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Determinants of Quality of Life and the Need for Support for the Elderly with Good Physical and Mental Functioning

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Background: The ageing of population is the reason that there are various strategies developed to help seniors acquire greater independence and a better quality of life. The aim of this study was to explore the relationship between the elderly people's need for assistance and assessed quality of life.





Material/Methods: The study included 100 participants who were members of a Seniors Club in Poznań, Poland. The cross-sectional study utilized the following instruments: Abbreviated Mental Test Score (AMTS), Instrumental Activities of Daily Living (IADL), EASY-Care Standard 2010 questionnaire, (WHO Quality of Life-BREF (WHOQOL-BREF) questionnaire.

Results: Members of the Seniors' Club showed good functional condition. In the AMTS test, they scored near maximum values (average 9.39 ± 0.77 points), somewhat poorer results were found in the IADL scale (average 20.92 ± 3.96 points). In the EASY-Care questionnaire, the study participants usually required partial support in the following areas: Mental health and well-being (59%), Staying healthy (29%), Getting around (22%), and Seeing, hearing and communicating (22%). The average score on Independence was 13.13 ± 18.51 , The risk of breakdown in care scale was 4.39 ± 3.21 . The risk of falls affected 21 participants (21%). Quality of life study using WHOQOL-BREF questionnaire found that the highest scores were achieved in Psychological and Environment domains, and the lowest score in the Physical health domain.

Conclusions: Quality of life as well as level of independence, risk of falls, and need for 24-hour care were significantly affected by the following factors: urinary incontinence, difficulties in mobility outside the home, despondency, and forgetfulness.

MeSH Keywords: **Activities of Daily Living • Needs Assessment • Quality of Life • Social Support**

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Background

The ageing of society is an issue that has received an increased amount of attention across many countries on all continents [1–4]. The growing group of elderly people not only contributes to changes in social structures but also requires a modification of national social policy programs oriented at satisfying various needs of the aged. The independence of senior citizens is frequently limited due to processes taking place during ageing as well as concomitant diseases [5–7]. Poorer physical and mental functioning is the most common reason for having to rely on the assistance of others or institutional care [8,9]. The group of the elderly is very diverse in terms of physical and mental functioning. Most of them are persons who are independent or capable of maintaining their own household with minor assistance [7,10–13]. Many are active participants of social life. They attend senior oriented functions such as the University of the Third Age or Senior Clubs. Persons requiring permanent support or institutional care make up around 30% of those aged >60 years. This is why adequate support requires an individual assessment of the need for assistance. Various tools to facilitate the assessment of care needed have been devised. One such tool is the EASY-Care standard 2010 questionnaire [11,12,14–17]. Receiving adequate assistance leads to satisfaction with one's daily life and, thus, improves one's subjective assessment of quality of life [7,12,18–23]. Quality of life of the elderly – similarly to that of younger people – as defined by the WHO does not depend only on biological health but also on mental, social, cultural, and spiritual functioning [18,24,25]. Staying socially active can bring the elderly benefits in terms of a better self-assessment of health and physical functioning. It can also help prevent depression and cognitive disorders since it provides intellectual and emotional stimulation and consequently improves their assessment of quality of life [21,26]. Elderly people usually assess their quality of life as good or better [3,4,6,18,27]. Factors affecting quality of life specifically include physical functioning and cognitive ability, depression and other comorbidities, loneliness and social functioning [1,7,8,10,18,19,22,24,27–31]. Sex, age, education, or marital status are of lesser importance in the elderly group [6]. Satisfaction of existential and religious needs is also important for satisfaction with life and for the mood of the elderly [29]. The close connection between the functional status and assessment of quality of life requires measures to keep the elderly independent for as long as possible.

Only a regular assessment of functional condition of the elderly can help provide them with adequate support and find the factors that limit independence and improve quality of life [9,12,20].

The aim of this paper was to identify the factors contributing to the need for support and affecting quality of life in elderly

people with good physical and mental functioning, as well as the connections between such factors.

