ORIGINAL ARTICLE

Self-assessed health status in Poland: EQ-5D findings from the Polish valuation study

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KEY WORDS

EQ-5D, EuroQol, general population, health-related quality of life, population norms

ABSTRACT

INTRODUCTION There are no population norms currently available in Poland for any generic health-related quality of life (HRQoL) questionnaire for adults.

OBJECTIVES The aim of the study was to evaluate the health status of a representative sample of the general Polish population using the EQ-5D questionnaire.

MATERIAL AND METHODS Adult subjects who were visiting patients in 8 medical centers in Warsaw, Skierniewice, and Puławy, were interviewed during the Polish EQ-5D valuation study. Stratified quota sampling was used. The respondents completed the EQ-5D questionnaire and provided information on age, sex, marital status, education, employment, income, housing conditions, medical history, and smoking habits. The interviews were conducted between February and May 2008.

RESULTS The final sample (n = 317) was representative of the general Polish population with respect to age and sex. Moderate problems in at least 1 dimension of the HRQoL were reported by 57% of the respondents, while extreme problems by 4.7%. Pain or discomfort was reported by 40% of the respondents, anxiety or depression by 38%. Problems with mobility were reported by 16% of the respondents, with usual activities (work, school) by 13%, and with self-care by 3%. The mean state of health recorded on the visual analogue scale (VAS) was 81.6 ±14.4 points. The mean VAS value decreased from 87 and 91 points in the youngest age group to 67 and 72 points in the oldest age group, in men and women, respectively.

CONCLUSIONS Pain and anxiety are commonly reported problems in the Polish population, especially by young women. EQ-5D is a valuable tool for studying health outcomes and differences in health status within the Polish population.

INTRODUCTION According to the World Health Organization, "Health is not only the absence of disease, but also physical, social and mental well-being."[1] This definition refers to a commonly used term – the health-related quality of life (HRQoL).[2] Improvement of health status and HRQoL as well as reduction of related inequalities in the general population constitute the main target of the National Health Program in Poland for the years 2007 to 2015.[3] A successful implementation of health policy requires a reliable evaluation of its outcomes.

The EQ-5D questionnaire is a tool for the evaluation of HRQoL. It is used with a considerable success in cross-sectional and longitudinal studies of the human health status, as well as to investigate the efficiency of the healthcare system. In various countries, the use of EQ-5D in clinical settings is supported by the national quality-of-life population norms, and in pharmacoeconomic analyses – by the national norms of the social health state preferences.[4]

Publication of the Polish EQ-5D standards of health state utility supports the development and use of pharmacoeconomic analyses in Poland.[5,6] Meanwhile, a widespread use of EQ-5D in clinical practice, or in the assessment of health policy outcomes, is limited by the lack of the Polish population norms.

The aim of our study was to evaluate how individuals perceive their own health on the basis of the EQ-5D questionnaire, completed in a

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TABLE 1 Characteristics of the population sample

		General Polish population[a]	Study population (n = 317)
men (by age), %	total	49.9	47.3
	18–24	7.5	7.3
	25–34	11.1	11.0
	35–44	8.7	8.8
	45–54	9.8	9.1
	55–64	7.8	7.6
	65–74	4.1	3.5
women (by age), %	total	51.1	52.7
	18–24	7.2	7.3
	25–34	10.8	11.4
	35–44	8.5	9.1
	45–54	10.1	10.4
	55–64	8.8	9.1
	65–74	5.7	5.4
mean age ±SD, yrs		NA	42.6 ±15.6
education level, %	low	23.7	5.0
	middle	58.0	52.7
	high	18.3	42.3
marital status, %	single	20.3	18.9
	married/living together	64.2	71.6
	widowed	10.4	4.7
	divorced	5.1	4.7
work, %	employed	53.7	63.1
	unemployed	4.4	3.2
	pensioner	4.8	2.9
	retired	14.8	13.9
	student	6.3	11.4
housewife/househusband, %		NA	3.8
believes in life after death, %		NA	62.5

a source: Central Statistical Office, Poland 2007 data[7]

Abbreviations: NA – not available, SD – standard deviation

randomly sampled group of Polish respondents, adjusted for age and sex.

