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The Role of Hope to Alleviate Anxiety in COVID-19 Outbreak among Community Dwellers: An Online Cross-sectional Survey

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Abstract

Introduction: The worldwide emergence of COVID-19 has been associated with diverse consequences, including anxiety. Hope is believed to act as a motivation to enable one to cope with the anxiety. This study was conducted to identify the role of hope in alleviating anxiety due to the COVID-19 outbreak during the primary phase among community dwellers in Iran.

Methods: This cross-sectional study recruited 3,565 subjects with the convenience sampling method. Data collection tools used included the COVID-19 knowledge checklist, Generalised Anxiety Disorder (GAD-7) questionnaires and Snyder Hope Scale. Participants were asked to fill in the questionnaires online. The data were analysed using descriptive and inferential statistics (multivariate linear regression analysis).

Results: Participants' mean scores of anxiety and hope were 6.06±4.52 and 31.27±4.52, respectively. The results indicated that 27.1% of the changes in the anxiety scores were predictable with some of the variables examined in this study. A high score of hope was directly associated with a lower level of anxiety. In addition, the number of hours spent following news and information on COVID-19 was significantly related to anxiety level. Moreover, female gender, urban residence, and having relatives suffering from COVID-19 were significantly related to a higher level of anxiety (P<0.05).

Conclusion: The morbidity and mortality associated with the COVID-19 outbreak had brought a lot of anxiety among community dwellers. Hope, potentially, can contribute to overcoming anxiety. Therefore, health policymakers can introduce appropriate social interventions to enable the community to cope with stress and anxiety.

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Keywords: Generalised anxiety disorder, hope, mental health, pandemic

Introduction

The World Health Organization declared the outbreak of COVID-19 as a public health emergency of international concern.[1] The rapidly growing number of cases with COVID-19 and its unpredictable behaviour brought a lot of confusion and anxiety among community dwellers.[2] One's primary emotional responses would likely be endless fear and feeling of uncertainty.[3] One study showed that psychological and behavioural responses to the COVID-19 outbreak had been dramatic during the rising phase. The prevalence of moderate or severe anxiety was reported to be 4–5 times higher than its normal levels in Iran. Moreover, Naeim et al. reported moderate or severe anxiety in Iranian community.[4] An online survey by Wang et al. aiming to identify immediate psychological responses to the COVID-19 outbreak indicated moderate to severe psychological impact of the outbreak.[5]

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Anxiety is an arousal reaction with physical and affective manifestations against internal or external hazards. It is more often associated with responses that prepare for perceived or real dangers, as well as cautious or avoidant behaviours.[6,7] Some individuals possess some positive psychological strengths that allow them to resist anxiety.[6] Hope, for instance, has been extensively investigated for its mitigating role against anxiety.[8]

Snyder postulated the Hope Theory. Hope is a cognitive process which requires one's active and purposeful participation. The theory is composed of three components, namely goal-setting, pathway thinking and agency thinking', which determine whether one is hopeful or not.[9] Those individuals with a greater level of hope possess the ability to deal with life challenges more effectively.[10] We hypothesised that crisis conditions such as the COVID-19 outbreak and its negative psychological consequences are potential sources of anxiety for community dwellers.

A good number of literature has found that individuals with a higher level of hope tend to have better overall psychological, social and, physical well-being.[6,7] In other words, hope enables one to solve problems and persevere when confronted with crises and stressful situations. Therefore, hope is considered an important variable that has a powerful effect on reducing anxiety, development of mental ill health, and preventing the perception of vulnerability and anxiety disorders.[11] Trzebiński et al. concluded that hope was significantly associated with lower levels of stress and anxiety.[12] Moreover, clinical investigations have reported negative associations between hope and symptoms of depression, anxiety and psychological distress. In addition, it is inversely correlated to adaptive coping, subjective and spiritual well-being, and immune system responses.[13,14] However, there is a gap of knowledge regarding the anxiety felt during the COVID-19 outbreak and the role of hope to alleviate the anxiety. The current study was conducted to explore the association of hope and anxiety during the primary phase of the COVID-19 outbreak among community dwellers in Shahroud, Iran.

