

Available online on 15.08.2020 at <http://jddtonline.info>

# Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

© 2011-18, publisher and licensee JDDT, This is an Open Access article which permits unrestricted non-commercial use, provided the original work is properly cited



Open Access

Research Article

## Southern Yemeni Pharmacy Dispensers ' Understanding, Attitudes and Perceived Barriers Related to Pharmaceutical Care

Shuhd Alawi <sup>1</sup>, Nazeh Al-Abd <sup>2</sup>, Ali Rageh <sup>3</sup>, Wafa F.S. Badulla<sup>4</sup>, Mohammed Alshakka<sup>5</sup><sup>1</sup> Department of Pharmacology and Toxicology, Faculty of Pharmacy, Aden University Aden, Yemen<sup>2</sup> Department of Para Clinics, Faculty of Medicine and Health Sciences, Aden University, Aden, Yemen<sup>3</sup> Section of Clinical Pharmacy, Faculty of Pharmacy, Aden University, Aden, Yemen<sup>4</sup> Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Aden University, Aden, Yemen<sup>5</sup> Section of Clinical Pharmacy, Faculty of Pharmacy, Aden University, Aden, Yemen

### ABSTRACT

**Background:** Pharmaceutical care (PC) is the value of a practice that includes recognizing and solving medication therapy issues to improve patient outcomes. Studies regarding this issue in Yemen are very limited.

**Objectives:** The study aims to assess the perception of community pharmacists to the concept of Pharmaceutical care and the obstacles that limit the provision of pharmaceutical care.

**Method:** A descriptive cross-sectional study of community pharmacy dispensers (CPDs) was conducted among pharmacists and pharmacy technicians working in community pharmacies in different areas of South Yemen from September 2019 until December 2019. The structured self-administered questionnaires consist of four sections dealing with the demographics of participants and their understanding of the concept of pharmaceutical care and their attitudes and obstacles to the implementation of pharmaceutical care in Yemen. The collected data was analyzed using Statistical Package for Social Sciences (SPSS) version 25.0

**Results:** A total of Two-hundred pharmacists were included in this study. The result revealed that there were a reasonable number of experts (over 5 years' experience) and educated pharmacists (Diploma and bachelor's degree) available for counseling patients about specific issues in the community pharmacies. Interestingly, all the respondents had good knowledge of pharmaceutical care and the majority of the pharmacists (87.5%) had a favorable attitude toward pharmaceutical care and their role in the health care system. The overall results relating to the perceived frequency of community pharmacy services provision was lower than (50%) in most statements. The result indicated a gap in the community pharmacists' communication with the patients. There are several barriers impedes the active and effective involvement of community pharmacists such as; insufficient communication with physicians, lack of physical space for pharmaceutical care, the slow introduction of pharmacists' law, and others.

**Conclusion:** The results revealed that pharmacists' understanding of the pharmaceutical care concept is good despite that there was no real implementation of pharmaceutical care. Even though they had positive attitudes towards the concept but there were many barriers to the effective application.

**Keywords:** Pharmaceutical Care Concept; Community Pharmacists; South Yemen

**Article Info:** Received 07 June 2020; Review Completed 11 July 2020; Accepted 18 July 2020; Available online 15 August 2020



### Cite this article as:

Alawi S, Al-Abd N, Rageh A, Badulla WFS, Alshakka M, Southern Yemeni Pharmacy Dispensers ' Understanding, Attitudes and Perceived Barriers Related to Pharmaceutical Care, Journal of Drug Delivery and Therapeutics. 2020; 10(4-s):6-12 <http://dx.doi.org/10.22270/jddt.v10i4-s.4197>

### \*Address for Correspondence:

Mohammed Alshakka, Section of Clinical Pharmacy, Faculty of Pharmacy, Aden University, Aden, Yemen.

