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Knowledge, Attitude, and Anxiety Regarding COVID-19 among Pharmacy Staff in Iran: A Cross-Sectional Study

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A B S T R A C T

Introduction: Since the onset of the COVID-19 pandemic in December 2019, various global measures have been adopted to curb its spread. Pharmacy staff are at the forefront of disseminating health information to the public. This study evaluates the knowledge, attitude, and anxiety levels regarding COVID-19 among pharmacy staff in Iran.

Materials & Methods: This cross-sectional study was conducted between May 10, 2021, and September 20, 2021, involving pharmacy staff from the Ilam province in Western Iran. A semi-structured questionnaire, including sections on knowledge, attitude, and anxiety related to COVID-19, was used to collect data. Statistical analysis was performed using SPSS V.26, with a significance level of $P<0.05$.

Results: Most of the pharmacy personnel (94.67%) knew a lot about the symptoms and (84.46%) how COVID-19 spreads. Also, 86.7% of the people who took part said they would be prepared to stay in quarantine if they showed signs of illness. 20.4% of the pharmacy personnel said that anxiety over COVID-19 got in the way of their everyday tasks.

Conclusion: The findings show that pharmacy staff in Iran have adequate knowledge and a positive attitude toward COVID-19, with low levels of anxiety. Ongoing education and mental health support are essential to further improve their role in pandemic response.

Keywords: Attitudes, Knowledge, Anxiety, COVID-19, Pharmacy Staff

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Introduction

In December 2019, the coronavirus disease (COVID-19) as a new pneumonia caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-COV-2) occurred in Wuhan [1]. SARS-COV-2 quickly spread around the world and World Health Organization (WHO) declared COVID-19 as a pandemic on 11 March 2019 [2]. Up to December 30, 2021, there were approximately 285.189 million confirmed cases and 5,441,976 deaths cases due to COVID-19 worldwide [3]. Several global precautionary and preventive interventions were proposed and implemented, including travel restrictions, social distancing, and complete lockdowns to curb the COVID-19 spread [4].

The success of these measures depends on the positive participation of the community. Therefore, the methods of transmission, protection, and management of the disease must be clearly understood by the population. Positive participation of the public is the result of the comprehensive perception of the gravity of the problem [5]. Healthcare centers are the reliable and first place where citizens commonly get advice about health issues. During the current pandemic, the pharmacy staff is one of the first health professionals to whom individuals speak and receive information about COVID-19 -related issues [6]. Therefore, they can play a critical role in increasing people's participation in preventing the COVID-19 spread. Pharmacy staff communicate with the community and suspected subjects in high-risk conditions of infection. This can lead to psychological impacts including fear, anxiety, depression, and job burnout for pharmacy staff [7]. These poor mental health conditions impede performance and thus reduce the community's public health. Therefore, they have to be equipped with the appropriate knowledge and protective tools [8].

National and international professional organizations [9, 10, 11, 12] have presented some supporting resources to improve pharmacists' information. For example, the FIP COVID-19 guidance for pharmacies and pharmacists was a set of recommendations published by the International Pharmaceutical Federation (FIP). These supporting resources could help the pharmacy staff to play their essential role better during the COVID-19 pandemic [13].

However, pharmacy staff could play an important role to provide reliable and necessary information about COVID-19 in addition to fulfilling the community's healthcare needs, dispensing appropriate medications and preventive products, etc , and there is currently a lack of literature specifically assessing the knowledge, attitudes, and anxiety of pharmacy staff regarding COVID-19 in Iran. Therefore, this study was conducted to survey the knowledge, attitudes, and anxiety of Iranian pharmacy staff regarding COVID-19.

Materials and methods

Study Design

This study adopted a descriptive, cross-sectional design to assess the knowledge, attitude, and anxiety of pharmacy staff in Western Iran regarding COVID-19. The aim was to provide a snapshot of their understanding and emotional response to the pandemic, while also exploring the factors influencing their perception of the disease. The cross-sectional nature of the study allowed for the simultaneous collection of data across different pharmacy staff members without requiring follow-up.

