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*Original article*

# Quality of life of elderly users of long-term health care in and outside the institution

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**Summary**

**Introduction**. Long-term care is series of health and social care services provided at home or in an institutional environment to people with reduced functional capacity. Even though it is known that the quality of life (QoL) of elderly is on a lower level when compared to younger people, there is a small amount of information about QoL of long-term health care patients. The aim of our study was to determine the difference in QoL, depression, anxiety and stress of long-term health care users placed in and outside the institution.

**Methods**. This cross-sectional study included 100 long-term healthcare users, divided in two groups. First group consisted of 50 respondents from primary level of health care and second group consisted of 50 residents of nursing home. The research was conducted in the period from June to July 2022. A general socio-demographic questionnaire, SF-36 health questionnaire for estimating the QoL and the scale of depression, anxiety and stress (DASS-21) were used as instruments in this study.

**Results**. Respondents who were institutionalized had significantly lower values of domains and summary scores of QoL compared to respondents whose health care took place outside of institutions, where the difference was observed in physical health summary score (37.67±6.20% vs. 50.39±10.74%, p<0.001), and the mental health summary score (44.87±11.82% vs. 51.83±16.01%, p =0.015). Respondents who received long-term health care institutionally had significantly (p=0.011) more mild anxiety (12%) and moderate anxiety (34%) compared to respondents who received long-term health care outside the institution (4% vs. 14%).

**Conclusion**. Our results showed that residents of nursing home had significantly worse physical and mental functioning, as well as more frequent occurrence of anxiety symptoms compared to users of long-term health care placed outside institutions, in home environment.

**Key words:** quality of life, long-term health care, institution

## Introduction

Long-term care is series of health and social care services provided at home or in the institutional environment to people with reduced functional capacity (reduced physical and/or cognitive abilities) who need support in performing daily activities, and who depend on the help of others for a long time period [1, 2]. Although the profile of patients who need long-term health care is different, it is most often required by older people. Old age is a physiological process during which biological, psychological and sociological changes occur, and according to certain theories, genetics play the most important role in the process of biological aging [3]. According to the World Health Organization (WHO), the elderly are those who are older than 65 [4, 5]. Due to the aging of the organism, the elderly have an increased risk of developing a large number of malignant tumors and chronic diseases, which are present in 60% of the elderly population affecting their ability to perform daily activities. Consequently, elderly are at a significantly higher risk of needing long-term health care compared to the younger population [3, 6, 7].

According to the classification most often used in practice, long-term health care can be formal (institutional and non-institutional) and informal. Institutional long-term health care includes long-term services that are available 24 hours a day in institutions that also serve as residences for people who receive care (eg nursing homes). Non-institutional long-term care is provided to patients in their own houses or apartments. Informal long-term care comprises of help from family members or unpaid help in providing health or social care to persons unable to provide it for themselves [1]. Institutions for social and health care provide their patients with housing services, nutrition assistance, care services, hygiene maintenance, psychosocial rehabilitation, occupational therapy, services for organizing and actively spending free time, work activities, upbringing and education, with the aim of improving the quality of life (QoL) of the patients of the institution [8].

The QoL comprises one's comprehensive and overall satisfaction/dissatisfaction with one's own life [9]. Although the terms health status and well-being are often used synonymously in the literature under QoL, they are only individual aspects of a concept that is much more comprehensive [10]. This is precisely why it is necessary to distinguish between these two terms: QoL and Health related QoL, HRQoL [11]. Nowadays, there is a large number of studies assessing the HRQoL of elderly people who are institutionalized and who are exposed to continuous health care, but there is a smaller number of studies in which the HRQoL is measured in users of long-term health care provided outside of institutions, in home conditions. Elderly people are significantly more likely to have a reduced QoL if they have bad health condition [12–14]. Depression is considered the most common mental illness of the elderly. It is estimated that 10% to 15% of the elderly suffer from depression, and by 2040 that percentage will grow to 25% [15, 16]. After depression, anxiety is the second most common mental disorder in the elderly, with a prevalence of 10.7% [17].

