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Journal of Chemical and Pharmaceutical Research, 2023, 15(1):01-08



Research Article

ISSN: 0975-7384 CODEN (USA): JCPRC5

Knowledge, Perception and Attitude of Pharmacists and Pharmacy Technicians in Sana'a, Yemen toward COVID-19 Epidemic

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Received: 27-Oct-2022, Manuscript No. JOCPR-22-76006; **Editor assigned:** 31-Oct-2022, JOCPR-22-76006 (PQ); **Reviewed:** 14-Nov-2022, QC No. JOCPR-22-76006; **Revised:** 26-Dec-2022, Manuscript No. JOCPR-22-76006 (R); **Published:** 02-Jan-2023

ABSTRACT

Background: On January 30, 2020, WHO declared COVID-19 outbreak to be a public health emergency. It led, since the beginning in December 2019, to about more 600 million confirmed cases including more than 6 million deaths, up to September 2022. Objective: The study aimed to knowledge of perception and attitude of pharmacists and pharmacy technicians in Sana'a city in Yemen toward COVID-19 pandemic. Method: A questionnaire was distributed to 252 pharmacy workers participants (109 pharmacy bachelor holding and 143 pharmacy diploma holding) with age 35 ± 13.523 years and was working, at the time of study, in 252 community pharmacies in Sana'a, Yemen. The questionnaire contained questions about personal information, perceptions and attitude about COVID-19. Results: Most participants (63.5%) stated that most of COVID-19 cases/suspected cases came to pharmacies were less than 5 cases since the beginning of the pandemic, the overall incorrect perception was 18.7% and the highest incorrect perception was about medications they recommend for COVID-19 cases/suspected cases. 49.2% of participants had incorrect attitudes when observed by the research team participants who had enrolled educative tours/programs about COVID-19 has significantly (p < 0.050) correct perception about necessity of COVID-19 control measures. Age and experience years had also influence on participants perceptions about staying home for 17 and medications recommended. Moreover, participants who had enrolled educative tours/programs about COVID-19 has significantly (p<0.050) correct attitude about necessity of COVID-19 control measures. Conclusion: Overall incorrect perception of pharmacy workers especially those who had not enrolled in educative tout/program in Sana'a Yemen about COVID-19 are high.

Keywords: Attitudes; COVID-19; Perceptions; Pharmacy workers; Yemen

INTRODUCTION

Coronaviruses are a large family of viruses known to cause the common cold and more serious illnesses such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). Types of Coronavirus recently discovered to infect humans. It is highly contagious and pathogenic. Pneumonia associated with SARS-CoV-2 infection has been designated Coronavirus disease 2019 (COVID-19) by the World Health Organization (WHO) [1-3].

The SARS epidemic that began in 2002 ended up infecting about 8,000 people and killing 770, contributing to a global

cost of up to \$100 billion.

In contrast, MERS was characterized by less infection but more severe episodes in hospitals and a somewhat higher rate in mortality (about 35%) and has not yet been eradicated with more than 90,000 confirmed cases and more than 2,500 deaths [4]. The World Health Organization (WHO) has declared COVID-19 an international pandemic public health emergency [5].

World health organization data as of May 18, 2020 showed more than 4,618,800 confirmed deaths and 31,847 deaths due to COVID-19 worldwide [6]. The most common symptoms of infection are fever, cough and shortness of breath. In more severe cases, pneumonia, acute respiratory syndrome, kidney failure and death may occur. The available data indicate that the number of fatal cases and the mortality rate among young people are not very high [7]. However, older people (over 60 years) and people with comorbidities (e.g. diabetes, heart disease) may be more vulnerable and mortality in this population may be high [8]. The main known method of transmission of the Coronavirus is from person to person through sneezing or coughing and by touching a contaminated surface [9].

Globally, as of 6:58 pm CEST, 7 September 2022, there have been 603,711,760 confirmed cases of COVID-19, including 6,484,136 deaths, stated to WHO. As of 4 September 2022, a total of 12,540,061,501 vaccine doses have been administered [10].

