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EVALUATION OF SELF-RATED HEALTH – INFORMATION ON PATIENTS' UNMET NEEDS?

SAMOOCENA ZDRAVJA – INFORMACIJA O NEIZPOLNJENIH PRIČAKOVANJIH BOLNIKOV?

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Abstract

Background: *Self-rated health (SRH) reflects a person's experience of their own health, including the biological, sociological and psychological factors. It is frequently used in population studies but can provide primary physicians with additional information regarding patients' needs.*
Objectives: *To analyse determinants of SRH according to physical health, patient demographic characteristics and frequency of practice attendance.*
Methods: *Analysed data derived from the national part of the EPA-Cardio project. Several patient characteristics and SRH as an outcome measure were analysed in three groups of patients: with coronary disease, with high risk for cardiovascular disease and with low risk for cardiovascular disease, randomly chosen from the practice registers and lists of 36 practices.*
Results: *2524 patients participated (response rate 70.1%). Coronary patients and those with the highest number of chronic diseases rated their health the lowest. Low SRH was found in women, older patients, the unemployed and in patients with a lower level of education. Low SRH was associated with higher body weight, lower satisfaction with the practice and a higher number of practice visits.*
Conclusion: *Several determinants were shown to be important for SRH. Physical health reflected by chronic disease and multimorbidity and life-style determined by body weight were shown to be important for SRH in the population of family practice. Socio-economic characteristics (employment, education level) were also reflected in SRH. Lower SRH, associated with higher frequency of attendance of the practice and lower satisfaction with the practice, points to the unmet needs of the patients.*

Keywords: self-rated health, family medicine, cardiovascular risk

Izvirni znanstveni članek
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Izvleček

Izhodišča: *Samoocena zdravja predstavlja bolnikov občutek lastnega zdravja; vključuje biološke, sociološke in psihološke dejavnike. Pogosto se uporablja v populacijskih raziskavah, osebni zdravnik pa lahko z njeno pomočjo pridobi dodatne informacije o bolniku in njegovih potrebah.*
Cilji: *Analizirati dejavnike samoocene zdravja glede na telesno zdravje, demografske značilnosti in pogostost bolnikovih obiskov v ambulanti družinske medicine.*
Metode: *Analizirali smo nacionalne podatke, pridobljene v okviru mednarodne raziskave EPA – Cardio. V treh skupinah bolnikov – koronarnih bolnikih, osebah z visokim tveganjem za srčno-žilne bolezni in osebah z nizkim tveganjem –, naključno izbranih iz registrov 36 slovenskih ambulant družinske medicine, smo analizirali povezavo bolnikovih značilnosti z njegovo samooceno zdravja kot odvisno spremenljivko.*
Analizirali smo podatke 2.524 bolnikov (70,1% predvidenega vzorca). Bolniki z več kroničnimi boleznimi, koronarni bolniki in tisti z višjo telesno težo so slabše ocenili svoje zdravje. Svoje zdravje so slabše ocenili ženske, starejši, pogostejši obiskovalci ambulante in tisti, ki so bili manj zadovoljni z ambulanto.
Zaključki: *Ugotovili smo več pomembnih dejavnikov, povezanih s samooceno zdravja. Občutek slabšega telesnega zdravja pri bolnikih z več sočasnimi boleznimi in nezdrav življenjski slog, predstavljen s prekomerno telesno težo, sta bila povezana s slabšo samooceno zdravja v populaciji obiskovalcev ambulante družinske medicine. Pomembne so bile tudi socioekonomske značilnosti bolnikov (izobrazba, zaposlitev). Nižja samoocena zdravja v povezavi z višjo frekvenco obiskov v ambulanti in s slabšim zadovoljstvom bolnikov kaže na neizpolnjene potrebe bolnikov.*

Ključne besede: samoocena zdravja, družinska medicina, tveganje za srčno-žilne bolezni

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1 INTRODUCTION

Patients' well-being as well as their perceived physical and mental health can be simply measured using several quality of life questionnaires (1, 2). A simple measuring tool of their well-being is the "Self-rated health" scale (SRH) that represents a general subjective evaluation of one's own health. It reflects a person's experience of his/her own health and includes biological, sociological and psychological factors, which result in a combined evaluation that cannot be clearly explained by an external observer (3).

