The status of Iranian hospital pharmacies according to age-friendly pharmacies criteria

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J. Adv. Pharm. Technol. Res.

INTRODUCTION

Improved living conditions and increased life expectancy have led to the emergence of aging societies. This is considered as one of the most important economic, social, and health challenges, especially for health service providers. Iran, as a developing country, due to the population growth related to the 1980s, is faced with an unexpected elderly population in the future. Iranian elderly population is expected to increase from the current 8% to 22% in 2046, and this demographic crisis will create the Iranian elderly tsunami.

Several studies have investigated the impact of aging population. With a gradual increase in the number of the elderly in the society, their health care needs also will be added. However, many communities are not ready to confront the phenomenon of aging and its sanitary, social, and economic consequences.

The demographic changes with the changing pattern of epidemiologic diseases to chronic ones in adulthood have confronted the facilities and health-care supply,
especially medication, with serious problems for the elderly.[6] Medicine as one of the newest technologies of communication between the patient and the health system in old age is also of utmost importance.[7]

Hospital pharmacies include crucial service centers which ensure patients’ access, especially the elderly, to medication. About the importance of taking medication, statistics show that, on average, 20%–30% of inpatient costs and more than 95% of treatments are related to medicine and medical equipment.[8] Given that in various communities, the elderly are the largest medicine consumers, the cost can be estimated more.[9]

In addition, the elderly’s access to medicines, ensuring their knowledge on how to use, time, and dosage, as well as their attitudes toward prescription can be one of the challenges in geriatric medicine needs, all of which require age-friendly pharmacies as a suitable environment for the provision of pharmaceutical services to the elderly.[10]

Although the World Health Organization presented the meanings of Baby-Friendly Hospital, age-friendly environment program,[11] communities,[12] and age-friendly hospital by Park and Stevenson in 1999,[13] and also by Park and Brand in 2004,[14] and then in 2009, Chiu and Chen[15] offered a framework for improving the health, dignity, and participation of older people admitted to the hospital; evidence which suggests the introduction of age-friendly pharmacies, in particular, is less visible. In addition, in 2005, the age-friendly cities project began in 33 cities in the world.[16]

In this context, Huang et al. showed that age-friendly hospitals have led to faster movement toward effective and efficient health-care systems, without lowering the quality of service, performance, and quality of the elderly life and overcoming unnecessary costs.[17]

According to what was said, planning for the elderly is an important part of health policy, and its importance is doubled due to many physical and psychological problems among the elderly and also increasing numbers of the elderly referring to pharmacies. This study was conducted to evaluate the hospital pharmacies in three Iranian Metropolitan cities in terms of age-friendly pharmacy criteria.

**MATERIALS AND METHODS**

This cross-sectional study was conducted in 2017. The study population was all of hospital pharmacies in Isfahan, Shiraz, and Mashhad. The cities were studied as the representative of Iran metropolitan (Tehran, Karaj, Isfahan, Mashhad, Tabriz, Shiraz, and Ahwaz) in the center, north and south of the country, which were selected through cluster sampling. Finally, 67 pharmacies were studied by census (33 pharmacies in Shiraz, 15 in Mashhad, and 19 in Isfahan).

A researcher-made checklist was used for data collection.[18] The checklist includes four categories: Physical (7 questions), health-care (16 questions), supply and logistics pharmaceutical services (4 questions), and emotional aspects (1 question); a total of 28 questions were asked based on three-part Likert scale. Two pharmacies’ question types (public or private) and ownership (training, assignment, real estate, rental, civilian training, transfer, and assignment of leased property) were also asked.[18]

To determine the face and content validity, were gave the research tools to ten health specialists and pharmacists and they confirmed the present tool’s validity. Intraclass correlation coefficient was calculated through test–retest and 0.85 was achieved for the study’s tool reliability. Furthermore, Cronbach’s alpha coefficient was obtained 0.9, both indicate a good reliability of the checklist.