The first confirmed case relating to the COVID-19 pandemic in Yemen was proclaimed on 10 April 2020 with an occurrence in Hadhramaut. Organizations called the news a "devastating blow" and a "nightmare scenario" agreed the country's already dire humanitarian situation [11]. The study aimed to knowledge of perception and attitude of pharmacists and pharmacy technicians in Sana'a city in Yemen toward COVID-19 pandemic.

MATERIALS AND METHODS

Study area and period: The study was carried out in Sana'a city Yemen within the period from March 12th to May 15th 2021.

Study design: The design was observational. Data was collected using survey (questionnaire).

Method

Questionnaire survey: A questionnaire was distributed to 252 pharmacy workers participants (109 pharmacy bachelor holding and 143 pharmacy diploma holding) who were working, at the time of study, in 252 community pharmacies in Sana'a-Yemen.

The questionnaire included the following:

Four personal information on the participant Attitude of the pharmacy worker observed by the research team toward measures of controlling COVID-19. These included:

- Using glass or plastic barrier in front of dispensing table.
- Wearing face mask.
- Hand sanitization when dealing with customers age (year), experience (year), qualification and whether the participant enrolling in health educative tour about COVID-19).

Two knowledge of the participant about COVID-19 cases/suspected cases from (December, 2019 to June, 2021):

- Number of cases/suspected cases COVID-19 cases which to come to the pharmacy (or a relative to the case came to pharmacy).
- Age category of cases/suspected cases COVID-19 to came to the pharmacy (or a relative to the case came to pharmacy).

Four perceptions of the participant about COVID-19

- What is your perspective about seriousness of COVID-19?
- Are hand sanitization, wearing mask and social distancing necessary to control COVID-19 endemic?
- Should you advice suspected patients to stay home for 14 days?
- What medications do you recommend for suspect COVID-19 cases?

Attitude observation

Data analysis: Data was analyzed using SPSS version 20. Whenever necessary, average, standard deviation and relative standard deviation were calculated. Level of significance in two categories of data were determined using z-score for two populations method with p<0.05 indicating significant difference. Correlation of participant knowledge, perception or attitude to participant's age, experience, qualification and enrolling in health educative tours/programs about COVID-19, was tested using *chi square* categorized method with p<0.05 indicating significant relation.

RESULTS AND DISCUSSION

In present study aimed to explore the knowledge, perception and attitude toward COVID-19 of 252 pharmacy workers (subjects) who were working, at the time of the study, in the community pharmacies in Sana'a city, Yemen. The number of subjects (n=252) was larger than those reported in the literature and smaller than those reported in the literature [12,13].

As demonstrated in Table 1 and Figure 1, statistically, there were significant differences in the subjects categories of parameters including categories of age (<25 years, ≥ 25 years), experience years (<5 years, ≥ 5 years), level of qualification (Ph. Diploma and Ph. BSc) and enrollment in educative tours/programs about COVID-19 (yes, no) with p<0.05 in each parameter categories. The age (average \pm SD) of subjects in this study was 35 \pm 13.5 years.

With respect to subjects experiences, 54% of subjects participated in this study had a 5 year experience as pharmacy workers. This was in agrrement with and different from that reported. In other respect, 57% of subjects were pharmacy technicians holding diploma in pharmacy while the rest were pharmacists (BSc in pharmacy). This was different from that reported by Maleki, S, et al. In other respect, 57% of subjects were pharmacy technicians holding diploma in pharmacy (BSc in pharmacy). This was different from that reported by Maleki, S, et al. In other respect, 57% of subjects were pharmacy technicians holding diploma in pharmacy while the rest were pharmacy). This was different from that reported by Kassie, BA, et al.

Concerning with enrollment of subjects in educative health tours/programs about COVID-19, only 4% of subjects had enrolled in such type education. This was in agrrement with that reported by Muhammad, K, et al.

Data	%	F	z-score	p value			
Age	< 25	17.5	44	-14.610	< 0.0001		
(year)	≥ 25	82.5	208				
	Average ± SD	35 ± 13.523					
Experience (year)	<5	45.2	114	-1.782	0.075		
	\geq 5	54.8	138				
Qualification Ph. Diploma		56.7	143	3.9198	0.00008		
	Ph. BSc	43.3	109				
Enrolled in health educative tour about COVID-19	Yes	4	10	-20.3119	< 0.0001		
	No	96	242				

 Table 1: Data of participants (n=252) enrolled in this study.