Assessment is based on one single question, which is: "How would you assess your health status in general?" The answer is presented by the Likert scale, rating health from one to five as excellent, very good, good, fair and poor. SRH is a frequently used measure in population studies (4, 5). Studies have shown that mortality cannot only be easily explained by medical conditions and risk factors (6), and several studies proved that SRH was a good predictor of mortality and of morbidity (5, 7-10). Physical and mental symptoms are correlates of SRH. SRH also predicts future social and health needs (11).

Several predictors of poor SRH were identified, among them physical limitation (12), obesity and an unhealthy life-style. Poorer health is reported by women (13) and associated with more frequent use of health care services, although the studies report conflicting results (14). There is evidence that SRH and physicians' rating of patients' health based on physical illnesses and problems can be divergent (3, 15). The population study of self-rated health in different social classes showed an association of better self-rated health with higher self-assessed social class (16) and poorer self-rated health in association with the severity of certain chronic illnesses – for example chronic obstructive pulmonary disease – regarding the physical aspect and the psychological component of the disease (17). SRH is perceived as an indicator of health-related quality of life (HRQL), which is a more structured measure with categories on physical and mental health. The difference between them is that HRQL measures impairment, a functional status influenced by disease and treatment, while SRH is an individual self-assessment resulting from a biological and sociological context (18). SRH may also capture perceived aspects of physical health that are not captured by the HRQL scales.

Slovenia has national data on HRQL from general population studies (19) or studies on special populations (20, 21), but we lack studies on SRH in the population of family practice. Our study was performed on a family practice population with three different groups according to objective data of physical health. We analysed determinants of SRH according to several patient characteristics considering what self-reported health status might mean in the context of clinical encounter with individual patient in general practice.

2 METHODS

We analysed the Slovenian part of the data collected in a cross-sectional EPA (European Practice assessment) – cardio study that took place from 2005-2009. Its protocol is described in detail elsewhere (22). The ethical approval was obtained from the National committee on medical ethics (No. 87/11/07).

2.1 Participants

A random sample of 56 family physicians from all over the country, stratified by the size of the practice (small practice – up to two full time equivalent (FTE) physicians, large practice – more than two FTE physicians) and its location (rural practices are located in a setting with less than 30,000 inhabitants and urban practices are located in a setting with more than 30,000 inhabitants). 36 of them (64.3%) agreed to participate. Each practice aimed to include a random sample of 100 patients: 40 patients from the patient list aged 18-45 years with low risk for cardiovascular disease, 30 patients with high risk of cardiovascular disease based on the Framingham risk assessment score and 30 patients with established coronary heart disease. The high-risk sample was created from the registers of patients with high risk for cardiovascular disease and a sample of cardiovascular patients was created by ICD10 codes for coronary heart disease. Exclusion criteria were diabetes mellitus, poor understanding of the native language and cognitive impairment.

2.2 Data collection

The practice nurse contacted the patients personally or by phone and obtained their informed consent for participating. The questionnaires were sent to them by post or given to them in person. All patients filled out the questionnaire, which is described elsewhere (22). For this analysis, we used demographic information, heath-service use behaviour, patients' assessment of the practice by Europep questionnaire, the patients' body mass index (BMI) and the number of chronic diseases. Patients also self-evaluated their health on a five point Likert scale rating from 1-excellent to 5-poor self-perceived health.

2.3 Statistical analysis

The data were analysed in the statistical program SPSS 17.0 (SPSS for Windows, Chicago: SPSS Inc.). The following modules were used: frequencies,

crosstabs, ANOVA, multivariate linear regression. The choice of the tests was adjusted to the nature of the data (nominal, ordinal and interval level). We tested 12 possible predictors of SRH (six demographic, two health service seeking behaviour, two on physical health, body mass index and satisfaction with the GP). For analytic purposes, we reversed the values of self-evaluated health on the Likert scale, giving health-assessment as poor one point and health assessment as excellent 5 points.

