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Original Article

Medication Use Status and Its Related Factors among Older Adults in Kerman, Iran

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ABSTRACT

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Introduction: Older adults are the largest group of medication users in each society. Since medications act differently in seniors compared with younger patients, great considerations are required regarding the effects and side effects of medications in the older adults. The present study aimed to determine the status of medication use and its related factors among older adults in Kerman city, Iran.

Methods: In the cross-sectional study, 388 seniors were selected using multistage cluster sampling from the population covered by comprehensive health centers in Kerman in 2021. Demographic information questions (age, gender, education level, marital status, life status, substance abuse, income, and health insurance status), a question regarding medication usage status and a question regarding disease that the elderly are currently suffering from, Montreal Cognitive Assessment Questionnaire, Geriatric Depression Scale, and Sleep Disorder Questionnaire were used for data collection. The data were analyzed using SPSS software by running Chi-square and multiple logistic regression tests.

Results: The average number of medications used per day was 4.59 and 53.5% of the participants used five or more medications concomitantly. Antihypertensive medications had the highest prevalence (64.3%) followed by anti-hyperlipidemic (43.6%) and Supplements (41.3%). A significant correlation was found between the participants' frequency of medication use and their gender, income, primary insomnia, and cognitive impairment ($p < 0.001$). However, medication use had no significant association with the senior's age, marital status, education level, living status, substance abuse, and health insurance ($p > 0.05$). The risk of polypharmacy was 2.15 times higher in the elderly women than men ($p = 0.001$) and 0.45 times higher in participants with depression than non-depressed seniors ($p = 0.011$).

Conclusion: The high prevalence of polypharmacy indicates an unfavorable status of medication use among older adults in Kerman. So, authorities are required to provide educational information about polypharmacy to aged groups.

Keywords: Medication Use, Polypharmacy, Aging, Kerman

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Introduction

Aging is associated with the development of chronic diseases that are neither easy to prevent nor cheap to treat (1). Most common diseases in aging include physical illnesses, such as cardiovascular, respiratory, gastrointestinal, genitourinary, musculoskeletal disorders, neurological disorders, skin diseases, hematological problems, eye problems, and cancer (2). A high percentage of the older adults have at least one chronic disease and more than 70% of the individuals over the age of 80 have at least two chronic illnesses (3). Given the long persistence of chronic diseases, long treatment periods are expected, which usually lead to an increase in demand for medical services and turn seniors into the largest group of medication users (4). Elderlies with no pharmacokinetic and pharmacodynamic problems are rare. Decreased efficiency of heart, liver, and kidneys performance as well as hemostatic changes on the one hand and multiple-dose co-administration of medications on the other hand cause drug accumulation in the elderlies' body and increase the risk of side effects (5). Since medications act differently in older compared with the younger patients, great considerations are required regarding the effects and side effects of medications in the older adults (6). Prescription of appropriate low-risk medications has been considered for more than two decades. To this end, experts avoid prescribing some specific medications with potentially high side effects to seniors (5). Low or high doses of medications may be prescribed for the elderly because the physician is unaware of the significance of pharmacokinetic changes that occur as a result of aging and / or emergence of related diseases (7). Sometimes the prevalence of polypharmacy in the elderly causes a condition called "medication overdose", which exposes the patients to dangerous side effects (8). The risk of polypharmacy is defined by counting the number of medications taken concurrently, including prescription, over-the-counter medications, and herbal remedies (8). Polypharmacy is highly prevalent among older adults (9-12) across the world, so that the prevalence rate of using medications simultaneously was 86% in Korea (13), 30% in the United States (14), and up to 83% in Taiwan (15). Increased use of pharmacological services in older adults is partly due to the occurrence of chronic physical illnesses in the old age. From another point of view, mental and cognitive impairments are highly associated with polypharmacy, so that the rate of medication overdose was up to six times higher in the elderly patients suffering from depression (16). Among other common mental disorders in the old age that can affect the frequency of medication use are anxiety disorders, such as sleep and cognitive problems (17, 18). Considering the scarcity of studies regarding the role of some mental problems, such as sleep disorders and cognitive impairment in medication use status, the present study aimed to determine the status of medication use and its related factors among older adults in Kerman city, Iran.