Methods

Study design, settings and participants

This cross-sectional study was conducted from February 21 to March 7, 2020. To prevent the spread of disease while having maximum access to the participant's data, we collected data online. Eligible participants were selected by convenience sampling method. An invitation was distributed through social media. It included an informed consent form and an address link to the online questionnaires. The inclusion criteria were elementary literacy, access to cyberspace, and the ability to use mass media to complete the questionnaires.

The raw response rate in this study was 71%, with 5,219 participants who accessed and read the questionnaires. Of the 3,706 subjects who signed the form, 3,565 participants filled up the questionnaires fully. The remaining 83 returned questionnaires were duplications and 58 were rejected due to irrelevant answers.

Data collection

To collect the data, a demographic questionnaire plus COVID-19 knowledge checklist were used. Snyder's hope questionnaire and Spitzer's Generalised Anxiety Disorder (GAD-7) questionnaire were also used to measure the subjects' hope and anxiety levels. The COVID-19 knowledge checklist is a 6-item checklist with true/false options that measure the participants' knowledge on COVID-19. The checklist was first used by Huang and Zhao.[15] Each correct answer would score 1 point and each incorrect response scored zero point. A score of 5 or more indicates complete knowledge; a score of 3 or 4 indicates moderate knowledge; and scores fewer than 3 mean lack of awareness of COVID-19. Validation of the checklist was approved by 10 faculty members of Shahroud University of Medical Sciences.

Generalised Anxiety Disorder (GAD-7)

Spitzer et al. (2006) introduced the Generalised Anxiety Disorder (GAD-7) questionnaire to investigate the level of anxiety. The GAD-7 questionnaire assesses the degree to which the client has been bothered by feeling nervous, anxious or on edge, not being able to stop or control worrying, worrying too much about different issues, having trouble relaxing, being so restless that it is hard to sit still, becoming easily annoyed or irritable, and feeling afraid as if something might happen.[16] The questionnaire is a 7-item instrument to measure the severity of generalised anxiety disorder. Each item asks the individual to rate the severity of his or her symptoms over the previous 2 weeks. The GAD-7 score is calculated by allocating the scores of 0, 1, 2 and 3 to the response categories of "not at all", "several days", "more than half the days", and "nearly every day", respectively. The total score is calculated by adding the scores of the 7 questions. Therefore, the GAD-7 total score ranges from 0 to 21. The GAD-7 has been validated to be applicable to

primary care patients, the general population, and adolescents with GAD. The recommended cut-off point for referral for further evaluation is 10. Cronbach's alpha of the total instrument was 0.92, and the test reliability coefficient was 0.83. Moreover, convergent validity was also reported by comparing the correlation with the Beck anxiety questionnaire 0.72 and SCL-90 0.74.[17]

The Persian version of this questionnaire shows an internal consistency of 0.85. The correlation between the 2 test scores was 0.65. The reliability of the questionnaire was calculated as 0.48. Concurrent validity of the questionnaire was assessed using the Spielberger 0.71 state anxiety scale, 0.52 Spielberger anxiety scale, and 0.63 SCL-90 anxiety scale.[18]

Snyder Hope Scale

The Hope Scale was developed by Snyder et al. to assess hope level. Its scoring is based on the Likert 5 spectrum (I totally disagree=1, I disagree=2, I have no opinion=3, I agree=4, I completely agree=5). The 12-item version includes 8 hope items (4 agency items and 4 pathway items) plus 4 fillers. Anderson reports a good test-retest correlation for the total score of the Hope Scale (r=0.85, P<0.001).[19]

The internal consistency of the original instrument (Cronbach's alpha) was 0.71–0.84.[20] To investigate the reliability of this scale, Nasiri et al. used Cronbach's alpha method in their research in 2008. They obtained a coefficient of 0.62 for the pathway subscale and a coefficient of 0.74 for the agency thinking subscale.[21]

Data analysis

The data were analysed using descriptive statistics (mean and standard deviations for quantitative and chi-square data, Independent t-test, frequency, and percentage for qualitative data) and inferential statistics test (multivariate linear regression analysis). A statistically significant level for all tests was considered as 0.05. The present study was approved by the Ethics Council of Shahroud University of Medical Sciences.