MATERIAL AND METHODS

Study population

The study was conducted during the Polish EQ-5D valuation study.[5] In the first half of 2008, 10 trained undergraduate medical students surveyed a representative sample of the Polish adult population. Survey quotas with respect to age and sex were prepared on the basis of demographic data obtained from the Central Statistical Office in Poland.[7] Face-to-face interviews were conducted with the visitors of inpatients at 8 Polish medical centers: in Warsaw, Skierniewice, and Puławy. Each respondent was asked to reply to the EQ-5D questionnaire, provide sociodemographic data (age, sex, marital status, education, employment, income, housing tenure, medical history, smoking habits) and perform the valuation exercise (results described elsewhere).[5] The study was approved by the Medical University of Warsaw ethics committee (KB/24/2008). All respondents gave written informed consent.

EQ-5D

The EQ-5D questionnaire consists of 2 parts: EQ-5D descriptive system and EQ visual analogue scale (EQ-VAS).[4,8] The EQ-5D descriptive system covers the following 5 dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each of these dimensions has 3 levels: no problems, some problems, and severe problems. A respondent is asked to indicate his or her state of health by ticking the box next to the most appropriate statement for each of the 5 dimensions. A combination of 1 level from each of the 5 dimensions defines the state of health. A total of 243 possible states are thus defined. EQ-5D states of health, defined by the EQ-5D descriptive system, may be converted into a single summary index by applying a formula that attaches weight to each level in each dimension. The value set has been derived for EQ-5D in Poland using the time trade-off valuation technique and was used in our study.

EQ-VAS is a standard, vertical, 20 cm-long VAS (similar to a thermometer) for recording an individual's rating of their current HRQoL. The ends of the scale are defined as the "best imaginable health state" and the "worst imaginable health state".[8]

Data analysis

We analyzed 3 sets of data concerning the quality of life: a subjective evaluation of health by respondents (according to EQ-VAS), an objective evaluation of health by respondents (according to the EQ-5D index), and a range of problems within 5 dimensions of HRQoL defined in the EQ-5D descriptive part. We studied the evaluation of HRQoL with respect to the respondents' age, sex, and both.

Statistical analysis

The results were considered statistically significant at the significance level of $P < 0.05$. Two-sided confidence intervals were presented. The normal distribution was verified with the Shapiro-Wilk test. The statistical significance of differences between dichotomous variables from 2 independent groups was analyzed with the Fisher's exact test. The differences between interval variables with nonnormal distribution from 2 independent groups were verified using the Mann-Whitney test. The relationship between 2 interval variables measured in the same group was tested with the Kendall's rank correlation. The statistical analysis was conducted using the StatsDirect 2.7.8 software (StatsDirect Ltd, England).

RESULTS

Study population

Between February and May 2008, we conducted 321 interviews. Three respondents did not complete the EQ-VAS and 1 person did not complete the descriptive part. In total, 317 questionnaires with a full set of answers were included in the final analysis.