Setting and Participants

The study was conducted in the Ilam province, located in the western part of Iran, which consists of a diverse group of pharmacy professionals working in urban and rural settings. Participants were pharmacy staff actively engaged in their work during the COVID-19 pandemic, including pharmacists, pharmacy technicians, dispensers, and other healthcare assistants. Participants were selected through a simple random sampling method, ensuring

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that every individual had an equal chance of being included. The study aimed to recruit a sample size of 140 participants, based on the calculation of a sufficient sample size for the desired confidence level and margin of error, representative of the pharmacy workforce in the region.

Sample Size

Morgan's table for figuring out sample size was used to figure out how many people were needed for this study. We chose this method to make sure that the sample size was big enough to give us accurate numbers while also being strong enough to find big differences. The final goal sample size of 140 people was chosen to be a good balance between reality and statistical rigor. This will allow for future studies of the relationship between the population's information, attitude, and worry levels.

Measurements & Validity and Reliability

Demographic form

Mi These variables were included agem gender, marital status, occupation and educational level.

Pharmacy Staff COVID-19 KAA Survey (Knowledge, Attitude, Anxiety)

The semi-structured questionnaire used in this study consisted of three domains: knowledge, attitude, and anxiety toward COVID-19. The knowledge section included six multiple-choice items on symptoms, transmission routes, and preventive measures, scored 0 for incorrect and 1 for correct responses, with higher scores indicating better knowledge. The attitude section comprised five items rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with higher scores reflecting more positive attitudes toward preventive measures. Anxiety was assessed using the 18-item Coronavirus Disease Anxiety Scale (CDAS), which contains psychological (8 items) and physical (10 items) symptoms, each scored on a 4-point Likert scale (0 = never to 3 = always); higher scores represented greater anxiety. The total CDAS score ranged from 0 to 54. Content validity was confirmed through Content Validity Index (CVI) and Content Validity Ratio (CVR), while internal consistency reliability was high, with a Cronbach's alpha coefficient of 0.87.

Statistical and Data Analysis

Data were analyzed using SPSS version 26 (IBM Corp., Armonk, NY, USA). Descriptive statistics, including mean, standard deviation (SD), frequency, and percentage, were computed for demographic data and questionnaire scores. The normality of continuous variables was evaluated using the Kolmogorov–Smirnov test. Independent t-tests or one-way ANOVA were used for regularly distributed data, while the Mann–Whitney U or Kruskal–Wallis tests were utilized for non-normally distributed data in group comparisons. Chi-square tests or Fisher's exact tests were used for categorical variables. Tukey's test was used for post-hoc analysis when warranted. A p-value less than 0.05 was deemed statistically significant.

Results

The study included 151 pharmacy staff members, with a mean age of 34.5 years (SD = 6.7), ranging from 18 to 55 years. Of the participants, 54.9% were female and 58.3% were married. The majority of participants were dispensers (58.9%), followed by those working in cosmetics and sanitary material sales (21.2%). Most participants held a bachelor's degree (48.3%), with a smaller percentage holding a Ph.D, and in clinical pharmacy (20.5%). Coronavirus disease anxiety and psychological symptoms of coronavirus disease anxiety of pharmacy staff did not have a significant difference between the different groups of gender, age, marital status, occupation, and educational level. For physical symptoms of coronavirus disease anxiety, there was a significant difference between educational levels (Table 1).

Table 1. The mean (±SD) score of psychological and physical symptoms of coronavirus disease anxiety.

