**Involvement of Community Pharmacists in Public Health Services in Asir Region, Saudi Arabia: A Cross-sectional Study**

**Abstract**

**Background:** Community pharmacists are one of the most accessible healthcare practitioners worldwide used by a large proportion of the population. Expanding the roles of community pharmacists could contribute to reducing pressure on general health practice and other areas of the health services. This research aimed to evaluate the contribution of community pharmacists in the provision of public health services and to investigate the perceived barriers for the provision of these services in Saudi Arabia.

**Materials & Methods:** This study followed a cross-sectional design using an online anonymous self-administered questionnaire. The study took place in Asir region, Saudi Arabia, between September 2019 and February 2020. A convenience sampling strategy was used to select and recruit the study participants. The questionnaire was adapted from previous research and involved three sections: demographics, involvement in public health services, and barriers for practising public health roles.

**Results:** The total number of respondents was 193. The proportion of respondents who reported that they were “very involved” or “involved” in each service was 61.7% for weight management, 60.6% for sexual health, 57.5% for healthy eating, 53.4% for physical activity promotion, 51.3% for dental health, 46.1% for smoking cessation, 39.4% for screening for diabetes, 35.7% for screening for hypertension, 31.1% for alcohol dependence and drug misuse counselling, 30.6% for screening for dyslipidaemia, and 21.8% for vaccination and immunisation. Most of the barriers in the current research were rated as having low relevance to the provision of public health services.

**Conclusion:** Findings in the current research suggest that community pharmacists in Asir region have intermediate to minimal engagement in practicing their public health roles. Further research needs to be undertaken to understand the barriers to the provision of public health services and what strategies would be beneficial for enhancing the public health role of community pharmacists in Saudi Arabia.

**Keywords:** Community pharmacist, public health services, cross-sectional study, Asir Region

**What is already known about this topic?**

Community pharmacists are one of the most accessible healthcare practitioners worldwide and which are used a large number of the population. Expanding the roles of community pharmacists could contribute to reducing the pressure on general health practice and other areas of the health services. To the best of our knowledge, there have been no studies carried out in Saudi Arabia to evaluate the contribution of community pharmacists’ to the provision of public health services.

**What does this article add?**

Community pharmacists in Asir region, Saudi Arabia reported intermediate to minimal involvement in public health services provision. Further research is needed to understand the barriers to the provision of public health services and the strategies that are beneficial for enhancing the public health role of community pharmacists in Saudi Arabia.

**1. INTRODUCTION**

Broadening the roles of community pharmacists’ towards contributing to public health has gained increasing interest and led to significant changes in the health systems of many countries.1–7 Community pharmacists are considered one of the most accessible healthcare practitioners worldwide, and are used by a large number of the population.8,9 Expanding the roles of community pharmacists could contribute to reducing the pressure on general health practice and other areas of the health services.10 Nationally, Saudi Vision 2030 encouraged public-private partnership in providing health services.11 It also aimed to shift the focus of healthcare more towards primary and preventative care rather than therapeutic care.11 Community pharmacy is considered one of the largest sectors of the pharmacy field; therefore it could play a major role in achieving the vision.11,12

Growing pressure on the healthcare system due to the increase in the proportion of the aging population and the consequent rise in the prevalence and incidence of chronic diseases mandates the shift towards a wider public health role for community pharmacists.1,13,14 Improving the life expectancy the population through creating accessible and multidisciplinary networks of healthcare professionals who engage with communities and provide public health services is one of the priorities set by the World Health Organisation (WHO).15 Community pharmacies are widely distributed geographically and often have extended working hours, thus making them an indispensable component of the WHO’s agenda.1,16 According to the UK Faculty of Public Health (FPH), public health is defined as: “The science and art of promoting and protecting health and well-being, preventing ill health and prolonging life through the organised efforts of society”.17