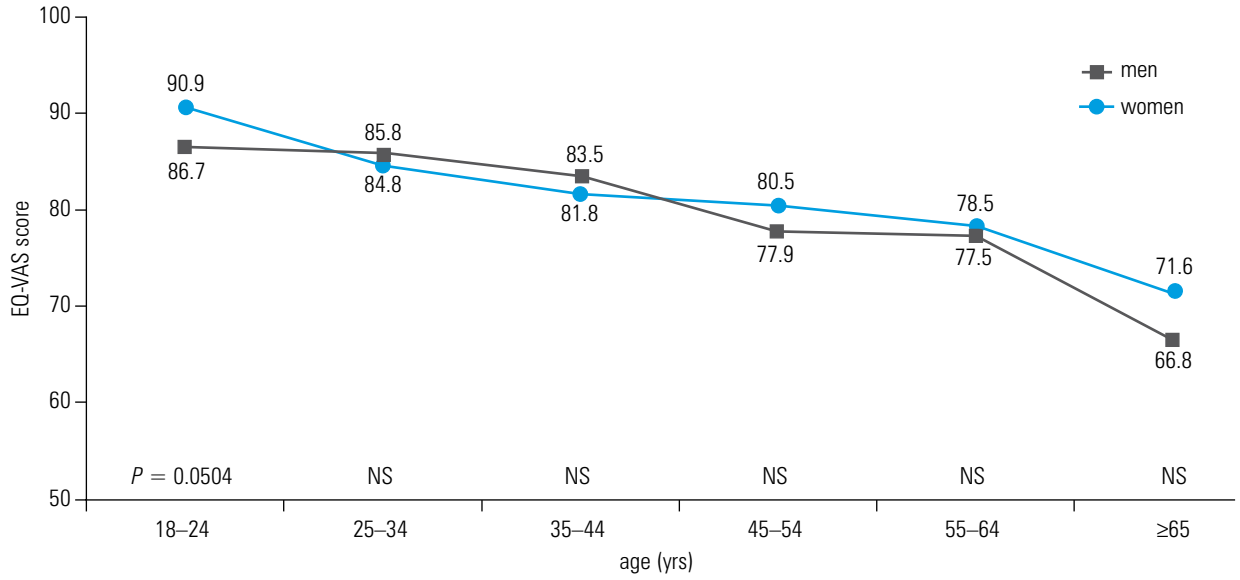

FIGURE 1 Mean self-rated health status of respondents (using EQ visual analogue scale [EQ-VAS] scores). Polish population sample by sex and age
Abbreviations: NS – nonsignificant

The study population comprised 167 women (52.7%). The respondents were aged from 18 to 86 years (mean age, 42.6 ±15.6 years). Detailed characteristics of the study population are presented in TABLE 1.

EQ-VAS A mean score of the subjective evaluation of HRQoL was 81.6 ±14.4 (95% confidence interval [CI]: 80.0; 83.1) on a 100-point scale. Individual scores ranged from 10 to 100 points.

The mean subjective evaluation of health by men was 81.3 ±13.8 points and was not significantly different from the average score for women (81.8 ±14.9 points).

The mean score of health state evaluation according to the VAS was decreasing with age (Kendall's tau-b = –0.28; $P < 0.0001$; FIGURE 1). Only in the youngest age group (18–24 years), a statistically significant trend for a higher score in the subjective evaluation of health by women compared with men was observed (90.9 vs. 86.7, respectively; $P = 0.0504$).

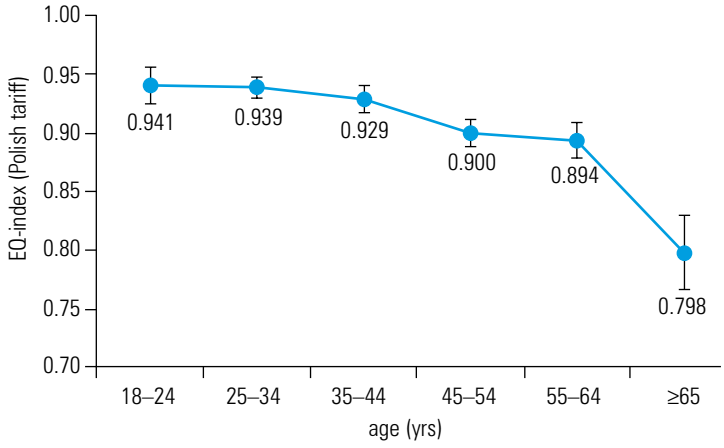

FIGURE 2 Mean weighted health status of respondents (the EQ-5D index according to the Polish time trade-off tariff) by age groups

The EQ-5D index A mean objective evaluation score was 0.91 ±0.11 (95% CI: 0.90; 0.92). Individual scores ranged from 0.28 to 1.00.

The mean objective evaluation of health by men (0.927 ±0.097) was not statistically significantly higher than the average score for women (0.894 ±0.117; $P = 0.003$).

The mean score of health state evaluation according to the EQ-5D index decreased with age (Kendall's tau-b = –0.28; $P < 0.0001$; FIGURE 2). In the age groups of 25–34 years and 35–44 years, we observed a significantly higher score in the objective health evaluation by men as compared with women, (0.969 vs. 0.910, $P = 0.0002$ and 0.965 vs. 0.894, $P = 0.0019$, respectively).

EQ dimensions The incidence of health problems of the study population according to the EQ-5D descriptive system is shown in TABLE 2. Taking into consideration all dimensions, moderate health problems were present in 57.1% of the respondents, while severe health problems in 4.7%. The majority of problems were related to pain/discomfort and anxiety/depression and were more commonly reported by women than by men ($P = 0.004$ and $P = 0.0158$, respectively; FIGURE 3). Specifically, significant differences between women and men were observed within the "pain/discomfort" dimension in the age group of 25–34 years ($P = 0.0149$) and in the "anxiety/depression" dimension in the age groups of 25–34 years ($P < 0.0001$) and 35–44 years ($P = 0.0033$, TABLE 3).