Methods

Study design and participants

This cross-sectional study was carried out among the older adults aged ≥ 60 years who lived in Kerman city, Iran in 2021. The required sample size was estimated as 388 by taking into account the type one error of 5%, test power of 20%, and the proportion of 50% polypharmacy. Multistage cluster sampling was applied to obtain a representative sample from the study population. In this regard, comprehensive health centers (heath centers that provide primary health care services) were selected from four regions of Kerman city and participants were selected from each center in proportion to the registered elderlies in each center. In the case that the selected senior did not meet the inclusion criteria or was not willing to enter the study, the next number on the list was replaced. The inclusion criteria were living in the city of Kerman for at least the recent year and being ≥ 60 years old, and appropriate state of consciousness and cognition to provide accurate and reliable information.

Instruments

Study data were collected using a questionnaire including the following sections: the demographic informaton (age, gender, level of education, marital status, life status, income, and health insurance), a question regarding medication usage status and a question regarding, disease that the elderly are currently suffering from, Montreal Cognitive Assessment (MOCA), Geriatric Depression Scale (GDS), and Sleep Disorder Questionnaire.

The MOCA, designed by Nasreddine et al., is a cognitive screening battery that investigates eight cognitive dimensions via various skills. The maximum possible score from MOCA is 30, so that scores higher than 26 show no cognitive impairment. The whole scale can be completed in less than 15 minutes. The reliability coefficient of the instrument was calculated as 0.92 using Cronbach alpha with a sensitivity of 90% indicating the desired psychometric properties of this questionnaire (19).

The GDS was designed by Yaswij et al., in 1982 (20) and contains 15 yes / no items. On this scale, a score of zero to 4 represents normal conditions, 5 to 8 indicates mild depression, 9 to 11 shows moderate depression, and 11 to 15 is indicative of severe depression. Psychometric properties of the Persian version have been confirmed in a previous study (20).

The Sleep Disorders Questionnaire (18) examines the frequency of six types of sleep disorders with 11 items. This questionnaire is designed for different types of sleep disorders in accordance to the American Medical Academy for Sleep Disorders. There are 90 types of sleep disorders, of which, only 6 most prevalent are considered in this questionnaire that include: initial insomnia (taking more than half an hour to fall asleep and often waking during sleep), sleep paralysis (feeling unable to move during sleep), parasomnia (nightmares, sleep walking, and enuresis), restless leg syndrome (unpleasant sensation in legs

during sleep), breathing (waking due to stopped breathing and snoring), sleep habits (sleep talking and daytime catnap). The questionnaire include 2 questions on initial insomnia, 1 on sleep paralysis, 3 on parasomnia, 1 on "restless legs syndrome", 2 on breathing, and 2 on sleep habits. Questions were designed in Likert style with 4 options (never, rarely, often, and always). Options never and rarely scored negative points and options often and always scored positive points. With positive answers to questions related to a type of sleep disorder, the answer is categorized in that type of disorder. The reliability of this scale was corroborated by Torabi et al., reporting a Cronbach alpha of 72.3% (18).

The elderlies' status of medication use and pattern of diseases were assessed using two open-ended questions: 1) What medications are you currently taking? 2) What diseases or chronic problems are you currently suffering from?

Given the critical role of taking medications, the seniors were asked to provide the researcher the package or puff of their medications. In the case of chronic diseases and problems, the patient status was also checked (in addition to the patient's self-report) from the SIB system (Registration and Maintenance of Electronic Health Reports), which is website of integrated health system in Iran.

Statistical analysis

The data were analyzed using descriptive (frequency, percentage, mean, and standard deviation) and inferential statistics. In this vein, Chi-square test was performed to measure the relationship between status of medication use and pattern of diseases as qualitative variables. Multiple logistic regressions was used to investigate the relationship between independent variables (gender, income, depression, cognitive impairment, primary insomnia, sleep quality and factors, restless legs syndrome) and polypharmacy. In all tests, the significance level was set at 0.05.

Ethical considerations

In order to observe ethical considerations, the administered questionnaires were anonymous. The code of ethics was received from the Ethics Committee in Shahid Sadoughi University of Medical Sciences(IR.SSU.SPH.REC.1399.247). Considering the prevalence of Covid-19 virus, the interviews were conducted in comprehensive observance of health principles.

