



Accident Prevalence Related to Psychosocial Risk Factors for Northeast of Iran Workers: COPSOQ-III Index of Persian Version

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Received date: 29 August, 2022, Manuscript No. JEOR-22-73476;

Editor assigned date: 31 August, 2022, PreQC No. JEOR-22-73476 (PQ);

Reviewed date: 14 September, 2022, QC No. JEOR-22-73476;

Revised date: 17 January, 2023, Manuscript No. JEOR-22-73476 (R);

Published date: 24 January, 2023, DOI: 10.4172/Jeor.1000120

Keywords: Midwifery education; Anxiety; Pregnant mothers; Nursing mothers; COVID-19

Introduction

Problem: The effect of environmental stressors, especially an acute respiratory infectious pandemic can significantly affect mothers' psychosocial conditions. Although they are considering baby care and family training, they must be worried about pandemics and infectious diseases.

What is already known: Numerous studies have shown the significant effect of psychological and stress conditions on people's health caused by COVID-19 pandemics.

What this paper adds: The present survey explores the effect level of the COVID-19 pandemic on the stress and anxiety of pregnant mothers, nursing mothers and normal mothers of the Iranian women population.

Reports of the article demonstrate that mothers in the same conditions such as pandemics need to be educated and receive midwifery counseling interventions to stabilize mothers' psychological conditions.

Since December 2019 an unknown pneumonia was spread in Wuhan, Hubei Province, China [1]. Reports demonstrated that the infection with the virus causes severe acute respiratory syndrome. The virus can be easily transmitted to other people through respiratory particles and due to the spread speed of this disease among different communities and conflicts in all of countries during less than 6 months, till the present day (Feb 2022), more than 149 million people have been infected and caused more than 5 million death all around the world [2-4]. The reports (CDC and Google) indicate more than 12 thousand deaths per day around the world. However, vaccinating people could reduce the death rate of this infection, but different versions of the virus make fear on people of communities [5].

Some reports from patients and the family around them, have shown varying degrees of anxiety and stress [6]. Symptoms of the disease, which include mild to severe fever, digestive disorders (diarrhea and vomiting), shortness of breath, cough and sneezing and limb pain, can be confused with any similar symptom and varying degrees of sleep problems, depression, stress and anxiety. The ignorance of this virus and its widespread symptoms, which can overlap with other disease such as influenza, colds, sinusitis and even some allergic symptoms, cause stress and anxiety in people [7-9].

Women are the most sensitive members of human society in the occurrence of stressful events. Women on the population are include girls, pregnant mothers, lactating mothers and adult mothers. According to the previous researches, demonstrated that anxiety have different effects on pregnant mothers such as preterm delivery, that can make several problems for mother and the infant [10-12]. In the stressful situation, the milk of lactating mothers is affected too. This situation can reduce mothers' milk quality and quantity and also can make them stop milking the baby. Breastfeeding women who are in a very sensitive period and according to many studies, it has been shown that their anxiety and stress cause changes in the process of breastfeeding the baby and can affect the quality and performance of

Abstract

Background: Most of psychologists and midwifery centers are trying to control the anxiety and stress in pregnant and nursing mothers.

Aim: We provided the investigation to assess the effect of global pandemic of a viral infectious on mothers' anxiety.

Method: The present cross-sectional investigation, performed among three groups of Iranian women including 89 pregnant, 66 lactating and 105 non pregnant milking mothers as the "control group". The Spielberger Anxiety Scale (STAI) was used to assess the anxiety level during COVID-19 pandemic and to compare the knowledge effect on anxiety, we designed a 14 items questionnaire about COVID-19.

Findings: The extracted results from showed that the mean score of STAI was moderate to severe level (42.4 to 51 score) in all groups. The state anxiety was significantly meaningful between groups ($P=0.03$). The linear association between knowledge about COVID-19 and anxiety of mothers have revers significant relation ($P=0.004$).

Discussion: Developing the knowledge of mothers can affect their anxiety and is possible with intervention by counselors and social media. It can control the state of social anxiety, too.

Conclusions: The results demonstrated that the anxiety scale was significantly moderate to severe among all pregnant women. State anxiety is meaningful for the groups and had significant relation to their knowledge about COVID-19. As the participants are exposed to external anxiety factors such as income. The results can be used in midwifery counseling educations to ease the anxiety of mothers during pandemics.

the mother during breastfeeding as well as continuation of breastfeeding for up to 24 months has a very important effect [6].