Even though it is known that QoL of elderly is on a lower level when compared to younger people, there is a small amount of information about QoL of long-term health care patients. That is why in our research we paid special attention to determining the differences in QoL, depression, anxiety and stress of long-term health care patients placed in and outside the institution.

## Methods

### *Study design and data collection*

The research was conducted according to the type of cross-sectional study in public institutions: Public health facility "Community

health center Dr Isak Samokovlija Goražde" and Public facility "Home for the Aged and Infirm" in Goražde, in 2022. The sample consisted of users of these institutions. The study included 100 respondents which were divided into two groups. The first group consisted of 50 respondents who were patients of the Dr. Isak Samokovlija Goražde Community Health Center and users of long-term non-institutional home health care. The second group consisted of 50 respondents who were institutionally placed and were beneficiaries of long-term health care at the Home for the Aged and Infirm in Goražde. Respondents of both genders, aged over 65, participated in the research.

The respondents were selected using a random sampling method, based on their arrival at the Goražde Community Health Center or based on their attendance at the Home for the Aged and Infirm on the day of the examination. The examination lasted one month and 10 days in the period of June and July 2022.

Before the start of the research, written consent was obtained from the competent directors of the institutions. This study was conducted in accordance with the ethical principles based on the Declaration of Helsinki. Participation in the study was voluntary, and the questionnaire was anonymous. All subjects gave their consent to be included in the study and for results to be published in scientific journals. Ethics Committees of above mentioned institutions approved the study, decision numbers: 208 and 04-30-9-807-1.

*Instruments*

The data was collected by surveying. The following questionnaires were used in the research: general socio-demographic questionnaire and SF-36 health questionnaire. The evaluation of the presence of symptoms of psychological distress among healthcare users was done using the scale of depression, anxiety and stress (DASS-21).

The general questionnaire embraced questions about sex, age, marital status, satisfaction with monthly financial income, life satisfaction and satisfaction with non-institutional or institutional long-term health care, frequency of consumption of cigarettes, alcohol, and sedative drugs, frequency of chronic diseases (diabetes mellitus type II, chronic heart diseases, arterial hypertension, chronic lung and kidney diseases).

The Short Form 36 Health Survey or just SF-36 is the most commonly used general questionnaire for estimating the QoL of patients. The questionnaire is intended for self-assessment of mental and physical health and social functioning. There are 36 questions, of which 35 questions are divided into eight areas or domains, namely: physical functioning, role limitation due to physical problems (role-physical), bodily pain, general health, vitality and energy, social functioning, role limitation due to emotional problems (role-emotional) and mental health [18, 19]. Also, apart from the mentioned eight health domains, it is possible to calculate Physical Component Summary and Mental Component Summary scores, whereby a clear division of the mentioned basic domains into two groups is made - a physical component and a mental component [18, 19].

In most cases, for each domain separately, a result of 0-33% represents a poor HRQoL, 33–66% good HRQoL, while 66–100% is a category that indicates that the HRQoL is excellent and at the highest level. Response scores range from 0 to 100 and are calculated for each area, with a higher score indicating better HRQoL. In our research, a linguistically validated version of the questionnaire, translated into Serbian, was used [18–21].

The depression, anxiety and stress scale is used to estimate the presence of symptoms of psychological distress in users of long-term health care (Depression Anxiety Stress Scales 21, DASS-21). This scale is divided into three subscales, each of which contains seven ques-

tions. The DASS-21 questionnaire consists of a total of 21 questions and is designed to measure three related negative emotional states – depression, anxiety, and stress. Answers are given on a Likert-type numerical scale: from 0 = does not apply to me, 1 = sometimes applies for me, 2 = it applies for me frequently, to 3 = applies to me most of the time. The sum of the scores for all items in each subscale and their evaluation classifies the severity of symptoms per the 5-level evaluation severity index based on recommended limit values [22].

*Data analysis*

The methods of descriptive and analytical statistics were used in the paper. Among the methods of descriptive statistics, measures of central tendency and measures of variability were used, namely: arithmetic mean with standard deviation and relative numbers for categorical variables. Among the methods of analytical statistics, Student's t-test was used for bound samples. Of the nonparametric tests, the chi-square test was used to assess the difference between the groups. The usual value of $p<0.05$ was taken as the level of statistical significance of differences. Results were statistically analyzed in SPSS software package version 21.0 (Statistical Package for Social Sciences SPSS 21.0 Inc, USA).

