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Research Article

Investigating Occupational Performance and Life Habits in Older Adults with Early Stages of Alzheimer Disease in Tehran City, Iran

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ABSTRACT

Introduction: This study investigates the occupational performance and life habits of elderly adults with early stages of Alzheimer disease.

Materials and Methods: This was a cross-sectional study. The participants were elderly adults, aged 65-85 years with Alzheimer disease who were referred to Roozbeh and Ziaeian Hospital, in addition to Kahrizak Charity in Tehran City, Iran in 2022. A total of 70 Seventy patients (36 male, 34 female) were recruited based on the convenience sampling method. The Canadian occupational performance measure and life habits questionnaire were used to determine occupational performance and life habits. Meanwhile, the data were analyzed using the independent t-test and the Mann-Whitney test using the SPSS software, version 21.

Results: The mean age of elderly males and females was 72.02±3.74 and 71.14±4.09 years, respectively. Meanwhile, 68.3% of the priorities of occupational performance were related to self-care. In the male participants, the priorities of self-care were 76.7% and in female subjects, it was 59.4%. No significant gender difference was found in satisfaction with occupational performance (P>0.05; P>0.05). In the life habit questionnaire, fitness had the highest participation level, while communication had the lowest. A significant gender difference was observed in participation levels in daily activities (P<0.05).

Conclusion: The most important occupational performance priority of elderly adults with Alzheimer disease was self-care. The highest level of participation in daily activities was related to fitness and the lowest was communication. This study helps occupational therapists identify the priorities, habits, and participation levels of men and women with early Alzheimer in daily activities.

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Introduction

Alzheimer disease (AD) is the most common cause of dementia and a neurological condition characterized by cognitive, behavioral, and functional disorders. It starts slowly and progresses gradually. The diagnosis of AD requires dysfunction or restriction of activities of daily living (ADLs) [1]. The global prevalence of the disease has so far been estimated at 24 million, and it is predicted that by 2050 this rate will increase four times [2]. The prevalence of AD in Iran was estimated at 2.3% [3]. Various environmental and hereditary factors contribute to the progress of AD, but evidence suggests that high blood pressure is the only risk factor for the appearance of the disease in the Iranian population [4]. People with AD suffer from cognitive disorders, such as executive function disorders, problem-solving disorders, and memory and attention [1]. As the disease progresses, motor dysfunction gradually manifests itself, so these people have bradykinesia, parkinsonian walking patterns, lower limb dysfunction [5], instability, and fine motor coordination disorders [6]. Studies showed that cognitive decline, including difficulty in orientation, short-term memory, and apraxia could affect occupations and life habits [7, 8]. Occupation is often used as the equivalent of activity in the International Classification of Functioning, Disability, and Health [9]. Occupation includes three domains self-care, productivity, and leisure [10]. The activity and its modification improve the ability of people with AD in self-care and leisure. Engagement of people with AD in meaningful activities helps them to experience better satisfaction and quality of life (QOL) [11].

Life habits are habits that ensure the survival and development of a person in society throughout their life and they include activities ranging from ADLs to social roles [12]. A dynamic lifestyle pattern in people with AD leads to a decrease in destructive behaviors and need for significant care, consequently decreasing caregiver stress [13]. There is extensive evidence of the beneficial effect of physical activity in AD patients. Elderly adults with high physical activity are less at risk of falling and death [13, 14]. Understanding of occupational performance and life habits of AD patients is important to occupational therapists [15]. Occupational therapists strive to involve AD patients in meaningful activities, leisure, exercise, and error-reduction techniques in the daily schedule to increase occupational performance and prevent cognitive and motor decline [16].

Simón-Vicente et al. (2023) identified occupational performance problems and their relationship to QOL, motor performance, cognitive function, behavioral problems, age, and sex in patients with Huntington disease. The results showed a relation between QOL and the number of occupational performance problems on the sub-scale of self-care, and that people with lower QOL reported more occupational performance problems and there was no difference between sub-scales of the self-care, productivity, or leisure and gender. However, women reported better satisfaction in self-care than men. In addition, the results of this study showed an association between self-care satisfaction and total satisfaction based on the Canadian occupational performance measure (COPM) and there was a significant and negative relationship with cognitive function [17]. Kobayashi et al. (2022) identified occupational performance problems in elderly adults with Parkinson's disease based on the COPM. The results of the study showed that leisure, cooking, walking, doing housework, and taking care of household items were the most frequently reported occupational performance problems [18]. Studies also showed that client-centered approaches might promote patient motivation to participate and engage in the interventions and improve social interaction and interest in people with AD [19].