Results

The mean and standard deviation of participants' age was 69.8 ± 6.82 years. The average number of daily medications usage was 4.59 and 53.5% of the seniors were taking multiple medications concurrently. Antihypertensive medications had the highest prevalence (64.3%) followed by anti-hyperlipidemic (43.6%) and supplements (41.3%). (Table 1)

However, medication use had no significant association with the senior's age, marital status, education level, living status, substance abuse, and health insurance. Polypharmacy had statistically significant relationship with the patient's gender ($p < 0.001$), income ($p < 0.05$), cognitive impairment ($p < 0.05$), initial insomnia ($p < 0.01$), and depression ($p < 0.01$). (Table 2)

The risk of polypharmacy was 2.15 times higher in the elderly women than men ($p = 0.001$) and 0.45 times higher in participants with depression than non-depressed seniors ($p = 0.011$). (Table 3)

Table 1. Distribution of types of medications used based on medication categories among the older adults in Kerman in 2021

Medication groups	Frequency	%	Medication groups	Frequency	%
Anti-blood pressure	249	64.3	**Diuretic**	7	1.8
Anti-fat	169	43.6	**Alzheimer**	7	1.8
Supplements	160	41.3	**Anti-Parkinson**	5	1.3
Anti-diabetes	142	36.6	**Anti-enuresis**	5	1.3
NSAIDs	118	30.5	**Eye related**	5	1.3
Cardiovascular Drugs	94	24.3	**Chemotherapy**	5	1.3
Related to blood clotting	66	17	**Anti-histamines**	4	1
Herbal products	59	15.2	**Anti-spasm**	3	0.8
Sedative	56	14.4	**Anti-orthopedic pains**	2	0.5
Gastrointestinal Drugs	53	13.7	**Anti-madness**	2	0.5
Bone	37	9.5	**Hemorrhoids**	2	0.5
Thyroid	31	8	**Dermal**	1	0.3
Anti-depression	26	6.7	**Sexual**	1	0.3
Anti-cough	25	6.4	**Anti-biotics**	1	0.3
Prostate	12	3.1	**Hormonal**	2	0.5
Steroid corticoid	11	2.8	**Others**	17	4.4
Anticonvulsants	10	2.6			

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Table 2. Frequency distribution of the studied variables with regard to taking medications in the older adults of Kerman in 2021

Variables		Polypharmacy group Freq. (%)	Non- polypharmacy group Freq. (%)	p Chi-square
Gender	Man	71 (41%)	102(59%)	< 0.001
	Woman	136 (63%)	78 (37%)	
Income	Yes	145 (51%)	143(49%)	0.035
	No	62 (62%)	38 (38%)	
Depression	Normal	158 (49%)	161(51%)	0.008
	Minor	39 (71%)	16 (29%)	
	Mild	9 (69%)	4 (31%)	
	Severe	1 (100%)	0 (0%)	
Cognitive impairment	Yes	152 (50%)	151 (51%)	0.013
	No	55 (65%)	30 (35%)	
Initial insomnia	Yes	78 (66%)	39(34%)	0.001
	No	129 (48%)	141(52%)	
Sleep paralysis	Yes	5 (51%)	4 (49%)	0.900
	No	202(53%)	177(47%)	
Breathing	Yes	55 (53%)	48 (47%)	0.983
	No	152 (53%)	133 (47%)	
Restless leg syndrome	Yes	53 (62%)	32 (38%)	0.064
	No	154 (51%)	148 (49%)	
Parasomnia	Yes	55(54%)	47 (46%)	0.919
	No	152 (53%)	133 (47%)	
Sleep habits	Yes	10 (50%)	10 (50%)	0.748
	No	197 (54%)	170 (46%)	

Table 3. Multiple logistic regression results on the effect of independent variables on the polypharmacy

Variables	Levels	Odds ratio	Confidence interval	p
Cognitive status	Disorder No disorder	1.64	9.7-0.2	0.065
Gender	Female Male	2.15	3.4-1.3	0.001
Income	Have income No income	0.963	5.6-0.1	0.890
Initial insomnia	Yes No	0.838	5.3-0.1	0.461
Depression	Yes No	0.459	2.8-0.0	0.011

Discussion

The aim of this study was to determine the status of medication use and its related factors in older adults of Kerman. Findings showed that antihypertensive medications had the highest prevalence rate followed by anti-hyperlipidemic, supplements, anti-diabetic, heart disease medications, and painkillers, respectively. In similar studies, sedatives (alprazolam, oxazepam) and cardiac medications, especially aspirin were more commonly used among the elders (9, 10, 21). Antidepressants and benzodiazepines were also reported as the most prescribed medications (6, 10). It is also reported that the most common groups of medications were prescribed for cardiovascular and gastrointestinal diseases followed by anticoagulants, respectively (5). Regarding these findings, Zargarzadeh et al. reported consistent results with our study (22). However, other medications, such as demitron, dicyclomine, naloxone, sertraline, haloperidol, and biperidine were considered as the most frequently used medications among the Iranian seniors (12). Such