## Results

One hundred respondents, long-term healthcare users participated in the research. Out of the total number of respondents, the majority (63%) were males. The respondents were divided into two age groups, the younger (65 to 74) which made up 47% and the older group (75 to 85) which made up 53%. The average age of respondents was 75.10±6.46 years. Of the total number of long-term healthcare respondents, 47% were married, 6% were single, and the remaining 47% were widowed. Between the groups of respondents divided according to the place of accommodation where long-term health care took place, a statistically significant difference was noticed about the sex (p=0.023) and age (p=0.003) of the respondents, while no difference was observed concerning marital status. There was a significantly higher number of male respondents who were institutionalized (74%) compared to non-institutionalized male respondents (52%). Also, there was the significantly higher number of elderly respondents who were institutionally housed (68%) compared to respondents of the same age group who were non-institutionally housed (38%). Forty three percent of respondents were satisfied with monthly financial income, 53% of respondents were satisfied with everyday life, and 54% of respondents were satisfied with long-term health care. There was the significantly higher number of non-institutionalized (54%) respondents who were satisfied with their monthly finances compared to institutionally housed (32%) (p=0.026). Also, statistically, the number of respondents who were satisfied with daily life activities was significantly higher in the group of non-institutionalized respondents (64%) compared to the group of respondents who received long-term health care in the institution (42%) (p=0.028). Of the total number of respondents, 29% smoked, while 71% did not consume tobacco. Thirty-three percent of respondents consumed alcohol. Out of the total number of respondents, 39% were taking sedative drugs. Seventy two percent of the respondents had chronic diseases. Respondents who received long-term care institutionally had significantly more frequent (p=0.026) chronic diseases (82%) compared to respondents who received long-term care outside the institution (62%) (Table 1).

It was noticed that there was the statistically significant difference between the respondents in the average values of the domains and the summary scores of the HRQoL about the place of accommodation where the long-term

**Table 1.** Distribution of patients by group according to the place where long-term health care took place in relation to sex, age, marital status, satisfaction with income, life and health care, smoking status, consumption of sedative drugs and alcoholic beverages, and the presence of chronic diseases

| Variables | In institution (n=50) | | Outside institution (n=50) | | Total (n=100) | | p* |
|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | |
| **Sex** | | | | | | | |
| Male | 37 | 74.0 | 26 | 52.0 | 63 | 63.0 | **0.023** |
| Female | 13 | 26.0 | 24 | 48.0 | 37 | 37.0 | |
| **Age** | | | | | | | |
| From 65 to 74 years | 16 | 32.0 | 31 | 62.0 | 47 | 47.0 | **0.003** |
| From 75 to 85 years | 34 | 68.0 | 19 | 38.0 | 53 | 53.0 | |
| **Marital status** | | | | | | | |
| Married | 18 | 36.0 | 29 | 58.0 | 47 | 47.0 | |
| Single | 3 | 6.0 | 3 | 6.0 | 6 | 6.0 | **0.076** |
| Widowers | 29 | 58.0 | 18 | 36.0 | 47 | 47.0 | |
| **Satisfaction with monthly financial income** | | | | | | | |
| Satisfied | 16 | 32.0 | 27 | 54.0 | 43 | 43.0 | **0.026** |
| Dissatisfied | 34 | 68.0 | 23 | 46.0 | 57 | 57.0 | |
| **Satisfaction with everyday life** | | | | | | | |
| Satisfied | 21 | 42.0 | 32 | 64.0 | 53 | 53.0 | **0.028** |
| Dissatisfied | 29 | 58.0 | 18 | 36.0 | 47 | 47.0 | |
| **Satisfaction with the long-term health care** | | | | | | | |
| Satisfied | 26 | 52.0 | 28 | 56.0 | 54 | 54.0 | 0.688 |
| Dissatisfied | 24 | 48.0 | 22 | 44.0 | 46 | 46.0 | |
| **Smoking status** | | | | | | | |
| Yes | 15 | 30.0 | 14 | 28.0 | 29 | 29.0 | 0.826 |
| No | 35 | 70.0 | 36 | 72.0 | 71 | 71.0 | |
| **Consumption of alcoholic beverages** | | | | | | | |
| Yes | 17 | 34.0 | 16 | 32.0 | 33 | 33.0 | 0.832 |
| No | 33 | 66.0 | 34 | 68.0 | 67 | 67.0 | |
| **Consumption of sedative drugs** | | | | | | | |
| Yes | 15 | 30.0 | 24 | 48.0 | 39 | 39.0 | 0.065 |
| No | 35 | 70.0 | 26 | 52.0 | 61 | 61.0 | |
| **Presence of chronic diseases** | | | | | | | |
| Yes | 41 | 82.0 | 31 | 62.0 | 72 | 72.0 | **0.026** |
| No | 9 | 18.0 | 19 | 38.0 | 28 | 28.0 | |