A few studies have been done on the occupational performance and life habits of elderly adults with AD and any research has not been conducted on this topic previously in Tehran, Iran. Considering that the engagement of the individual in occupations and life habits is considered an essential part of the lives of individuals, which guarantees their health and welfare [16], and also, more knowledge is needed regarding AD patients' perceptions of problems in occupational performance that might hinder participation in meaningful activity. Increasing the level of engagement in occupational performance and life habits among elderly adults with AD is an area of concern for occupational therapists in primary care.

During the COVID-19 pandemic and the recommendation of specialists to the presence of fewer elderly adults in the community and quarantine them at home, the amount of mobility and social connections is restricted and changes are made to their daily schedules of life. On the other hand, the level of engagement of the elderly adults in various activities has decreased and may change the life habits of the elderly adults with AD. Therefore, this study determines the occupational performance and life habits of 65-85-year-olds with AD in Tehran City, Iran.

Materials and Methods

Study participants

This study was a cross-sectional and descriptive-analytical study. The statistical population was elderly adults aged 65-85 years with AD that refer to Roozbeh and Ziaeian Hospitals and Kahrizak Charity in Tehran, Iran in 2022. In total, 70 elderly adults, including 36 male subjects and 34 female subjects were recruited based on the convenience sampling method. The study was approved by the Ethics Committee of Tehran University of Medical Sciences with the code IR.TUMS.FNM.REC.1400.143. The inclusion criteria were the AD index (NIA) at stage 1 [19], at least 6 months since the onset of AD, and the age between 65 to 85 years. The exclusion criteria were unwillingness to continue the cooperation of older people with AD at each stage of the study [20]. At first, the method and purpose of the study were fully explained to the elderly adults and their caregivers and they were assured that the information gained from them would be saved confidentially. Patients with AD signed a written informed consent form. The questionnaire was then completed with some demographic information, including age, sex, AD types, duration of illness, medications, and duration of use of rehabilitation services. In the following, interviews with patients on occupational performance were conducted using the COPM. Then, the life habits were assessed by a life-habit questionnaire (Life-H). All stages of the research were carried out in a quiet environment, away from noise, and individually. If the client was deprived of reading and writing literacy or had developed dysarthria as a result of AD, the occupational therapist or a close relative would help them. Data collection was carried out by a Master's degree student with three years of work experience.

Outcome measure

The COPM is a unique tool, designed for occupational therapists to determine the changes in self-client perception in their occupational performance over time. This measurement is divided into three areas self-care, productivity, and leisure, and each area into subcategories [21]. COPM is performed as a semi-structured interview and can be performed with an experienced therapist for only 20-30 min. Several studies of this high-validity tool have been reported as an applied assessment in the elderly population [22, 23]. The Persian version of this measurement was translated by Dehghan et al. (2014) into Persian and reported its content validity of 80.95±0.222 and also has acceptable repeatability [24].

Life-H is one client-centered questionnaire that identifies problems of daily activities and social participation. This questionnaire has two forms, namely long and short forms. The long format has 240 items and the short format has 77 items, which in 12 sections examines daily activities and social roles. These 12 sections are as follows: 1) Nutrition, 2) Fitness, 3) Personal care, 4) Communication, 5) Housing, 6) Mobility, 7) Responsibilities, 8) Interpersonal relationships, 9) Community life, 10) Education, 11) Employment, 12) Recreation. The questionnaire was completed by both patients and their caregivers. The scoring of the Life-H questionnaire is from 0-9, which shows the degree of difficulty and the type of help; zero indicates complete limitation in participation and a maximum score of 9 indicates that there is a desirable social participation [25]. In the Life-H questionnaire, scores in each section were calculated separately. Formal validity and content of the Persian version of Life-H were reported (content validity index = 0.88) and its test-retest reliability (95% intraclass correlation coefficient) by Noori Mombeyni et al. (2014) for elderly adults [26].

Statistical analysis

The Shapiro-Wilk test was used to examine the normal distribution of the data. Meanwhile, the independent t-test and Mann-Whitney test were performed to compare the significant difference between two different groups. The significance level was set at $P<0.05$. The SPSS software, version 21, was used for the statistical analysis.