However, women suffer from innate anxiety for various natural and physiological reasons. Many studies have shown that pregnant women suffer from anxiety and pregnancy stress, which can sometimes lead to postpartum depression due to lack of control. Going through the female hormonal courses that occur naturally for them every month, also disturbs their mental and psychological moods [11-13].

Till the day of start of this study, no researches had been performed on mental state of individuals, especially, the Iranian women, in order to measure their anxiety. However, nowadays, Sherman [13], developed Coronavirus Anxiety scale (CAS), there is no Iranian version or research on this content.

One of the factors that can contribute to the anxiety and stress caused by emerging diseases is the lack of knowledge about the symptoms, ways of transmission and ways to avoid the disease, which is no exception for the new coronavirus [14,15]. Bejama, Oster and Mac in a study have been shown this anxiety is prevalence about COVID-19 due to the unknown and ambiguous nature of the virus. Fear of the unknown things, reduces the perception of safety in humans and has always been anxious for humans and little scientific information increases anxiety [16]. Therefore, in this situation, people in the community seek to receive more information to address this concern, while the same anxiety can prevent them from accessing accurate information. This can also be facilitated by providing various trainings through mass media, pamphlets, posters, telephone calls and remote consultations. For this purpose, this study tries to show the effect of awareness through telephone calls and online counseling by distributing educational images, including designed and approved pamphlets, on the level of anxiety and stress in women in Mazandaran province.

Materials and Methods

Population

This study is a cross-sectional investigation, among three groups of Iranian women including Pregnant Mothers (PM), Milking Mothers (MM) and Non-Pregnant Milking Mothers (NPM). Pregnant Mothers (PM), were group of mothers whom are at least in 2nd trimester of pregnancy and 89 of 102 pregnant women agreed to participate in this study [17].

Milking Mothers (MM) were mothers with neonatal under 24 month babies who had their baby fed with milk? While the pandemic was on the peak situation, we only had access to 75 mothers, but only 66 of them completed valid questionnaire [18].

Non Pregnant Milking Mothers (NPM) were containing mothers and women with no baby and not pregnant during the investigation. This group was analyzed as control group to know what are the effects of pandemic on mothers' stress and anxiety. We could contact with 115 women and 105 accepted our request to participate on this study [19].

Tools and data collection

Socio demographic characteristics: Some related socioeconomic and demographic information have been considered as independent

factors. The age, education level and the job of the participant and her husband, number of previous children and count of previous pregnancy of participants and date of pregnancy were reported in the first step of the questionnaire. All of the participants were Iranian married women and not have been divorced or single during the research [20].

STAI questionnaire: The Spielberger State-Trait Anxiety Scale (STAI) was used to assess anxiety level of participants during COVID-19 pandemic situation. This scale contains two parts as evident anxiety in which personal senses are evaluated at the moment of filling the questionnaire and hidden anxiety, in which general feelings of participants, with 20 items for each part and 40 items as total. The STAI score ranges from 40 to 160 that divide to "low anxiety", "moderate anxiety" and "severe anxiety". The participants must to choose any choices of "never", "sometimes", "many times" and "very much" that count 1 to 4 points for each item. Some of the questions had reversed answers to analyze the truth of answers contains: 1, 2, 5, 8, 10, 11, 15, 16, 19, 20 for State anxiety and 21, 23, 26, 27, 30, 33, 34, 36 and 39 in Trait anxiety items [21-24].

The reliability and validity of the Persian STAI questionnaire was evaluated with Cronbach alpha score of 0.90 by Mahram.

COVID-19 knowledge questions: The participants were prompt to fill the 14 Y-N questions designed by the research team to assess their knowledge about COVID-19 pandemic and its side effects on health of population. Correct answers had 1 score and wrong answers had 0. Finally, the worst and best knowledge had 0 to 14 scores. The questions were about the characteristics of the infection, pandemic situation, how to rescue, how to treat, nutrition and drugs, etc.

However, it was forbidden to traffic in most of cities during the pandemic, so, to ease the access to mothers, we designed an online questionnaire on Porsline.ir Online portal and were published by the research team on virtual networks for the participants and 82 of them completed online.

Data analysis

After collecting whole questionnaires, SPSS analyze software was used to evaluate the relations and significance of the answers on anxiety during pandemic with descriptive analyzes, ANOVA, *chi-square*, multiple comparisons, spearman exam, etc.