DISCUSSION

Our study showed that both the score of the subjective health evaluation according to the EQ-VAS scale and the score of the objective health evaluation according to the descriptive part of the EQ-5D questionnaire decreased with age. The EQ-5D index in the age group of 25–44 years is significantly higher among men than among women. On average, 2 in 5 women experienced pain/discomfort and anxiety/depression.

TABLE 2 Number (percentage) of respondents reporting a problem in each EQ-5D dimension (n = 317)

EuroQol dimension	Problem		
	moderate	extreme	any
mobility, n (%)	50 (15.8)	2 (0.6)	52 (16.4)
self-care, n (%)	10 (3.2)	0 (0.0)	10 (3.2)
usual activities, n (%)	40 (12.6)	2 (0.6)	42 (13.2)
pain/discomfort, n (%)	124 (39.1)	4 (1.3)	128 (40.4)
anxiety/depression, n (%)	112 (35.3)	7 (2.2)	119 (37.5)
any dimension, n (%)	181 (57.1)	15 (4.7)	187 (59.0)

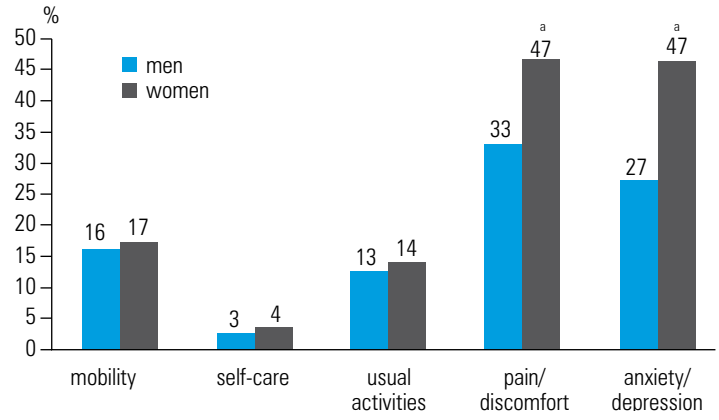

FIGURE 3 Self-rated health status in Polish population sample (by sex): percentage of respondents reporting any problems using the EQ-5D descriptive system, **a** $P < 0.05$

Our study has 2 major limitations. First of all, it was based on a relatively small group of respondents. In other countries, population norms for EQ-5D were formulated on the basis of larger study groups, starting from 464 individuals in Greece and 620 in Japan,[9] to as many as 11,698 respondents in Sweden[10] and 15,700 in Denmark.[11] This is because the present study aiming to determine population norms for EQ-5D in Poland was only a substudy of the larger Polish EQ-5D valuation study.[5] In the above-mentioned project, a sample of 321 respondents gave 7351 individual health state valuations, which was considered sufficient to fulfill the primary study goal. Secondly, our sample of respondents was representative of the Polish population regarding age and sex, but not other variables, such as place of residence or education. In view of the above limitations, our analysis should be perceived as a pilot study. We managed to show a number of correlations, and we confirmed the usefulness of the Polish version of the EQ-5D questionnaire for health state evaluation in the general population. A properly designed study in the future, based on a larger sample that would be representative of the Polish population with regard to more demographic features, should provide a more precise evaluation of the population norms.

In the Polish, as well as German,[12] British,[13] and Swedish populations,[10] HRQoL decreases with age and is generally worse among women than among men. The differences concern some detailed quality-of-life dimensions that deteriorate. In Poland, significant differences were observed within the "pain/discomfort" and "anxiety/depression" dimensions. In Sweden, this also concerned the "usual activities" dimension.[10] In Great Britain, the differences were only observed within the "anxiety/depression" dimension,[13] and in Germany only within the "pain/discomfort" and "self-care" dimensions.[12] In Poland, every 3 in 5 respondents reported problems within the EQ-5D dimensions. This rate is higher than in Sweden (54%), Great Britain (43%), or Germany (36%). The problems related to anxiety/depression were reported by 30% more respondents in

TABLE 3 Number (percentage) of respondents reporting problems in each of the EQ-5D dimensions according to age and sex (n = 317)

