2014

Journal of Pharmaceutical Care

jpc.tums.ac.ir

# Pharmacists' Attitudes and Perceived Barriers about Community Pharmacy-Based Cardiovascular Risk Screening Services

Zahra Jahangard-Rafsanjani[1*], Amir Sarayani[2], Mohammadreza Javadi[1,2], Molouk Hadjibabaie[1,2], Arash Rashidian[3], Alireza Ahmadvand[2], Kheirollah Gholami[1,2]

[1]Clinical Pharmacy Department, College of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran
[2] Research Center for Rational Use of Drugs, Tehran University of Medical Sciences, Tehran, Iran
[3] Department of Health Management and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

**ARTICLE INFO**

*Article type:*
Original article

*Keywords:*
Pharmacist
Community Pharmacy Services
Cardiovascular Diseases
Obesity
Hypertension
Diabetes Mellitus

**ABSTRACT**

***Background:*** Community pharmacies are considered as ideal settings to provide cardiovascular risk screening (CRS). However, little is known about pharmacists' views on providing such services in developing countries including Iran. In the present study, we evaluated the pharmacists' attitudes and perceived barriers to providing CRS services.

***Methods:*** In a cross-sectional study, a questionnaire in three sections was developed by the investigators (attitudes, perceived barriers, and demographics). Five likert items (5 points bipolar scale) were designed to evaluate pharmacists' attitudes about their professional role in providing CRS services in community pharmacies. Seven likert items were designed to assess the pharmacists' perceived importance of possible barriers to providing the services. The study tool was distributed among a convenient sample of 500 pharmacists, who had participated in a national continuing education event.

***Results:*** The response rate was 44% and descriptive statistics and Chi squared test were used to analyze data. Results showed that 70.4% participants had an overall positive attitude to providing CRS services. Pharmacists who were pharmacy owner and pharmacist-in-charge simultaneously were more positive about providing CRS services. Lack of regulatory policy and compensation mechanism, limited physical space in pharmacy and time limitation were reported to be the most important barriers to providing CRS services (> 50% rated as highly important). Low human resource and time limitation were significantly associated with negative attitudes (P: 0.02 and 0.001, respectively).

***Conclusion:*** The Iranian pharmacists' attitudes seem to be positive about providing CRS services; however, their perceived barriers should be addressed prior to CRS service implementation.

J Pharm Care 2014; 2 (4): 142-148.

► Please cite this paper as:
Jahangard-Rafsanjani Z, Sarayani A, Javadi MR, Hadjibabaie M, Rashidian A, Ahmadvand A, Gholami K. Pharmacists' Attitudes and Perceived Barriers about Community Pharmacy-Based Cardiovascular Risk Screening Services. J Pharm Care 2014; 2 (4): 142-148.

## Introduction

Community pharmacies are considered as ideal settings to provide screening services for chronic medical condition (1). They are located throughout the community particularly urban areas and are widely accessible (2). In addition, with improvements in pharmacy education, community pharmacists have been able to expand their role beyond the traditional dispensing towards public health practice (3). A recent systematic review revealed

* *Corresponding Author*: Dr Zahra Jahangard
Address: Department of Clinical Pharmacy, Faculty of Pharmacy, Tehran University of Medical Sciences, Enghelab Square, Tehran, Iran. Tel: +982166959090, Fax: +982166461178.
Email: zjahangard@sina.tums.ac.ir

that community pharmacy-based screening services for major diseases including cardiovascular disease (CVD), diabetes, hypertension, osteoporosis, asthma, and depression are feasible in developed countries. However, in developing countries including Iran, community pharmacies have not been involved in implementation of such screening services (4).

Among the aforementioned medical conditions, CVD is a significant health problem and the leading cause of death worldwide (5). In 2010, the "Global Burden of Disease Report" stated that 12.9 million deaths worldwide (24.4%) were caused by CVD and cerebrovascular diseases (6). Thus, early detection and prevention of modifiable risk factors (such as dyslipidemia, smoking, hypertension, diabetes, and abdominal obesity) has enormous potential to decrease the burden of CVD (5). Literature has shown that well-organized screening programs and appropriate interventions guided by risk assessment could decrease at-risk population, prevent deaths and disabilities along with improving quality of life (4,7).