Results

Participants

During the investigation, 308 women were total individuals with entry criterion of research. But only 260 of them approved to participate. Finally, the population were divided into three groups of pregnant mothers or PM group (89 individuals), milking mothers or MM group (66 individuals) and non pregnant milking mothers or NPM as a Control group (105 Women). The mean age of the mothers was 34.25 (\pm 8.80) years old. Table 1 shows all sociodemographic information of participants. Most of them were graduated in MD and university (46.2%) and 143 individuals (55.0%) of them were housewives.

Socio demographic characteristics		N	%
Education	Elementary	5	1.9
	Diploma	66	25.8
	College	17	6.5
	MD	120	46.2
	Ms	45	17.3
	PhD	3	1.2
	Others	3	1.2
Job	Housewife	143	55
	Office	57	21.9
	Teacher	17	6.5
	Health care	20	7.7
	Others	12	8.9
Income (M Rials per month)	<25	91	35
	25-50	106	40.8
	50-100	62	23.8
	>100	7	0.4

Table 1: Socio demographic characteristics of 260 women participated in the investigation.

According to the ANOVA test of above answers, income of the families had significant meaning with total anxiety of mothers ($P<0.05$).

The reports about children counts and maternal characteristics are showed in Table 2.

Children counts and maternal characteristics		N	%
Pregnancy count	First mother	87	33.5
	Multipar	173	66.5
Birth type	Normal	28	10.8
	Section	43	16.5
	NA*	189	72.7
Feed type	Exclusive	55	21.2
	Artificial	6	2.3
	Mixed	5	1.9
Child Count	None	81	31.2
	01 Feb	155	59.6
	3 and more	24	9.2

Note: *Participants hadn't assigned birth type.

Table 2: Count of previous children and maternal characteristics.

COVID-19 knowledge questionnaire

The research team conducted a self-report questionnaire to notify and assess the knowledge of participants about COVID-19 dimensions and it let us know the relations between anxiety and their knowledge.

All of the participants answered the 14 Y-N questions about COVID-19. The related information of the answers is showed in Table 3 and correlation of the COVID-19 knowledge items are excluded in Table 4.

Questionnaires	Correct		False		Total
	N	%	N	%	
Q1	257	98.8	3	1.2	260
Q2	254	97.7	6	2.3	260
Q3	136	52.3	124	47.7	260
Q4	240	92.3	20	7.7	260
Q5	245	94.2	15	5.8	260
Q6	169	65	91	35	260
Q7	248	95.5	12	4.6	260
Q8	240	92.3	20	7.7	260
Q9	160	61.5	100	38.5	260
Q10	70	26.9	190	73.1	260
Q11	240	92.3	20	7.7	260
Q12	145	55.8	115	44.2	260
Q13	250	96.2	10	3.8	260
Q14	231	88.8	29	11.2	260
COVID Total Score			Range	Mean	SD
			Jul-14	11.1	1.4

Table 3: COVID-19 knowledge questionnaire results.

Pearson correlation coefficient														
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
Q1	1													
Q2	<0.001	1												
Q3	0.51	0.47	1											
Q4	<0.001	0.017	0.25	1										
Q5	<0.001	0.003	0.01	0.66	1									
Q6	0.2	0.93	0.87	0.14	0.018	1								
Q7	<0.001	0.001	0.67	0.23	0.003	0.266	1							
Q8	0.61	0.47	0.49	<0.001	<0.001	0.05	0.001	1						
Q9	0.17	0.55	0.4	0.2	0.03	<0.001	0.11	0.025	1					
Q10	0.12	0.002	0.91	0.47	0.56	0.46	0.87	0.84	<0.001	1				

Q11	0.09	0.47	0.8	0.2	0.87	0.33	0.93	0.2	0.19	0.84	1			
Q12	0.12	0.17	0.14	0.02	0.73	<0.001	0.31	0.69	0.08	0.02	0.18	1		
Q13	<0.001	<0.001	0.74	0.13	0.4	0.73	0.01	0.35	0.06	0.61	0.35	0.78	1	
Q14	0.53	0.38	0.04	0.04	<0.001	0.087	0.75	0.04	0.01	0.03	0.86	0.26	0.25	1