Dimension		Age group					
		18–24 n = 46	25–34 n = 71	35–44 n = 57	45–54 n = 62	55–64 n = 53	≥65 n = 28
mobility, n (%)	total	3 (6.5)	1 (1.4)	5 (8.8)	13 (21.0)	11 (20.8)	19 (67.9)
	men	2 (8.7)	0 (0.0)	1 (3.6)	8 (27.6)	4 (16.7)	9 (81.8)
	women	1 (4.3)	1 (2.8)	4 (13.8)	5 (15.2)	7 (24.1)	10 (58.8)
self-care, n (%)	total	1 (2.2)	0 (0.0)	1 (1.8)	0 (0.0)	2 (3.8)	6 (21.4)
	men	1 (4.3)	0 (0.0)	0 (0.0)	0 (0.0)	1 (4.2)	2 (18.2)
	women	0 (0.0)	0 (0.0)	1 (3.4)	0 (0.0)	1 (3.4)	4 (23.5)
usual activities, n (%)	total	6 (13.0)	2 (2.8)	6 (10.5)	10 (16.1)	4 (7.5)	14 (50.0)
	men	5 (21.7)	0 (0.0)	1 (3.6)	6 (20.7)	2 (8.3)	5 (45.5)
	women	1 (4.3)	2 (5.6)	5 (17.2)	4 (12.1)	2 (6.9)	9 (52.9)
pain/discomfort, n (%)	total	6 (13.0)	22 (31.0)	19 (33.3)	33 (53.2)	28 (52.8)	20 (71.4)
	men	3 (13.0)	6 (17.1)	6 (21.4)	15 (51.7)	11 (45.8)	9 (81.8)
	women	3 (13.0)	16 (44.4)	13 (44.8)	18 (54.5)	17 (58.6)	11 (64.7)
anxiety/depression, n (%)	total	12 (26.1)	27 (38.0)	19 (33.3)	25 (40.3)	23 (43.4)	13 (46.4)
	men	6 (26.1)	5 (14.3)	4 (14.3)	11 (37.9)	9 (37.5)	6 (54.5)
	women	6 (26.1)	22 (61.1)	15 (51.7)	14 (42.4)	14 (48.3)	7 (41.2)

Poland than in Sweden, nearly 50% more often than in Great Britain, and 10 times more often than in Germany.

It has to be noted that the results of our study can be immediately applied to clinical practice in Poland and serve as a reference for individual patients, at a given age and of a given sex. We managed to prove that the Polish version of the EQ-5D questionnaire is highly acceptable and sensitive to some minor changes in the population's state of health. As such, it seems to be an appropriate tool for measuring the outcomes of the adopted health policy.[4]

Future studies that will implement the EQ-5D questionnaire to evaluate the health status of the Polish society should be based on larger population samples, representative of the general population with respect to additional demographic features. As far as the health policy is concerned, we recommend to repeat such evaluations regularly, as it is done in Great Britain or the United States.[14]

In conclusion, in the Polish population, both subjective and objective perception of the quality of life according to the EQ-5D questionnaire showed that scores decreased with age. Pain and anxiety were reported by every 2 in 5 women. The Polish version of EQ-5D can be a valuable tool for studying health outcomes and inequalities within the Polish population.

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REFERENCES

1 Bryant D, Schunemann H, Brozek J, et al. Patient reported outcomes: general principles of development and interpretability. Pol Arch Med Wewn. 2007; 117: 125-131.

2 Jaeschke R, Guyatt G, Cook D, et al. [Evidence based medicine (EBM), that is medical practice based on current and reliable publications. Part 8: Defining and measuring health related quality of life]. Medycyna Praktyczna. 1999; 4. Polish.

3 Kuszewski K, Goryński P, Wojtyniak B, et al. [National Health Program 2007–2015]. Attachment to Resolution of the Council of Ministers No 90/2007, May 15, 2007: Ministry of Health 2007; 1-75. Polish.

4 Brooks R. EuroQol: the current state of play. Health Policy. 1996; 37: 53-72.

5 Golicki D, Jakubczyk M, Niewada M, et al. Valuation of EQ-5D Health States in Poland: First TTO-Based Social Value Set in Central and Eastern Europe. Value Health. 2010; 13: 289-297.

6 Agency for Health Technology Assessment. Guidelines for conducting Health Technology Assessment (HTA). Version 2.1. Warsaw; 2009. http://www.aotm.gov.pl/assets/files/wytyczne_hta/2009/09.06.29_wytyczne_HTA_eng_MS.pdf. Accessed March 10, 2010.