Results

A total of 70 patients were enrolled in the study, that were 36 male and 34 female elderly adults (65-85 years) diagnosed with AD. Demographic data of individuals participating in this research is given in Table 1.

The distribution of priorities in occupational performance showed that 68.3% of priorities were related to self-care (76.7% male and 59.4% female). Also, the frequency of occupational performance priorities on the three sub-scales of personal care, functional mobility, and community management were 40.9%, 10%, and 17.4%, respectively. Therefore, the most frequent was personal care. Both groups of males and females showed similar occupational performance priorities in the area of personal care. 17.1% of participants' priorities of occupational performance were leisure. This was 23.3% and 10.6% in male and female, respectively. The frequency of male occupational performance priorities on three sub-scales of quiet recreation, active recreation, and socialization respectively 8.3%, 8.9%, and 6.1% and in fe-

Table 1. Demographic and clinical characteristics of the participants

Variables		Mean±SD/No. (%)			P
		Male	Female	Total	
Age (y)		72.02±3.74	71.14±4.09	71.60±3.91	0.25*
Education	Illiterate	20(55.60)	16(47.1)	36(49.30)	0.90**
	Elementary	10(27.80)	11(32.4)	21(28.80)	
	High school	3(8.3)	3(8.8)	6(8.20)	
	Diploma and higher degree	3(8.3)	4(11.8)	7(9.60)	
Marital status	Married	21(58.3)	16(47.10)	37(50.70)	0.34**
	Divorced	15(41.7)	18(52.9)	33(49.30)	

Notes: * shows the results from the Mann-Whitney test and **indicates the results from the chi-square statistical tests.

SD: Standard deviation.

males 3.5% in all three sub-scales. These results showed that leisure-related occupations were more important in males than in females.

Due to the abnormal distribution of performance and satisfaction scores, the Mann-Whitney test was used to compare between groups of variables. Mean performance and satisfaction scores were reported in males respectively 5.31±0.94 and 5.04±1.41 and in females 4.84±1.41 and 4.63±1.34. There was a significant difference between performance and satisfaction scores between genders (Tables 2 and 3).

Table 2. Comparison of performance scores and gender with Mann-Whitney test

Area of Occupational Performance		Mean±SD		U Test	P
		Male	Female		
Self-care	Personal care	5.65±1.47	5.01±1.53	1980.00	≤0.01
	Functional mobility	5.05±1.56	4.79±1.18	139.00	0.78
	Community Management	4.95±1.20	4.37±1.16	264.00	0.02
	Total	5.35±1.44	4.86±1.43	5696.00	≤0.01
Productivity	Paid/unpaid	-	-	-	-
	Household management	-	4.71±1.51	-	-
	Play/school	-	-	-	-
	Total	-	4.71±1.51	-	-
Leisure	Quiet recreation	4.60±0.73	4.67±0.81	45.00	1.00
	Active recreation	5.31±0.94	5.50±0.83	46.50	0.90
	socialization	5.27±1.19	5.17±1.16	30.00	0.75
	Total	5.05±0.98	5.11±0.96	377.00	0.98
Total score		5.28±1.35	4.84±1.41	12802.50	≤0.01

Notes: P<0.05 is considered significant.

SD: Standard deviation.

Table 3. Comparison of satisfaction scores between genders with the Mann-Whitney test

Area of Occupational Performance		Mean±SD		U test	P
		Male	Female		
Self-care	Personal care	5.39±1.57	4.76±1.31	1979.00	≤0.01
	Functional mobility	4.81±1.60	4.50±1.65	131.50	0.59
	Community Management	4.86±1.04	4.21±1.13	277.00	0.04
	Total	5.14±1.45	4.62±1.34	5651.00	≤0.01
Productivity	Paid/unpaid	-	-	-	-
	Household management	-	4.55±1.44	-	-
	Play/school	-	-	-	-
	Total	-	4.55±1.44	-	-
Leisure	Quiet recreation	4.53±1.12	4.83±0.75	39.00	0.62
	Active recreation	5.13±1.31	5.17±1.32	43.50	0.72
	Socialization	4.36±1.12	4.67±1.03	28.00	0.59
	Total	4.71±1.21	4.89±1.02	342.00	0.54
Total score		5.04±1.41	4.63±1.34	13040.50	≤0.01

Notes: P<0.05 is considered significant.