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discrepancy in the results can be due to the variety in participants since some elderlies in these studies were institutionalized, but our participants were community dwellers. Regarding the prevalence of medication use in Japan, Niwata et al. (21) reported different findings indicating that medication intake is highly dependent on the priority of selecting treatment type in the community under study (9). The most frequently used medications in the United States were analgesics and laxatives representing the priority of symptomatic treatment for the older adults in the developed countries (9). However, the current high prescription rate of antihypertensives and antihyperlipidemics can raise the relative risk of cardiovascular diseases among the older adults living in Kerman.

Intake of concurrent multiple medications were surprisingly eight times higher in people with cardiovascular diseases than seniors without heart illnesses (23). Based on the findings, elderlies in Kerman use 4.59 items of medications on average per day, 70% of whom take 2 to 7 types of medication, concurrently. In other words, 53.5% of the seniors have polypharmacy. The rate of polypharmacy was 39% and 42% in two studies among elderlies in Tehran (5, 9). Torabi et al. reported that 66% of the patients used more than five medications simultaneously (18). The prevalence of polypharmacy ranged from 41 to 59% in different studies, which is relatively consistent with the present study (9, 10, 12, 22, 24). A study in the United States showed taking an average of 5 to 10 medications concomitantly among the older adults (25). Such discrepancy in the findings can be attributed to the scarcity of medications in Iran due to the sanctions and political issues. However, the variety and quality of the medications vary in the developed countries (26-28). In this regard, health care stakeholders are required to design educational courses at the macro (physicians and specialists) and micro (individuals) levels over the importance of prescribing appropriate medications for the older adults (24).

Based on the statistical tests conducted in the present study, the participants' medication use was associated with their gender, income, primary insomnia, and cognitive impairment. However, medication use had no significant association with the senior's age, marital status, education level, living status, substance abuse, and health insurance. These findings were in line with the findings reported in the literature representing a significant difference between the two genders, but contradicted our findings in terms of age and income (6, 10, 18).

Based on the findings, female elderlies are 2.15 times more probable to be categorized in the polypharmacy group than the male elderlies. Aparasu also reported a significant relationship between medication use frequency and the female gender (28). The high rate of medication use in women can be justified by the fact that they are more inclined to take care of their health. In the same vein, women visit doctors and participate in health programs more frequently (1).

Polypharmacy was also significantly correlated with cognitive impairment ($p < 0.05$). These results were similar to the results reported in the literature (24, 29). A significant direct relationship was also observed between frequency of taking medications and depression score. In other words, seniors with depression used more medications ($p = 0.011$), which is confirmed by the literature (30, 31). Given the high risk of depression recurrence, long-term treatment is required for the patients (31). In addition, diseases that occur with increase of age, such as heart disease, stroke, and cancer can cause depressive symptoms due to their side effects (30). Depression and cognitive impairment are among the most common disorders in old age, which treatment has mainly been pharmacological in Iran (11). Although medications play a great role in psychiatry, they cannot meet all treatment needs (32). In terms of seniors, medications that cause cognitive impairment should be avoided if possible.

A significant relationship was found between frequency of medications and initial insomnia. In other words, the findings showed that elderlies with initial insomnia are 55% more likely to prone with concurrent polypharmacy. These findings are in the same line with results of other studies (18, 33). Caution should be taken into account in prescribing sleep aid medications to the seniors since some commonly used sleep aids for younger patients should not be prescribed to older patients. For example, Benzodiazepines can cause serious psychomotor symptoms leading to cognitive impairment in people of older age (34). Hypnotics are helpful in the short term but cause addiction problems in long term. In this case, elderlies should not use sleeping pills for more than two weeks (35).

Conclusion

The high prevalence of polypharmacy concurrently indicates an unfavorable status of elderlies in Kerman. So, authorities are required to provide educational information about polypharmacy to aged groups.

Study limitations

Since the study information was collected from a city in southeastern Iran, generalizability of the results should be performed with caution.