The results of the patients' evaluation questionnaire were presented in total score, using the Baker and Hearnshaw equation [(∑items 1–23)×100/(5×23)]×1.25-25. Twelve independent predictors were included in the multivariate linear regression model to predict patients' self-assessment of health.

3 RESULTS

2524 patients participated in the study (70.1% of the predicted sample); 56.1% were men. 787 patients had coronary heart disease (response rate 72.9%), 800 were high-risk patients (response rate 74.1%) and 937 were from the group of low risk patients (response rate 65.1%). The mean age was 54.83 (SD 17.2). The mean number of chronic diseases was 1.9 (SD 1.9, range 0-11), for coronary patients 4.2 (SD 1.9), for high-risk patients 1.8 (SD 1.1) and for low risk patients 0.29 (SD 0.2). Satisfaction with the practice and the GP was 89.0 (SD 11.0), for coronary patients 88.8 (SD 11.6) for high-risk patients 89.7 (SD 10.8) and for low risk patients 88.7 (SD 10.6).

Table 1. *Patient characteristics (number, %).*
Tabela 1. *Značilnosti bolnikov (število, %).*

Characteristics/Dejavniki		Group/Skupina							
		Coronary/ Koronarni		High risk/ Z visokim tveganjem		Low risk/ Z nizkim tveganjem		All/Vsi	
		N	%	N	%	N	%	N	%
Gender/Spol (N=2461)	Female (Ženske)	270	35.8	283	35.6	528	57.9	1081	43.9
	Male (Moški)	485	64.2	511	64.4	384	42.1	1380	56.1
Education/ Izobrazba (N=2392)	≤ 9 years (let)	292	39.8	279	36.8	134	14.9	705	29.5
	10–13 years (let)	314	42.8	319	42.1	453	50.3	1086	45.4
	> 13 years (let)	128	17.4	160	21.1	313	34.8	601	25.1
Employment/ Zaposlitev (N=2524)	Yes[1] (da)	125	15.9	210	26.3	788	84.1	1123	44.5
	No[2] (da)	662	84.1	590	73.8	149	15.9	1401	55.5
Marital status/ Zak. Stan (N=2524)	Married, cohabiting poročen, v skupnosti	557	70.8	611	76.4	649	69.3	1817	72.0
	Other[3] drugo	230	29.2	189	23.6	288	30.7	707	28.0
BMI[4]/ITM[4] (N=2426)	underweight ≤18.5 pod normalo ≤18.5	4	0.5	2	0.3	15	1.7	21	0.9
	normal 18.6–25 normalna 18.6–25	161	21.4	141	18.3	434	48.2	736	30.3
	overweight 25.1–30	372	49.3	374	48.4	312	34.7	1058	43.6
	obese ≥30.1	217	28.8	255	33.0	139	15.4	611	25.2
N chronic diseases/ Št. kron. bol. (N=2524)	0–1	331	42.1	657	82.1	923	98.5	1911	75.7
	2–3	218	27.7	121	15.1	12	1.3	351	13.9
	4–5	178	22.6	20	2.5	1	0.1	199	7.9
	≥6	60	7.7	2	0.3	1	0.1	63	2.5

Satisfaction/ Zadovoljstvo (N=2524)	0–79	128	16.2	111	13.9	158	16.8	397	15.7
	80–89	311	39.5	314	39.3	346	36.9	971	38.5
	90–100	348	44.2	375	46.9	433	46.2	1156	45.8
Attachment to the practice[5]/ Stalnost izbire ambul. (leta)[5] (N=2455)	≤ 2	35	4.6	42	5.4	112	12.3	189	7.6
	3–7	86	11.3	87	11.1	226	24.9	399	16.3
	8–12	101	13.3	112	14.3	169	18.6	382	15.6
	≥ 13	540	70.9	544	69.3	401	44.2	1485	60.5
GP visit frequency[6]/ Frekvenca obiskov zdr.[6] (N=2459)	0–3 times (krat)	123	16.2	266	34	596	64.9	985	40.1
	4–7 times (krat)	444	58.	414	52.9	245	26.7	1103	44.9
	8–9 times (krat)	76	10.0	36	4.6	33	3.6	145	5.9
	≥10 times (krat)	115	15.2	67	8.6	44	4.8	226	9.1
Location[7]/ Lokacija[7] (N=2524)	Urban (mestna)	558	70.9%	557	69.6%	667	71.2%	1782	70.6
	Rural (podeželska)	229	29.1%	243	30.4%	270	28.8%	742	29.4