SD: Standard deviation.

Since any occupational performance priorities in males with AD were not in productivity. A comparison of performance and satisfaction scores between genders was not possible. As mentioned above, 30% of the goals of females with AD were related to this sub-scale, specifically to the field of household management, and performance and satisfaction scores were 4.71±1.51 and 4.55±1.44, respectively.

There was no significant difference between genders according to performance and satisfaction scores with occupational performance in leisure and gender. It is observed that there was no significant difference between genders in performance and satisfaction scores in quiet recreation, active recreation, and socialization.

In the Life-H questionnaire in the area of daily activities, the mean scores were 5.74±0.87 and 5.34±0.58 in males and females with AD, respectively. The mean scores in the area of fitness were 6.30±1.09 and 6.10±0.94 in males and females with AD, respectively. The mean scores in the area of communication were 5.07±1.14 and 4.83±0.71 in males and females with AD respectively. In the area of participation in daily activities, a significant difference was observed in the scores of the personal care and mobility subscales between genders (P<0.05). However, there was no significant difference between genders according to the score of life habits and social roles (P>0.05; Table 4).

Discussion

Most of the occupational performance problems based on COPM were self-care, leisure, and productivity. This finding was consistent with the study of Cetin and Calik (2020) [27] and Kabul and Calık (2023) [28]. Cetin and Calik found that among elderly adults aged 65-89, the frequency of occupational performance problems was 43% self-care, 36% productivity, and 21% leisure [27]. Moreover, the study of Kabul and Calık (2023) in elderly adults with a mean age of 71.3 years showed that the maximum frequency of occupational performance problems was self-care, leisure, and productivity respectively. Also, the most occupational performance problems in men were personal care, community management, and functional mobility, and in women included personal care, household management, and community management [28]. The finding of this study showed that household management was the most important difference between men and women. Household manage-

Table 4. Questionnaire score of life habits and sub-scales of daily activities and social roles in two groups of male and female

Variables	Mean±SD			t**	U*	P
	Male	Female	Total			
Daily activities	5.74±0.87	5.34±0.58	5.54±0.76	-	441.00	0.04
Nutrition	6.04±1.09	5.83±0.91	5.94±1.10	0.89	-	0.37
Fitness	6.30±1.09	6.10±0.94	6.20±1.03	0.82	-	0.41
Personal care	6.37±1.17	5.41±0.76	5.90±1.00	-	10.00	≤0.01
Communication	5.07±1.14	4.83±0.71	4.95±0.96	-	575.00	0.66
Housing	5.64±1.05	5.72±1.07	5.68±1.05	-0.31	-	0.75
Mobility	6.33±1.27	5.39±0.82	5.88±1.17	-	343.50	≤0.01
Social roles	4.19±0.82	4.06±0.50	4.13±0.68	-	603.00	0.91
Responsibilities	5.12±1.10	4.57±0.78	4.85±0.99	-	435.00	0.03
Interpersonal relationship	4.99±1.71	5.58±1.11	5.28±1.47	-1.68	-	0.09
Community life	5.61±1.07	5.68±0.82	5.64±0.95	-0.28	-	0.78
Education	3.49±0.94	3.59±0.83	3.54±0.88	-	584.00	0.72
Employment	0.32±1.22	0.11±0.69	0.22±1.00	-	578.50	0.32
Recreation	5.21±0.91	5.03±0.53	5.12±0.75	1.01	-	0.31
Total score Life-H	4.97±0.79	4.72±0.49	4.85±0.67	-	520.00	0.28

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Notes: * shows the results from the Mann-Whitney test and **indicates the results from the chi-square statistical tests. Meanwhile, P<0.05 is considered significant.

SD: Standard deviation.

ment problems were noted in just 2.1% of men, whereas 29.1% of women encountered difficulties in this area. Consistent with these results, Kalldalen et al. [29] found that elderly women had the most difficulties with functional mobility, community management, and household management, while men struggled more with self-care and leisure activities. This study revealed that women reported more problems in the areas of household management, community management, and quiet recreation [29]. The differences in roles between men and women are the reason for this difference. For example, 61.8% of women participating in the study were housewives, and the inability to do housework and manage household affairs was one of the barriers to their role.