## INTRODUCTION:

In the last few years, the pharmacy career has expanded significantly in phrases of expert services transport and now has been recognized as an essential career inside the multidisciplinary provision of health care. In comparison to the situation in advanced international locations, pharmacists in developing international locations are nonetheless underutilized and their position as professionals in a health care field isn't considered essential via either the network or other health care providers.<sup>1</sup>

In some low-and center pay nations, the job of pharmacy technicians is significant, particularly in places where proficient pharmacist needs or where qualified drug specialists are missing. To carry out patient-arranged assignments, pharmacists and pharmacy technicians must have satisfactory capabilities and experts about the sickness procedure, their administration process, and the confusions coming from an unreasonable treatment.

The pharmacist has perceived their expert duty towards patients. In any case, they were not effectively engaged with directing patients because of certain hindrances, for example, absence of patient data, absence of information and doubt of the drug specialist, momentary projects of constant expert improvement, conveyance of prescriptions to the specialist, and without extra counseling charges.<sup>2,3</sup>

In Yemen which regards as a low-pay nation, the overall health care framework experiences an absence of fundamental services, poor facilities, and an absence of basic drugs.<sup>4, 5, 6</sup> Since 2015, social and political clashes have influenced all parts of life, even health services. Significant medication-related issues in the nation remember issues for recommending and appropriation of prescriptions, wrong utilization of medications by purchasers, issues in checking symptoms, and clinical blunders numerous patients see the pharmacist in Yemen as medication dealers who just sell medications.<sup>7</sup> Particularly during the continuous crisis, pharmacists in Yemen can assume a basic job in supporting and keeping up the general health system. Also, the pharmacist commits, just as a chance to improve the general health system.<sup>8, 9</sup> Despite the important job of the pharmacist, little research has analyzed their all-encompassing jobs and assignments, past simply apportioning and selling medications. In Yemen, like numerous other low-and middle-income countries (LMICs), people without pharmacy-related scholarly capabilities oversee pharmacies and administer medication.

Pharmaceutical consideration is a patient-focused, results-situated pharmacy practice. In this manner the pharmacist must work with the patient and other human services suppliers to advance public health, prohibit disease, and assess, screen, start and change prescription use.

The objective of pharmaceutical care is to improve the patient's personal satisfaction identified with health care and accomplish constructive clinical outcomes through sensible monetary costs. Past examinations have talked about healthcare-related subjects and underscored: "pharmaceutical care" as "The directly responsible provision of medication-related care for the purpose of achieving definite outcomes that improve patient's quality of life".<sup>10</sup> In Middle Eastern, Arabic talking nations the pharmaceutical care idea is as yet indistinct.<sup>11</sup> For example, the general population in the Sultanate of Oman announced the requirement for offering better assistance in-network drug stores<sup>12</sup>, while numerous difficulties and boundaries to upgrade drug store administrations were accounted for in the United Arab Emirates.<sup>13</sup>

In Yemen, most community pharmacists despite everything they don't give patient-centered services, in spite of the fact that they are essential and profoundly applicable. Notwithstanding the positive job of the community pharmacist, research is absent in their jobs and duties in Yemen. In Yemen, like all other developing countries, individuals who don't have scholarly capabilities in pharmacy work as a community pharmacist, recommend, and dispense medications.

Therefore, the aim of the current study is to assess the understanding, attitude, and practice of community pharmacists working in south Yemen to the concept of Pharmaceutical care and to explore the obstacles that make it difficult to implement.

