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Case Study

The Impact of Covid-19 Anxiety on the Quality of Life (QOL) of People Working in an Industry in 2021: a Case Study

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ABSTRACT

Background: This study was carried out aimed to investigate the effect of anxiety caused by Covid-19 on the quality of life of people working in the industrial sector. **Methods**: 212 people working in the industrial sector participated in a descriptive cross-sectional study using multi-stage random sampling. Data was collected using the Demographic Information Questionnaire, the Corona Disease Anxiety Scale (CDAS) and The World Health Organization Quality of Life–BREF (WHOQOL-BREF). SPSS statistical software version 24 was used for data analysis. The significance level of 0.05 is considered. **Results**: The mean age of participants was 33.27±6.6 years, 78.8% were male and 79.3% (168 people) were married. The mean scores of CDAS and WHOQOL-BREF were 11.60±8.2 and 64.66±10.8, respectively. The highest and lowest score of WHOQOL-BREF belonged to the dimensions of social relationships and mental health, respectively. There was a significant inverse correlation between CDAS and WHOQOL-BREF ($P<0.001$ and $r = -0.656$). Women had higher anxiety scores and lower quality of life than men. Individuals with a family member over 65 years of age or a member with a chronic illness had significantly higher mean anxiety scores and lower mean quality of life scores compared to other individuals. **Conclusion**: The results of this study show that the quality of life of employees in the industrial sector increases with reducing their anxiety. Therefore, it is recommended that factory managers take necessary measures to identify and eliminate the causes of anxiety to increase the quality of life and productivity of employees.

Keywords: Covid-19; Quality of life; Anxiety; Pandemic; Workplace

Introduction

A viral disease that originated in Wuhan city of China called coronavirus 2019 (Covid-19) emerged in December 2019 and soon became a worldwide pandemic due to its asymptomatic transmission ability and highest transmission rate.[1] The first confirmed case of COVID-19 in Iran was officially reported on 19 February 2020. [2] According to the World Health Organization, more than 248 million people have been infected with Covid-19 since the disease began to November 5, 2021 worldwide, and more than 5 million people have died; Also, more than 5.9 million people have been infected and more than 126 thousand people have died in Iran to November

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5, 2021. [3] The prevalence of Covid-19 is very high and the probability of transmission from person to person is high in closed places. [4]

Covid-19 can affect people's mental health in addition to physical health. [5] It can also have a negative impact on the economy, social relationships and public health of people around the world. In order to fight the emerging coronavirus, governments in different countries use physical distancing, quarantine, the use of face masks and hand washing as temporary measures. However, these measures have increased anxiety and decreased quality of life among people around the world. [4,6,7] Fear and anxiety have also increased among the public due to the social and electronic media that cover the Covid-19 news with daily increases in morbidity and mortality. [8]

Human Resource (Employees) Is the Most Important Asset of any Country, [9] which should pay attention to their health, which is one of the signs of quality of life. Quality of life (QOL) is a multidimensional concept, including functional ability, physical health and mental status of individuals, which is influenced by many important factors such as physical and mental condition, personal beliefs and social relationships. [10,11] Numerous factors can have a significant impact on a person's health, one of which is anxiety. Nowadays, anxiety caused by the COVID-19 spread is one of the most important anxieties, which can lead to a decrease in quality of life. [11, 12]

Therefore, there is a need for a comprehensive understanding of the prevalence of mental health problems during the COVID-19 pandemic in different populations to enable policymakers to take effective countermeasures. Although many studies have assessed the prevalence of these psychological problems, but, most recent studies have focused on one to three different populations [13]. There are few studies on anxiety and quality of life among workers and industry personnel during the Covid-19 pandemic. Published studies on the Covid-19 pandemic have focused primarily on the status of nurses and health care workers. Therefore, the present study was carried out aimed to investigate the effect of anxiety on the quality of life of employees in the industrial sector.