In urban population of Iran, the prevalence of CVD risk factors is reported to be relatively high, i.e. high cholesterol level (61%), smoking (21.6%), hypertension (13%), diabetes (6.3%), and abdominal obesity (87%) (8). Therefore, cardiovascular risk screening (CRS) in community pharmacies could be a way of identifying population at risk of cardiovascular disease. Prior to designing and implementing such innovative services, pharmacists' attitudes and beliefs about community pharmacy-based CRS services should be investigated (9). Moreover, modifications in learning resources, motivational strategies, and practice environment are required to implement CRS services according to Holland-Nimmo model of pharmacy practice transitions which introduces three main domains including learning resources, practice environment, and motivational strategies (10). Thus, several barriers may exist in any of the aforementioned domains which should be explored.

In the present study, we aimed at evaluating pharmacists' attitude about community pharmacy-based CRS (blood glucose, blood pressure and weight measurement). In addition, their perceived barriers to implementing CRS services were examined.

## Methods

### Study Design

The present study was a cross-sectional survey using convenient sampling method to assess Iranian pharmacists' attitudes and perceived barriers to providing CRS services (weight, blood pressure, and blood glucose) in community pharmacies. The institutional review board of Tehran University of Medical Sciences approved the study protocol as part of a community pharmacy-based CRS service project.

### *Study Tool*

A questionnaire was developed by the investigators based on the available literature and expert opinions in three sections (attitudes, barriers, and demographics). Five likert items (5 points bipolar scaled, strongly agree to strongly disagree) were designed to evaluate pharmacists' attitudes about their professional role in providing CRS services in community pharmacies. Seven likert items were designed to assess the pharmacists' perceived importance of possible barriers to providing the services (5 points unipolar scaled, one to five). An open-ended question was designed to capture any perceived barriers not stated in the likert items.

Content validity of the questionnaire was evaluated by two faculty members of Tehran University of Medical Sciences. Cognitive debriefing was employed to assess clarity, relevance, and understandability of the questionnaire. Five pharmacists were selected purposively to fill out the questionnaire and provide their comments on each item. The questionnaire items were modified according to their comments. One author (AS) designed the questionnaire layout and one author (AA) appraised the face validity of the questionnaire. The final draft of the study tool was a 3-paper questionnaire consisting of a cover page to introduce the survey objectives and to define investigators' definitions of CRS services in community pharmacy. This version was pilot tested among 11 community pharmacists. The reliability of the attitudes scale was assessed via Cronbach's Alpha measure (0.74).

### *Participants*

Registered pharmacists who had attended a national continuing education event were eligible to participate in the study. The event was held by the Iranian Society of Clinical Pharmacists on 22 May 2013. An invitation was sent to 5000 pharmacists who were registered at the Society to participate in the event using cell phone text messages. Around 1750 pharmacists attended the event of which 900 participants were present at the central hall program. The study tool was distributed in the central hall among 500 pharmacists.

### *Data analysis*

Questionnaires were considered for data entry if any of the attitudes or barriers section were partially completed at least. Five-point scales were collapsed into three categories (for attitudes: agree, neutral, disagree) and (for barriers: high importance, medium importance, low importance) to facilitate results interpretation. Inverse-variance weighting method was used to calculate a total score for the attitudes scale. The range of weighted scores was divided into three equal parts. Participants were categorized into groups based on their weighted scores. Descriptive statistics and Chi squared test were used to analyze data and p value $\leq 0.05$ was considered as significant.

## Results

*Respondents*

A total of 220 questionnaires were returned to the research team. Of them, 207 were eligible for analysis. Twelve of the excluded subjects had only completed the demographics section of the questionnaire and also one physician participated in the study. The response rate was 44% in our study. Table 1 summarizes the demographic characteristics of the respondents. Overall, the study population represented a wide variety of pharmacists according to age, gender, and experience in community pharmacy practice. Most of them worked as community pharmacists (75.8%) and the mean daily practice was 6.9 hours which is equivalent to almost two working shifts per day. CRS services were not frequently provided in community pharmacies. The most common service was weight assessment (20.6%) but blood glucose and blood pressure assessments were reported to be rarely delivered (2.9% and 1.7 %, respectively).

