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Independent Living of the Elderly in the Home Environment

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Abstract

Objectives. It is a little known fact that just 5% of the elderly aged 65 and more live in institutional settings, all others live at home. The elderly living in the home environment are influenced by many factors: demographic, socio-economic and factors associated with functional status. Equipped with a broad range of strategies, occupational therapists can participate in several areas of addressing this issue. Methods.Among the elderly living at home (N=450), we carried out a quantitative study of the arrangement of the home environment. We investigated the level of independence in performing activities of daily living. With this research, we wanted to check whether there are statistically significant differences in the ergonomics of the home environment among the elderly with varying degrees of independence in their daily activities. Results.The Mann-Whitney test showed statistically significant differences between the genders and independence in carrying out daily activities. The Spearman test showed correlations between environment factors and some activities of daily living. Conclusions.In the home environment, occupational therapists can help the elderly maximise their independence in carrying out daily activities. We can also consult them on improving the quality of life in the home environment. With the help of an occupational therapist, the elderly can assess and plan changes in their existing environments, and enable elderly to perform daily activities and live independently. Keywords: the elderly, environmental factors, daily activities, independence, occupational therapy.

1 Introduction

The media are daily informing us of the fact that the share of the elderly population is increasing every year and will continue to grow in the future. Similarly, to the rest of the world, Eurostat's data show that the population is also ageing in Slovenia (1). The share of older people aged between 65 and 79 has increased from 12.1% to 12.8% and the share of older people aged 80 or more has increased from 2.7% to 4.7% in the last decade (2).

Various authors have been researching the different types of environments and their influence on individuals and have developed models for analysis and assessment of the interaction between people, their environments, their activities and technology (3-7). Many countries have already incorporated in their national strategies of care for the elderly the aim of enabling them to stay active and participating (8, 9)as goals to achieve or to strive for. All these strategies incorporate the fact that an adapted environment not only helps the elderly in their activities, but also enables them and facilitates independent functioning in daily life and occupations that are important to them (10) to maintain their autonomy and dignity (11).

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The contextual factors (5) of the living and cultural environments are more influential and more explicit in some nations, particularly from the aspect of attachment to homes they built themselves and spent their lives living in, or homes that have been in the family for generations. The above cultural context is also very explicit in Slovenia, where similarly to other European countries 5% of the population aged above 65 reside in nursing homes while the rest live in their home environments, with or without help (social care) and social transfers (12).

Old age is a social-demographic factor (13) that negatively influences bodily functions and structures of an individual, which is reflected in significant irregularities in performing daily activities and in a person's involvement in various life situations (14).

The process that occupational therapists use is assessment/evaluation, intervention and evaluating the outcomes. The end goal is supporting health and participation in life through engagement in occupations (15).The aim of this study is to assess the level of independence in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) of the elderly, as well as analyse the environmental factors influencing the level of independence.

2 Methods

We designed a questionnaire, entitled "An Elderly Person in the Home Environment", which was divided into three parts: the first part comprised 6 questions about ADL, the second part comprised 7 questions about IADL, and the third part comprised 16 questions about environmental factors - EF (statistically significant correlation results was shown in table 3: do you have carpets on the floor – E_CARPET, give lights enough light – E_LIGHTS, installed grips in bathroom - E-GRIPS, do you have non-slip mats in bathroom - E-BATHMAT, condition of pathways around the house - E-PATHWAYS and suitable slippers - E-SLIPPERS). The demographic data collected included age, gender, who the participants lived with.

Based on an analysis of the study participants, we identified ADL (bathing – ADL_BATHING, dressing – ADL_DRESSING, feeding – ADL_FEEDNIG, grooming – ADL_APPEARANCE, transferring from bed to chair – ADL_BED and moving around inside the house – ADL_WALKING (16)and IADL (using the telephone – IADL_PHONE, getting to a place out of walking distance – IADL_MOBILITY, shopping for groceries – IADL_SHOPPING, preparing meals – IADL_MEALS, housework – IADL_HOUSEWORK, taking medication – IADL_ MEDICAMENT and managing money – IADL_MONEY) (17). Answers for both questionnaires, ADL and IADL, were in the form of a 3-level scale (1 - completely dependent on assistance, 2 - semi-dependent on assistance, 3 - independent).With an analysis of results, we aimed to present the level of independence of study participants in ADL.

In addition to assessing involvement in ADL/IADL, the study also assessed statistical significance of gender, and age-based differences among study participants, and the correlations between independence in performing an activity and extrinsic factors (built environment and technology) based on the Person – Environment – Occupation – Performance (PEOP) model (18).
A checklist of environmental factors was used to determine the environmental factors representing potential injury hazards, offering three possible answers: Yes, No, and Not present.