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Parameters	Groups	Psychological symptoms of corona disease anxiety		Physical symptoms of corona disease anxiety		Total score of corona disease anxiety	
		Mean ± SD	P-value	Mean ± SD	P-value	Mean ± SD	P-value
Gender	Male	19.22±5.27	0.72	14.10±6.49	0.57	33.33±10.83	0.76
	Female	19.68±5.93		13.44±6.20		33.12±11.18	
Age	18-23	15.00±5.48	0.33	13.00±7.38	0.32	28.00±12.47	0.40
	24-29	20.24±6.12		14.75±7.15		34.98±12.30	
	30-35	19.15±5.52		13.87±6.23		33.02±10.88	
	36-41	19.05±5.73		12.45±5.33		31.50±9.84	
	42-47	21.00±3.08		12.78±3.73		33.78±5.59	
	48-52	15.50±0.71		9.00±0.00		24.50±0.71	
	52>	20.00±1.41		9.50±0.71		29.50±0.71	
Marital status	Married	19.29± 5.53	0.77	13.91±6.79	0.66	33.20±11.44	0.66
	Single	19.71±5.62		14.05±6.00		33.77±10.54	
Occupation	Visitor	19.00±5.60	0.26	14.27±7.10	0.92	33.27±12.05	0.66
	Dispenser	18.87±5.57		13.53±6.35		32.40±10.97	
	Cosmetics and sanitary material seller	21.03±5.76		13.10±4.97		34.13±9.70	
	Cashier	19.78±5.61		16.00±7.02		35.78±12.32	
	Accountant	21.80±2.68		15.80±7.69		37.60±9.63	
	Storekeeper	21.00±9.85		19.00±13.23		40.00±22.07	
	Manager	15.00±2.83		12.50±4.95		27.50±7.78	
Education level	Diploma or lower	16.40±4.03	0.26	10.20±2.20	0.02	26.60±4.95	0.06
	Associate degree	20.05±5.94		13.55±5.82		33.60±10.95	
	BSc	19.49±5.78		15.11±6.92		34.60±11.86	
	MSc	21.29±4.67		14.76±6.59		36.06±9.70	
	Ph.D.	18.97±5.74		11.40±4.88		30.37±9.83	

Knowledge of pharmacy staff about the COVID-19 pandemic

The majority of participants demonstrated a high level of knowledge regarding the symptoms of COVID-19, with 94.67% correctly identifying common symptoms such as fever, cough, and difficulty breathing. Additionally, 84.46% of participants accurately recognized the modes of transmission, including touching, sneezing, and sharing food. Figure 1 visually represents the participants' knowledge about the symptoms and transmission of COVID-19. However, there was a lower level of awareness regarding the role of pets in spreading the virus, with 15.9% of participants believing that pets had no role in transmission.

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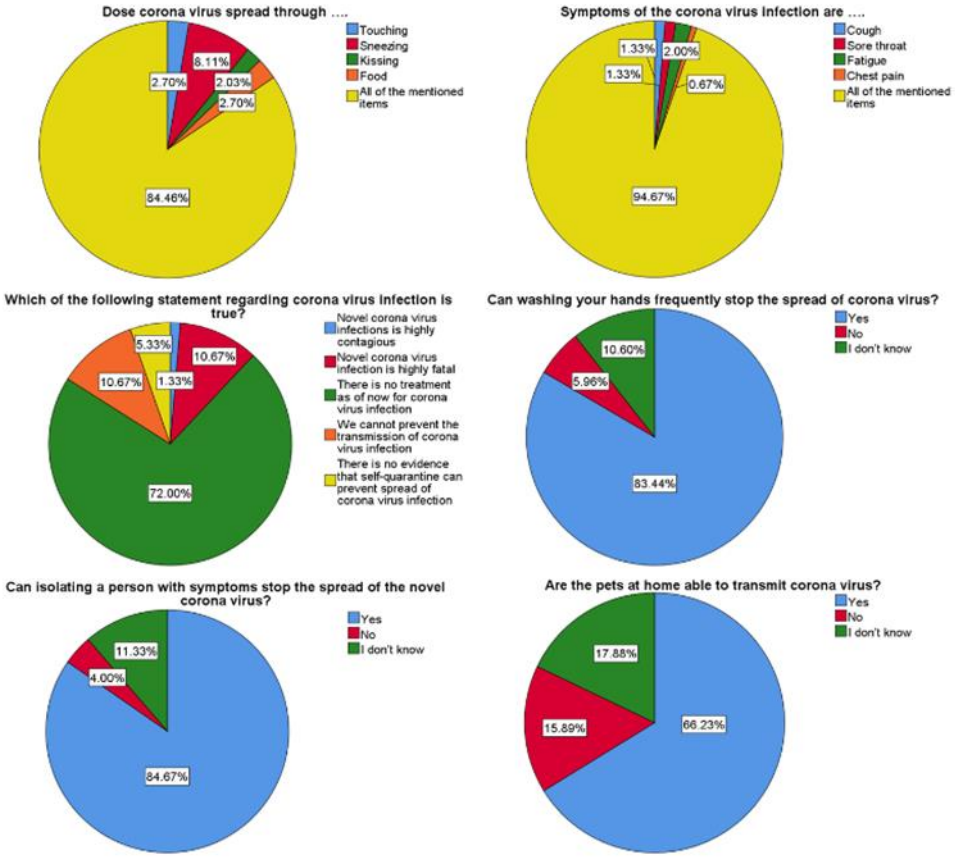


Figure 1. Knowledge of pharmacy staff about COVID-19 pandemic.