## METHODOLOGY

A descriptive cross-sectional study of community pharmacy dispensers (CPDs) was conducted in different areas of South Yemen from September 2019 until December 2019. The study was included pharmacists and pharmacy technicians working in a public hospital or community pharmacy. All pharmacists working in community and hospital pharmacies in south Yemen during the study period were invited to participate in this study. Pharmacists who were willing to give their informed consent were involved in the study. Whereas pharmacists who were absent in the period of study were excluded from the study. The questionnaire was originally written in English and then was translated into local Arabic. The Arabic version of the questionnaire was pre-tested by allocating 20 CPDs to identify unclear or difficult questions and to ensure the adequacy of content and length. The reliability of the questionnaire was verified by calculating Alpha Cronbach's completed questionnaires. The final questionnaire was distributed by trained pharmacy students to CPDs. Data collected from respondents were analysed using the Statistical Package for Social Sciences software (SPSS®) version 25.0. Descriptive statistics were used to summarize the data and organize them into sociodemographic characteristics, pharmacists' understanding of pharmaceutical care and perceived frequency of providing pharmaceutical care, perceived barriers to providing pharmaceutical care and attitudes about pharmaceutical care provision of the participants were presented by frequencies, percentages, means, and standard deviations. Knowledge was assessed by using a five-point Likert scale (rating from 1 strongly disagree to 5 strongly agree) was utilized to assess the extent to which the respondents agreed with 6 statements related to pharmaceutical care. The cumulative score of items was made range between 6 and 30. Thus, a score of median value and above were considered to have "good knowledge" and those who had scored greater than or equal to the mean value were considered as having "poor knowledge." Moreover, to measure the respondents' attitudes toward pharmaceutical care, a five-point Likert scale (rating from 1 strongly disagree to 5 strongly agree) was used to evaluate the extent to which the respondents agreed with 7 statements related to pharmaceutical care. (total of each respondent score was made to range between 7 and 35. A score of median value and above was considered as a "favourable attitude" while those scores lower than median value was supposed to as having an "unfavourable attitude."

## Ethical Consideration

This study was approved by the Ethics Research Committee of the Faculty of Medicine and Health Sciences, University of Aden. All respondents were required to obtain a written informed consent after fully explained to them the objectives, importance, and benefits of the research and

notified them that participation was voluntary and that it was possible to withdraw from the research without notice.

## RESULTS

### Sociodemographic Characteristics of Study Participants

The internal consistency as determined by using Cronbach's coefficient alpha of the final questionnaire was 0.83. A total of 230 questionnaires were distributed and 200 were returned, giving a response rate of 87.0 %. The majority of respondents were female 168 (84.0 %), while males account for 32 (16.0%). The overall respondents' characteristics are shown in Table 1. The mean age of respondents ( $\pm$ Standard Deviation (SD)) was  $29.0 \pm 6.38$  years, and the dominant age group was 20-29 years old 126 (63.0 %), followed by the 30-39-year-old age group 59 (29.5 %). The distribution of pharmacists/pharmacies according to the location are shown in (Table 1), the results showed that an equal number of respondents 47 (23.5%) were from Aden and Al-Dala governorate, followed by Lahj with 46 (23.0%), while Hadramout and Shabwa had an equal number of respondents 30(15.0%). Concerning the experience of respondents, they had an average ( $\pm$ SD) of  $1.51 \pm 0.88$  years of experience. Regarding practice setting, nearly more than half 127 (63.5 % of the respondents were working in the independent pharmacy whereas 39 (19.5%) were working in hospital pharmacies, while 22 (11.0 %), 12(6.0 %) were working in pharmacy chain and public clinics pharmacy, respectively. The educational background of respondents shows that the majority of respondents 122 (61.0 %) had a diploma, and 61 (30.5 %) had a bachelor's degree. Almost 185 (92.5) of respondents work as staff, while the remaining 15(7.5 %) were training.

### Pharmacists' Knowledge of Pharmaceutical Care.

The Pharmacists' Knowledge of Pharmaceutical Care is shown in Table 2. The majority of respondents (81.5%) were aware of the definition of Pharmaceutical care. A considerable proportion, 91.5%, of the respondents, were well informed about the aim of pharmaceutical care. Large parts of respondents were also asked about the function and use of pharmaceutical care provided by the pharmacist and assessed using statements 4 and 5, the results show that 90.5 % of respondents had provided feedback to optimize drug use, and 85 % given the patients medicinal help. Statements 3 and 6 were two false items to assess the respondents' replies. Allowing for a potential bias towards positive responses, responses to these statements suggested that there may be some confusion regarding the pharmacists' understanding of the emphasis of pharmaceutical care and their role in the process. Overall, 100 % of the respondents had good knowledge of pharmaceutical care score of knowledge of respondents about pharmaceutical care was  $22.65 \pm 3.70$

### Perceived frequency of community pharmacy services provision

Table 3 illustrates the results of respondents' perceived frequency of community pharmacy services provision. Only