The community pharmacy sector could offer a wide range of public health services such as those related to the promotion of health and wellbeing (e.g. physical activity promotion and weight management), disease prevention (e.g. smoking cessation programmes and vaccination), screening for illnesses and referring ill individuals, and maintaining the health of patients who suffer from chronic diseases such as diabetes and hypertension.1,16 Other services include providing counselling on sexual health, and alcohol and drug misuse.18 Previous work identified a number of barriers that community pharmacists found to be preventing them from practising public health roles.18–20 Examples of these involve the lack of training, lack of time, insufficient management support, lack of reimbursement, absence of standard guidelines for the service, excessive workload, and a lack of skills.18–20

The National Transformation Program (NTP) 2020 and Saudi Vision 2030 aimed to promote preventative healthcare, e.g. awareness and vaccination, in order to lower the risks associated with communicable and non-communicable diseases.21,22 The Ministry of Health has been involved in implementing several public health programs and activities such as education health promotion campaigns and vaccination.23 Community pharmacy services in Saudi Arabia have witnessed a remarkable development with a shift in the focus on the product to patient-oriented care.9,24,25 Large chain community pharmacies in Saudi Arabia have recently been offering various pharmacist-led public health services, e.g. COVID-19 and influenza vaccines, weight management programs, diabetes management programs, and vital sign and biomarker measurements.26 Most of these services are available to the community free of charge and are run under the supervision of the Ministry of Health.26

To the best of our knowledge, there have been no studies carried out in Saudi Arabia to evaluate the contribution of community pharmacists’ to the provision of public health services. Therefore, this research was conducted to investigate the level of involvement of community pharmacists in public health activities in Asir region, Saudi Arabia. In addition, it aimed to examine the barriers that prevent community pharmacists from practicing their public health roles. Findings from this research will inform policy makers regarding the extent of community pharmacists’ involvement in public health services.

**2. MATERIALS AND METHODS**

**2.1 Study Design and Setting**

The current study followed a cross-sectional design using an online anonymous self-administered questionnaire. The study took place in Asir region, Saudi Arabia, between September 2019 and February 2020.

**2.2 Study Participants**

The study participants were licenced community pharmacists practicing in Asir region. The total number of licensed community pharmacies in Asir region was 438, with 747 licensed community pharmacists.27 The minimum recommended sample size for this research was 254 community pharmacists. This was calculated using Raosoft® software based on a population size of 747 pharmacists, with a 5% margin of error, a 95% confidence level, and a 50% response distribution.

**2.3 Data Collection**

An online anonymous questionnaire was created using Qualtrics (an online survey software). A convenience sampling strategy was used to select and recruit the study participants. The current study used two different methods to distribute the questionnaire and recruit the participants. Initially, the methodology of Alsayari et al. (2018) was adopted which involved sending the study invitation with the questionnaire link to the one of the largest pharmacy chains which has more than 90 branches spread across the Asir region.27 An email invitation for the study has then been forwarded to all community pharmacists working in this particular pharmacy chain through their administration. In addition to the abovementioned method, researchers used a web mapping platform to locate and recruit participants from other random pharmacies distributed across the 17 governates of Asir region. This involved meeting around 100 potential participants in person and sending them the study invitation online by asking them to scan a QR code. The study invitation has reached approximately 300 potential participants, and this was used as the sample denominator for calculating the response rate for the questionnaire.

**2.4 Questionnaire**

The questionnaire was adapted from previous research, and involved three sections.1,19,20,28 Section one of the questionnaire collected demographic and additional characteristics of the respondents, i.e. gender, age group, qualification, work experience as community pharmacist, type and ownership status of the community pharmacy. The second section requested the participants to indicate their level of involvement in an 11-item predetermined public health service, such as weight management and sexual health, on a 4-point scale ranging from not at all involved to very involved. The final section of the questionnaire assessed the relevance of 14 predetermined barriers that prevent community pharmacists from practicing their public health roles, e.g. a lack of time or space, on a 5-point scale ranging from not relevant to highly relevant. The questionnaire was prepared and distributed in English language.

**2.5 Ethical Considerations**

The present study has been approved by King Khalid University Research Ethics Committee, approval reference (ECM# 2019-05). This research was conducted in accordance with the Declaration of Helsinki. The first page of the questionnaire presented a participant information sheet with a consent statement indicating that submission of a completed questionnaire implies consent to participate.