7 Central Statistical Office [cited 2007 November 15]. http://www.stat.gov.pl. Accessed November 15, 2007.

8 Cheung K, Oemar M, Oppe M, et al. EQ-5D User Guide. Basic information on how to use EQ-5D: EuroQol Group; 2009. http://www.euroqol.org/fileadmin/user_upload/Documenten/PDF/User_Guide_v2_March_2009.pdf. Accessed March 10, 2010.

9 Szende A, Williams A, eds. Measuring self-reported population health: An international perspective based on EQ-5D: Springmed Publishing Ltd; 2004.

10 Burström K, Johannesson M, Diderichsen F. Swedish population health-related quality of life results using the EQ-5D. Qual Life Res. 2001; 10: 621-635.

11 Sørensen J, Davidsen M, Gudex C, et al. Danish EQ-5D population norms. Scand J Public Health. 2009; 37: 467-474.

12 König HH, Bernert S, Angermeyer MC, et al.; ESEMeD/MHEDEA 2000 Investigators. Comparison of population health status in six European countries: results of a representative survey using the EQ-5D questionnaire. Med Care. 2009; 47: 255-261.

13 Kind P, Dolan P, Gudex C, et al. Variations in population health status: results from a United Kingdom national questionnaire survey. BMJ. 1998; 316: 736-741.

14 Fryback DG, Dunham NC, Palta M, et al. US norms for six generic health-related quality-of-life indexes from the National Health Measurement study. Med Care. 2007; 45: 1162-1170.

ARTYKUŁ ORYGINALNY

Samoocena stanu zdrowia w Polsce – wyniki polskiego badania ewaluacyjnego kwestionariusza EQ-5D

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SŁOWA KLUCZOWE

EQ-5D, EuroQol, jakość życia zależna od zdrowia, normy populacyjne, populacja ogólna

STRESZCZENIE

WPROWADZENIE Dotąd nie opublikowano polskich norm populacyjnych dla żadnego z kwestionariuszy służących do oceny ogólnej jakości życia zależnej od zdrowia.

CELE Celem badania była ocena stanu zdrowia reprezentatywnej próby ogólnej populacji polskiej za pomocą kwestionariusza oceny jakości życia EQ-5D.

MATERIAŁ I METODY W trakcie polskiego badania ewaluacyjnego kwestionariusza EQ-5D, przeprowadzono wywiady z pełnoletnimi gośćmi pacjentów szpitalnych w 8 ośrodkach medycznych w Warszawie, Skierniewicach i Puławach. Wyboru próby dokonano metodą warstwowego doboru losowego. Respondenci byli proszeni o wypełnienie kwestionariusza EQ-5D oraz udzielenie informacji dotyczących: wieku, płci, stanu cywilnego, wykształcenia, zatrudnienia, dochodu, warunków mieszkaniowych, wywiadu medycznego oraz uzależnienia od nikotyny. Wywiady przeprowadzano między lutym a majem 2008.

WYNIKI Otrzymana próba (n = 317) była reprezentatywna dla populacji polskiej pod względem wieku i płci. Umiarkowane problemy w zakresie co najmniej jednej domeny jakości życia zgłosiło 57% respondentów, skrajne problemy – 4,7%. Ból lub dyskomfort odczuwało 40% ankietowanych, niepokój lub obniżenie nastroju – 38%. Problemy z chodzeniem zgłosiło 16% ankietowanych, z wykonywaniem codziennych czynności (pracą zawodową, nauką) – 13%, z dbaniem o siebie (myciem się, ubieraniem) – 3%. Średnia ocena stanu zdrowia według wizualnej skali analogowej (*visual analogue scale* – VAS) wyniosła 81,6 ±14,4 punktów. Ocena stanu zdrowia według VAS malała wraz z wiekiem: z 87 i 91 punktów w najmłodszej grupie wiekowej, do 67 i 72 punktów w najstarszej grupie wiekowej, odpowiednio u mężczyzn i kobiet.

WNIOSKI Ból i niepokój są częstymi problemami Polaków, szczególnie młodych kobiet. Kwestionariusz EQ-5D jest cennym narzędziem do wykorzystania w badaniach wyników leczenia oraz różnic w stanie zdrowia populacji polskiej.

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