Attitude of pharmacy staff toward the COVID-19 pandemic

A positive attitude toward preventive measures was observed among the participants. Specifically, 86.7% of participants indicated they would self-quarantine if they exhibited symptoms of COVID-19. Furthermore, over 96% of the participants acknowledged the importance of social distancing as a measure to control the virus's spread. On the other hand, only 13.2% of pharmacy staff believed that traveling across or within the country was safe during the pandemic. These results are presented in Table 2. Additionally, more than 70% of participants expressed concerns about patients who had recovered from COVID-19, viewing them as potential sources of infection.

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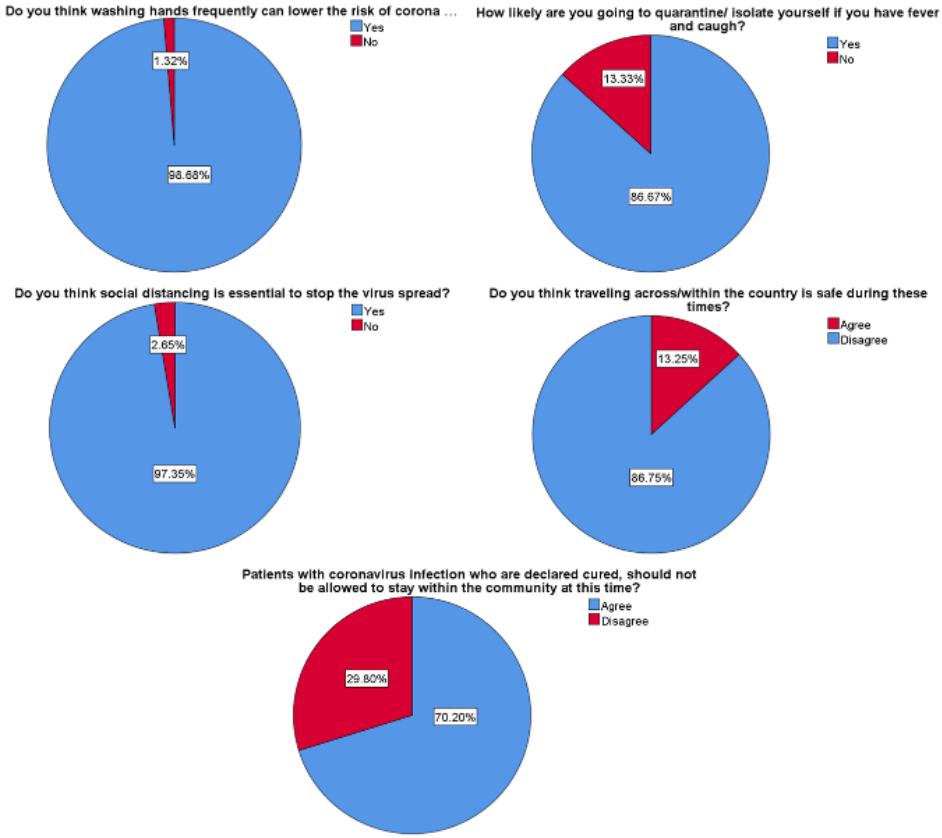


Figure 2. Attitude of pharmacy staff towards the COVID-19 pandemic.

Anxiety of pharmacy staff toward the COVID-19 pandemic

Psychological anxiety was reported by 39% of participants, and 20.4% noted that their anxiety interfered with daily activities. The physical symptoms of anxiety, such as difficulty sleeping (11.3%) and loss of appetite (10.8%), were less common. Figure 2 illustrates the frequency of physical and psychological anxiety symptoms reported by participants. The mass media's coverage of the pandemic contributed significantly to anxiety, with 82% of participants reporting increased anxiety due to media coverage. However, only 12.9% found it difficult to discuss COVID-19 with others, and 18.3% reported a reduction in physical activity due to fear of infection (Table 2).

Table 2. Anxiety of pharmacy staff towards the COVID-19 pandemic.