**2.6 Statistical Analysis**

Data analysis was conducted using SPSS version 27.0 for Mac. The questionnaire findings were described in terms of frequencies and percentages. Chi-square goodness of fit test was used test the differences in the relevance level of the listed barriers for the provision of public health services. The level of statistical significance was set at an alpha level equal to 0.05.

**3. RESULTS**

A total of 193 community pharmacists working in Asir region agreed to participate in the study and completed the questionnaire, giving a 64.33% response rate. The majority of the participants were male (90.7%), between the ages of 23–30 years (64.2%), Bachelor of Pharmaceutical Science (B.Pharm) holders (90.7%), with 6–10 years of work experience as a community pharmacist (43%), working in a pharmacy chain (80.8%), and employee (96.4%). Demographic information of the study participants are reported in Table 1.

Actual involvement of community pharmacists in public health services is presented in Table 2. The proportion of respondents who reported that they were “very involved” or “involved” in each service was 61.7% (n=119) for weight management, 60.6% (n=117) for sexual health, 57.5% (n=111) for healthy eating, 53.4% (n=103) for physical activity promotion, 51.3% (n=99) for dental health, 46.1% (n=89) for smoking cessation, 39.4% (n=76) for screening for diabetes, 35.7% (n=69) for screening for hypertension, 31.1% (n=60) for alcohol dependence and drug misuse counselling, 30.6% (n=59) for screening for dyslipidaemia, and 21.8% (n=42) for vaccination and immunisation.

However, the proportion of the study participants who indicated that they were “not at all involved” in the listed services was 40.9% (n=79) for vaccination and immunisation, 37.3% (n=72) for screening for dyslipidaemia, 32.6% (n=63) for alcohol dependence and drug misuse counselling, 32.1% (n=62) for screening for hypertension, 31.6% (n=61) for screening for diabetes, 16.1% (n=31), 13% (n=25) for smoking cessation, 5.7% (n=11) for dental health and physical activity promotion, 5.2% (n=10) for healthy eating, 4.7% (n=9) for weight management.

As shown in table 3 higher proportions of the participants indicated a low relevance for most of the listed barriers, *p<*0.05. However, higher proportion of the community pharmacists viewed the lack of knowledge or clinical skills as irrelevant barrier. In addition, a higher proportion of participants were neutral in their perception about the following two barriers: regulatory policies for the country and the lack of a budget for prevention activities.

**4. DISCUSSION**

Globally, the role of community pharmacists has expanded from traditional dispensing responsibilities to a greater contribution in the health promotion of the population.16,19 Expansion in community pharmacist roles is noticeable in Saudi Arabia as well with the recent introduction of COVID-19 vaccines in community pharmacies. To the best of our knowledge, this is the first research to investigate the level of involvement of community pharmacists in public health activities in Saudi Arabia and to assess the perceived barriers that hinder community pharmacists from practicing their public health roles. Jobs in the pharmacy sector are limited, so expanding the role of in the largest employment sector would create more jobs for the increasing numbers of pharmacy graduates.29

Community pharmacist participated in the current research reported an intermediate level of involvement in weight management, sexual health, healthy eating, physical activity promotion, dental health, and smoking cessation. This was indicated by the proportion of respondents who indicated a good involvement in each of these services which ranged from 61.7% to 46.1%. However, limited level of involvement was observed in the provision of vaccination and immunisation, followed by screening for dyslipidaemia, alcohol dependence and drug misuse counselling, screening for hypertension and screening for diabetes. Community pharmacist involvement in public health services in other countries is highly variable and it differed from one region to another, but generally it found to be higher than what is reported in the current study.1,19,19,30 For example, a Canadian study reported a high level of involvement in sextual health and screening for hypertension and diabetes, an intermediate level of involvement in lifestyle, infectious diseases and immunization, and a limited level of involvement in screening for dyslipidaemia.1 Another study conducted in Amhara regional state, the second most populated region in Ethiopia, showed a limited level of community pharmacist participation in smoking cessation, physical activity promotion, and weight management.16 However, the level of involvement in the same public health activities was found to be higher in Gondar town, Northwest region of Ethiopia.19