Table 4: Internal correlation of COVID-19 knowledge questionnaire

State and trait anxiety		N	Mean	Std. deviation	Std. error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
State	Pregnant	89	49.55	6.747	0.715	48.13	50.97	28	68
	Milking	66	46.14	7.487	0.922	44.3	47.98	29	68
	NPM	105	48.21	8.409	0.821	46.58	49.84	28	70
	Total	260	48.14	7.722	0.479	47.2	49.09	28	70
Trait	Pregnant	89	44.56	6.895	0.731	43.11	46.01	31	64
	Milking	66	43.59	6.31	0.777	42.04	45.14	28	54
	NPM	105	45.44	8.966	0.875	43.7	47.17	26	68
	Total	260	44.67	7.679	0.476	43.73	45.61	26	68

Table 5: STAI questionnaire descriptive results; state and trait questions divided.

As the results demonstrated, age and job of participants have significant relation with their knowledge about COVID-19 (respectively P-value=0.03 and 0.04). Surprisingly, individuals' awareness of COVID-19 decreased with arising their age. Additionally, there is a borderline significant relationship with the husbands' education level with their awareness of COVID-19 (P-value=0.052).

STAI results

State and trait questions were separated in the questionnaire to assure the reason of the anxiety sources. Descriptive results of the STAI questionnaire are showed.

According to the collected data, statistical analysis demonstrated that pregnant and milking mothers have medium levels of anxiety and it has meaningful relationship among the groups (P-value=0.006). State anxiety is more significant between groups (P-value=0.024). State and trait anxiety level between groups are showed in Table 6.

State and trait anxiety		Group			Total
		Pregnant	Milking	NPM	
State	Low	17	37	34	88
	Mild	51	29	69	149
	Severe	21	0	2	23
Total		89	66	105	260
Trait	Low	58	49	50	157
	Mild	29	17	52	98
	Severe	2	0	3	5
Total		89	66	105	260

Table 6: State and trait anxiety among participated groups.

As the Table 6 shows, most of the mothers have low to mild anxiety but its more significantly sever in pregnant mothers (23.6%).

In a correlation analysis between STAI anxiety and sociodemographic factors, it has been reported that there is a significant relation between age and job of the women and inversed meaningful relation between count of children, educational level of

husband and family income with state anxiety of women (P-value=0.002). It means that the more child they have, the less anxiety they show. Elder and more educated husbands can decrease anxiety of women, too (P-value=0.03) (Table 7).

		Statistics				Statistics	
		F	%			F	%
Gender	Male	173	70.6	Job	Industrial	111	45.3
	Female	72	29.4		Office	84	34.3
Education	Elementary	11	4.5		Services	14	5.7
	Diploma	28	11.4		Medical Care	10	4.1
	AD	54	22		Transportation	7	2.9
	BA/BS	111	45.3		Security	13	5.3
	MD/MS	35	14.3		Training	2	0.8
	PhD	6	2.4		Other	4	1.6
Employment	Organization	48	19.6	Task	Manager	33	13.5
	Agreement	106	43.3		Assistant	15	6.1
	Companies	68	27.8		Supervisor	17	6.9
	Other	23	9.4		Officer	80	32.7
					Worker	75	3.6
			Other		25	10.2	

Table 7: Socio demographic descriptive statistics (N=245).

The correlation between state anxiety and the awareness level of participants shows an inversed significant relationship that

demonstrate the aim of this research (P-value=0.004). It means that knowledge development about the COVID-19 pandemic can decrease anxiety among mothers (Table 8).

Dimensions		N=245		%F**	%C**
		Mean	SD		
Qualitative Demands	QD1	47.75	27.02	9.4	18.5
	QD2			13.8	9.8
	QD3			25.4	15.6
Work Pace	WP1	61.32	23.99	5.8	20.7
	WP2			1.1	17.8
Emotional Demands	ED1	48.8	25.72	18.8	15.2
	ED2			13.4	17.4
	ED3			12.3	10.5
Demands for Hiding Emotions	HE1	56.31	17.92	15.9	10.9
	HE2			10.5	13
	HE3			7.2	27.2
Influence at Work	IN1	58.75	24.29	6.9	15.6
	IN2			17	14.9

