34	685 (17.2)	18.92 (6.11)		
	35-44	261 (6.5)	19.91 (6.29)		
	45-54	121 (3)	20.47 (5.88)		
	55<	52 (1.4)	20.65 (7.77)		
Social status	Single	3096 (77.6)	18 (5.89)	45.746	<0.001
	In a relationship	714 (17.9)	20.36 (6.12)		
	Other	179 (4.5)	18.62 (6.04)		
Residence	Rural	1315 (33)	18.55 (6.02)	0.486	0.486
	Urban	2674 (67)	18.41 (6.01)		
Education	Primary school	21 (0.5)	21.52 (6.96)	10.376	<0.001
	Intermediate school	115 (2.9)	20.65 (5.83)		
	High school	370 (9.3)	19.8 (6.24)		
	College/University	3271 (82)	18.28 (5.94)		
	Master's degree	185 (4.6)	17.12 (5.8)		
	PhD	27 (0.7)	18.41 (5.47)		
Occupation	Health care worker	259 (6.5)	18.19 (6.21)	7.161	<0.001
	Government institution	239 (6)	19.68 (6.28)		
	Private institution	202 (5.1)	18.57 (6.02)		
	Business	202 (5.1)	19.27 (6.83)		
	Military	35 (0.9)	17.54 (6.51)		
	Student	2397 (60.1)	18.03 (5.81)		
	Other	655 (16.4)	19.44 (6.09)		

Economic status	Excellent	251 (6.3)	18.04 (5.98)	13.272	<0.001
	Good	1800 (45.1)	17.87 (5.8)		
	Moderate	1522 (38.2)	18.95 (6.22)		
	Poor	416 (10.4)	19.43 (5.83)		
Household members	0	54 (1.4)	17.02 (6.26)	3.911	0.02
	01-May	2474 (62)	18.31 (6.01)		
	>5	1461 (36.6)	18.74 (5.98)		
GAD-7 8	Yes	2050 (51.4)	18.89 (5.94)	20.165	<0.001
	No	1939 (48.6)	18.04 (6.05)		
GAD-7 10	Yes	1484 (37.2)	19.12 (6)	28.832	<0.001
	No	2505 (62.8)	18.06 (5.98)		
PHQ-9	Yes	2176 (54.4)	18.55 (5.85)	1.295	0.255
	No	1813 (45.4)	18.34 (6.19)		
Chronic disease(s)	Yes	556 (13.9)	18.31 (5.91)	11.767	0.001
	No	3433 (86.1)	19.32 (6.51)		

Table3: Participants' characteristics and scores on the fear of Covid-19 scale (FCoV-19S) (one way ANOVA), (n=3989).

	Coefficient	Standard error	t-test	p-value
Gender (female vs male)	0.838	0.215	3.902	<0.001
Age (35 and above vs 34 and below)	0.558	0.373	1.497	0.134
Social status (in a relationship, other vs single)	1.274	0.289	4.41	<0.001
Education (primary, intermediate, secondary school vs college/university, master, PhD)	0.748	0.305	2.452	0.014
Occupation (health care worker, government institution, private institution, business, military, other vs student)	0.264	0.242	1.093	0.275
Occupation (government institution, private institution, business, military, student, other vs health care worker)	0.268	0.411	0.652	0.515
Economic status (poor, moderate vs excellent, good)	0.735	0.195	3.769	<0.001
Household members (>5, 1-5 vs 0)	1.087	0.815	1.335	0.182
Household members (>5 vs 1-5, 0)	0.398	0.196	2.025	0.043
GAD-7 (yes vs no)	0.787	0.317	2.481	0.013
10				
GAD8-7 (yes vs no)	0.091	0.308	0.297	0.766
Chronic disease(s) (no vs yes)	-0.335	0.278	-1.205	0.228