Results

The mean age of the participants was 35.31±10.34 years. The results showed that 53.9% of the participants were female and 72.5% of them were married. Many of the subjects (36.9%) had a bachelor's degree. Of all the participants in the study, 603 (16.9%) subjects had relatives with COVID-19. Participants reported the average time of following COVID-19 news and information as 2.20±1.65 hours per day. More than half of the participants in this study (61.0%) reported that they were moderately aware of COVID-19. The demographic data of this study are summarised in Table 1.

According to the results of the current study, close to one-fifth of the participants (18.5%) experienced high levels of anxiety. Their mean scores of anxiety and hope were reported as 6.06±4.52 and 31.27±4.52, respectively (Table 2).

Based on the results, female, retired, and self-employed participants reported higher anxiety levels than other groups. Moreover, there was greater anxiety in people whose relatives had COVID-19 or were in urban residences. In addition, the study showed that a higher level of anxiety was significantly related to the amount of time the participants spent on following the news (Table 3).

The multivariate linear regression model using the backward method confirmed that 27.1% of the variance of people's anxiety scores was explained by the variables within the model. In addition, the regression model showed that for each unit increase in the mean score of hope, the participants' mean anxiety score decreased by 0.343 unit, and the participants' anxiety mean score increased by 0.361 point per hour of following news related to COVID-19. Moreover, the results showed that, among rural and male participants, the anxiety score was lower than urban and female community dwellers at 0.801 and 0.979 point, respectively. Moreover, participants with relatives exposed to COVID-19 reported more anxiety compared to participants without exposed relatives, at 0.721 point (Table 4).

Discussion

According to findings of the study, approximately half of the participants reported a moderate level of knowledge of COVID-19. It may be due to lots of hearsay around the issue of COVID-19. Exposure to uncontrolled mass media including virtual media creates a lot of propaganda regarding the disease.[22]

Olapegba et al. found that the majority of participants demonstrated good knowledge regarding COVID-19. They obtained most of their information through mass media.[23] Cultural background differences and attitudes towards the outbreak and health policies can account for the different results in different countries. Controlling the COVID-19 outbreak requires mobilisation of all available resources, and the early identification and diagnosis of primary signs and symptoms of the disease. It is suggested that mechanisms are needed to facilitate

Table 1. The demographic characteristics of study participants

Variable		n (%)
Gender	Female	1920 (53.9)
	Male	1645 (46.1)
Marital status	Married	2586 (72.5)
	Single	979 (27.5)
Level of education	Lower than diploma	328 (9.2)
	Diploma	902 (25.3)
	Associate	304 (8.5)
	Bachelor	1317 (36.9)
	Masters and PhD	714 (20.1)
Residence	Rural	175 (4.9)
	Urban	3390 (95.1)
Employment status	Self-employed, retired	1797 (50.4)
	Health staff (physician, nurse, medical student, etc.)	495 (13.9)
	Employees of government agencies, municipalities, banks and others	710 (19.9)
	Teachers and students (excluding medical students)	563 (15.8)
COVID-19 infection in first and second degree families	Yes	603 (16.9)
	No	2913 (81.7)
Death of first and second degree families by COVID-19	Yes	182 (5.1)
	No	3334 (93.5)
Age (Mean ± SD, years)	35.31 ± 10.34	
Daily follow-up on COVID-19 news (Mean ± SD, hours)	2.20 ± 1.65	
Level of Knowledge about COVID-19	Low	57 (1.6)
	Moderate	2175 (61.0)
	High	1333 (37.4)

n: number; SD: Standard Deviation

Table 2. The mean score of GAD and hope during COVID-19 epidemic in Shahroud population

Variable		n (%)
GAD	Low	2904 (81.5)
	High *	661 (18.5)
Hope (Mean ± SD)	31.27 ± 4.52	
Agency thinking (Mean ± SD)	15.44 ± 2.56	
Pathway thinking (Mean ± SD)	15.83 ± 2.47	
GAD (Mean ± SD)	6.06 ± 4.52	

n: number; GAD: Generalised Anxiety Disorder; SD: Standard Deviation
* GAD was defined as individuals who scored ≥ 10 points

Table 3. GAD according to demographic characteristics during COVID-19 epidemic in Shahroud population