	IN3			18.8	14.9
	IN4			5.4	32.6
Control Over Working Time	CT1	35.66	23.78	17.8	10.9
	CT2			31.9	3.6
	CT3			21.7	6.5
	CT4			61.6	10.5
Social Support from Supervisor	SS1	62.95	26.21	5.4	29.7
	SS2			6.5	19.6
Social Support from Colleagues	SC1	53.66	25.24	8.7	13
	SC2			9.8	15.2
Sense of Community at Work	SW1	76.22	23.69	6.2	36.6
	SW2			4.3	50.7
Possibilities development for	PD1	65.9	23.77	6.2	25.7
	PD2			6.2	28.6
	PD3			8	21.7
Meaning of Work	MW1	79.34	20.7	4.7	38
	MW2			1.4	52.2
Predictability	PR1	64.4	22.04	7.2	13.8
	PR2			2.9	17.8
Recognition	RE	56.52	30.6	9.4	19.6
Role Clarity	CL1	76.2	18.6	5.1	34.8
	CL2			1.4	35.9
	CL3			3.6	35.5
Role Conflicts	CO1	50.92	22.96	11.2	11.2
	CO2			7.6	8.3
Illegitimate Tasks	IT	46.19	30.8	17.4	10.9
Quality of Leadership	QL1	62.62	23.01	7.2	16.7
	QL2			5.1	21.7
	QL3			5.4	19.9
Job Insecurity	Jl1	53.08	30.46	14.5	20.7
	Jl2			16.3	22.5
Insecurity over Work Conditions	IW1	50.9	26.69	17	19.6
	IW2			20.7	12.3
	IW3			13.4	21.4
Quality of Work	QW	62.77	25.45	5.1	14.5
Horizontal Trust	TE	56.43	27.56	9.8	8.7

Vertical Trust	TM1	67.72	21.27	3.3	20.3
	TM2			2.9	29
	TM3			7.2	17.4
Job Satisfaction	JS1	57.54	24.1	10.1	16.3
	JS2			6.5	16.3
	JS3			17	7.2
Organizational Justice	JU1	57.02	26.65	6.5	141
	JU2			12.3	17
Work Life Conflict	WF1	58.74	31.04	11.6	25.7
	WF2			11.6	23.6
General Health	Gh	61.41	28.06	8	21
<p>Note: *Percentage of Floor answers for each question. The floor score was 0. **Percentage of ceiling answers for each question. The ceiling score was 100.</p>					

Table 8: COPSOQ III dimensions and statistics concluded from participants.

In other hand, trait anxiety of women has significant direct relationship with their job and the age of their husbands (P-value<0.05) and has inversed relation with the family income. COVID-19 awareness has borderline inversed relation with trait anxiety, too (P-value=0.052).

Finally, the total STAI score is significantly related to COVID-19 awareness score among participants (P-value=0.033).

Discussion

The purpose of this study was to identify the psychological effect of the COVID-19 disease on the mental state and anxiety in northern Iranian women during the peak of the pandemic in 2020. The significance of the issue is women vulnerability, as they are the main sources of fertility and training of the human race. Therefore, their physical and mental health can contribute to the health of the society and likewise, their physical and mental problems and diseases can affect the individuals of the society. For this purpose, extensive and numerous researches have been conducted in different parts of the world, which have studied pregnant and nursing mothers and the results are compared and analyzed with this research (Table 9).

	Accident	QD	WP	ED	HE	IN	PD	CT	MW	PR	RE	CL	CO	IT	QL	SS	SC	SW	JI	IW	QW	TE	VE	JU	WF	JS	GH	
Accident	1																											
QD	0.37	1																										
WP	0.12	0	1																									
ED	0.65	0	0	1																								
HE	0.82	0	0	0	1																							
IN	0.48	0.34	0.17	0.03	0	1																						
PD	0.03	0.01	0.67	0.09	0	0	1																					
CT	0.45	0.04	0.25	0.3	0.01	0	0	1																				
MW	0.42	0	0.3	0.57	0.1	0	0	0.47	1																			
PR	0.84	0	0.65	0.05	0.13	0	0	0.22	0	1																		

Conclusion

Pregnant women are vulnerable of stressful and anxiety factors. The high pace spread of COVID-19 can make mothers concerned and speculated regarding contracting acute respiratory infectious diseases. Economic wellbeing and family support are also among the contributing factors in reducing their anxiety.

Psychological groups, consultation obstetrician, social support providers and health care groups can implement faster and appropriate interventions for mothers using all the collected information reported in this investigation, to reduce their anxiety.

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