*p - statistical significance measured by $\chi 2$ - chi square test

health care took place. Respondents who were institutionalized had statistically significantly lower values of domains and summary scores of HRQoL compared to respondents whose health care took place outside of institutions, where the difference was observed in physical functioning (40.50±14.06% vs 53, 70±19.94%, p<0.001), role limitation due to physical problems (41.24±15.56% vs. 51.64±19.93%, p=0.005), general health (43.35±15, 15% vs. 50.41±19.62%, p=0.047), social functioning (43.10±16.10% vs. 54.75±21.26%, p=0.003), physical health summary score (37.67±6.20% vs. 50.39±10.74%, p<0.001), and the mental health summary score (44.87±11.82% vs. 51.83±16.01%, p =0.015). Table 5 shows the average values of all domains and summary scores of the HRQoL separately for each group, as well as the average value of all respondents per place of accommodation. In the domains of bodily pain, vitality, role limitation due to emotional problems and mental health, no statistically significant differences were observed in the average values between the groups divided according to the accommodation where long-term health care took place (Table 2).

There was the statistically significant difference between the respondents in the average values of physical and social functioning about the satisfaction with monthly financial income. Respondents who were satisfied with their monthly financial income had statistically significantly higher values in the domains of physical functioning (40.18±15.84% vs 49.29±19.97%, p=0.038) and social functioning (42.13±19, 38% vs. 50.28±19.91%, p=0.021), compared to respondents who were not satisfied with their monthly financial income. The differences in the average values of other domains and summary scores between the groups of long-term healthcare respondents divided according to satisfaction with financial income were not observed (Table 3).

Respondents with chronic diseases had significantly lower values of the domain of physical functioning (39.27±19.34) compared to subjects without chronic diseases (49.21±15.87) (p=0.029). Between the groups of respondents divided according to the presence of chronic diseases, no statistically significant difference was observed in the average values of the remaining domains or summary scores of the HRQoL (Table 4).

Table 5 shows the distribution of respondents by group according to the place of accommodation where long-term health care took place concerning the frequency of the degree of depression, anxiety and stress. Twenty eight percent of respondents placed in the institution had symptoms of depression (18% mild depression, 10% severe depression); symptoms of depression appeared in 18% of cases among respondents placed outside of institutions (14% mild depression, 4% severe depression). No statistically significant difference was noticed between institutionalized and non-institutionalized respondents (p=0.394). It was noticed that there was the statistically significant difference in the frequency of anxiety between the groups of respondents divided according to the place of accommodation where long-term health care took place (p=0.011). Respondents who received long-term health care institutionally had significantly more mild anxiety (12%) and moderate anxiety (34%) compared to respondents who received long-term health care outside the institution, and in that group of respondents, a mild degree of anxiety was found in 4% of respondents and a moderate degree of anxiety in 14% of respondents. Stress was identified in 66% of respondents placed in the institution (mild stress 10%, moderate stress 56%); also, 50% of respondents who were placed outside the institution had stress (mild stress 6%, moderate stress 44%). No statistically significant difference in the presence of stress was observed between the groups of respondents divided by accommodation (p=0.254) (Table 5).