Table 4. Multiple linear regression on variables associated with FCoV-19S

In multiple linear regression analyses, we identified potential risk factors associated with fear of COVID-19. This will guide us towards the high-risk populations for early psychological interventions and management. Our results showed that being female was associated with higher FCV-19S scores of fear. This is in accordance with previous studies conducted in USA, Vietnam, India, Greece, and Cuba [37-39]. Studies have not only shown that women are more apt to develop depression, stress, mood disturbances, and anxiety disorders compared with men, but also with greater disease impairment [40, 41]. This could be explained by the many burdens women carry including housework, upbringing of children, jobs, stressful life events, and vulnerability to domestic violence [42-44]. A previous study conducted at the same institution (SPU) revealed that the prevalence of anxiety and depressive Individuals in a family consisting of more than 5 members had higher scores of FCV-19S than those with smaller families. Also, being in a relationship or other marital status rather than being single were associated with higher scores of FCV-19S. This might be attributed to higher chance of direct contact with individuals. Our findings are in accordance with previous studies conducted in previous studies. Single people may have to take less precautionary measures, whereas those in a relationship have to take extra protective measures when around their partners. There may also be an increased sense of responsibility and added concern towards their loved ones.

Results showed that being in a poor or moderate economic status is associated with higher FCV-19S scores. These results are in line with a previous study conducted in Vietnam [45]. The Syrian population is particularly sensitive in this regard. Firstly, the damage done by over10 years of war resulted in 6.7 million internally displaced Syrians overcrowding many governorates after being forced to flee their homes [46]. Secondly, the Syrian government is suffering a prolonged economic crisis. The lockdown has had a negative impact where the prices of food staples, medicines, masks, hand sanitizers, and fuel have increased [47]. Many Syrians have either lost or at risk of losing their work as the result of the draconian lockdown leaving millions of families facing economic turmoil. Financial stability means the ability to pay for medication and readily seek medical help, but this is not the case for most Syrian individuals. Due to the increased in prices, millions of impoverished Syrians are forced to choose between buying food to escape starvation or buying medications and face masks to escape morbidity and mortality [48, 49]. A study conducted earlier linked financial stress to direct psychological impacts [50]. So addressing the needs of the Syrian population is crucial since the majority is brutally poor.

Regarding education, the outcomes of our research revealed that a level of education less than college level was a factor associated with higher scores of FCV-19S. It is factual and valid that the more qualifications a person obtains the more knowledgeable

the person becomes and the more logical he/she perceives his/her surroundings, thus protecting an individual from fear of COVID-19. On the contrary, lesser education has more to do with worry and fear.

People with mental symptoms are more vulnerable to stress compared with the general population and are therefore more likely to be affected by COVID-19. As expected, this study revealed that having anxiety symptoms is associated with a higher score of FCV-19S. This is similar to a study conducted in USA, which reported significant positive associations between anxiety symptoms calculated by GAD-7and FCV-19S score. There is significant association between fear and anxiety, the latter being more related with an unknown, vague or upcoming threat. From an evolutionary perspective, fear is associated with risk-avoiding behaviors that contribute to the picture of overall anxiety, while the GAD-7 focuses on generic experiences of anxiety regardless of source with preparedness. Both emotional states promote adaptation and self-perseverance [51].

This study is critical for identifying levels of fear and their associations with specific demographic variables. These findings can help identify vulnerable populations that may be more prone to COVID-19 related fear. This will form a foundation for mental health providers, researchers, and policymakers to have strategic approaches on preventative measures to limit the exacerbation of mental health problems.

Conclusion

The contemporary study shows that being female, being in a relationship, having a poor or moderate financial status, a family with 5 members or more, and anxiety are predictors of fear in the Syrian population. Individuals having the former factors should be perceived as ones who are at more risk of experiencing fear, therefore protective measures should include intensive awareness campaigns and support groups as well as improvement of economical standards of life specifically because the majority of Syrians are deemed to be under the poverty line.

Eyes should open on Syria and helping hands should assist in lifting this sinking country before irreversible damage is done.

Limitations

The present study has several limitations in its design. First, the convenience sampling used in this study may have limited results' generalizability due to a "volunteer-effect" and the potential underrepresentation of less educated and socially disadvantaged participants. Second, credible published national data regarding the socio-demographic characteristics of Syrians are not available to evaluate the representativeness of our sample. Third, the cross-sectional design limited the opportunity to study the prospective effects of fear over time. Fourth, the proposed cutoff aimed to further evaluate the scale's predicting ability to screen for cases with extreme fear, and not for diagnostic purposes. Fifth, a lack of other instruments assessing the same construct during the conduct of the study such as health anxiety and posttraumatic stress disorder. Sixth, the cutoff should ideally only be used on

Syrian populations due to the characteristics of the participants in the study. Therefore, the proposed cutoff point must be interpreted with particular caution.

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