### *Perceived barriers*

Several barriers were identified to be important as rated by the participants. Lack of regulatory policy was the most important barrier to providing CRS services. In addition, lack of compensation mechanism, limited physical space in pharmacy and time limitation were reported to be the most important barriers (> 50% rated as highly important). Pharmacists did not rate lack of appropriate skills, standard measurement devices, and human resource as major perceived barriers (< 50% rated as highly important). Findings are illustrated in Figure-1. Regarding the open-ended question of perceived barriers, 24 pharmacists had reflected their opinions. Using content analysis, few themes were extracted: "People's unawareness of the CRS services and pharmacists' role in providing them", "interference with other healthcare professionals' tasks and their objections" and "deterioration of routine pharmacy services in dispensing and consulting about medicines".

### *Determinants of perceived barriers*

Time limitation was rated "highly important" most frequently among participants with the age of 20-30 years in comparison to other age categories (P: 0.02). A significant negative linear-by-linear association was identified between time limitation and age (P: 0.002).

### *Attitudes*

Participants' attitudes to providing CRS services in community pharmacy were generally positive in all items. They believed that well-trained pharmacists can deliver such services in community pharmacies effectively and this would improve their professional satisfaction (agreement level > 70%). However, pharmacists' attitudes were not consistently positive about interference with the task of other healthcare professionals and the effect on the credibility of the pharmacy profession (agreement level < 70%). Regarding total score of attitudes section, 70.4% of the participants had positive attitudes to providing CRS services while others had either neutral or negative attitudes (25.5% and 4.4%, respectively). Results for attitudes section are showed in Table 2.

*Determinants of attitudes:* Pharmacists, who were pharmacy owner and pharmacist-in-charge simultaneously, showed a higher agreement rate in the attitudes scale in comparison to their pharmacist-in-charge counterparts (agreement rate: 82.5% vs. 64.4%, P: 0.02). Possible associations between perceived barriers and pharmacists' attitudes are summarized in Table 3. Moreover, there was a significant negative linear-by-linear association between perceived importance of low-human resource and time limitation with total attitudes scale (P: 0.02 and 0.001, respectively).

## Discussion

Nowadays, an increased interest is observed in broadening community pharmacists' role beyond the traditional product-oriented functions of dispensing medicines (11). Worldwide, community pharmacists provide several health promotion services such as medication therapy management; CRS and diabetes screening; and consultation services for smoking cessation, weight management, hypertension, osteoporosis and diabetes (12). As stated in Holland-Nimmo model, implementation of such services requires pharmacists' adequate skills, appropriate practice environment and motivational support (10). In this study, we evaluated pharmacists' attitudes and their perceived barriers to providing CRS services in community pharmacies.

As shown by the findings, CRS services were rarely provided in Iranian community pharmacies, but about two-thirds of the participants believed that well-trained pharmacists can effectively deliver such services in community pharmacies and this would improve their satisfaction with the profession. Generally, more than 70% of the pharmacists had positive attitudes to providing CRS services. A systematic review on the perceptions of pharmacists about health promotion services also revealed that most pharmacists notice public-health services as an important part of their role. However, several barriers might limit their contributions including lack of time, adequate counseling space, and lack of demand or expectation of a negative reaction from customers (9).

In Iran, retail pharmacies comprise the majority of pharmacy outlets and they must be founded by a qualified pharmacist usually after some years of practice after graduation. The retail pharmacy owner could be the pharmacist-in-charge at the same time. However, retail

**Table 1.** Demographic Characteristics.

| Factor | Value |
|---|---|
| Age (years) | |
| • 20-30 | 27.5% |
| • 30-40 | 30.6% |
| • 40-50 | 21.2% |
| • >50 | 20.7% |
| Gender (Female) | 59.7% |
| Years since graduation | 14.9±12.9 |
| Main field of pharmacy practice | |
| • Community Pharmacy | 75.8% |
| • Industry | 13.0% |
| • Import/Distribution company | 8.7% |
| • Others (Governmental organization, Academia, ...) | 9.6% |
| Role in community pharmacy | |
| • Pharmacist-in-Charge | 53.7% |
| • Pharmacy Owner | 2.5% |
| • Pharmacy Director | 0.6% |
| • Pharmacy Owner/ Pharmacist-in-Charge | 35.2% |
| • Pharmacy Director/ Pharmacist-in-Charge | 8.0% |
| Experience in community pharmacy practice (years) | 12.2±10.4 |
| Daily practice in community pharmacy (hours) | 6.9±2.9 |
| Current practice for cardiovascular risk screening | |
| • Weight assessment | 20.6% |
| • Blood glucose assessment | 2.9% |
| • Blood pressure assessment | 1.7% |