Material and Methods

Study population

The study was conducted between June 2015 and April, 2016. The study population included 100 elderly members of the “Stoneczko” (Little Sun) Seniors Club in Poznań. Seniors clubs are places for socializing which also offer opportunities to participate in various activities, such as trips, dances, painting, chess, etc. Most members are elderly people with a good or moderate physical and mental functioning.

Surveys were completed by 106 participants but 6 of the surveys were rejected for being filled out incorrectly. The club “Stoneczko” was selected at random from a list of clubs (n=42) operating in the city of Poznań. Factors taken into consideration when enrolling the seniors in the study included: 1) age, over 60 years old, 2) living in their own house or apartment, 3) sufficient cognitive abilities to fill in the questionnaire, 4) the absence of conditions limiting their functional status (including presence of cancer).

The aim of the study, its procedure, and the method of completing the questionnaire were explained in detail prior to the study. The study began with an evaluation of the person's cognitive abilities using the Abbreviated Mental Test Score (AMTS) scale, and only persons with a score of at least 6 were included in further stages of the study.

The research instruments were personally given to the study participants by the researcher. All participants consented to being included in the study.

The study received approval of the Bioethics Committee of the Karol Marcinkowski University of Medical Sciences in Poznań.

Study instrument

The study was conducted using the following study instruments: AMTS by Hodkinson is used as a screening test for mental ability. For each correct answer, 1 point is scored. The test is comprised of 10 questions. A score of >6 means normal condition, 4–6 a moderate mental impairment, and 0–3 a severe mental impairment [32]. IADL (Instrumental Activities of Daily Living) the scale is used to assess the self-reliance of the person in performing those activities which make independent functioning at home and outside the home possible. Activities analyzed include telephone use, shopping, preparing meals, taking medication, and money management. The

applied questionnaire contains 8 questions with 3 possible answers: full independence (3 points), assistance required in this activity (2 points), totally dependent on other people (1 point). The scoring range is 8–24 points. The higher the score, the more able the person is [33].

EASY-Care Standard 2010 questionnaire is comprised of 3 sections. Section 1 gathers sociodemographic and clinical information. Section 2 assesses functioning and demand for support in 7 areas: I Seeing, hearing and communicating; II Looking after yourself; III Getting around; IV Your safety; V Your accommodation and finances; VI Staying healthy; VII Your mental health and well-being [15,17,34]. Section 3 summarizes the previously collected information and determines risk by the means of 3 scales: Independence Score, Risk of breakdown in care, Risk of falls. The Independence Score scale helps identify the basic and complex activities of daily living requiring support. The scoring range is from 0 to 100 points. The more points scored, the more the person is dependent on others.

The “Risk of breakdown in care” scale identifies the risk of needing 24/7 care. The more points scored, the higher the probability of the need for institutional care. The scoring range is 0–12. The last scale identifies “Risk of falls” with a scoring range of 0–8. The risk of falls is present if 3 points are scored and increases the higher the score.

WHOQOL-BREF questionnaire (the WHO Quality of Life-BREF) is an abridged version of the World Health Organization quality of life assessment questionnaire. It features 26 questions concerning 4 domains of human functioning: Physical health (7 items), Psychological (6 items), Social relationships (3 items), and Environment (8 items).

The questionnaire begins with 2 questions referring to general quality of life assessment and satisfaction with one’s health. The “Physical health” domain features questions on the effect of physical pain on functioning, the need for medical treatment, the quality of sleep, and satisfaction with one’s productivity and ability to work. The “Psychological” domain shows how much joy the person feels and how often they are depressed, anxious, or devastated. Questions in this domain also give information about problems with concentration, acceptance of one’s appearance, and self-satisfaction. The “Social relationships” domain analyses interpersonal relations and satisfaction with support received. The final area, “Environment”, assesses safety in daily life, financial standing, the ability to develop one’s interests, or satisfaction with one’s place of residence. The BREF score as the sum of BREF domains was also calculated. The scores are transferred to a scale of 0–100. The higher the score on the scale, the higher quality of life [35,36]. A total of 60 points was taken as the cutoff point [4].