The results in the current study are not surprising since vaccination and disease screening services had been recently established and are available at a limited number of large chain community pharmacy branches in Asir region. However, the availability of these services is higher in larger cities.11,26 It is also worth noting that the use of drugs and alcohol is illegal in Saudi Arabia, and individuals who are caught using them are subject to penalties, e.g. imprisonment.31 This might explain the reason why community pharmacists had limited involvement in providing counselling on alcohol dependence and drug misuse, as patients would most likely be hesitant and fearful of disclosing such sensitive information about themselves which puts them at risk of being caught and facing serious penalties. Another explanation is that the prevalence of alcohol and drugs consumption among the Saudi Arabian population could probably be quite low as these are not permissible in Islamic law.31

Evidence from previous research suggests that community-based public health services such as smoking cessation and disease screening are associated with cost savings, i.e. reduce the use of other health services and increase quality adjusted life gained.18 Thus, the underutilisation of community pharmacists is probably a waste of valuable skills and resources which could be used more effectively, especially with the current high demands on other healthcare professionals.20 Research questions that could be asked include how to improve the engagement of community pharmacists in the public health promotion activities.

Contrary to previous research findings 16,19,20,30, most of the barriers in the current research were rated as having low relevance to the provision of public health services. Lack of knowledge or clinical skills was identified as irrelevant barrier. In addition, a larger proportion of the community pharmacist participants were neural in their opinion about whether regulatory policies for the country and the lack of budget for prevention activities are among the barriers that hinder community pharmacists from involvement in public health services.

There are several considerations that might explain the reason why most of the barriers in the present study were rated as low relevance for practicing public health roles. First, community pharmacies in Saudi Arabia are usually run by two pharmacists and an assistant, and this might allow them more time.27 Second, community pharmacy owners are currently paying more attention to the layout and space of the pharmacy to probably meet the standard criteria and attract more customers as competitions between community pharmacies is quite high. In addition, some of the services such as vaccinations are run as part of the ministry of health initiatives and are provided to the community free of charge.23,26 However, more research on this topic needs to be undertaken using a qualitative research approach before the barriers for practicing public health roles are more clearly understood in the Saudi Arabian context.

The findings in the current report are subject to a number of limitations. First, an online self-administered questionnaire with closed-ended questions was used as a data collection method. The use of closed-ended questions did not allow for the elicitation of barriers that were relevant to pharmacists. Therefore, the findings in the current report need to be investigated further using other research methods such as observations and qualitative research approaches. Second, the use of convenience sampling might have introduced selection bias, and therefore the findings in the current research are only generalisable to other regions in the country with similar contexts. However, the present study provides a snapshot picture of the public health roles of community pharmacists in the Southern region of Saudi Arabia and it would be a starting point for further research.

**5. CONCLUSIONS**

Findings in the current research suggest that community pharmacists in Asir region have intermediate to minimal engagement in practicing their public health roles, and this needs to be improved. Further research needs to be undertaken to understand the barriers to the provision of public health services and what strategies would be beneficial for enhancing the public health role of community pharmacists in Saudi Arabia.

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Table 1: Demographic and additional characteristics of the respondents (*n*=193).

|  |  |
| --- | --- |
| Variables | *n* (%) |
| Gender  Male  Female | 175 (90.7)  18 (9.3) |
| Age  23-30 years  31-40 years  > 40 years | 124 (64.2)  61 (31.6)  8 (4.1) |
| Qualification  B.Pharm  PharmD  Postgraduate | 175 (90.7)  16 (8.3)  2 (1.0) |
| Work experience in community pharmacy  < 1 year  1-5 years  6-10 years  > 10 years | 15 (7.8)  76 (39.4)  83 (43)  19 (9.8) |
| Type of community pharmacy  Pharmacy chain  Independent retail pharmacy  Pharmacy adjacent to a medical clinic | 156 (80.8)  21 (10.9)  16 (8.3) |
| Pharmacy ownership  Owner  Employee | 7 (3.6)  186 (96.4) |