pharmacy owners may employ a pharmacist to act as the pharmacist-in-charge. Our findings showed that pharmacists who were pharmacy owner and pharmacist-in-charge simultaneously had more positive attitudes about appropriateness of pharmacy as a place for CRS services and considering it as a professional role for pharmacists in comparison to their pharmacist-in-charge counterparts. Our observation could be justified by the fact that pharmacy owners may have more authority over their practice environment to implement new services such as CRS (13). It could be hypothesized that modifying of daily practice routines after several years of practice could result in their professional satisfaction (14, 15).

The pharmacists in our study mentioned lack of regulatory policy, compensation mechanism, limited physical space in pharmacy, and time limitation as major barriers to setting up CRS services. Lack of private counseling area was identified as a main barrier to providing health promotion advice in studies on Swedish, Canadian, and Thai pharmacists (16-18). In addition, lack of time is consistently reported to be a significant barrier to setting up of health promotion services by pharmacists' worldwide (19-21).

In Iran, the curriculum of pharmacy education has not been clinical-oriented only until recent years (22). Thus, pharmacists may not be prepared to engage in providing novel clinical-based practice. In the present study, Iranian pharmacists did not mention lack of appropriate skill as a major barrier to CRS services. In contrast, pharmacists' need for training has been identified as a main barrier in many other studies (23, 24). In the United Kingdom, the curriculum of pharmacy education has been changed to empower pharmacists in providing health promotion services (19). Future studies should assess the preparedness of pharmacists to provide CRS services based on their knowledge and skills. We believe that short term continuing education activities might be required to assure appropriate competencies for health promotion activities (25). In addition, there is a need to include health promotion and more clinical-based courses in the curriculum of pharmacy education in Iran (26).

A major limitation to the present study is lack of

**Table 2.** Pharmacists' attitudes to providing cardiovascular risk screening services.

| Attitude items | Positive | Neutral | Negative |
|---|---|---|---|
| Community pharmacy is a suitable place for providing CRS services. | 74.6% | 2.4% | 22.9% |
| Delivery of CRS services could be a professional role for well-trained pharmacists. | 80.5% | 3.9% | 15.5% |
| Providing CRS services could improve pharmacists' satisfaction with their profession. | 74.4% | 7.9% | 17.7% |
| Delivery of CRS services in improves community pharmacy practice prestige and credibility in the society. | 63.4% | 10.7% | 25.9% |
| Delivery of CRS services is a sort of interference with physicians/nurses professional roles. | 68.6% | 6.9% | 24.5% |
| **Total attitudes score** | 70.4% | 25.2% | 4.4% |

CRS: Cardiovascular Risk Screening

**Table 3.** Perceived barriers as determinants of pharmacists' attitudes to providing cardiovascular risk screening services.

| Perceived barriers | Attitude category | Frequency of importance rating | | | P value* |
|---|---|---|---|---|---|
| | | High | Intermediate | Low | |
| Regulatory policy | Positive | 76.3 | 9.4 | 14.4 | 0.63 |
| | Neutral/Negative | 71.9 | 14.0 | 14.0 | |
| Compensation mechanism | Positive | 67.9 | 11.4 | 20.7 | 0.22 |
| | Neutral/Negative | 64.4 | 20.3 | 15.3 | |
| Physical space | Positive | 63.8 | 19.6 | 16.7 | 0.26 |
| | Neutral/Negative | 72.9 | 10.2 | 16.9 | |
| Time limitation | Positive | 46.4 | 22.5 | 31.2 | 0.001 |
| | Neutral/Negative | 76.3 | 10.2 | 13.6 | |
| Low human resource | Positive | 40.6 | 25.4 | 34.1 | 0.003 |
| | Neutral/Negative | 65.5 | 8.6 | 25.9 | |
| Standard measurement devices | Positive | 42.2 | 15.6 | 42.2 | 0.70 |
| | Neutral/Negative | 36.2 | 15.5 | 48.3 | |
| Adequate knowledge and skills | Positive | 35.1 | 20.9 | 44.0 | 0.41 |
| | Neutral/Negative | 29.8 | 15.8 | 54.4 | |