Internal validity was assessed by use of the Cronbach a coefficient, for WHOQOL-BREF was 0.94 and 0.92 for EASY Care Standard 2010.

All the aforementioned scales are available in Polish language versions and were previously verified and used in scientific studies [13].

Statistical methods

Interval data have shown no compatibility with normal distribution which is why calculations were made using non-parametric tests, and data from the measurement scale were analyzed in the same manner. The Mann-Whitney U test was used to compare the 2 groups. A group was divided into 2 subgroups by age: <75 years and ≥75 years, and also by marital status: living with a partner (husband, wife, common-law marriage, partnership) and single (widowed, unmarried, divorced). The years of education were also taken into account. In the Tables, years of education were assigned to the level of school that the persons aged 60+ years had completed: 0–8 years, primary education; 9–13 years, secondary education; over 13 years, university education.

Spearman’s r_s rank correlation coefficient significance test was used to define dependence between measurable variables.

Multiple regression analysis (forward stepwise regression) was also used to identify parameters affecting quality of life and 3 of the EASY-Care 2010 Standard scales: Independence score, Risk of breakdown in care, Risk of falls.

The higher the percentage value, the better the mode of function described by independent variables. A full match is 100% while 0% is no match. Values of 80–100% are considered very high, 60–80% as high, and 40–60% as average.

All tests were analyzed on the level of significance of $P < 0.05$. Calculations were performed using the Statistica 10.0 PL (StatSoft) package.

Results

The majority of the study participants were women (62.0%) (Table 1). The average age of the respondents was 71.07 ± 5.72 years (women 69.76 ± 5.29 ; men 73.21 ± 5.80 years). The number of married (44.0%) and widowed (43.0%) participants was nearly identical. Most of the participants had completed secondary education (49.0%). One-third (36.0%) of the study group participants lived on their own. They were mostly retired (76.0%). More than half of the study participants (57.0%) reported financial problems (Table 1).

Table 1. Sociodemographic characteristics of the study group.

| Sociodemographic variables | N=% | Sociodemographic variables | N=% |
|----------------------------|-----|------------------------------|-----|
| Sex | | Financial standing | |
| Female | 62 | Good | 43 |
| Male | 38 | Barely sufficient | 45 |
| | | Insufficient | 12 |
| Age | | Living | |
| <75 | 76 | With a partner | 26 |
| ≥75 | 24 | With family | 38 |
| | | Alone | 36 |
| Marital status | | Professional activity | |
| In a relationship | 44 | Employed | 2 |
| Single | 56 | On disability pension | 21 |
| of which: | 2 | Retired | 76 |
| Divorced | 43 | Homeless | 1 |
| Widowed | 11 | | |
| Never married | | | |
| Education | | | |
| Primary | 28 | | |
| Secondary | 49 | | |
| Higher | 23 | | |

Table 2. EASY-Care Standard 2010 risk scales and selected variables.

| Variable | N | Independence score Mean ±SD | Risk of breakdown in care Mean ±SD | Risk of falls Mean ±SD | AMTS Mean ±SD | IADL Mean ±SD |
|-----------------------|-----|--------------------------------|---------------------------------------|---------------------------|------------------|------------------|
| Sex | | | | | | |
| Female | 62 | 10.71±15.68 | 4.21±2.97 | 1.19±1.37 | 9.50±0.69 | 21.58±3.29 |
| Male | 38 | 17.08±22.04 | 4.68±3.59 | 1.34±1.74 | 9.21±0.87 | 19.84±4.71 |
| Age | | | | | | |
| <75 | 76 | 10.50±16.09 | 4.13±3.11 | 1.16±1.41 | 9.49±0.76 | 21.58±3.58 |
| ≥75 | 24 | 21.46±23.15 | 5.21±3.45 | 21.46±1.79 | 9.08±0.78 | 18.83±4.46 |
| Marital status | | | | | | |
| In a relationship | 44 | 7.43±12.42 | 3.93±2.72 | 0.86±1.27 | 9.66±0.61 | 23.32±2.79 |
| Single | 56 | 17.61±21.21 | 4.75±3.53 | 1.55±1.63 | 9.18±0.83 | 19.82±4.41 |
| of which | | | | | | |
| Divorced | 2 | 7.00±9.89 | 2.50±2.12 | 0.50±0.71 | 9.00±0.00 | 23.50±0.71 |
| Widowed | 43 | 20.30±22.52 | 5.00±3.71 | 1.67±1.70 | 9.14±0.86 | 19.28±4.61 |
| Never married | 11 | 9.00±14.13 | 4.18±2.96 | 1.27±1.42 | 9.36±0.81 | 21.27±3.35 |
| Overall | 100 | 13.13±18.51 | 4.39±3.21 | 1.25±1.51 | 9.39±0.77 | 20.92±3.96 |