**Table 2.** Average values of the domains and summary scores of the respondents' quality of life according to the place of accommodation where long-term health care took place

| Variables | In institution (n=50) | | Outside institution (n=50) | | Total (n=100) | | p |
|---|---|---|---|---|---|---|---|
| | M | SD | M | SD | M | SD | |
| Physical Functioning | 40.50 | 14.06 | 53.70 | 19.94 | 47.10 | 18.40 | **<0.001** |
| Role-Physical | 41.24 | 15.56 | 51.64 | 19.93 | 46.44 | 18.54 | **0.005** |
| Bodily Pain | 40.36 | 17.85 | 45.83 | 16.40 | 43.09 | 17.27 | 0.583 |
| General Health | 43.35 | 15.15 | 50.41 | 19.62 | 46.88 | 17.79 | **0.047** |
| Vitality | 42.39 | 15.30 | 47.50 | 20.30 | 44.95 | 18.07 | 0.158 |
| Social Functioning | 43.10 | 16.10 | 54.75 | 21.26 | 48.92 | 19.65 | **0.003** |
| Role-Emotional | 50.66 | 29.53 | 54.66 | 23.09 | 52.66 | 26.45 | 0.452 |
| Mental Health | 47.72 | 15.24 | 48.14 | 14.77 | 47.93 | 14.93 | 0.889 |
| PCS | 37.67 | 6.20 | 50.39 | 10.74 | 44.03 | 10.82 | **<0.001** |
| MCS | 44.87 | 11.82 | 51.83 | 16.01 | 48.35 | 14.43 | **0.015** |

PCS - Physical Component Summary, MCS - Mental Component Summary, M - mean, SD - standard deviation, *p - statistical significance measured by t test for independent samples.

**Table 3.** Average domain values and summary scores of quality of life of long-term health care respondents according to satisfaction with monthly financial income

| Domains and summary scores of the SF-36 questionnaire | Satisfaction with monthly financial income | | | | p* |
|---|---|---|---|---|---|
| | Satisfied (n=43) | | Dissatisfied (n=57) | | |
| | AS | SD | AS | SD | |
| Physical Functioning | 40.18 | 15.84 | 49.29 | 19.97 | **0.038** |
| Role-Physical | 46.20 | 17.60 | 46.61 | 19.37 | 0.915 |
| Bodily Pain | 44.29 | 17.93 | 42.19 | 16.86 | 0.550 |
| General Health | 46.05 | 17.19 | 47.51 | 18.36 | 0.686 |
| Vitality | 43.30 | 17.52 | 46.19 | 18.53 | 0.431 |
| Social Functioning | 42.13 | 19.38 | 50.28 | 19.91 | **0.021** |
| Role-Emotional | 50.38 | 23.42 | 54.38 | 28.61 | 0.457 |
| Mental Health | 47.93 | 14.71 | 47.92 | 15.23 | 1.000 |
| PCS | 43.65 | 10.59 | 44.32 | 11.06 | 0.764 |
| MCS | 46.71 | 13.09 | 49.59 | 15.36 | 0.326 |

PCS - Physical Component Summary, MCS - Mental Component Summary, M - mean, SD - standard deviation, *p - statistical significance measured by t test for independent samples

**Table 4.** Average domain values and summary scores of quality of life of long-term health care respondents according to the presence of chronic diseases

| Domains and summary scores of the SF-36 questionnaire | The presence of chronic diseases | | | | p* |
|---|---|---|---|---|---|
| | Yes (n=72) | | No (n=28) | | |
| | AS | SD | AS | SD | |
| Physical Functioning | 39.27 | 19.34 | 49.21 | 15.87 | **0.029** |
| Role-Physical | 42.05 | 17.62 | 50.01 | 20.63 | 0.233 |
| Bodily Pain | 41.63 | 17.44 | 46.83 | 16.55 | 0.178 |
| General Health | 48.18 | 18.09 | 43.55 | 16.87 | 0.245 |
| Vitality | 45.95 | 18.60 | 42.37 | 16.65 | 0.377 |
| Social Functioning | 49.77 | 19.54 | 46.75 | 20.13 | 0.492 |
| Role-Emotional | 52.31 | 27.87 | 53.56 | 22.84 | 0.832 |
| Mental Health | 48.02 | 14.37 | 47.67 | 16.57 | 0.917 |
| PCS | 43.08 | 10.98 | 46.47 | 10.17 | 0.161 |
| MCS | 49.05 | 15.31 | 46.56 | 11.93 | 0.441 |