	Items	Never N (%)	Sometimes N (%)	Often N (%)	Always N (%)
Psychological symptoms					
1	Thinking about Coronavirus makes me anxious	34(18.3)	76(40.9)	29(15.6)	12(6.5)
2	I feel tense when I think about the Coronavirus threat.	44(23.7)	74(39.8)	26(14.0)	7(3.8)
3	I am seriously worried about the prevalence of Coronavirus	19(10.2)	60(32.3)	44(23.7)	28(15.1)
4	I am afraid of contracting Coronavirus	36(19.4)	80(43.0)	21(11.3)	14(7.5)
5	I fear that I might contract Coronavirus anytime	44(23.7)	66(35.5)	20(10.8)	20(10.8)
6	Minor symptoms make me think that I am contracting the virus, and I start checking myself	48(25.8)	66(35.5)	25(13.4)	12(6.5)

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7	I am concerned about transferring the virus to others around me.	12(6.5)	41(22.0)	46(24.7)	52(28.0)
8	My anxiety about Coronavirus has interfered with my daily activities	68(36.6)	45(24.2)	25(13.4)	13(7.0)
Physical symptoms					
9	The mass Medias focus on Coronavirus makes me anxious	65(34.9)	56(30.1)	20(10.8)	10(5.4)
10	Thinking about Coronavirus has interrupted my sleep	93(50.0)	37(19.9)	16(8.6)	5(2.7)
11	I have lost my appetite because of thinking about Coronavirus	102(54.8)	29(15.6)	16(8.6)	4(2.2)
12	I get a headache when I think about Coronavirus	104(55.9)	27(14.5)	12(6.5)	7(3.8)
13	My body starts jittering when I think about Coronavirus	101(54.3)	29(15.6)	13(7.0)	8(4.3)
14	I get goose bumps when I think about Coronavirus	105(56.5)	23(12.4)	14(7.5)	7(3.8)
15	Coronavirus has become my nightmare	93(50.0)	33(17.7)	18(9.7)	5(2.7)
16	I have less physical activity because of my fear of Coronavirus	77(41.4)	37(19.9)	26(14.0)	8(4.3)
17	I find it hard to talk with others about Coronavirus	99(53.2)	26(14.0)	18(9.7)	6(3.2)
18	I feel my heart beating when I think about Coronavirus	99(53.2)	29(15.6)	16(8.6)	4(2.2)

Discussion

This study aimed to assess the knowledge, attitude, and anxiety levels of pharmacy staff in Western Iran regarding COVID-19. The results revealed that pharmacy staff demonstrated high levels of knowledge about the symptoms (94.67%) and modes of transmission (84.46%) of COVID-19, which is consistent with similar studies in other countries. This high level of awareness indicates that pharmacy staff are well-equipped with the necessary information to educate the public.

Since December 2019 and during the COVID pandemic, pharmacy employees have always remained on the frontline of public health by serving as direct points of access for the community [16]. As the FIP emphasizes, pharmacy staff has an active role in preventing the spread of COVID-19 [13]. In addition to health care services, including supplying medicines and hygiene products, pharmacy stores provide consultative recommendations, patient education, and psychological supports in response to the COVID-19 pandemic. Pharmacy employees are at high risk of contracting the infection because they are the first point of contact for the general population who need medicine and information about this disease [8]. So, they have to equip with the correct scientific knowledge and attitudes towards the COVID-19 pandemic. It is noteworthy that only when they correct scientific knowledge and attitudes, they could subsequently inform the community. In this study, the knowledge, attitudes, and anxiety of pharmacy staff regarding COVID-19 were evaluated.

The majority of Iranian pharmacy staff had adequate overall knowledge of COVID-19. This finding was expected because this survey was conducted in late 2021, around two years following the emergence of the COVID-19 pandemic and after successive dissemination of information regarding COVID-19 disease through mass media.

Our results are similar to those of previous reports, which found a high level of knowledge about the COVID-19 among healthcare workers, particularly pharmacists [7, 13, 17, 18]. These findings are also similar to the results of studies conducted in Vietnam [19], Lebanon [20], India [21], Turkey [22], and Cairo [23]. The knowledge of Iranian pharmacy staff about COVID-19 was far higher than that of pharmacists who have been studied in Addis Ababa [24] and Gondar, Ethiopia [25].