SD – standard deviation; n – number.

Seniors Club members showed a good functional condition, as expected. In the AMTS test, they scored near maximum values (average 9.39±0.77 points) which confirmed their good cognitive functioning. They had somewhat poorer scores in the IADL scale (average 20.92±3.96 points). The study participants experienced the greatest difficulties in mobility outside home. Women and participants aged less than 75 years had a slightly better ability in both scales (Table 2).

The EASY-Care Standard 2010 questionnaire

The analysis of individual areas of the EASY-Care Standard 2010 found that the study group was relatively self-reliant. Partial support was usually required in the following areas: Mental health and well-being (59.0%), Staying healthy (29.0%), Getting around (22.0%), and Seeing, hearing and communicating (22.0%). Significant support was found necessary only in the area of Getting around (3.0% of the group).

Table 3. Statistical analysis showing differences between EASY Care Standard 2010 risk scales and selected variables.

| Variable | N | Independence score | Risk of breakdown in care | Risk of falls | AMTS | IADL |
|-----------------------|-----|--|--|---|---|---|
| Sex | | | | | | |
| Female | 62 | Z=1004.00 | Z=1109.00 | Z=1165.50 | Z=972.5 | Z=1982 |
| Male | 38 | P=0.206 | P=0.624 | P=0.928 | P=0.103 | P=0.146 |
| Age | | | | | | |
| <75 | 76 | Z=-2.425 | Z=-1.515 | Z=-0.620 | Z=2.460 | Z=3.029 |
| ≥75 | 24 | P=0.015 | P=0.130 | P=0.535 | P=0.014 | P=0.002 |
| Marital status | | | | | | |
| In a relationship | 44 | Z=-2.30 | Z=-0.80 | Z=-2.23 | Z=3.10 | Z=3.00 |
| Single | 56 | P=0.021 | P=0.424 | P=0.026 | P=0.002 | P=0.003 |
| Education* | | | | | | |
| Primary | 28 | r _s =-0.475 | r _s =-0.342 | r _s =-0.342 | r _s =0.22 | r _s =0.470 |
| Secondary | 49 | P<0.000 | P<0.000 | P<0.000 | P=0.031 | P=0.000 |
| University | 23 | | | | | |
| AMTS | 100 | r _s =-0.472 P=0.000 | r _s =-0.295 P=0.003 | r _s =-0.369 P<0.000 | - | r _s =0.472 P=0.000 |
| IADL | 100 | r _s =-0.831 P=0.000 | r _s =-0.585 P=0.000 | r _s =-0.658 P=0.000 | r _s =0.472 P=0.000 | - |

* The total number of years of education completed was analysed. n – number; r_s – Spearman’s rank correlation coefficient; Z – Mann-Whitney test result; P-value.