[1] employed, self-employed/ zaposlen, samozaposlen
[2] housekeeper, unemployed, unable to work, retired/ gospodinja, nezaposlen, nezmožen za delo, upokojen
[3] single, divorced, widow/widower/ samski, razvezan, ovdovel
[4] body mass index (BMI) kg/m^2/ indeks telesne mase (ITM) kg/m^2
[5] years being treated by the same doctor/ leta zdravljenja pri istem izbranem zdravniku
[6] number of visits of the practice in the last year/ število obiskov pri zdravniku v zadnjem letu
[7] urban: more than 30.000 inhabitants/ mestna: nad 30.000 prebivalcev

The lowest percent of SRH as poor was found in the group of healthy patients (4.1%) and the lowest percent of SRH as excellent was found in the coronary group (0.8%)

Table 2. *Scale of self-assessment of health per groups of patients (number, percentage).*
Tabela 2. *Lestvica samoocene zdravja po skupinah bolnikov (število, odstotek).*

		Coronary/ Koronarni (N=756)		**High risk/ Z visokim tveganjem (N=785)**		**Low risk/Z nizkim tveganjem (N=909)**		**All/Vsi (N=2450)**	
		N	%	N	%	N	%	N	%
Self-rated health/ Samoocena zdravja	**Poor/ Zelo slabo**	136	18.0	71	9.0	37	4.1	244	9.7
	Fair/ Zadovoljivo	**351**	**46.4**	316	40.3	139	15.3	806	31.9
	Good/ Dobro	236	31.2	**334**	**42.5**	**386**	**42.5**	**956**	**37.9**
	Very good/ Zelo dobro	27	3.6	52	6.6	276	30.4	355	14.1
	Excellent/ Odlično	6	0.8	12	1.5	71	7.8	89	3.5

Table 3 shows the means for SRH according to included determinants of demographic characteristics, physical health and body weight as characteristics of life-style, socio-economic characteristics, patient satisfaction with the practice and frequency of attendance of the practice.

Table 3. *Self rated health ranging from 1point (poor) to 5 points (excellent) by study population characteristics. Data are presented by mean (M) and standard error (SE).*

Tabela 3. *Samoocena zdravja na lestvici od 1 točke (slabo) do 5 točk (odlično), glede na značilnosti bolnikov. Podatki so predstav*ljeni s povprečno vrednostjo (M) in standardno napako (SE).

		M (SRH) (samoocena)	SE
Group of patients/ Skupina bolnikov	Coronary/ Koronarni	2.36	0.09
	High risk/ Z visokim tveganjem	2.42	0.09
	Low risk/ Z nizkim tveganjem	**2.62**	**0.10**
Gender/ (Spol)	Female/ (ženski)	2.37	0.08
	Male/ (moški)	**2.51**	**0.08**
Age (years)/ Starost (leta)	≤39	**2.83**	**0.11**
	40–49	2.39	0.10
	50–59	2.26	0.10
	60–69	2.40	0.10
	70–79	2.36	0.10
	≥80	2.16	0.11
Employment status/ Zaposlitveni status	others	2.37	0.08
	employed	**2.57**	**0.09**
BMI (kg/m^2)/ (ITM kg/m^2)	underweight (≤18.5)	**2.695**	**0.19**
	normal (18.6–25.0)	2.420	0.08
	overweight (25.1–30.0)	2.380	0.07
	obese (≥30.1)	2.264	0.08
GP visit frequency (times per year)/ Št. obiskov na leto pri ZDM	0–1 times	**2.966**	**0.10**
	2–3 times	2.580	0.09
	4–5 times	2.558	0.09
	6–7 times	2.349	0.09
	8–9 times	2.397	0.12
	≥10 times	1.959	0.09
Number of chronic diseases/ Št. kroničnih bolezni	0–1	**2.669**	**0.06**
	2–3	2.541	0.07
	4–5	2.544	0.08
	6–7	2.398	0.14
	≥8	2.189	0.26
Satisfaction/ Zadovoljstvo (0–100)	0–59	2.196	0.15
	60–69	2.438	0.11
	70–79	2.558	0.09
	80–89	2.542	0.08
	90–100	**2.607**	**0.08**
Years of education/ Leta izobrazbe	≤ 9	2.307	0.09
	10–13	2.457	0.08
	≥ 13	**2.641**	**0.09**

Table 4 shows the results of multivariate analysis; the model explains 32% of variance.