46.5 % of respondents reported that they communicate with patients or customers in the counselling area, however, 56.5 % perform a prescription check. Majority of respondents 91.5 % stated that they spending some or most of their time providing patients with directions for drug administration, dosage, and precautions. Provide patients with direction for drug administration, dosage, and precautions. Whereas, just about half (54.0 %) of the respondents conveyed monitoring adverse drug reaction and drug compliance among patients, and (51.5 %) of them reported they involve in health screening activities. Interestingly, 28.5 % of respondents were Create a personal medication record. More than half (60.5 %), and (64.0 %) were conducting health education and Provide general health information and medication information to patients, respectively. Less than half of respondents (46.5 %) promoting patients' drug safety knowledge within and outside of community pharmacy settings.

### Pharmacists' attitudes to pharmaceutical care

Pharmacists' attitudes toward pharmaceutical care are shown in Table. 82.5% of respondents mentioned that they try their best to provide patients with suitable medicines. 69.0 % of them stated that they maintaining patients' health as a primary responsibility of them. 79.5 % believe that pharmaceutical care is a valuable mode of practice and offers job satisfaction. 75.0 % of respondents reported they consider patients' economic situation in the process of pharmaceutical care provision. 62.5 % of respondents agree that patients are looking forward to their provision of pharmaceutical care. The statement concerned working conditions, where 64.0 % agreed or strongly agreed that they would like to provide pharmaceutical care but lacked the basic working conditions.

The median score of the attitude of the participants about pharmaceutical care was 29.00. In general, 175 (87.5%) of the pharmacists had favorable attitudes toward pharmaceutical care provision

### Barriers to the provision of pharmaceutical care

Barriers to the provision of pharmaceutical care lists in Table 5. The respondents mentioned that the insufficient communication with physician consider the major barrier of them with 70.0 %, followed by lack of physical space for pharmaceutical care provision with 62.5 %, followed by both the slow introduction of pharmacists' law and claim that other health professionals do not support pharmaceutical care with 61.0 %. Whereas the lack of support from health professionals explained for 50.5 % and lack of time to provide pharmaceutical care accounted for 43.0%. However, lack of effective communication skills, lack of compensation for pharmaceutical care provision, lack of knowledge concerning drug use, lack of face to face communication with the patient and lack of patient acceptance of pharmaceutical care accounted for 37.5%, 35.5%, 31.0 %, 30.5 %, and 27.5%, respectively

**Table 1:** Pharmacists' demographic characteristics (*n* = 200)

Variables	Frequency	(%)
Gender		
Male	32	16.0
Female	168	84.0
Age		
20-29	126	63.0
30-39	59	29.5
40-49	9	4.5
≥ 50	6	3.0
<b>Work setting</b>		
Independent pharmacy	127	63.5
Pharmacy chain	22	11.0
Hospital pharmacy	39	19.5
Public clinics pharmacy	12	6.0
<b>Years in practice</b>		
<5	137	68.5
5-9	36	18.0
10-20	14	7.0
>20	13	6.5
<b>Function</b>		
Staff	185	92.5
Training	15	7.5
<b>Degree awarded</b>		
Diploma	122	61.0
Bachelor Pharm	61	30.5
Msc Pharm	1	0.5
PhD	1	0.5
Qualified the last	15	7.5
<b>Governorate</b>		
Aden	47	23.5
Hadramout	30	15.0
Lahaj	46	23.0
Shabwa	30	15.0
Aldala	47	23.5

**Table 2:** Pharmacists' understanding of pharmaceutical care (*n* = 200)

Statement	Agree and strongly agree (%)	Perceived understanding*	
		Mean	SD
1. Pharmaceutical care is the responsible provision of drug therapy	81.5%	4.47	1.20
2. The aim of pharmaceutical care is to ensure the safety, efficacy, economy and rational use of medicines	91.5 %	4.74	0.89
3. Pharmaceutical care is just a medication counseling service	33.0 %	2.87	1.58
4. Pharmaceutical care provides a feedback to optimize drug use	90.5 %	4.71	0.91
5. All patients taking medicines require pharmacists' help	85 %	4.58	1.03
6. The pharmacist plays secondary role in the pharmaceutical care process	62.5 %	3.75	1.67