*P values of Chi squared tests are reported.

random sampling method. The survey was confined to pharmacists participated in a national continuing education event. It should be mentioned that pharmacists attending continuing education meetings may not be highly motivated to change their practice because they are required to collect continuing education credits for license renewal (25 credit hours per year). Thus, the results may not be limited only to motivated pharmacists; however, it could not be generalized to all pharmacists in Iran. As was the first study in Iran, it provides preliminary insight to pharmacist's attitudes and perceived barriers about setting up CSR services.

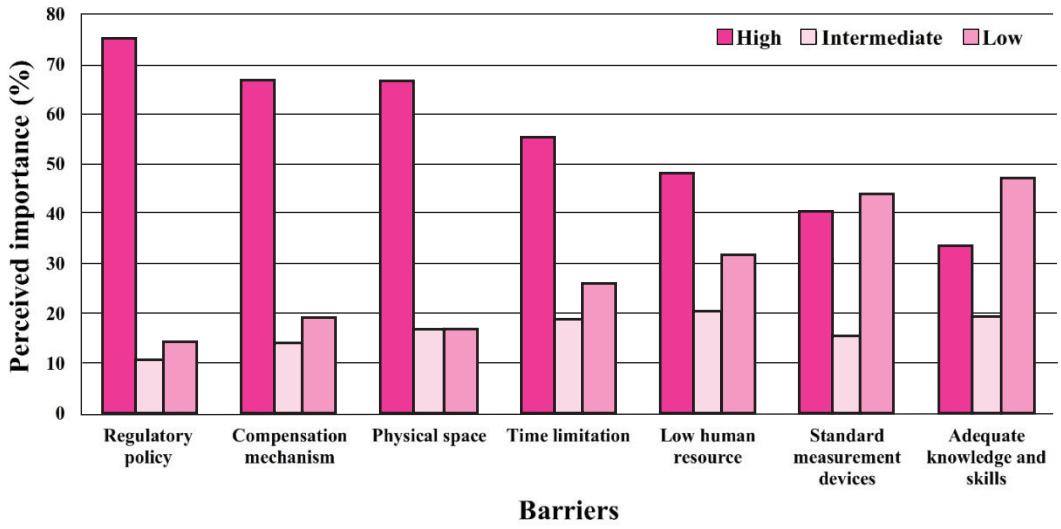


**Figure 1.** Barrier to providing cardiovascular risk screening services.

## Conclusions

Pharmacists' attitudes seem to be positive about providing CRS services in community pharmacies in Iran. However, provision of such services is reported to be very low. A community pharmacy-based CRS model should be developed by health authorities to address regulation and reimbursement issues. Moreover, public view about CRS service in community pharmacies should also be explored.

## Acknowledgement

We would like to thank Mona Kargar and Maryam Taghizadeh for their contribution in data gathering stage. No external funding was used for conducting the study.