Variable		GAD		*P*-Value
		Low N (%)	High N (%)	
Gender	Female	1504 (51.8)	416 (62.9)	<0.001*
	Male	1400 (48.2)	245 (37.1)	
Marital status	Married	2108 (72.6)	478 (72.3)	0.886*
	Single	796 (27.4)	183 (27.7)	
Employment status	Self-employed	1429 (49.2)	368 (55.7)	0.005*
	Health staff (physician, nurse, medical student, etc.)	423 (14.6)	72 (10.9)	
	Employees of government agencies, municipalities, banks and others	596 (20.5)	114 (17.2)	
	Teachers and students (excluding medical students)	456 (15.7)	107 (16.2)	
COVID-19 infection in first or second degree relatives	Yes	457 (16.0)	146 (22.4)	<0.001*
	No	2408 (84.0)	505 (77.6)	
Residence	Rural	153 (5.3)	22 (3.3)	0.037*
	Urban	2751 (94.7)	639 (96.7)	
Age (mean ± SD, years)		35.4 (10.47)	34.6 (9.75)	0.054†
Daily follow-up on COVID-19 news (mean ±SD, hours)		2.11 (1.56)	2.58 (1.94)	<0.001†

GAD: Generalised Anxiety Disorder
*Chi-square
†Independent t-test

Table 4. The role of independent variables on GAD of study participants in multivariate linear regression model (by backward method)

Variable		β	SE	t	*P*-Value
Constant value		17.886	0.971	18.428	<0.001
Hope		-0.343	0.016	-22.012	<0.001
Daily follow-up on COVID-19 news		0.361	0.042	8.563	<0.001
Gender	Female				
	Male	-0.979	0.141	-6.938	<0.001
Residence	Rural				
	Urban	0.801	0.321	2.492	0.013
COVID-19 infection in first and second degree families		0.721	0.186	-3.885	<0.001

GAD: Generalised Anxiety Disorder; SE: Standard Error

the transmission of information to the community. For those residing in slum areas, it is recommended that comprehensive approaches including consultation and social support[24] should be used. The findings of a study in Vietnam emphasised the urgency for redesigning educational programmes and communication for more effective dissemination of information on the COVID-19 outbreak among the community dwellers.[25]

It is suggested that challenges and stress can trigger common mental disorders such as anxiety and depression.[26] Uncertainties among community dwellers and the unpredictable nature of the disease have raised concerns about the different sequelae of the disease.[27] This can also be aggravated by the misinterpretation of divergent information collected from different sources. Wang et al. indicated that dissatisfaction with health information on COVID-19 can be significantly correlated to a higher level of anxiety.[5]

Our study showed that 18.5% of the participants experienced a high level of anxiety. However, the study by Pourhaji et al. showed that 92.4% of subjects experienced moderate to severe anxiety.[28] The most likely reason for the diversity of the results may be the difference in methods (including the scope of the study, difference in sampling method, sample size and study period). Moreover, other factors such as differences in incidence and prevalence of the disease in different areas, and the use of different local interventions with destructive psychological consequences in communities under study, may also contribute to the contrasting results. Gao et al. reported the prevalence of generalised anxiety and depression to be 22.6% and 48.3%, respectively, in Chinese participants,[29] which is in harmony with the results of our current study.

Quarantine is a stressful situation that increases psychiatric morbidity through many different pathways. Moreover, the last outbreak of COVID-19 in Iran happened during one of the most ancient happy ceremonies of Iranian New Year, called Nowruz. In Iranian customs, people celebrate Nowruz with happiness. They spend a lot of time to travel or visit one another and share happiness and joy with other family members. Therefore, staying in quarantine during the happiest event of Nowruz may have put patients under a doubly stressful situation. Chatterjee et al. suggested that quarantine during COVID-19 may be a stressor and may bring mental health problems.[30]

The findings of our study suggested that generalised anxiety was significantly correlated with the subjects' gender, with lower anxiety among male participants. Some other studies reported similar findings.[31] The most likely reason for the gender difference in the experience of anxiety may lie in the different sexes' approaches to confronting anxiety and coping with strategies, when confronted with difficult situations.