Table 3: Pharmacists' perceive of pharmaceutical care (n = 200)

Statement	Some of the time and most of the time (%)	Perceived extent	
		Mean	SD
Drug therapy problem identification			
1. Communicate with patients or customers in the counseling area	46.5	2.94	1.06
2. Perform prescription check	56.5	3.06	1.14
Drug therapy problem solving			
3. Provide patients with direction for drug administration, dosage, and precautions Follow-up evaluation	91.5	3.82	0.62
4. Monitor adverse drug reaction and drug compliance among patients	54	3.08	1.05
5. Engage in health screening activities, such as blood pressure measurement Documentation in practice	51.5	2.90	1.20
6. Create a personal medication record	28.5	2.42	1.15
Others (health education and health promotion)			
7. Conduct health education for patients	60.5	3.33	1.05
8. Provide general health information and medication information to patients	64.0	3.45	0.97
9. Promote drug safety knowledge outside community settings	46.5	3.05	1.13

Table 4: Pharmacists' attitude toward pharmaceutical care (n = 200)

Statement	Agree and strongly agree (%)	Perceived Attitude*	
		Mean	SD
1. I think that maintaining patients' health is my primary responsibility	69.0	3.54	0.91
2. I try my best to provide patients with suitable medicines	82.5	3.88	0.54
3. I will consider patients' economic situation in the process of pharmaceutical care provision	75.0	3.73	0.73
4. I can provide much more comprehensive pharmaceutical care than provided now	74.0	3.79	0.57
5. I would like to provide pharmaceutical care but simply lack basic working conditions	64.0	3.59	0.75
6. Providing pharmaceutical care offers me job satisfaction	79.5	3.89	0.39
7. I think patients are looking forward to my provision of pharmaceutical care	62.5	3.64	0.63

Table 5: Perceive barriers of pharmaceutical care (n = 200)

Statement	Agree and strongly agree (%)	Perceived barriers*	
		Mean	SD
1. Lack of physical space for pharmaceutical care provision	62.5	3.50	0.89
2. The slow introduction of pharmacists' law	61.0	3.51	0.85
3. Lack of patient acceptance of pharmaceutical care	27.5	2.63	1.04
4. Lack of time to provide pharmaceutical care	43.0	3.04	1.05
5. Lack of face to face communication with patient	30.5	2.56	1.12
6. Lack of effective communication skills	37.5	2.78	1.12
7. Lack of knowledge concerning drug use	31.0	2.47	1.18
8. Lack of compensation for pharmaceutical care provision	35.5	2.80	1.09
9. Insufficient communication with physician	70.0	3.46	0.93
10. Proprietor does not support pharmaceutical care	50.5	3.05	1.09
11. Other health professionals do not support pharmaceutical care	61.0	3.32	0.98

## DISCUSSION:

The role of the community pharmacists is not only restricted at dispensing the medicines but it overarched to have a therapeutic relationship with the patient. The activities that the community pharmacists can provide to the patients are patient evaluation, patient counseling, setting healing goals, documentation, and other actions.

The current study was carried out through five governorates and there were four types of pharmacies; Independent, chain, Hospital, and Public clinic pharmacy. The number of contributing pharmacists was suitable to obtain an adequate response rate. The overall sociodemographic characteristics of 200 participants are listed in Table 1. Most of the respondents were females (84.0 %) and only (16.0%) were males. Most of the participants were young about (63.0%) were between 20-29 years old and (29.5%) were between 30-39. Most of the workers had a diploma (61.0%) and about (30.0%) had a bachelor's degree. Also, most of the pharmacists had an experience of five years (68.5%) and (18.0%) had 10 years of practice. The result revealed that there were a reasonable number of expert and educated pharmacists available for counseling patients about specific issues in the community pharmacies.