Based on grading checklist, the pharmacies which were allocated the scores 28–42 were weak in terms of age-friendly pharmacy criteria, the scores 43–56 were average, the scores 57–70 were good, and 71–84 were very good. To clarify any ethical concerns, the researchers explain the study aims to the pharmacists, and after their volunteer permission, data were collected. SPSS for Windows (Version 16.0. Chicago, SPSS Inc.) was used applying descriptive statistics, Kruskal–Wallis test, and Mann–Whitney to analyze the data.

**Findings**

Thirty-eight of 67 pharmacies were governmental and 29 were private. Their type and ownership is shown in Table 1.

Mean and standard deviation for different aspects of age-friendly pharmacies checklist is shown in Table 2.

The mean score for pharmacies’ age-friendly criteria was 52.50 in Shiraz which represents the average level. Furthermore, the mean score for pharmacies’ age-friendly criteria in the cities of Isfahan and Mashhad was 52.47 and 73.52, respectively. Table 3 shows levels of hospital pharmacies in terms of age-friendliness.

The results of the Mann–Whitney test did not indicate any significant relationship between the pharmacy type and the final score of age-friendly pharmacies’ criteria in Shiraz, Isfahan, or Mashhad ($P > 0.05$).

The results of the Kruskal–Wallis test used to determine the relationship between the final score of age-friendly pharmacies and the pharmacies ownership in these three cities were not statistically significant ($P > 0.05$). Furthermore, the results of the Kruskal–Wallis test used to
compare the mean score of age-friendly pharmacies in the three cities showed that there was no significant relationship among them ($P = 0.249$).

**DISCUSSION**

Hospitals and age-friendly pharmacies provide broad and appropriate health-care facilities for very large proportion of the population, especially the elderly. Age-friendly pharmacies provide better services such as respect for the elderly, easy access, and provision of the requirements and necessary medicines.[18-20]

The present results showed that only two pharmacies were in a high level of age-friendly criteria. This suggests that there is a very long way ahead to achieve the goal of having age-friendly hospital pharmacies, and national and local policies are necessary here.

According to the findings, the highest scores for age-friendly pharmacies in all three cities belonged to the emotional aspect; also, the mean scores in public and private pharmacies were not much different. In this regard, the findings of the studies have suggested that if the elderly are treated with respect in pharmacies, they see themselves as a part of the society, and their emotions will enhance, ultimately leading to improvement of their mental health.[21] Furthermore, Anastasi and Estus believe that with aging of societies, pharmacists are struggling with the problems of the elderly daily; in this regard, it is necessary for pharmacists to interact more with these people to improve their quality of life.[22] Vu *et al.* (2011) also suggested that the elderly should be treated with respect in health centers and hospitals.[23]

In present public and private hospital pharmacies, the mean score of care aspect was the lowest amount. Perhaps, it is because of the technical officials and pharmacies employees’ lack of knowledge about the care and support of the elderly, which requires continuous training.
Table 3: Rating hospital pharmacies in terms of age-friendliness

| City     | Pharmacy type | Level     | n (%) |
|----------|---------------|-----------|-------|
| Shiraz   | Government    | Weak (28-42) | 5 (26.3) |
|          |               | Average (43-56) | 9 (47.4) |
|          |               | Good (57-70) | 4 (21.2) |
|          |               | Very good (71-84) | 1 (5.3) |
|          |               | Total       | 19 (100) |
| Private  |               | Weak (28-42) | 2 (14.3) |
|          |               | Average (43-56) | 9 (64.3) |
|          |               | Good (57-70) | 3 (21.4) |
|          |               | Very good (71-84) | 0 |
|          |               | Total       | 14 (100) |
| Isfahan  | Government    | Weak (28-42) | 3 (27.3) |
|          |               | Average (43-56) | 6 (54.5) |
|          |               | Good (57-70) | 2 (18.2) |
|          |               | Very good (71-84) | 0 |
|          |               | Total       | 11 (100) |
| Private  |               | Weak (28-42) | 1 (12.5) |
|          |               | Average (43-56) | 6 (75) |
|          |               | Good (57-70) | 1 (12.5) |
|          |               | Very good (71-84) | 0 |
|          |               | Total       | 8 (100) |
| Mashhad  | Government    | Weak (28-42) | 3 (37.5) |
|          |               | Average (43-56) | 3 (37.5) |
|          |               | Good (57-70) | 1 (12.5) |
|          |               | Very good (71-84) | 1 (12.5) |
|          |               | Total       | 8 (100) |
| Private  |               | Weak (28-42) | 1 (14.3) |
|          |               | Average (43-56) | 2 (28.6) |
|          |               | Good (57-70) | 4 (57.1) |
|          |               | Very good (71-84) | 0 |
|          |               | Total       | 75 (100) |