Methods

This study was a descriptive cross-sectional research conducted in the egg processing and packaging plant in 2021. In this study, the statistical population included 212 administrative staff and workers working in the industrial sector, selected by multi-stage random sampling according to inclusion criteria. The questionnaires were completed in person and individually, in approximately 30 minutes. During the time of completing the questionnaire, the researcher was present at the workplace to clear up the ambiguity and answer the questions accurately and completely. Inclusion criteria included having at least one year of work experience, not taking sedatives, not having more than 1 month off due to illness in the past year, no history of high blood pressure, no physical disability, no history of depression and other chronic diseases. The exclusion criterion included improper completion of questionnaires. [14]

In the present study, data was collected by self-report method using demographic information questionnaires, Corona Disease Anxiety Scale (CDAS) and WHOQOL-BREF questionnaire.

Demographic information questionnaire included items such as gender, marital status, age, work experience (year), (BMI), job position, education, family member with chronic illness (diabetes, hypertension, etc.) and having a family member over 65 years old.

The Corona Disease Anxiety Scale (CDAS) validated by Alipour et al. in Iran was used to measure anxiety. This tool has 18 items and two components. Items 1 to 9 measure psychological symptoms and items 10 to 18 measure physical

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symptoms. This questionnaire is scored in a 4-point Likert scale (never = 0, sometimes = 1, most of the time = 2 and always = 3) and finally the total anxiety intensity score range is from 0 to 54.

Higher scores indicate higher levels of anxiety in individuals. The cut-off point of this questionnaire in Iran is determined and is divided into 3 domains of non-anxiety or mild (0-16), moderate (17-29) and severe (54-30). The reliability of this questionnaire is 0.91 which was obtained using Cronbach's alpha method. [15]

The World Health Organization quality of Life (WHOQOL-BREF) questionnaire is a 26-item multidimensional self-report instrument consisting of four domains: This questionnaire contains a total of 26 questions. Questions 1 and 2 assess general health and overall quality of life. Also, 24 other questions in four domains included physical health (7 questions), mental health (6 questions), social relationships (3 questions) and environmental health (8 questions). Participants score from 1 to 5 on each item on a Likert scale. The total score of each domain can be converted to a scale of 0 to 100 points. Quality of life increases with increasing scores. [16,17]

WHOQOL-BREF has acceptable psychometric properties and can replace WHOQOL-100 to measure quality of life without significant loss of information. WHOQOL-BREF is a reliable and valid assessment and offers a brief overview of quality of life and has excellent psychometric properties with high reliability. [18,19] The Persian version of this questionnaire has been validated by Nejat et al. with Cronbach's alpha above 0.70. [20] The questionnaires were anonymous and confidential. Data was entered into SPSS software version 24 and analyzed by independent t-test, one-way ANOVA and Pearson correlation coefficient. Significance level in the current study was considered less than 0.05.

Results

In this study, 212 workers and administrative staff participated, 167 (78.8%) of whom were male and 45 (21.2%) were female with mean and standard deviation of age and work experience, respectively 33.27±6.6 and 7.24±5.6. Table 1 reflects other data related to the contextual and demographic variables of the study participants.

The mean and standard deviation of anxiety and quality of life scores of participants were 11.60±8.2 and 64.66±10.8, respectively. The highest and lowest quality of life scores were related to social relationships and mental health, respectively. Also, the score of psychological symptoms of anxiety was higher than physical symptoms. Other information is listed in Table 2.

Independent t-test was used to compare anxiety and quality of life scores by gender, marital status, job position, having a chronic illness in the family and having a person over 65 in the family. There was a statistically significant difference between gender with anxiety (P = 0.002) and quality of life (P = 0.008). The Women had higher anxiety scores and lower quality of life than men. Also, the anxiety score in the group of single and married people was statistically significant, so that married people had higher anxiety than single people (P = 0.012). But there was no statistically significant difference between marriage and quality of life score (P = 0.519). There was also a statistically significant difference between the anxiety scores and the quality of life of people over 65 or having a family member with a chronic illness. There was no statistically significant difference between the mean score of anxiety (P = 0.252) and quality of life (P = 0.813) in the group of workers and administrative staff. Table 3 shows more detailed information.

One-way analysis of variance (ANOVA) compared anxiety scores and quality of life in people with different levels of education. The results show that people with lower education had more anxiety than people with higher education. So that people with education middle school had the highest score

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of anxiety and the lowest score of quality of life. Table 4 shows the other results.