The results related to the pharmacists' knowledge of pharmaceutical care indicated that (51.5%) of the participants agree that pharmaceutical care is the responsible provision of drug therapy and (56.0%) strongly agree that pharmaceutical care aims to ensure the safety, efficacy, economy and rational use of medicines. It can be revealed that most of the community pharmacists have enough knowledge about their role in the health care system but still cannot be considered as optimal levels expected. The result is higher than studies carried out in New Zealand, Thailand, and China where over 60%, 70%, and 90% respectively of participants had an accurate knowledge of the pharmaceutical care process.<sup>14,15,16</sup> However, the result is similar to the study carried out in Jordan, most of the pharmacists were keen to practice the various pharmaceutical care activities<sup>17</sup>.

The results concerning the pharmaceutical care being just a medication counseling service represent that, (38.5%) were disagree and about (54.0%) agree that pharmaceutical care feedback provides to optimize drug use. The community pharmacists also knew that all patients taking medicines require pharmacists' help (47.5%). As well, they realized their secondary role in the pharmaceutical care process (32.5 agree and 30.0% strongly agree). However, only (37.5%) of the community pharmacists communicate with patients or customers in the counseling area, and only (39.5%) communicate rarely. Along with, the percentage of the participants that perform prescription check is considered low according to the active role of the community pharmacists (26.0% rarely, 29.5% some of them and 27.0 % most of them). It is well known that monitoring of drug treatment by pharmacists can enhance the clinical consequences and can decrease adverse drug reactions in numerous medical illnesses such as asthma, diabetes, and hypertension.<sup>18,19</sup> The result indicated a gap in the community pharmacists' communication with the patients. The result is in vein with the study carried out in Qatar.<sup>20</sup>

Most of the respondents (80.5%), provide patients with direction for drug administration, dosage, and precautions. But, monitoring the adverse drug reaction and drug compliance among patients is still considered low because the result distributed between (33.0% rarely and 31.5 % some of them). The result showed some improvement from a previous study carried out in Aden where only 21.8% of

the pharmacists showed that they had reported them, but it yet remains low.<sup>21</sup> About 51.5% of the pharmacists engaged in health screening activities, such as blood pressure measurement, the result is comparable with the study carried out in Aden city<sup>9</sup> and in Bangladesh.<sup>22</sup> The community pharmacies rarely or seldom created a personal medication record for their customers. The reporting and documenting of the patient's history is a must because it helps to monitor the progress of the disease, reporting any adverse drug reaction and other drug-related problems.

The current study indicated that only 30% of the pharmacists conducted health education for patients, 34.5% provided general health information and medication information to patients, and seldom promoted drug safety knowledge outside community settings. The result indicated a need for more training in the pharmaceutical care that must be provided by the community pharmacists.

The result associated with the pharmacists' attitudes toward pharmaceutical care is very promising as most of the statement related to their attitudes was above 50%. The result is analogous with the study of Jordon<sup>17</sup> and it is better than a study conducted in New Zealand and Thailand.<sup>14,15</sup> This result revealed that it will be easy to implement pharmaceutical care training to the community pharmacists in the near future.

The study also provides a vision about the barriers that faced the community pharmacists. There were several barriers impedes the active and effective involvement of community pharmacists such as; insufficient communication with physician, lack of physical space for pharmaceutical care, the slow introduction of pharmacists' law, had a higher percentage while the other barriers mentioned in Table 5 had a lower percentage. the overall result indicated barriers that were similar to the previous study in Aden city [9] and also in New Zealand, Thailand, China, Jordon, and Qatar.<sup>14-17, 20</sup> Other studies revealed that time was one of the topmost barriers stated.<sup>23-25</sup>

## Limitation of the study:

In this present study, few limitations were encountered throughout the duration of the study. The main limitation of the study is that the results were limited to participated community pharmacists not include the pharmacy in conflict area such as Abyan , as well not included Al-Mahra governorate , thus the findings of this study may not reflect the awareness of whole community in south Yemen; rather they reflect only the awareness of those who actually included in the study. Therefore, the findings need to be interpreted within the context of study limitations.