Table 2: Involvement of community pharmacists in public health services (*n*=193).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Public health service | Response *n* (%) | | | |
| Not at all involved | Little involved | Involved | Very involved |
| Weight management | 9 (4.7) | 65 (33.7) | 94 (48.7) | 25 (13) |
| Sexual health | 31 (16.1) | 45 (23.3) | 89 (46.1) | 28 (14.5) |
| Healthy eating | 10 (5.2) | 72 (37.3) | 90 (46.6) | 21 (10.9) |
| Physical activity promotion | 11 (5.7) | 79 (40.9) | 88 (45.6) | 15 (7.8) |
| Dental health | 11 (5.7) | 83 (43) | 89 (46.1) | 10 (5.2) |
| Smoking cessation | 25 (13) | 79 (40.9) | 76 (39.4) | 13 (6.7) |
| Screening for diabetes | 61 (31.6) | 56 (29) | 58 (30.1) | 18 (9.3) |
| Screening for hypertension | 62 (32.1) | 62 (32.1) | 56 (29) | 13 (6.7) |
| Alcohol dependence and drug misuse counselling | 63 (32.6) | 70 (36.3) | 50 (25.9) | 10 (5.2) |
| Screening for dyslipidaemia | 72 (37.3) | 62 (32.1) | 50 (25.9) | 9 (4.7) |
| Vaccination and immunisation | 79 (40.9) | 72 (37.3) | 38 (19.7) | 4 (2.1) |

Table 3: Perceived barriers for the provision of public health services (*n*=193).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Barrier\* | Response *n* (%)\*\* | | | | |
| Not relevant | Low relevance | Neutral | Relevant | High relevance |
| Lack of time | 29 (15) | 72 (37.3) | 46 (23.8) | 37 (19.2) | 9 (4.7) |
| Lack of personnel or resources | 53 (27.5) | 71 (36.8) | 42 (21.8) | 23 (11.9) | 4 (2.1) |
| Lack of space | 51 (26.4) | 65 (33.7) | 42 (21.8) | 29 (15) | 6 (3.1) |
| Perception of the general public of pharmacists’ competencies | 37 (19.2) | 71 (36.8) | 51 (26.4) | 27 (14) | 7 (3.6) |
| Lack of financial compensation | 52 (26.9) | 69 (35.8) | 45 (23.3) | 21 (10.9) | 6 (3.1) |
| Lack of coordination with other health care professionals | 39 (20.2) | 69 (35.8) | 46 (23.8) | 32 (16.6) | 7 (3.6) |
| Patients are not interested in prevention activities | 25 (13) | 71 (36.8) | 51 (26.4) | 36 (18.7) | 10 (5.2) |
| Patients generally have more urgent medical conditions | 19 (9.8) | 76 (39.4) | 53 (27.5) | 34 (17.6) | 11 (5.7) |
| Regulatory policies for the country | 21 (10.9) | 52 (26.9) | 57 (29.5) | 48 (24.9) | 15 (7.8) |
| Lack of knowledge or clinical skills | 62 (32.1) | 59 (30.6) | 39 (20.2) | 28 (14.5) | 5 (2.6) |
| Lack of clinical tools | 42 (21.8) | 55 (28.5) | 50 (25.9) | 27 (14) | 19 (9.8) |
| Absence of standard guideline for the service | 45 (23.3) | 69 (35.8) | 45 (23.3) | 27 (14) | 7 (3.6) |
| Lack of access to lab-test results and other patient information | 29 (15) | 72 (37.3) | 40 (20.7) | 37 (19.2) | 15 (7.8) |
| Lack of budget for prevention activities | 47 (24.4) | 49 (25.4) | 57 (29.5) | 32 (16.6) | 8 (4.1) |

\* Chi square test, *p*<0.05 is considered significant.

\*\*All components were statistically significant, *p*<0.001.