PCS - Physical Component Summary, MCS - Mental Component Summary, M - mean, SD - standard deviation, *p - statistical significance measured by t test for independent samples

**Table 5.** Distribution of respondents by group according to the place of accommodation where long-term health care took place in relation to the frequency of the level of depression, anxiety and stress (DASS-21)

| The level of depression, anxiety and stress (DASS-21) | Placed in an institution (n=50) | | Placed outside the institution (n=50) | | In total (n=100) | | p* |
|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | |
| **Depression** | | | | | | | |
| Without depression | 36 | 72.0 | 41 | 82.0 | 77 | 77.0 | 0.394 |
| Mild depression | 9 | 18.0 | 7 | 14.0 | 16 | 16.0 | |
| Severe depression | 5 | 10.0 | 2 | 4.0 | 7 | 7.0 | |
| **Anxiety** | | | | | | | |
| Without anxiety | 27 | 54.0 | 41 | 82.0 | 68 | 68.0 | **0.011** |
| Mild anxiety | 6 | 12.0 | 2 | 4.0 | 8 | 8.0 | |
| Moderate anxiety | 17 | 34.0 | 7 | 14.0 | 24 | 24.0 | |
| **Stress** | | | | | | | |
| Without stress | 17 | 34.0 | 25 | 50.0 | 42 | 42.0 | 0.254 |
| Mild stress | 5 | 10.0 | 3 | 6.0 | 8 | 8.0 | |
| Moderate stress | 28 | 56.0 | 22 | 44.0 | 50 | 50.0 | |

*p - statistical significance measured by $\chi 2$ - chi square test.

## Discussion

The study conducted on the sample of 100 respondents, users of long-term health care aimed to examine the HRQoL of users of long-term health care, with the special focus on comparing the HRQoL between users placed institutionally and outside the institution (in home conditions), and then, whether the factors such as age, satisfaction with financial income and higher frequency of chronic diseases affected the HRQoL, whether depression, anxiety and stress were more frequent in institutionalized users and whether they were related to the HRQoL of users of long-term health care. For the treatment and long-term health care to be more effective, it is necessary to be familiar with the physical, psychological and social status of the persons to whom care is provided [11].

The reason for this is that a violation of any of these three components of the QoL prevents the adequate provision of health care, especially if it should be permanent. People with a violated psychological component of the HRQoL are not able to accept the disease, are poorly motivated for treatment or do not understand how necessary the application of health care is, while people with a violated physical component due to underlying diseases do not have adequate physical functioning, have limitations due to physical problems, and their general health is violated, which contributes to the development of psychological symptoms as well [12–14]. This represents a vicious circle in which one type of symptoms leads to the development of others or the worsening of existing ones, so it is very important that nurses/technicians recognize the estimated HRQoL of health care users in time so that they can adequately approach the patient [11].

Although the research has shown that the HRQoL in elder people is significantly worse compared to the younger population of adults, due to the biological process of aging of the organism [11] the small number of researches examining the HRQoL in the elderly population users of long-term health care has been done. In our study, 63% of respondents were males, aged between 65 and 85, with a significantly higher number of male respondents and older respondents who were institutionalized. We found that the HRQoL of all respondents was at a rather low level. Although there is a lot of data in the literature about the quality of life of the elderly population, they should be separated from our research, because our population of respondents, regardless of being older, is not healthy and our sample is not from the general population, but from the population of people who have health problems and are on the program of long-term health care. However, from the literature data it can be seen that the HRQoL of elderly people from the general population is at the rather low level. Research by Lima and associates [23] done on the sample of 1,958 elderly people over 60 in São Paulo, Brazil, showed that the average value of vitality in that sample was 64.4%, mental health was 69.9% and general health was 70.1%, while the highest scores were noticed in role limitations due to emotional problems (86.1%), social functioning (85.9%) and physical functioning (81.2%) [23]. Research done on our sample showed that the values of those domains of HRQoL were much lower, so the average value of vitality of our respondents was 44.95%, mental health was 47.93%, general health was 46.88%, physical functioning was 47.10%, role limitations due to emotional problems were 52.66% and social functioning was 48.92%. Although our results showed lower values compared to the study by Lima and associates [23], the reason for this is that their sample is from the general population, while our respondents had diseases for which they were exposed to long-term health care, so it can be expected that their HRQoL would be lower compared to the general population.