Table 4. Averages and standard deviations for WHOQOL-BREF quality of life in 4 domains.

| Variable | N | Physical health Mean ±SD | Psychological Mean ±SD | Social relationships Mean ±SD | Environment Mean ±SD |
|-----------------------|-----|--------------------------|------------------------|-------------------------------|----------------------|
| Sex | | | | | |
| Female | 62 | 51.77±19.57 | 61.24±20.50 | 56.97±20.91 | 59.92±18.55 |
| Male | 38 | 49.53±23.94 | 55.84±25.74 | 51.16±23.25 | 56.18±22.49 |
| Age | | | | | |
| <75 | 76 | 52.82±20.03 | 61.07±21.98 | 55.53±22.46 | 59.43±19.26 |
| ≥75 | 24 | 44.92±24.18 | 53.25±24.20 | 52.33±20.26 | 55.54±22.79 |
| Marital status | | | | | |
| In a relationship | 44 | 56.50±17.24 | 62.82±17.59 | 58.25±19.33 | 61.20±16.05 |
| Single | 56 | 46.54±23.14 | 56.34±25.76 | 52.02±23.53 | 56.38±22.71 |
| of which | | | | | |
| Divorced | 2 | 66.00±4.24 | 75.00±0.00 | 84.50±13.44 | 63.00±0.00 |
| Widowed | 43 | 44.30±24.18 | 54.60±27.75 | 48.95±23.62 | 55.79±24.71 |
| Never married | 11 | 51.73±19.00 | 59.73±17.89 | 58.09±19.80 | 57.45±16.19 |
| Overall | 100 | 50.92±21.24 | 59.19±22.66 | 54.76±21.90 | 58.50±20.11 |

SD – standard deviation; n – number.

The average score for Independence was 13.13±18.51 (Table 2). Men had a higher score (17.08±22.04) than women (10.71±15.68). The highest score was 67. Participants aged 75 years and older scored higher on average (21.46±23.15) than those younger than 75 years of age (10.50±16.09), which indicates they were less physically capable. In the Risk of breakdown in care scale, a significantly higher risk of being placed under 24/7 care was found for men, persons older than 75

years of age, and widowed persons. The risk of falls affected 21 participants (21%). In the entire group the average score (1.25±1.51) confirmed a low risk of falls (Table 2).

A statistical analysis (Table 3) found no difference between women and men in terms of cognitive functioning, complex activities of daily living, or the 3 scales summarizing the EASY-Care Standard 2010 questionnaire. Age was correlated with

Table 5. Statistical analysis of differences between WHOQOL-BREF quality of life domains and selected variables.

| Variable | N | Physical health | Psychological | Social relationships | Environment |
|----------------------------------|-----|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Sex | | | | | |
| Female | 62 | Z=0.66 | Z=1.22 | Z=0.48 | Z=0.66 |
| Male | 38 | P=0.816 | P=0.511 | P=0.223 | P=0.632 |
| Age | | | | | |
| <75 | 76 | Z=1.66 | Z=1.40 | Z=0.67 | Z=0.77 |
| ≥75 | 24 | P=0.097 | P=0.161 | P=0.504 | P=0.443 |
| Marital status | | | | | |
| In a relationship | 44 | Z=-2.09 | Z=-0.76 | Z=-1.04 | Z=-0.77 |
| Single | 56 | P=0.036 | P=0.448 | P=0.296 | P=0.440 |
| Education | | | | | |
| Number of years of education | 100 | $r_s=0.383$ P<0.000 | $r_s=0.323$ P=0.001 | $r_s=0.345$ P<0.000 | $r_s=0.344$ P<0.000 |
| Independence score | | | | | |
| 100 | 100 | $r_s=-0.685$ P<0.000 | $r_s=-0.530$ P<0.000 | $r_s=-0.391$ P<0.000 | $r_s=-0.525$ P<0.000 |
| Risk of breakdown in care | | | | | |
| 100 | 100 | $r_s=-0.768$ P<0.000 | $r_s=-0.705$ P<0.000 | $r_s=-0.560$ P<0.000 | $r_s=-0.652$ P<0.000 |
| Risk of falls | | | | | |
| 100 | 100 | $r_s=-0.649$ P<0.000 | $r_s=-0.501$ P<0.000 | $r_s=-0.465$ P<0.000 | $r_s=-0.522$ P<0.000 |
| IADL | | | | | |
| 100 | 100 | $r_s=0.619$ P<0.000 | $r_s=0.473$ P<0.000 | $r_s=0.379$ P<0.000 | $r_s=0.472$ P<0.000 |
| AMTS | | | | | |
| 100 | 100 | $r_s=0.376$ P<0.000 | $r_s=0.245$ P=0.014 | $r_s=0.176$ P=0.079 | $r_s=0.286$ P=0.004 |