## References

1. Joyce AW, Sunderland VB, Burrows S, McManus A, Howat P, Maycock B. Community pharmacy's role in promoting healthy behaviours. J Pharmacy Prac Res 2007;37:42-4.
2. Krass I, Mitchell B, Clarke P, et al. Pharmacy diabetes care program: analysis of two screening methods for undiagnosed type 2 diabetes in Australian community pharmacy. Diabetes Res Clin Pract 2007;75:339-47.
3. El Hajj MS, Hamid Y. Breast cancer health promotion in Qatar: a survey of community pharmacists' interests and needs. Int J Clin Pharm 2011;33:70-9.
4. Ayorinde AA, Porteous T, Sharma P. Screening for major diseases in community pharmacies: a systematic review. Int J Pharm Pract 2013; 21(6):349-61.
5. Peterson GM, Fitzmaurice KD, Kruup H, Jackson SL, Rasiah RL. Cardiovascular risk screening program in Australian community pharmacies. Pharm World Sci 2010;32:373-80.
6. Lozano R, Naghavi M, Foreman K, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. The Lancet 2013;380:2095-2128.
7. Berger JS, Jordan CO, Lloyd-Jones D, Blumenthal RS. Screening for cardiovascular risk in asymptomatic patients. J Am Coll Cardiol 2010;55:1169-77.
8. Hatmi Z, Tahvildari S, Motlag AG, Kashani AS. Prevalence of coronary artery disease risk factors in Iran: a population based survey. BMC Cardiovasc Disord 2007;7:32.
9. Eades CE, Ferguson JS, O'Carroll RE. Public health in community pharmacy: a systematic review of pharmacist and consumer views. BMC Public Health 2011;11:582.
10. Holland RW, Nimmo CM. Transitions in pharmacy practice, part 3: effecting change--the three-ring circus. Am J Health Syst Pharm 1999;56:2235-41.
11. Beshir SA, Hanipah MA. Knowledge, Perception, Practice and Barriers of Breast Cancer Health Promotion Activities among Community Pharmacists in Two Districts of Selangor State, Malaysia. Asian Pac J Cancer Prev 2012;13:4427-30.
12. Meyerson BE, Ryder PT, Richey-Smith C. Achieving pharmacy-based public health: a call for public health engagement. Public Health Rep 2013;128(3):140-3.
13. O'Loughlin J, Masson P, Déry V, Fagnan D. The Role of Community Pharmacists in Health Education and Disease Prevention: A Survey of Their Interests and Needs in Relation to Cardiovascular Disease. Prev Med 1999;28:324-31.
14. Lau WM, Pang J, Chui W. Job satisfaction and the association with involvement in clinical activities among hospital pharmacists in Hong Kong. Int J Pharm Pract 2011;19:253-63.
15. Murawski MM, Payakachat N, Koh-Knox C. Factors affecting job and career satisfaction among community pharmacists: a structural equation modeling approach. J Am Pharm Assoc (2003) 2008;48(5):610-20.
16. Brewster JM, Ashley MJ, Laurier C, et al. On the front line of smoking cessation: pharmacists' practices and self-perception. Canadian Pharmacists Journal/Revue des Pharmaciens du Canada. 2005;138:32-8.
17. Thananithisak C, Nimpitakpong P, Chaiyakunapruk N. Activities and perceptions of pharmacists providing tobacco control services in community pharmacy in Thailand. Nicotine Tob Res 2008;10(5):921-5.
18. Björkman I, Viberg N, Rydberg L, Stälsby Lundborg C. Health promotion at Swedish pharmacies: views of the staff. Pharm Pract (Granada)

2008;6(4):211-8.
19. Anderson C. Health promotion in community pharmacy: the UK situation. Patient Educ Couns 2000;39:285-91.
20. Aquilino ML, Farris KB, Zillich AJ, Lowe JB. Smoking-Cessation Services in Iowa Community Pharmacies. Pharmacotherapy 2003;23(5):666-73.
21. Hassali M, Subish P, Shafie A, Ibrahim M. Perceptions and barriers towards provision of health promotion activities among community pharmacists in the State of Penang, Malaysia. Journal of Clinical and Diagnostic Research 2009;3:1562-8.
22. Fahimi F. Should Clinical Services Provided by Pharmacists be Compensated? IJPR 2010:1-2.
23. Pfleger DE, McHattie LW, Diack HL, McCaig DJ, Stewart DC. Views, attitudes and self-assessed training needs of Scottish community pharmacists to public health practice and competence. Pharm World Sci 2008;30:801-9.
24. Iversen L, Mollison J, MacLeod TNN. Attitudes of the general public to the expanding role of community pharmacists: a pilot study. Fam Pract 2001;18:534-6.
25. Sarayani A, Rashidian A, Gholami K, Torkamandi H, Javadi M. Efficacy of continuing education in improving pharmacists' competencies for providing weight management service: Three-arm randomized controlled trial. J Contin Educ Health Prof 2012;32:163-73.
26. Raney EC. An Elective Course on Pharmacy-Based Health Screenings. Am J Pharm Educ 2013;77(6):131.