Figure 1: Distribution of data among subjects (n=252) enrolled in this study.

The knowledge of subjects concerned in COVID-19 cases or suspected cases that came to the pharmacy (or the case relative came) from December, 2019 to June, 2021. As shown in Table 2, majority of subjects (64%) informed that most COVID-19 cases/suspected cases was less than 5 cases and most of those cases were adult.

Table 2: Knowledge of participants (n=252) of COVID-19 cases came to his pharmacy from (December,
2019 to June, 2021).

Information		Percen and nu partici	tage mber of pants	z-score	p-value	
		%	F			
No. of	<5	63.5	160	6.058	< 0.00001	
COVID-19 cases/suspected cases	≥ 5	36.5	92			
Age category of COVID-19 cases/suspected cases	Pediatric	4.8	12	-20.312	< 0.00001	
	Adult	95.2	240			

The perceptions toward COVID-19 were significantly different among subjects. As demonstrated in Table 3, 19% of subjects had overall incorrect perceptions which was significantly different from 81% of subjects who had correct perceptions (p<0.05). This study was as previous studies that reported by Wahed WYA, et al.

The highest incorrect perception (56%) was in the type of medications the pharmacy worker recommends for COVID-19 cases/suspected cases. Most of those subjects recommended antibiotics (like azithromycin, ceftriaxone, cefipime, cefixime, chloroquine, hydroxychloroquine and non-steroidal anti-inflammatory drugs. This was different from previous studies that reported by Maleki S, et al. The overall attitudes were incorrect (49.2%) compared to correct (50.8%) and were significantly different (p<0.05), as demonstrated in Table 4. The highest incorrect attitude were not using the barrier and also not wearing the face mask. This was in agrrement with previous study and different from other that reported by Wahed WAY, et al.

Participant`s perception		Percent number particip	age and of ants	z-score test [*]		
		%	Ν	z-score	p value	
Seriousness of COVID-19	Serious (Correct)	87.3	220	16.748	< 0.00001	
	Non-serious (Incorrect)	12.7	32]		
Necessity of COVID-19	Necessary (Correct)	98.4	248	21.737	<0.00001	
measures #	Not necessary (Incorrect)	1.6	4			
Advice suspected patients to stay home for 14 days	Yes (Correct)	91.3	230	18.530	<0.00001	
	No (Incorrect)	8.7	22			
Medications recommended	Approved (Correct)	43.6	110	-2.851	0.004	
	Non-approved (Incorrect)	56.3	142			
Overall	Correct	81.3	205	14.076	< 0.00001	
perception	Incorrect	18.7	47			
Note: *: Signi sanitization, we	ficance level=0. aring face mask a	05; two and gloves	tailed hy and social	pothesis; # distancing	t: e.g. hand	

Table 5: Ferception of participants (II=252) toward COVID-19	Table 3:	Perception	of participants	(n=252) t	toward COVID-19
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Table 4: Attitude of participants (n=252) toward COVID-19.

Participant`s attitude		Percenta and nun participa	age 1ber of ants	z-score test [*]		
		%	F	z-score	p value	
Use barrier in front of	Yes (correct)	35	88	-6.771	< 0.00001	
dispensing table	No (Incorrect)	65	164			
Wear face mask	Yes (Correct)	17.5	44	-14.61	< 0.00001	
	No (Incorrect)	82.55	208			

Apply hand	Yes	95.2	240	20.312	< 0.00001			
sanitization	(Correct)							
	No	4.8	12					
	(Incorrect)							
Overall attitude	Correct	50.8	372	-1.809	< 0.00001			
	Incorrect	49.2	348					
Note:*: Significance level=0.05; two tailed hypothesis								

Table 5 shows the enrollment of subjects in educative health tours/programs about COVID-19, was found to be significantly (p<0.05) related to correct perception of subjects about necessity of using tools/measures to control COVID-19 spread. While age and experience years was found to have impact on perception of subjects to stay home 14 days advice.

 Table 5: Relation of participants (n=252) age, experience, qualification and enrolling in health educative tour on their perception toward COVID-19 with their personal data.