SD – standard deviation; n, number; r_s – Spearman’s rank correlation coefficient; Z – Mann-Whitney test result; P-value.

statistically significant differences in results of the participants only in the score for Independence, AMTS, and IADL. The functioning of people aged ≥75 years was poorer; thus, they required more support. Differences were found in results for all scales (except for Risk of breakdown in care) in terms of the marital status variable. Single persons, in particular widowed ones, had poorer results. A correlation was found between 3 EASY-Care Standard 2010 scales and the participant’s education, cognitive abilities, and functioning in complex activities of daily living (Table 3) and between education and AMTS and IADL scales. The longer the duration of education, the smaller the need for support in all scales.

Quality of life

Quality of life using the WHOQOL-BREF questionnaire found that the highest scores were achieved in the Psychological (59.19±22.66) and Environment (58.50±20.11) domains, and the lowest score was found in the Physical health domain (50.92±21.24). The average score in the Social relationships domain was 54.76±21.90 (Table 4).

All 4 WHOQOL-BREF quality of life domains analyzed scored higher for women, persons older than 75 years of age, and

persons in a relationship. These differences, however, are not statistically significant (Table 5).

The number of years of education was significant, though not significantly positively correlated with all quality of life domains. The larger the number of years of education, the higher quality of life assessed by the participants in all 4 domains.

A positive correlation was found between quality of life assessment and degree of ability in complex activities of daily living and cognitive functions (other than the Social relationships domain). Participants with better cognitive and motor abilities assessed their quality of life more highly. The analysis of the connection between quality of life assessment and the need for support found that quality of life assessment in all domains was negatively correlated with the scores for Independence, Risk of breakdown in care, and Risk of falls. Quality of life (QoL) assessment would deteriorate with a higher demand for support.

Multiple regression for EASY-Care Standard 2010

The analysis took into account items of the EASY-Care Standard 2010 questionnaire where the participants required the greatest

Table 6. Multiple regression – effect of selected variables on EASY Care Standard 2010.

| Variables | Independence score R ² =0.751 | Risk of breakdown in care R ² =0.661 | Risk of falls R ² =0.806 |
|-------------------------------|---|--|--|
| 1.2 Hearing impairment | B -0.7472±2.354 P<0.752 | B 0.248±0.248 P<0.248 | B -0.057±0.165 P<0.730 |
| 2.11 Urinary incontinence | B 10.053±2.570 P=0.000 | B 1.199±0.404 P<0.005 | B 1.014±2.035 P<0.000 |
| 3.2 Foot problems | B 0.127±2.440 P<0.958 | B 0.242±0.480 P<0.615 | B 1.011±0.168 P=0.000 |
| 3.6 Mobility outside the home | B 22.162±2.392 P=0.000 | B 1.938±0.478 P<0.000 | B 2.262±0.151 P=0.000 |
| 7.6 Pain | B 0.287±2.535 P<0.910 | B 1.157±0.477 P<0.017 | B 0.121±0.149 P<0.416 |
| 7.7 Despondence | B 5.133±2.198 P<0.022 | B 1.970±0.447 P<0.000 | B 0.303±0.155 P<0.049 |
| 7.9 Forgetfulness | B 3.220±2.327 P<0.169 | B 1.840±0.450 P<0.000 | B 0.451±0.153 P<0.004 |

Table 7. Multiple regression: effect of selected variables on quality of life.