In the research by Čanković and associates [24] done in Serbia on a random sample of

200 people over 60 living in the Gerontological Center in Novi Sad, which is methodologically more similar to our study, the HRQoL from the aspect of physical, psychological and social status was estimated. The authors determined that 137 (68.8%) respondents had chronic diseases and that physical health was significantly worse in people with chronic diseases compared to people without chronic diseases (61.8% vs. 76.4%, p =0.001), mental health (62.2% vs. 71.5%, p=0.002), while no difference was observed in social functioning [24].

In our research, we showed that 72% of respondents had chronic diseases and that this group of users of long-term health care had the significantly lower level of physical functioning compared to the group of respondents without chronic diseases, while we did not notice the difference in the domains and overall score of mental health. However, our respondents who received long-term health care institutionally had significantly more chronic diseases (82%) compared to respondents who received long-term health care outside the institution (62%) (p=0.026). Čanković and associates [24] did not find that older age significantly affected the change in the physical or mental component of HRQoL, which was in accordance with our results, in which we did not notice that the older age group had significantly lower values of domains and summary scores of HRQoL. In addition to chronic diseases, which we determined as affecting the physical functioning of our respondents we also determined that satisfaction with monthly financial income had a significant impact on the HRQoL of users of long-term health care. Our results showed that respondents who were satisfied with their monthly financial income (43%) had the significantly higher average values of the domains of physical functioning (p=0.038) and social functioning (p=0.021), compared to respondents who were not satisfied with their monthly financial income. The differences in average values of other domains and summary scores between groups of users of long-term health care divided according to satisfaction with financial income were not noticed. Our results have been confirmed by the study of Egeljić-Mihajlović and associates [11] who, in their research conducted in Republic of Srpska on a sample of 159 elderly respondents, showed that a poorer financial status significantly affects the HRQoL of old people, as well as poorer educational status, with respondents with a higher education having a significantly better health, social and financial status compared to older people with a lower level of education [11].

The research by Pavlović and associates [25], which was conducted in Bosnia and Herzegovina, Republic of Srpska, among people over 65, showed that one of the factors significantly affecting the HRQoL of the elderly was the lack of personnel specialized in the field of geriatrics and the lack of geriatricians. That lack contributed to a greater number of problems among users of homes for the elderly, as well as the neglecting of regular evaluation of the users' HRQoL. Also, the study by Pavlović and associates [25] showed that users of nursing homes had significantly worse functional status compared to respondents living in the community. The results of our research were similar to the listed study, with the only difference being that we did not examine functional status, but rather HRQoL, and we noticed that respondents who received institutional long-term health care had lower level of HRQoL compared to respondents who received long-term care provided in home conditions.

The research done in Croatia showed that around 60% of elderly people accommodated in homes for the elderly were satisfied with their lives, while 12.8% were dissatisfied and the authors stated that the level of life satisfaction among elderly people living outside institutions was significantly better. Also, about 30% of institutionalized elderly people rated their life satisfaction as mediocre, and

the variables of satisfaction with participation in activities at home, variety of offered contents and satisfaction with the frequency of social events had the lowest values [26]. In our research, 47% of users of long-term health care were not satisfied with their daily life, where residents in nursing home were significantly more dissatisfied when compared to non-institutionalized respondents. The research shows that 10% to 15% of elderly people suffer from depression [15, 16] while the prevalence of anxiety among the elderly population is 10.7% [17]. In our research, 23% of respondents had symptoms of depression, 32% of respondents had symptoms of anxiety, while 58% of users of long-term health care had symptoms of stress. The higher frequency of depression and anxiety in our study was most likely due to the fact that our sample consisted of elderly people with acute or chronic diseases requiring long-term health care. Our results also showed that significantly larger number of respondents who were institutionalized had moderate anxiety (34%) compared to non-institutionalized users of long-term health care (14%) (p=0.001). However, by examining the relationship between anxiety and the domains and summary scores of the HRQoL, we did not observe the significant relationship, so we did not confirm the hypothesis that people with depression, anxiety and higher level of stress had changes in the HRQoL. The accommodation in the institution leads to the more frequent occurrence of anxiety symptoms and changes in terms of lower HRQoL, both physical and mental components. It is likely that, neither anxiety nor depression and stress have an impact on significantly lower values of this HRQoL components.