## CONCLUSION:

This study investigated the understanding of the pharmaceutical care concept among community pharmacy dispensers in South Yemen. The results revealed that pharmacists' understanding of the pharmaceutical care concept is good in spite of that there was no real implementation of pharmaceutical care as part of their daily routine practice. Even though they had positive attitudes towards the concept but there were many barriers to effective application. The utmost reported was insufficient communication with physicians. The objective of this study was to highlight the current perspectives of the pharmacists about pharmaceutical care and following recommendation are concluded:

1. The studied geographical area and sample size should be broadened to get a more distinct reflection of the real pharmaceutical care practice.

2. To increase pharmaceutical care provision in South Yemen, more training should be implemented to improve the communication between pharmacists and physicians.
3. Workshops should be intended to assist the pharmacists to develop the skills and proficiency necessary for providing the actual pharmaceutical care.
4. Pharmacists should be included in the training to improve the pharmacotherapy plan which included; patient's health conditions, psychosocial features of the disease, and drug-related problems.
5. There must be a good relationship between the pharmacists and the patients that is centered on patient care.
6. There should be a policy that makes reporting and documenting of the patient's illness history a mandatory aspect via activation of the electronic-health system to share medical information between different healthcare centers.
7. There must be a continuous training campaign to enhance pharmacists' clinical knowledge.
8. Encouraging the concept of the team-based care that should involve; physicians, nurses, and pharmacists.
9. Providing private or semi-private counseling areas may improve the confidentiality of private discussions and consultation.
10. The introduction of the pharmaceutical care concept into the current curriculum of the undergraduate pharmacy student will help to reduce the problems and barriers associated with the real implementation.