| Variables | Physical health R ² =0.581 | Psychological R ² =0.534 | Social relationships R ² =0.291 | Environment R ² =0.469 |
|-------------------------------|--|--|---|--------------------------------------|
| 1.2 Hearing impairment | P>0.05 | P>0.05 | B -7.740±3.097 P<0.014 | B -9.091±3.577 P<0.000 |
| 3.6 Mobility outside the home | B -19.188±3.119 P<0.000 | B -11.981±3.450 P<0.001 | B -9.100±4.115 P<0.029 | B -9.913±3.279 P<0.003 |
| 7.6 Pain | B -11.691±3.864 P<0.003 | P>0.05 | P>0.05 | P>0.05 |
| 7.7 Despondence | B -8.996±3.275 P<0.007 | B -18.434±3.589 P<0.000 | B -12.559±4.281 P<0.004 | B -13.389±3.411 P<0.000 |
| 7.9 Forgetfulness | B 12.139±3.152 P<0.000 | B -14.736±3.538 P<0.000 | B -11.385±4.220 P<0.008 | B -12.488±3.376 P<0.000 |

support. Variables used included 1.2 Hearing impairment; 2.11 Urinary incontinence; 3.2 Foot problems; 3.6 Mobility outside the home; 7.5 Sleeping disorders; 7.6 Complaints of pain; 7.7 Despondency; 7.9 Forgetfulness.

Following the deletion of insignificant variables, the regression model set 66.12% variability for the Independence score, 74.07% for Risk of breakdown in care, and 80.59% for Risk of falls (Table 6).

The need for assistance in Mobility outside the home and Urinary incontinence and Forgetfulness increased the Independence score the most in the study group. All factors analyzed (other than Foot problems and Hearing impairment) significantly but only slightly increased the Risk of breakdown

in care in the study group. Persons with urinary incontinence, mobility problems, and foot problems had a higher Risk of falls. Factors which increased the Independence score, Risk of breakdown in care, Risk of falls included difficulties in mobility outside the home, urinary incontinence, and despondency.

Multiple regression for quality of life

Multiple regression for quality of life assessment considered the same factors as the EASY-Care Standard 2010. Following the deletion of insignificant variables, the regression model set 53.4–58.1% variability of quality of life in 4 domains (Table 7).

The smallest variability was found in the domain of Social relationships, and the greatest in Physical health. Impaired hearing

was the most significant factor in quality of life assessment in the domains of Environment and Social relationships. People with impaired hearing had a quality of life score lower than people with normal hearing, on average by 9.09 points in the Environment domain and by 7.74 points in the Social relationships domain. Difficulties in Mobility outside the home reduced quality of life assessment in all domains, mostly in Physical health. People with Mobility outside the home problems had quality of life score lower by approx. 19.54 points than more fit participants. Pain complaints reduced the quality of life score in the Physical health domain by 11.70 points. Despondency and Forgetfulness reduced quality of life in all domains, mostly the Psychological domain.

Discussion

The ageing of the society requires from those who organize care for the elderly to change their perceptions of the elderly, of their place in society, and their care priorities. The focus is increasingly placed not only on extending life expectancy but also on quality of life. The variety of health problems observed in elderly people requires the planning and arrangement of comprehensive care by various specialists. The satisfaction of care needs has a positive effect on perception of the old age and the ageing process [8,12,25]. Therefore, researchers studying quality of life of the elderly frequently emphasize the connection between functional status and quality of life. Participants of a study conducted in 20 countries to assess quality of life and attitudes to ageing have shown that people dissatisfied with their health had more negative attitudes to ageing, in particular in the domain of Physical change, and lower quality of life scores [25]. Mental and social needs must also be given consideration to ensure high quality of life. Care organizers must find answers to questions, this study attempted to address, “what are the factors that significantly contribute to the need for care and affect quality of life of the elderly ageing gracefully?” and “what are the connections between those factors?”.

In studies assessing quality of life using the WHOQOL questionnaire, elderly patients would usually score more than 60 points which is above a good score [3–6,18,27]. In our studies, the score varied from 51 to 60 points. Elderly people in India and Iran would assess their quality of life at approximately 50 points [1,37]. The Psychological domain received the best score from the participants in this study, while Physical health received the lowest score. In other studies, authors also noted that the domain concerning health in its biological dimension received the lowest scores [10,24]. Greater differences were found in the assessment of the domain deemed to be the most satisfactory. Researchers usually indicate the domain of Social relationships [2,10,24] or the Environment domain [5,18,27]. Studies conducted in the United States have shown that poorer

ability in activities of daily living, memory disorders and depression, and greater number of comorbidities were associated with a lower quality of life. Social functioning was better in older people, married people, women, people with secondary and higher education, and with a higher ADL ability. The Emotional dimension was assessed as lower by people with poor ADL ability, depression, and less physical activity [7,8]. In this study, similarly, lower quality of life assessments were expressed by persons with lowered functioning in the AMTS and IADL scales. It is frequently emphasized that better physical activity and social support help improve quality of life [27].