Conflict of interest

The authors state that there is no conflict of interests regarding this study.

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Authors' contributions

All authors read the final version of the manuscript and provided their revisions. Responsibility for the manuscript contents goes to all authors.

References

1. Mohammadi Shahboulaghi F, Karbalaee Z, Zarghi A, Moghaddam AG, Mohammadi M. Lifestyle of the elderly and its predictive factors. Journal of Research in Medical and Dental Science. 2018; 6(1): 219-25.
2. Aboozadeh Gotabi K, Ghanbari Moghaddam A, Mohammadi M, Zarei F. The burden of family caregivers caring for older adults and its relationship with some factors. Nursing Journal of the Vulnerable. 2016; 3(6): 27-36. [Persian]
3. Hanlon JT, Semla TP, Schmader KE. Alternative medications for medications in the use of high-risk medications in the elderly and potentially harmful drug-disease interactions in the elderly quality measures. Journal of the American Geriatrics Society. 2015; 63(12): e8–e18.
4. Dadashihaji A, Rahimi A, Hosseini SR, Moghadamnia AA, Bijani A. Inappropriate medication use and related factors in the elderly living in Northern Iran. Salmand: Iranian Journal of Ageing. 2021; 15(4): 440-57. [Persian]
5. Ahmadi B, Alimohamadian M, Mahmoodi M. Polypharmacy among older adults in Tehran. Tehran University Medical Journal. 2006; 64 (9): 65-71. [Persian]
6. Talebi Taher M, Javad Moosavi SA, Taherian S, Barati M. Surveying the inappropriate drug administration using beers criteria in elderly patients at the internal medicine ward of Rasoul-E-Akram Hospital of Tehran in 2012. Journal of Arak University of Medical Sciences. 2014; 17 (2): 33-9. [Persian]
7. Lim LM, McStea M, Chung WW, Nor Azmi N, Abdul Aziz SA, Alwi S, et al. Prevalence, risk factors and health outcomes associated with polypharmacy among urban community-dwelling older adults in multi-ethnic Malaysia. PloS One. 2017; 12(3): e0173466.
8. Mutnick AH, Souney PF, Swanson LN, Shargel, L. Comprehensive pharmacy review for NAPLEX: practice exams, cases, and test prep. United States: Lip pincott Williams & Wilkins; 2012.
9. Bakhshi E, Delbari A, Saboor M, Akbari Kamrani AA, Yavari HR, et al. Prevalence of poly pharmacy among the elderly residents of Kahrizak charity foundation (KCF), Tehran, 2010-2011. Journal of Sabzevar University of Medical Sciences. 2013; 20(1): 42-50. [Persian]
10. Vali L, Pourreza A, Foroushani A, Sari A, Hooshyar D, Pharm H. An investigation on inappropriate medication applied among elderly patients. World Applied Sciences Journal. 2012; 16(6): 819-825.
11. Wongpakaran N, Wongpakaran T, Van Reekum R. Social inhibition as a mediator of neuroticism and depression in the elderly. BMC Geriatrics. 2012; 12(41): 1-7.
12. Torabi B, Mohammadi M, Aboozade Gatabi KH, Ghanbari Moghaddam A. Study of prescribing unsuitable drugs and polypharmacy in the elderly admitted to the Vasei Hospital of Sabzevar, 2017, Journal of Gerontology. 2018; 3(1): 48-55. [Persian]
13. Kim HA, Shin JY, Kim MH, Park BJ. Prevalence and predictors of polypharmacy among Korean elderly. PLoS ONE. 2014; 9(6): e98043.
14. Bushardt RL, Massey EB, Simpson TW, Ariail JC, Simpson KN. Polypharmacy: misleading, but manageable. Clinical Interventions in Aging. 2008; 3(2): 383–9.
15. Chan DC, Hao YT, Wu SC. Characteristics of outpatient prescriptions for frail Taiwanese elders with long-term care needs. Pharmacoepidemiology and Drug Safety. 2009; 18(4): 327–34.
16. Yuruyen, M, Yavuzer, H, Demirdag F, Kara Z, Cengiz, M, Yavuzer S, et al. Is depression a predictive factor for polypharmacy in elderly?. Klinik Psikofarmakoloji Bülteni-Bulletin of Clinical Psychopharmacology. 2017; 26(4): 374-81.
17. Atari M, Yaghoubirad M. The big five personality dimensions and mental health: The mediating role of alexithymia. Asian Journal of Psychiatry. 2016; 24: 59–64.
18. Torabi S, Shahriari L, Zahedi R, Rahmanian S, Rahmanian K. A survey the prevalence of sleep disorders and their management in the elderly in Jahrom City, 2008. Journal of Jahrom University of Medical Sciences. 2013; 10(4): 35-41.
19. Nasreddine ZS, Phillips NA, Bédirian V, Charbonneau S, Whitehead V, Collin I, et al. The montreal cognitive assessment, MoCA: a brief screening tool for mild cognitive impairment. Journal of the American Geriatrics Society. 2005; 53(4): 695–9.
20. Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, et al. Development and validation of a geriatric depression screening scale: a preliminary report. Journal of Psychiatric Research. 1983; 17(1): 37–49.
21. Niwata S, Yamada Y, Ikegami N. Prevalence of inappropriate medication using Beer's criteria in Japanese long-term care facilities. BMC Geriatrics. 2006; 6(1): 1-7.
22. Zargarzadeh A, Sadeghi K, Mirmoghtadaei P. Prescribing of potentially inappropriate medications to elderly people by medical specialists in Isfahan, Iran. Iranian Journal of Pharmaceutical Sciences. 2008; 4(4): 241-6.
23. Bahat G, Tufan F, Bahat Z, Aydin Y, Tufan A, Akpinar TS, et al. Assessments of functional status, comorbidities, polypharmacy, nutritional status and sarcopenia in Turkish community-dwelling male elderly. The Aging Male. 2013; 16(2); 67–72.
24. Delshad Noghabi A, Baloochi Beydokhti T, Shamshiri M, Shareinia H, Radmanesh R. Polypharmacy and its related factors among elderlies. Iranian Journal of Nursing. 2013; 26(83): 1-9.
25. Nygaard H, Naik M, Ruths S, Straand J. Nursing-home residents and their drug use: a comparison