Since hospital pharmacies have unique characteristics, they should take measures to add such equipment for certain medications and care items required for the elderly. In this regard, Chiou and Chen believe that they must have support programs in treatment and care centers to help the elderly with little mental alertness and ability. The mean score of the physical dimension in public and private pharmacies in the surveyed cities was satisfied. Moreover, this amount in the public hospital pharmacies was more than private ones in Mashhad and Shiraz. In this regard, studies show that the factors which make the elderly more vulnerable in the pharmacy environment are muscular, skeletal, balance and visual disorders, and orthostatic hypotension.

Therefore, more attention should be paid to providing the environmental, cognitive, emotional, and physical facilities for the elderly. In this regard, Cameron and Mauritius believe that by providing information and pharmacists’ advice and access to pharmaceutical products in an elderly suitable environment, we can shape a suitable model for the elderly.

The findings of the physical facilities (such as elevators, railings, and stairs) revealed relatively favorable condition in hospital pharmacies of Shiraz, Isfahan, and Mashhad; obviously, the existence of these features may reduce slipping, falling, and breaking the elderly limb as well as reduce the vulnerability and health promotion of this group and to save costs. On the other hand, the pharmacies’ environmental characteristics should look tidy in appearance and have air conditioning in summer and winter.

Furthermore, Jeste et al. showed that the existence of single and identified physical structures and also appropriate physical facilities can help to improve age-friendly cities and communities. Accordingly, we can prepare them for the elderly access and use, with the adoption of logical rules and guidelines for the construction of the pharmacies both internally and externally. Other studies have emphasized that age-friendly communities should have the best conditions for the elderly from the various aspects of transportation, physical access, and suitable interior that the elderly have no problems to access them.

Our study’s results of pharmaceutical supply and logistic services in Shiraz showed that state-owned pharmacies have a better situation than private pharmacies. This may be due to competitive features between these pharmacies in the business environment for marketing and more customer acquisition. In various countries, the elderly are the most consumers of pharmaceuticals; thus, taking unnecessary drug needs multisectoral coordination between various government and private organizations.

However, the supply and procurement of medicines in private hospital pharmacies was more than state pharmacies in Isfahan and Mashhad, maybe demands of the elderly to use care, and support services in these cities are leading to supplying these services in hospitals, or local policies have influenced this case. Pharmacies can also inform the elderly by providing educational package about the similarity of color and appearance of the drugs.

The average final score of age-friendly pharmacies in Mashhad had the highest average and Isfahan had the lowest among the three cities; this suggests that all three cities were in the mid-level, and they were far from age-friendly pharmacies criteria. The average final score of age-friendly pharmacies in the three cities did not have a significant relationship. All the three megacities were similar in terms of cultural, demographic, and social aspects; also, the policy of Health Ministry has been the same for these cities.

Some limitations of the study include the lack of cooperation of some of the pharmacies to collect data, but by assuring the confidentiality of information, this problem was solved.
CONCLUSION

Due to the increasing elderly and aging population, readiness of Iranian hospital pharmacies to provide services to the elderly is one of the most challenging issues in the long term. With proper legislation and policy for pharmacies in the health-care systems, it will be possible to reduce physical, mental, and emotional problems of the elderly in the future. Obviously, further studies at the national level in the field can help the health policymakers in line with proper and rational planning for the elderly.

Acknowledgment

This study is partially supported by Health Human Resources Research Center, Shiraz University of Medical Sciences, with the approval ID of 95-01-68-13623.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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