Our study also showed that retired and self-employed subjects reported anxiety more than other occupations. It is opposed to the study by Watterson et al. who found that unemployed subjects reported a higher level of anxiety. The diversity of these findings may be attributed to the source of anxiety. In other words, participants of the study were anxious about the current social changes to their lives, while the anxiety reported by Watterson et al. was due to previous life situations. In retired subjects, who earn fixed payments, the source of anxiety could be the social limitations imposed by quarantine, a situation that may cause financial problems for those subjects with their own small businesses. The financial loss is reported to be potential social-economic distress.[32]

The results of the study indicated that the diagnosis of COVID-19, both probable and definite, in an immediate or extended family member, was associated with higher anxiety levels. A study found that a diagnosis of COVID-19 in an immediate or extended family member or acquaintance was a risk factor for increased anxiety in Chinese students.[33] In addition, Zhu et al. had the same findings among subjects recruited from among healthcare professionals, who were more exposed to the virus, possibly due to the highly contagious nature of COVID-19.[34] It may bring about lots of anxiety in the participants and their family members owing to their worry over possible transmission of the virus.

Another interesting finding of the study was a report of high anxiety among subjects living in urban areas, which may be related to compacted residency in urban population. This may be also be attributable to the fact that people living in urban areas are more exposed to information regarding the severity and mortality of the disease.

Based on our fundamental hypothesis in this study, we found a significant reverse relationship between hope and anxiety.[35] It is postulated that being positive and optimistic, and the feeling of hope are associated with a lower level of anxiety.[36] Hope can directly and indirectly reduce anxiety by improving the quality of life.[37] To justify this, Snyder stated that as one of these positive psychological constructs, hope refers to an individual's goal-oriented thought that includes both agency thinking (i.e., the motivation to initiate and sustain movements towards goals) and pathway thinking (i.e., the capacity to produce ways for reaching goals).[11]

To illuminate the role of hope, Wang et al.employed fractional amplitude of low-frequency fluctuations to investigate these issues in 231 high school students using resting-state functional magnetic resonance imaging. They found that hope simulates reward-related processing, motivation production, problem-solving and goal-directed behaviours in the brain.[7]

The findings of the study indicated that listening to news frequently was associated with increased anxiety. Gao et al. found that 82.0% of participants were frequently exposed to social media and lots of propaganda regarding COVID-19.[29] Mass media are expected to provide public knowledge regarding the pandemic spread of the disease. However, overexposure may lead to 'infodemic', a term referring to too much mixed information leading to difficulty in finding trustworthy sources of information, and which may even cause harm to one's physical and mental health.[38] It is recommended that one should minimise watching, reading or listening to news about COVID-19 that causes one to feel anxious or distressed, and to seek information only from trusted sources, so that one can take practical steps to plan and protect oneself and one's loved ones. One should seek information and updates at specific times, only once or twice during the day.[39] The current study emphasises the importance of psychological issues among vulnerable subjects, which calls on collaboration among national and international research organisations.[40]

Limitations

The most eminent point of the current study is the inclusion of a great number of participants addressing a health issue at the community level. However, there are some limitations to this study. Since the current study was conducted online in order to get a rapid response with maximum participation, it is likely that those with limited access to social media for any reason were inadvertently excluded from sampling. This study failed to assess some variables such as participants' socioeconomic status, health insurance, past medical history and sources of information.

Owing to time constraint, we did not address the other aspects of mental health (such as depressive symptoms and psychological trauma). Another drawback of the current study was application of single tool, while the wide range of participants' ages in the present study may requires using specific diagnostic tools. In addition, some variables such as behavioural and personality traits that could potentially affect anxiety and hope were not controlled.

Conclusion

From the findings of the present study, it can be concluded that hope may act as a facilitator in reducing anxiety among community dwellers during the COVID-19 epidemic in Shahroud. Owing to its positive effect on one's mental health, hope with its supportive role should be encouraged. Accordingly, the subjects should be provided with full support, such as interventions with a focus on increasing hope. It is necessary to draw the health management system and policymakers' attention regarding the psychological consequence of the disease on people. There is a special need for promoting public knowledge regarding the outbreak. People should avoid information from unreliable resources.

Future research is recommended to design a cohort study with longitudinal approach, as well as studies in the field of mental health in specific groups such as COVID-19 patients and their caregivers.

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