The majority of participants correctly reported the mode of spread. Our results were in agreement with those of Cacodcar et al. study [26]. However, a considerably low awareness about the mode of transmission was reported in a study by Bhagavathula et al. (39%) [27]. Almost all pharmacy staff (94.67%) had a high level of awareness regarding the symptoms of the disease. Similar findings were also

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observed in Wolf et al. and Cacodcar et al. studies [26, 28]. Similar to other Middle Eastern countries, hugging and kissing are common traditional behaviors in Iran. These behaviors are risky sources of disease transmission [22]. Touching (like handshaking) and kissing have also been identified as transmission routes of COVID-19. Social distancing, self-quarantine, and hygienic measures were mentioned by most of the participants (more than 4/5th) as the three main methods that could stop the spread of the novel coronavirus. In Bhagavathula et al. [27] and Cacodcar et al. [26] studies, frequent hand washing and isolation of suspected cases were also mentioned as preventive measures. These results were possibly due to the increased sensitization of the healthcare workers by information dissemination. The Ministry of Health disseminated reliable information and WHO guidelines through national news and media. These results showed that the information dissemination programs of the government regarding COVID-19 prevention and control measures were effective. Seventy-two percent of the participants correctly answered that there is no treatment for coronavirus infection. There are many vaccines, and it is expected that these vaccines decrease the mortality rate of the patients. Although no treatment is currently available for COVID-19, the study of antiretroviral drugs is ongoing. Therefore, all the precautionary steps must be taken in disease prevention and control now. In this study, pharmacy employes have a lower knowledge (up to 67%) about the possibility of disease transmission through pet's contact. This could be attributed to the fact that having a pet is not a common habit among Iranian people because of cultural issues. Therefore, this subject has been less addressed in the media and official guidelines. Pharmacy staff must allocate more time to read and learn about sensitive and less addressed points about COVID-19. During the COVID-19 outbreak, some questions including clinical and epidemiological information about COVID-19 disease, mental health issues, and the prevention and treatment methods of the infection were the most prevalent topics that pharmacists asked [29]. Professional consultations can be conducted when the person has specialized knowledge and information. Therefore, information about COVID-19 must be obtained from scientific articles and official notifications. These professional consultations would increase pharmacists' confidence in sharing useful information about COVID-19 and help them to better manage local residents [6]. The participation of pharmacy staff in groups on apps, such as WhatsApp or other local messengers, could provide a platform to share their news and experience. Similarly, accurate information regarding COVID-19 could be also sent to pharmacy staff by health agencies [19]. Personal motivation is one of the most effective factors for controlling and stopping the spread of COVID-19 disease. These personal motivations and positive attitudes can be formed from accurate information regarding the disease [26].

Most participants had a positive attitude regarding hand washing (98.68%) and social distancing (97.35%) to stop the spread of disease. In our study, 86.67% of participants stated that they would stay home and isolate themselves even with minor symptoms of the disease. Similar findings were reported by Cacodcar et al. [26]. In their study, 82.5% of participants mentioned that they were going to quarantine themselves if there were minor symptoms. Most of the participants (86.75%) believed that traveling across/within the country was not safe during the COVID-19 pandemic. Our results agree with Cacodcar et al. study that most of their participants (96%) did not also want to foreign travel [26]. All of these promising observations are the results of pharmacy staff awareness and would significantly reflect in their behavior and practice. Their fears and apprehension appear when they are faced with recovered COVID-19 patients and the issue of the inclusion of these people in the mainstream of society. These fears and apprehensions can be resolved by adequate awareness [14]. The attitude status of pharmacy staff regarding the inclusion of recovered COVID-19