The data was analysed using descriptive and inferential statistics. The Spearman test was used to assess the correlations between ADL/IADL variables and Environmental Factors variables. The Mann-Whitney test was used to evaluate gender-based differences, while differences based on who the participants lived with were assessed using the Kruskal-Wallis test and the Mann-Whitney test. Calculations were performed with the IBM SPSS v.23 for Windows computer program. The level of statistical significance was determined as $p<0.05$, statistical non significances arewritten as NS.

3 Results

Our sample included 450 participants aged 65 and older[65-94](Mean/M = 74.8 ± 6,6) living in their home environments in Slovenia. The study sample comprises 70% (Nfemale=314) women and 30% (Nmale=136) men.
For the purpose of age-based comparison, we divided the sample into Group 1[65-80]aged and Group 2[81-94]aged. The Mann-Whitney test showed statistically significant gender-based differences in three ADL and five IADL variables. Men need more assistance than women with all listed variables with the exception of mobility (How do you get to more destinations?). The Mann-Whitney test showed statistically significant differences between age groups in all ADL and IADL variables.

Although they reported a high level of independence, the elderly from Group 2[81-94] require more assistance than those from Group 1[65-80].The sample[65-94] showed a high percentage of independence in ADL (M= 2.45<2.96; 3 = independent) and in IADL (M= 1.68<2.81; 3 = independent), but the results of IADL are slightly lower than those of ADL.

The Kruskal-Wallis test showed statistically significant differences between groups in all listed IADL variables (and no statistically significant differences in ADL variables). The elderly who live alone are more independent in using the telephone, preparing meals and household work than the other two groups (living with spouse/with immediate family); those living with their spouses reported greater independence in mobility, shopping, taking medication and management of money than the other two groups (alone/with immediate family). The elderly living with their immediate family are statistically less independent in the most IADL variables than those living alone or with their spouses.

The Spearman test was used to test the correlation (rho) between the level of independence and obstacles in the home environment. Comparisons resulted in 208 pairs (13x16), of which only 37 pairs (18%) showed statistically significant differences. Despite the small number of variable pairs and the fact that the strength of correlation is very weak (rho = -0.120 < 0.121), we are highlighting some of them in the continuation to demonstrate contextual correlation (table 3).

The E_GRIPS and E_BATHMAT variables showed statistically significant correlations with the level of independence in some of the ADL and IADL variables (bold font in Table 3). Based on the negative correlation, we can assume that the participants who are less independent in ADL's and IADL's have handles and mats installed in their bathroom, which would indicate that the elderly only make adjustments in their bathrooms when they start having problems.

The E_CARPET, E_LIGHTS and O_PATHWAYS variables showed statistically significant correlations with some of the ADL/IADL (bold font in Table 3). These correlations are positive, possibly signifying that appropriately adapted environments ensures greater independence. However, this cannot be claimed with certaintyas their causal relationships were not assessed.

4. Discussion

The broad field of ADL and IADL allows occupational therapists involvement in various areas of an individual's life when the latter needs assistance with activities they are not able to perform on their own anymore. These activities are essential for the development of each and every one of us. They allow us to develop personal characteristics and understand our own skills, abilities, shortcomings and weaknesses. These activities help us deal with our problems and indirectly influence our health (19).One of the key goals of healthy ageing programmes is to adapt the home environment so that it supports healthy ageing (20,21) since the elderly become more sensitive even to the smallest changes in their home environments with age (22). The positive influence of an adapted environment is also confirmed by the research performed by Hwanga et al (23), and is reflected in better health of the elderly and better social care.

How strongly personal and environmental factors influence performing various activities is confirmed by their inclusion in the International Classification of Functioning, Disability and Health (ICF) (24) andCanadian Model of Occupational Performance and Engagement (CMOP-E) (25). Furthermore, the Person-Environment-Occupational Performance (PEOP) Model (25) offers tools for finding effective solutions by involving individuals, the environment and implementation of activities in the interaction both at the micro and the macro levels (26). The key elements of the PEOP model are the social-economic system, cultural values, the built environment, technology and the natural environment.

The above models allow us to analyse both the individual and their environment with the aim of involving the individual in specific occupations. The obtained results (table 3) clearly reflect the carrying out of and involvement in activities is correlated by environmental factors. The cultural context influences values, beliefs and behaviours of one generation after another (25). The cultural context characterises every society, regardless how segmented the society is.