Pearson correlation test was established between anxiety and quality of life with age, work experience and BMI variables. The results show that a significant inverse correlation was observed between age and work experience with quality of life and a significant direct correlation between age and work experience with anxiety. But no significant correlation was observed between BMI with anxiety and quality of life. Table 5.

The results of Pearson correlation test show that there was a significant inverse correlation between anxiety and quality of life (P <0.001 and r = -0.656). A significant inverse relationship was observed between the components of these two variables after Pearson correlation test between anxiety and quality of life dimensions. Table 6 shows the other information.

Discussion

Most research has been done on health's medical staff during the Covid-19 pandemic crisis, and less attention has been paid to the industrial staff, a large percentage of each country's population. Therefore, this study was conducted to investigate the relationship between anxiety and quality of life in employees working in the industrial sector. The results of this study show that the dimension of social relationships and mental health dimension of quality of life had the highest and lowest scores among individuals, respectively, which were consistent with the results of the study by Woon et al. [19] Contrary to the results of this study, the dimension of social relationships had the lowest score among the dimensions of quality of life in the study of Vitorino et al. [21] Also, the results of the study of psychological and physical symptoms of anxiety in this study, showed that psychological symptoms had a higher score than physical symptoms, which psychological symptoms scored higher than physical symptoms in a study by Alipour et al., Which was performed on people aged 18 to 60 years. [22]

Table 1. Demographic information of the participants (n=212)

Variable	Classification	Frequency (%)
Gender	Male	167 (78.8%)
	Female	45 (21.2%)
Marital status	Single	44 (20.7%)
	Married	168 (79.3%)
Job position	worker	152 (71.6%)
	Administrative staff	60(28.4%)
Education	Lower than middle school	40(18.8%)
	Diploma	94(44.4%)
	Bachelor	64(30/3%)
	Higher than a bachelor's degree	14(6.6%)
A person with a chronic illness in the family	Yes	22(10.3%)
	No	190(89.7%)
A person over 65 in the family	Yes	69(32.5%)
	No	143(67.5%)
		Mean ± Standard Deviation
Age(years)		33.27±6.6
Work experience (years)		7.24±5.6
BMI		24.93±3.5

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Table 2. Mean and standard deviation of anxiety, quality of life scores and its dimensions among participants (n=212)

Variable	Mean	Standard deviation
CDAS	11.60	8.2
Psychological symptoms	8.17	4.9
Physical symptoms	3.42	4.0
WHOQOL-BREF	64.66	10.8
Physical health	61.78	10.1
Mental health	61.44	13.0
Social Relationships	68.58	17.4
Environmental health	62.81	12.4

Table 3. Comparison of the quality of life and anxiety scores of participants (n=212)

Variable	Gender / Marriage / job position / Chronic illness and person over 65 in the family	Number	Mean	SD	SEM	Sig.
CDAS	Male	167	10.68	7.4	0.57	0.002
	Female	45	15.02	10.2	1.52	
WHOQOL-BREF	Male	167	65.69	10.5	0.81	0.008
	Female	45	60.88	11.3	1.69	
CDAS	Single	44	8.84	7.1	1.07	0.012
	Married	168	12.32	8.4	0.64	
WHOQOL-BREF	Single	44	65.61	11.1	1.68	0.519
	Married	168	64.42	10.8	0.83	
CDAS	Worker	152	12.01	8.5	0.69	0.252
	Administrative staff	60	10.56	7.4	0.95	
WHOQOL-BREF	Worker	152	64.55	10.9	0.88	0.813
	Administrative staff	60	64.95	10.8	1.39	
CDAS	Having a chronic illness in the family	22	15.31	9.5	1.03	0.026
	No chronic illness in the family	190	11.17	8.0	0.58	
WHOQOL-BREF	Having a chronic illness in the family	22	58.27	9.5	1.04	0.009
	No chronic illness in the family	190	64.28	10.1	0.73	
CDAS	Having a person over 65 in the family	69	13.44	9.3	1.12	0.024
	Not having a person over 65 in the family	143	10.71	7.5	0.63	
WHOQOL-BREF	Having a person over 65 in the family	69	61.23	10.9	1.32	0.017
	Not having a person over 65 in the family	143	64.82	9.6	0.81	