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patients in society needs further improvement. Unconcerned attitudes due to lack of awareness adversely affect the behavior of people despite this pandemic. Fear and anxiety also have such effects [14]. During epidemics and pandemics, appropriate awareness and health education can effectively prevent the spread of disease [30]. Health workers often have better awareness, positive attitudes, and low levels of anxiety toward epidemics and pandemics [31]. Similar findings were observed in our study. In this study, thinking about Coronavirus caused anxiety in less than 25% of the participants and this anxiety has interfered with the daily activities of 20.4% of pharmacy staff. The majority of pharmacy staff were not afraid of contracting Coronavirus. However, they were concerned about transferring the virus to others around them. Similar findings have been reported by studies conducted in Vietnam, Lebanon, and Taiwan [8, 17, 32]. During this pandemic, anxiety and exhaustion could considerably decrease the availability and productivity of health workers. These factors may also increase the prevalence of infection. The implementation of occupational safety measures and strengthening the trust of healthcare staff in the system would mitigate the effects of anxiety on health workers [8, 32]. The media's focus on the Coronavirus issue caused anxiety for 16.2% of the participants and approximately 11 % of pharmacy staff had been reported sleep difficulties due to thinking about Coronavirus. This indicates that media information does not significantly influence the mental well-being and anxiety level of pharmacy staff. Fear of Coronavirus did not affect physical activity for the majority of participants and it was hard to talk with others about Coronavirus just for 12.9% of respondents. Other physical symptoms of coronavirus disease anxiety (including lost appetite, headache, and heart beating) were reported for less than 15% of participants. The health workers with higher educational levels have more responsibilities and concerns in pandemics. The observed significant difference in physical symptoms of coronavirus disease anxiety between educational levels could be caused by these concerns and anxieties. Health workers have a long-term exposure to COVID-19-infected patients or the community peoples who may have been infected. Therefore, they are highly susceptible to infection and have more compromised mental health. Continuous educational programs to improve the knowledge of pharmacy staff and online mental health consultations might be the most beneficial and practical approaches to deal with their mental health needs in the current situation [33, 34] Overall, additional educational/informational programs about preventive and control measures for the COVID-19 pandemic may be the most effective interventions made by policymakers and authorities to improve the knowledge and attitude of the pharmacy staff. Well-informed pharmacy staff could protect themselves better and bear a considerable responsibility to provide more appropriate advice for the community in the battle against the COVID-19 pandemic. This study has a few limitations that must be acknowledged. The study is limited to pharmacy staff and should not be generalized to the whole health workers. Study participants were only included from western Iran and for this reason; the generalization possibility of the study may be limited. Therefore, this study reflects the awareness, attitudes, and anxiety of pharmacy staff towards the COVID-19 pandemic in western Iran. Despite these limitations, this was the first survey to evaluate the knowledge, attitude, and anxiety of pharmacy staff regarding COVID-19 in Iran. The participants were all pharmacy staff who worked in general pharmacies and this is one of the strengths of the study. The participants were not restricted to pharmacists, and the results reflected the views and experiences of general health workers who work in community pharmacies.

Conclusion

In this study, the knowledge, attitudes, and anxiety of Iranian pharmacy staff regarding COVID-19 were evaluated using a semi-structured questionnaire. The majority of the Iranian pharmacy staff had adequate overall knowledge and a positive attitude about

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COVID-19. The results showed that pharmacy employes have low levels of anxiety toward the COVID-19 pandemic. The pharmacy staff is one of the first health professionals to whom individuals speak and receive information about COVID-19-related issues. Therefore, they must be equipped with the correct scientific knowledge and attitudes towards the COVID-19 pandemic. Professional consultations would increase pharmacists' confidence in sharing useful information about COVID-19 and help them for better management of local residents. Continuous educational programs and online mental health consultations might be the most effective interventions made by policymakers and authorities which could help the pharmacy staff to play their essential role better during the COVID-19 pandemic. Implement continuous professional development programs focused on COVID-19 prevention, treatment, and mental health support for pharmacy staff. Future research should investigate the factors influencing anxiety among healthcare workers in other regions and explore the long-term psychological impact of the pandemic. Foster stronger collaboration between healthcare professionals and public health authorities to ensure accurate and timely dissemination of information.

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Ethical Considerations

This study received ethical approval from the local Medical Ethics Committee at Ilam University of Medical Sciences (IR.MEDILAM.REC.1399.122) in in accordance with the Declaration of Helsinki.

Financial Disclosure

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Competing Interests' Disclosure

The authors declare that they have no conflict of interest related to this study.

Authors' contributions

Conceptualization, Methodology, Validation, Formal Analysis, Investigation, Resources, Software, Data Curation, Writing– Original Draft Preparation, Writing– Review & Editing, Visualization, Supervision, Project Administration: HH, MK, KK, SM, SZ, FT, YP.

Writing Disclosure

The authors independently authored and created this work, without using any external writing service. The writers own full rights to the ideas, language, and other elements.

Data Availability Statement

The corresponding author may be reached at any acceptable hour for the data supporting the study's results.

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