Perception		% of participants								
		Age (yea	ar)	Expe (vear	rience	Qualification		Enrolled educative tour		
		<25 y	$\geq 25 \text{ y}$	<5	25	BSc	Diploma	Yes	No	
Seriousness of	Serious	13.3	74	40.2	47.1	37.1	50.2	3.2	84.1	
COVID	Non-serious	4.2	8.5	5	7.7	6.2	6.5	0.8	11.9	
	Total	17.5	82.5	45.2	54.8	43.3	56.7	4	96	
	<i>Chi square test</i> (p value)	0.157		0.611		0.806		0.467		
Necessity of	Necessary	16.5	81.5	44.2	54.1	42.1	56.2	3	95.2	
COVID-19	Not necessary	1	1	1	1	1.1	0.5	1	0.8	
measures #	Total	17.5	82.5	45.2	54.8	43.3	56.7	4	96	
	Chi square test (p value)	0.230		0.886		0.840		0.0008		
Advice suspected patients to stay home for 14 days	Yes	12.4	78.9	44	47.3	37.2	54.1	3	88.3	
	No	5.1	3.6	1.2	7.5	6.1	2.6	1	7.7	
	Total	17.5	82.5	45.2	54.8	43.3	56.7	4	96	
	Chi square test (p value)	0.001		0.032		0.133		0.253		
Medications	Approved	12.9	30.7	30.3	13.3	23.2	20.4	3	40.6	
Recommended	Non-Approved	4.6	51.8	14.9	41.5	20.1	36.3	1	55.4	
	Total	17.5	82.5	45.2	54.8	43.3	56.7	4	96	
	Chi square test (p value)	0.007		0.00002		0.077		0.202		
Overall	Correct	15.1	66.2	35.7	45.6	33.6	47.7	3	78.3	
Perception	Incorrect	2.4	16.3	9.5	9.2	9.7	9	1	17.7	
	Total	17.5	82.5	45.2	54.8	43.3	56.7	4	96	
	Chi square test (p value)	0.451	-	0.491		0.376		0.755		

Similarly, Table 6 shows the enrollment of subjects in educative health tours/programs about COVID-19, was found to be significantly (p<0.05) related to correct attitude of subjects about wearing face mask.

Attitude		% of participants								
		Age (ye	ear)	Experi	ence	Qualifi	ication	Enroll	ed	
				(year)				educative tour		
		<25 y	≥25 y	<5	≥5	BSc.	Diploma	Yes	No	
Use glass	Yes	7.9	27	17.5	17.5	15.9	19	2.8	30.1	
or plastic	No	9.5	55.6	28.5	37.3	27.4	37.7	1.2	64.9	
barrier	Total	17.5	82.5	45.2	54.8	43.3	56.7	4	96	
	Chi square	0.336		0.557		0.688		0.071		
	test (p value)		-		-		-		-	
Wear face	Yes	3.2	14.3	4.8	12.7	7.9	9.5	3	12.7	
mask	No	14.3	68.2	40.4	42.1	36.4	47.2	1	83.3	
	Total	17.5	82.5	45.2	54.8	43.3	56.7	4	96	
	<i>Chi square</i> <i>test</i> (p value)	0.955		0.105		0.933		0.001		
Hand	Yes	15.9	79.4	42.9	52.4	39.7	55.6	3	90.5	
sanitizers	No	1.6	3.1	2.3	2.4	3.6	1.1	1	5.5	
	Total	17.5	82.5	45.2	54.8	43.3	56.7	4	96	
	<i>Chi-square</i> <i>test</i> (p value)	0.189	•	0.852	•	0.268		0.147	•	

Table 6: Relation of participants (n=252) age, experience, qualification and enrolling in health educative tour on their attitude toward COVID-19 with their personal data.

CONCLUSION

Based on results obtained from this study, it could be concluded that overall incorrect perception of pharmacy workers in Sana'a Yemen was higher/lower/similar. Enrollment of pharmacy workers in educative tour/program about COVID-19 has a good relation to their correct perceptions. Age and years of experiences had good relation to advices to stay home14 days for suspected cases. While these factors had weak relations to other perceptions and attitude.

AUTHORS' CONTRIBUTIONS

The correspondent author conceived the idea and developed the theory and performed the calculations of the presented work. All authors participated in conducting experiments, discussing the results and contributing to the last manuscript.

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