## REFERENCES:

- 1- Azhar S, Hassali MA, Ibrahim MIM, Ahmad M, Masood I, & Shafie AA, "The role of pharmacists in developing countries the current scenario in Pakistan" *Hum. Resour. Health*, 2009; 7(1): 54. <https://doi.org/10.1186/1478-4491-7-54>
- 2- International Rescue Committee. IRC report: Failed public health system 'quiet killer' in Yemen. 2018. <https://www.rescue.org/press-release/irc-report-failed-public-health-system-quiet-killer-yemen>. Accessed 18 March, 2020.
- 3- International Committee of the Red Cross. Health crisis in Yemen. 2017. <https://www.icrc.org/en/where-we-work/middle-east/yemen/health-crisis-yemen>. Accessed 18 March, 2020.
- 4- Al-Tamimi SK, Hassali MA, & Alrasheedy AA, "Challenges to generic medicines utilization in Yemeni healthcare system" *GaBI J*, 2013; 2(2):63-64. <https://doi.org/10.5639/gabij.2013.0202.017>
- 5- Al-Worafi YM, "Pharmacy practice and its challenges in Yemen" *Australas Med J*. 2014;7:17-23. <https://dx.doi.org/10.4066%2FAMJ.2014.1890>
- 6- Al-Tamimi SK, Hassali MAA, Shafie A, Alrasheedy A, "Substandard medications in Yemen" *Australas Med J*, 2015; 8:100-2.
- 7- Alshakka M, Saeed GMA, Ali H, Prajapati SK, Ibrahim MI, "Adverse drug reactions and medication errors in tertiary care hospitals: a quantitative insight in Aden, Yemen" *J Young Pharm.*, 2019; 11(1):82-7.
- 8- Subramaniam V, Calis KA, Dombrowski RC, Ives TJ, Martin LG, McIntyre, C., ... & Ranelli, P L, "ASHP statement on the role of health-system pharmacists in public health" *Am. J. Health-Syst. Pharm.*, 2008; 65(5):462-467.
- 9- Yousuf SA, AlshakkaM, Badulla WFS, Ali HS, Shankar PR and Ibrahim MIM, "Attitudes and practices of community pharmacists and barriers to their participation in public health activities in Yemen: mind the gap " *BMC Health Services Research*, 2019; 19:304 <https://doi.org/10.1186/s12913-019-4133-y>
- 10- Hepler CD, Strand LM, "Opportunities and responsibilities in pharmaceutical care" *Am J hosp pharm.*, 1990; 47(3):533-543. <https://doi.org/10.1093/ajhp/47.3.533>
- 11- Kheir N, Al Saad D, Al Naimi S, "Pharmaceutical care in the Arabic-speaking Middle East: literature review and country informant feedback" *Avicenna*, 2013; 2. <https://doi.org/10.5339/avi.2013.2>
- 12- Jose J, Al Shukili MN, Jimmy B, "Public's perception and satisfaction on the roles and services provided by pharmacists- Cross sectional survey in Sultanate of Oman" *Saudi Pharm J*. 2015; 23(6):635-641. <https://doi.org/10.1016/j.jsps.2015.02.003>
- 13- Rayes IK, Hassali MA, Abdulkarem AR, "The role of pharmacists in developing countries: the current scenario in the United Arab Emirates" *Saudi Pharm J*. 2015; 23(5):470-474. <https://doi.org/10.1016/j.jsps.2014.02.004>
- 14- Dunlop JA, Shaw JP, "Community pharmacists' perspectives on pharmaceutical care implementation in New Zealand" *Pharm World Sci*, 2002; 24:224-230. <https://doi.org/10.1023/A:1021526425458>
- 15- Ngorsuraches S, Li SC, "Thai pharmacists' understanding, attitudes, and perceived barriers related to providing pharmaceutical care" *Am J Health Syst Pharm*, 2006; 63: 2144-2150. <https://doi.org/10.2146/ajhp060054>
- 16- Fang Y, Yang S, Feng B, Ni Y and Zhang K, "Pharmacists' perception of pharmaceutical care in community pharmacy: a questionnaire survey in Northwest China" *Health and Social Care in the Community*, 2011; 19(2):189-197. <https://doi.org/10.1111/j.1365-2524.2010.00959.x>
- 17- AbuRuz S, Al-Ghazawi M and Snyder A, "Pharmaceutical care in a community-based practice setting in Jordan: where are we now with our attitudes and perceived barriers?" *Int J Pharm Pract*, 2012; 20:71-79. <https://doi.org/10.1111/j.2042-7174.2011.00164.x>
- 18- BeneyJ, Bero L, Bond C, "Expanding the roles of outpatient pharmacists: effects on health services utilization, costs, and patient outcomes" *Cochrane Database Syst Rev.*, 2000; Issue 2. Art. No.: CD000336. <https://doi.org/10.1002/14651858.CD000336>
- 19- Roughead EE, Semple SJ, Vitry AI, "Pharmaceutical care services: a systematic review of published studies, 1990-2003, examining effectiveness to improve patient outcomes" *Int J Pharm Pract.*, 2005; 13:53-70. <https://doi.org/10.1211/0022357055551>
- 20- El Hajj MS, Al-Saeed HS, Khaja M, "Qatar pharmacists' understanding, attitudes, practice and perceived barriers related to providing pharmaceutical care" *Int J Clin Pharm*, 2016; 38(2), 330-343. <https://doi.org/10.1007/s11096-016-0246-0>
- 21- Alshakka M, Abdorabbo A, Basaleem H, Jha N, Alshammari T, Shankar PR, "Knowledge, attitude beliefs and practices of community pharmacy dispensers in Aden, Yemen towards adverse drug reaction reporting" *World J Pharm Sci.*, 2015; 3(10):2111-8.
- 22- Rakib A, Sarwar MS, Zannah S, Khanum S, Rashid M, "A survey of the role of community pharmacists in Dhaka city, Bangladesh" *Bangladesh Pharm J.*, 2015;18(2):137-41. <https://doi.org/10.3329/bpj.v18i2.24312>.
- 23- Brown CM, Barner JC, & Shepherd MD, "Barriers related to the provision of pharmaceutical care in community health centers and migrant health centers" *J Am Pharm Assoc*, 2003; 43:75-77. <https://doi.org/10.1331/10865800360467088>
- 24- Rossing C, Hansen EH, & Krass I, "Barriers and facilitators in pharmaceutical care: perceptions and experiences among Danish community pharmacists" *J Soc Adm Pharm*, 2001; 19:55-64.
- 25- Bell HM, McElnay JC, Hughes CM, & Woods A. A. " qualitative investigation of the attitudes and opinion of community pharmacists to pharmaceutical care" *J Soc Adm Pharm*, 1998; 15:284-295.