between mentally intact and mentally impaired residents - The Bergen district Nursing Home (BEDNURS) study. European Journal of Clinical Pharmacology. 2003; 59: 463-9.
26. Viswanathan H, Bharmal M, Thomas J. Prevalence and correlates of potentially inappropriate prescribing among ambulatory older patients in the year 2001: comparison of three explicit criteria. Clinical Therapeutics. 2005; 27(1): 88–99.
27. Fialová D, Topinková E, Gambassi G, Finne-Soveri H, Jónsson PV, Carpenter I, et al. Potentially inappropriate medication use among elderly home care patients in Europe. The Journal of the American Medical Association. 2005; 293(11): 1348–58.
28. Aparasu RR, Mort JR, Brandt H. Polypharmacy trends in office visits by the elderly in the United States, 1990 and 2000. Research in Social and Administrative Pharmacy. 2005; 1(3): 446–59.
29. Levy RH, Collins C. Risk and predictability of drug interactions in the elderly. International Review of Neurobiology. 2007; 81: 235-21.
30. Morteza-Semnani K, Saeedi M, Gharipour O. Evaluation of cardiovascular drugs interactions in insured prescriptions in Sari during the years 2000-2001. Journal of Mazandaran University of Medical Sciences. 2001; 11(32): 37-45. [Persian]
31. Lashkaripour K, Bakhshani NM, Hokmabadi S, Sajjadi SAR, SafarzadehSarasiyabi A. Postpartum depression and related factors: A 4.5 months study. Journal of Fundamentals of Mental Health 2012; 13(52): 404-12. [Persian]
32. Storandt M, Vanden Bos, GR. The Adult years: continuity and change. Amer Psychological Assn; 1988.
33. Izadi F, Adib Hajbaghery M, Kafai M. Determining disturbing factors of sleep quality among hospitalized elderly patients in Kashan hospitals, Iran 2009. Journal of Shahid Sadoughi University of Medical Sciences. 2013; 20(6): 688-98. [Persian]
34. Irwina AS, Amita A, Ifa, N. Quality of Sleep on the Elderly: A Systematic Review. Proceedings of the 8th International Nursing Conference "Education, Practice and Research Development in Nursing"; 2017.
35. Ashrafi H, Ansarin K, Hasanzadeh M, Jouyban A. Review on sleep disorders and their management. Medical Journal of Tabriz University of Medical Sciences and Health Services. 2018; 40(2): 95-105. [Persian]

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