Quality of life assessment is often significantly affected by such factor as depression, physical functioning and health, frailty syndrome, institutional care, and being single [1,6,10,24,27]. In our studies, poorer quality of life assessments were expressed by persons without a partner and living alone. Being single is also frequently emphasized as a major adverse factor and so is the presence of any comorbidities [1,3,5,6,19,20,22,38]. Neither sex nor age had any effect on EASY-Care Standard 2010 questionnaire scores (except for the Independence score). Marital status affected elderly people’s assessment of functioning in the domains of Independence and Risk of falls. Single people were at a higher risk of disability, 24/7 care, and falls. All risk scales in the EASY-Care standard 2010 questionnaire in this study and studies by Pinar et al. [17] were correlated with education. Researchers from Portugal, among others, undertook to show the importance of functional limitations and unsatisfied needs for quality of life and of the need for support [12]. They have shown a very close relationship between domains contained in the EASY-Care Standard 2010 questionnaire and relevant domains of the WHOQOL-BREF quality of life questionnaire. This study yielded similar results. Thus, it can be concluded that the provision of adequate support will help sustain the biological, psychological, and social activity of the elderly and hence result in a high quality of life assessment. This study also showed that the same factors affected quality of life assessment and the demand for support, and these were difficulties in mobility outside the home, despondency, and forgetfulness. In addition to this, quality of life assessment was affected by impaired hearing and the EASY-Care Standard 2010 score by urinary incontinence. Kumar et al. [1], likewise, have shown that impaired hearing affected quality of life, especially in the Physical and Environmental domains. Increased Independence scores, Risk of breakdown in care, and Risk of falls in people with urinary incontinence were also shown by Pinar et al. [17]. Quality of life assessment in individual domains as well as the Independence score, Risk of breakdown in care, and Risk of falls in this study also depended on self-reliance in complex activities of daily living and cognitive ability.

Factors contributing to the need for support and affecting quality of life domains at the same time are subject to modification.

Therefore, they should be given consideration and eliminated, as far as possible, when planning support. Any initiatives addressed to the elderly should take into account their functional ability and the need for autonomy, participation in activities, self-care, and self-satisfaction [27,39]. Diversified forms of supportive measures confirm the need for the co-operation of various professionals when planning care for elderly people. It is also important that specific needs and resources of elderly people be taken into consideration [11,23,39]. Health protection rules aimed at improving quality of life and at active ageing should also be followed [20,27].

The essential element of this research was demonstrating connections between the subjective evaluation of quality of life and functional state as well as revealing factors that influence it. The results obtained can make those responsible for organizing elderly care aware that support is also required by those who are aging without major problems. In addition, individualized (rather than routine) care is necessary which takes into account the degree of functional limitation.

One limitation of this research was the size of the study group. A relatively small group of respondents may make it difficult to generalize the results. Increasing the number of respondents

could make possible a more precise analysis regarding connections between the factors that influence the need for care as well as quality of life.

Conclusions

The results obtained indicated that despite good general psycho-physical functioning the respondents have difficulties in undertaking activities, especially those related with leaving the home. The factors that most increase the loss of independence, falls, and the need for 24-hour care were urinary incontinence, low levels of mobility, hearing impairment, forgetfulness, and depression. The level of physical, cognitive, and emotional functioning had an essential influence also on the evaluation of quality of life of older people. Therefore, a systematic evaluation of the state of functioning in those of advanced age is needed as is a determination of the factors limiting independence. As this research has demonstrated, these are common factors that can be partially or completely eliminated.

Conflicts of interest

None.

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