Understanding the cultural context of an individual involved in the process of occupational therapy treatment is essential for it influences the choice and implementation of his or her occupations(5). So far, no significant research on the topic of how the cultural context influences independent life in the home environment has been noted in Slovenia, therefore we believe that this study's contribution in finding statistically significant correlations between independence in activities and the home environment is very important from the aspect of obtained results(table 3), since it confirms the importance of the therapists' awareness of the cultural context as a significant environmental factor in the co-shaping and implementation of the therapeutic process with the client.

Furthermore, we believe that the cultural context makes men more dependent on women in certain areas of life even at a younger age, i.e. that women take responsibility for certain areas of life as a consequence of the historical division of work and roles (27).Thus, we can correlate the statistically significant differences in ADL and IADL to the cultural context as a factor influencing both sets of daily activities. The validity of this claim is confirmed by a study conducted by Norwegian researchers (28), who have also proved the existence of ageand gender-based statistically significant differences in the level of independence as results show in table 1.The quality of life of the elderly is improved by their independence in daily activities, participation in meaningful occupations and satisfaction with life (29). At the same time, they wish to remain independent and not be a burden to their relatives (30), therefore they also try their best to be independent in IADL's (Table 2). The differences in independence are also a result of the division of work and roles between partners, and as such confirm our experiences from occupational therapy treatment in the home environment.The elderly are grateful for their relatives' help, but they have a sense of guilt for having to rely on them (31).

The ageing of the population primarily influences the health care system as health inevitably deteriorates with age. At the age of 65 and more, most elderly people are still healthy and independent, while those aged 85 and more often need help and medical care (32). Research (33) has shown that the share of the elderly who required various forms of family and formal care was 19% among those aged 65 and more, and 43.4% among those aged 80 and more. This leads to increased expenses of the health care system, a growing burden on the care-takers, inadequate or inefficient care for the elderly, etc. Falls represent a great burden of the public health care system. By planning a friendlier living environment, we can reduce the occurrence of falls and support individuals in taking care of themselves independently(23, 34,35). The most common adjustments in the homes of elderly who live alone and those living with their spouses include: bathtub safety bars, shower seats, modification ramps and railings (24).Negative correlation (table 3) ADL/IADL with environmental factors confirm the importance of the role of an occupational therapist, both from the aspect of client-centered practice as well as in education (36) of the client's relatives.

The elderly prefer to stay in their home environments (37), although the current system of care for the elderly is based primarily on institutional forms of care (38). Research showed that supporting people in their efforts to continue living in their own homes costs less than institutional care (23, 39). With the growing number of people wanting to age at home, occupational therapists are becoming facilitators who are helping the elderly perform their roles and occupations at home and in their communities (40). The scope of an occupational therapist's work in the home environment is very broad and diverse, for it involves all areas of a person's activity. The occupational therapist's ability to see the broader picture is what distinguishes them from other health care professions.

According to data provided by the Ministry of Labour, Family, Social Affairs and Equal Opportunities (41), Slovenia does not have a suitable system of long-term care and personal assistance, since the benefits and services of these two areas are not integrated into a unified system. The effective interdisciplinary cooperation of medical professionals and occupational therapists depends on the clarity and unambiguity of their roles and responsibilities (42). The clear definition of roles and expectations of the medical profession regarding long-term care for the elderly in their home environment and the work of occupational therapists is one of the key challenges of interdisciplinary cooperation in the drafting of legislative bases for long-term care. The clear definition of roles and expectations was also proven to be a key factor according to the results of the research conducted among occupational therapists working in care homes regarding their cooperation with other team members, including medical professionals (43).

5. Conclusion

Ensuring an adequately constructed and equipped environment, caring for the health and well-being, fall prevention and supporting the functioning of the elderly in their daily occupations constitute a complex task which involves professionals from several fields. With our interpretation we wish to raise awareness for policy makers in the field of long-term care, including medical professionals, about the topic at hand and the occupational therapists' view of ageing in their home environment (ageing in place). The presented study offers an insight into how the elderly operate in their home environments. In the future, we need to expand our research into key factors that reduce independence (in addition to ageing) and into how and to what extent independent living in the home environment is supported.

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Conflict of interests

The authors declare that there is no conflict of interest.

Ethical approval

The elderly, included in the study were invited to anonymous participation.
We invited elderly who living at home in Slovenia. Elderly could choose whether or not to participate in the research.

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Authors' contribution

All authors were involved in the development of the project, study design, data collection and its interpretation. All authors contributed to the preparation of the manuscript and approved the final version of the text.

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