Table 4. Comparison of the quality of life and anxiety scores by the education of the participants (n=212)

Variable	Education	Number	Min	Max	Mean	SD	Sig.
CDAS	Middle school	40	1.0	36.00	16.80	10.7	0.000
	Diploma	94	0.0	34.00	11.28	7.8	
	Bachelor	64	0.0	26.00	9.78	6.0	
	Higher than a bachelor's degree	14	0.0	15.00	7.21	4.8	
WHOQOL-BREF	Middle school	40	38.84	88.42	58.82	11.2	0.001
	Diploma	94	36.54	90.36	63.74	9.4	
	Bachelor	64	42.20	88.45	65.22	9.6	
	Higher than a bachelor's degree	14	51.43	88.15	69.68	10.5	

Table 5. Pearson correlation coefficients between anxiety and quality of life with variables of age, work experience and BMI among participants (n=212)

Variable	Age	Work Experience	BMI
CDAS	0.243**	0.360**	0.047
WHOQOL-BREF	-0.144*	-0.181**	-0.031

*p <0.05; **p <0.01

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Table 6. Pearson correlation coefficient between anxiety and quality of life dimensions in participants (n = 212)

CDAS	WHOQOL-BREF				
	Physical health	Mental health	Social Relationships	Environmental health	Total
Psychological symptoms	-0.283**	-0.408**	-0.514**	-0.441**	-0.578**
Physical symptoms	-0.230**	-0.496**	-0.513**	-0.445**	-0.627**
Total	-0.284**	-0.489**	-0.561**	-0.484**	-0.656**

* p <0.05; ** p <0.01

The most important result of this study was perhaps the answer to the following questions: "Do you have a person with a chronic illness in the family?" And "Do you have a person over 65 in the family?" According to the results, there is a significant difference in their anxiety score and quality of life. It was observed between people who answered these questions positively and those who answered negatively, so that people who answered positively had higher anxiety scores and lower quality of life. According to the results of a study in Brazil conducted on adults, people who had a person with a chronic illness in the family had a higher anxiety score. [21] The reason for this can be the fear of getting infected by someone who has the disease. According to the results of the individual's gender, women had a higher anxiety score than men. Also, the quality of life of women was lower than men, which was consistent with the study of Kamali et al. [23]

In this regard, by examining the marital status of individuals, it was found that married people were more anxious than single people, which could be due to the married couple's greater sense of responsibility. The study conducted by Kamali et al. followed the findings of the present study. [23] The findings of this study show that there is no significant difference between the quality of life scores of married and single people. Also, according to the comparison between the anxiety score and quality of life of workers and office workers, there was no statistically significant difference between these two variables in these two groups of people. The results of the present study show that people with lower education had higher anxiety and lower quality of life than people with higher education. These results are probably due to the higher level of information of people with higher education.

A significant inverse correlation was observed between age and work experience with quality of life in examining the correlation between demographic variables and anxiety and quality of life, which was consistent with the study of Vitorino et al. [21] There was also a significant direct correlation between age and work experience with anxiety.

Finally, according to the results of examining the relationship between anxiety and quality of life, there was a significant inverse correlation between these two variables and their dimensions. Similar results were reported in a study by Öztürk Çopur et al. on people over the age of 18 and in a study by Korkmaz et al. on health care workers. [24,25]

Conclusion

Industry workers make up the largest share of workers in any country that experiences the anxiety of getting Covid-19 during the Covid-19 pandemic crisis due to the high concentration of people in closed environments. The findings of this study showed that by reducing the anxiety of workers in the industrial sector, we can see an increase in the quality of life of these people during the Covid-19 pandemic crisis. Therefore, it is suggested that factory managers take action to identify and eliminate the causes of anxiety by establishing frequent and regular mental health training in order to reduce anxiety and increase the quality of life and productivity of employees. This study, like many studies, was faced with limitations such as the unwillingness of some workers to cooperate to conduct research.

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Conflict of interest

None of the authors of this study have a conflict of interest in publishing this article.

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Authors contribution

All authors contributed to the final version of the manuscript, equally.

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