According to the present results, men were more engaged in daily activities regarding the sub-scales of this domain in Life- H, there was a significant difference between the scores of personal care and mobility between genders, so men with AD had more participation. This finding is in line with the study of Noori Mombeyni et al. [30]. The study by Noori Mombeyni et al. (2019) showed that in healthy elderly adults, the mean score of nutrition in men was higher than in women, and there was no significant difference between the scores of fitness, personal care, communication, housing, mobility, as well as the total score of participation in daily activities in men and women [30]. Participation in activities such as driving, and cycling follows the socio-cultural conditions so that in the past decades, driving skills and cycling among Iranian women were less noticed. Therefore, in different studies, the disproportion of cycling and driving women with general culture is a deterrent factor for Iranian women's participation [31, 32]. Therefore, the dominant socio-cultural conditions in Iran can be the reason for the differences in this sub-scale between men and women with AD.

The results of this study showed no difference between participation in the social roles of men and women with AD. The findings of the studies of Faraj pour Khazai et al. (2019) and Anaby et al. (2009) were consistent with our research did not find any difference between the social roles of elderly patients with Parkinson disease, stroke, arthritis, and heart problems in men and women [33, 34]. Multiple roles of elderly men in Iranian families, despite their difficulties and disabilities, have maintained responsibilities such as managing the family and providing the necessities of its members [35]. The results of this study showed that sub-scales of social roles, communication, and interpersonal relationships in AD were the same between men and women. Studies by Faraj Pour Khazai et al. and Noori Mombeyni et al. have reported similar results in these subscales [30, 33]. Based on the results of this study, there was no difference between patients' satisfaction with daily activities, social roles, and life habits of men and women. The results of studies by Setoudeh et al. [36] and Levasseur et al. [37] showed similar results of satisfaction with life habits and their sub-scales in AD [36, 37].

The results of this study showed no difference between genders. It is consistent with the results of Anaby et al. [34]. In the study of Anaby et al. [34], there was no difference between fitness and men/women with Parkinson's and healthy elderly adults [34]. Despite gender differences and interests in the type and manner of leisure activities between the two groups of elderly men and women, the evidence reports the same level of participation in these two groups. Regardless of gender, abilities, and motivation, participation in recreational activities is influenced by environmental and economic factors, physical disability, and limited access to leisure facilities, and elderly people skip the required recreational activities [38]. Therefore, the custodians of elderly health affairs in collaboration with related institutions can remove environmental barriers, increase access to recreational places, and provide financial facilities to increase the participation of these people in recreational activities.

Conclusion

The results of this study showed that the most important occupational performance problems of AD were self-care, leisure, and productivity, respectively. Among the sub-scales, the most important problems in men were related to personal care, community management, and functional mobility, and in women were personal care, household management, and community management. The lowest occupational performance problems in both groups (men and women) were related to paid and unpaid work. Compared to men, women had lower performance and satisfaction scores on the overall score of COPM and the sub-scales of personal care and community management. On the other hand, the highest level of participation in daily activities was related to fitness and the lowest participation was related to communication and there was a lot of difference between men and women in the responsibility. Generally, gender plays an important role in the performance and satisfaction of AD, resulting from differences in physiological differences, individual roles, environmental barriers, and cultural differences. The results of this study might provide the necessary information for occupational therapists to identify the occupational performance priorities, life habits, and level of participation of patients with AD in men and women in daily occupations.

Study limitations

This study encountered some limitations. This study was carried out during the COVID-19 pandemic on elderly adults, and this issue made it difficult to access the samples. Furthermore, this study was conducted on selected hospitals in Tehran City, Iran; accordingly, the generalizability is limited.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by the Ethics Committee of Tehran University of Medical Sciences (Code: IR.TUMS.FNM.REC.1400.143).

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Authors' contributions

Conceptualization and Study Design: Hamid Dalvand and Zeinab Kadkhodaei; Data acquisition: Zahra Vahabi and Farnaz Etesam; Data analysis and Interpretation: Amir Almasi Hashiani and Zeinab Kadkhodaei; Drafting the article or revising it critically for important intellectual content: Hamid Dalvand and Zeinab Kadkhodaei; Final approval of the submission version: Hamid Dalvand and Zeinab Kadkhodaei.

Conflict of interest

The authors declared no conflict of interest.

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