## Conclusion

Our results showed that users of long-term health care placed in institutions had significantly worse physical functioning, higher level of limitations due to physical problems, worse general health, lower level of social functioning, as well as lower level of summary scores of physical and mental health compared to users who were accommodated outside the institution. It was observed that users of long-term health care who were satisfied with their monthly financial income had significantly better physical and social functioning compared to users who were not satisfied. Also, users with chronic diseases had worse physical functioning compared to users without them. Symptoms of depression and stress were more often expressed in institutionalized users of long-term health care. It was also observed that the frequency of moderate symptoms of anxiety was higher in these users.

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**Ethical approval.** The Ethics Committees of the Public health facility "Community health center Dr Isak Samokovlija Goražde" and in the Public facility "Home for the Aged and Infirm" in Goražde, Bosnia and Herzegovina, No. 208 and 04-30-9-807-1, approved the study and informed consent was obtained from all individual respondents. The research was conducted according to the Declaration of Helsinki.

**Conflicts of interest.** The authors declare no conflict of interest.

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# Kvalitet života starijih korisnika dugoročne zdravstvene njege liječenih institucionalno i vaninstitucionalno

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**Uvod**. Dugotrajna njega je niz usluga zdravstvene i socijalne zaštite koje se pružaju kod kuće ili u institucionalnom okruženju osobama sa smanjenim funkcionalnim kapacitetima. Iako je poznato da je kvalitet života starijih osoba na nižem nivou u odnosu na mlađe osobe, postoji mala količina podataka o kvalitetu života pacijenata podvrgnutih dugoročnoj zdravstvenoj njezi. Cilj našeg istraživanja bio je da se utvrdi razlika u kvalitetu života, depresiji, anksioznosti i stresu starijih korisnika dugoročne zdravstvene njege smještenih u i van ustanove.

**Metode**. Ova studija presjeka obuhvatila je 100 korisnika dugoročne zdravstvene njege, podijeljenih u dvije grupe. Prvu grupu činilo je 50 ispitanika sa primarnog nivoa zdravstvene zaštite, a drugu grupu činilo je 50 ispitanika koji su bili institucionalno smješteni. Istraživanje je sprovedeno u periodu od juna do jula 2022. godine. Kao instrumenti u ovom radu korišćeni su opšti socio-demografski upitnik, zdravstveni upitnik SF-36 za procjenu kvaliteta života i skala depresije, anksioznosti i stresa (DASS-21).

**Rezultati**. Ispitanici koji su bili institucionalizovani imali su značajno niže vrijednosti domena i zbirnih skorova kvaliteta života u poređenju sa ispitanicima čija se zdravstvena njega odvijala van institucija, gdje je uočena razlika u zbirnom skoru fizičkog zdravlja (37,67±6,20% naspram 50,39±10,74%, p <0,001) i zbirni rezultat mentalnog zdravlja (44,87±11,82% naspram 51,83±16,01%, p = 0,015). Ispitanici koji su dugotrajnu zdravstvenu njegu primali institucionalno imali su značajno (p = 0,011) više blage anksioznosti (12%) i umjerene anksioznosti (34%) u odnosu na ispitanike koji su dugotrajnu zdravstvenu njegu primali van ustanove (4% prema 14%).

**Zaključak**. Naši rezultati su pokazali da stariji korisnici dugoročne zdravstvene njege smješteni u ustanovama imaju značajno lošije fizičko i mentalno funkcionisanje, kao i češću pojavu simptoma anksioznosti u odnosu na korisnike dugoročne zdravstvene njege smještene van ustanova.

**Ključne riječi**: kvalitet života, dugoročna zdravstvena njega, institucija