Table 4. *Multivariate linear regression model – prediction of SRH with the patients' demographic characteristics, health characteristics and health seeking behaviour (N=1660).*
Tabela 4. *Multivariatna linearna regresijska analiza – napoved samoocene zdravja z bolnikovimi demografskimi značilnostmi, telesnim zdravjem in iskanjem zdravstvene pomoči (N=1660).*

Model	Unstandardized coefficients/ Nestandardizirani koeficienti		Standardized coefficients/ Standardizirani koeficienti	t	p	Confidence interval/ Interval zaupanja
	B	SE (B)	Beta			
Constant/ Konstanta	3,380	0,285		11,877	0,000	2,822;3,938
Location/ Lokacija[1]	-0,035	0,044	-0,016	-0,778	0,437	-0,122;0,053
Group of patients/ Skupina bolnikov[2]	-0,070	0,049	-0,059	-1,425	0,154	-0,166;0,026
Gender (M)/ Spol (M)	**0,091**	**0,041**	**0,047**	**2,203**	**0,028**	**0,010;0,172**
Age (years)/ Starost (leta)	**-0,011**	**0,002**	**-0,194**	**-5,201**	**0,000**	**-0,015;-0,007**
Years of education/ Leta šolanja	**0,155**	**0,029**	**0,119**	**5,364**	**0,000**	**0,098;0,211**
Employment status[3]/ Zaposlitveni status[3]	**0,117**	**0,053**	**0,061**	**2,235**	**0,026**	**0,014;0,221**
Marital status[4]/ Zakonski stan[4]	-0,018	0,045	-0,008	-0,409	0,683	-0,106;0,070
BMI[5]/ ITM[5]	**-0,073**	**0,027**	**-0,058**	**-2,718**	**0,007**	**-0,125;-0,020**
Same doctor[6]/ Isti zdravnik[6]	0,003	0,020	0,003	0,136	0,892	-0,037;0,042
GP visit frequency[7]/ Frekvenca obiskov zdravnika[7]	**-0,167**	**0,016**	**-0,241**	**-10,481**	**0,000**	**-0,199;-0,136**
Number of chronic diseases/ Št. kron. bol.	**-0,099**	**0,016**	**-0,205**	**-6,089**	**0,000**	**-0,131;-0,067**
Satisfaction/ Zadovoljstvo (0–100)	**0,005**	**0,002**	**0,058**	**2,871**	**0,004**	**0,002;0,009**

F = 67,296
Significance level p/ Stopnja značilnosti < 0,001
Adjusted R^2/ % pojasnjene variance = 0,324

Legend/ Legenda:
1 Urban/rural/ mestno/vaško
2 coronary, high risk, low risk/ koronarni, visoko ogroženi, nizko ogroženi
3 employed, self-employed; zaposlen, samozaposlen/ housekeeper, unemployed, unable to work, retired/ gospodinja, nezaposlen, nezmožen za delo, upokojen
4 single, divorced, widow/widower, married/cohabitating/ samski, razvezan, ovdovel, poročen/živi v skupnosti
5 body mass index (BMI) kg/m^2/ indeks telesne mase (ITM) kg/m^2
6 years being treated by the same doctor/ leta pri istem izbranem zdravniku
7 Število obiskov pri zdravniku v zadnjem letu/ number of the practice visits in the last year

4 DISCUSSION

4.1 Main findings

The patients who self-rated their health poorly were more frequent visitors to the practice and evaluated their practice with worse ratings. Our results showed several expected associations of SRH with patient characteristics. Better physical health presented by a lower number of chronic diseases and thus less multimorbidity predicted better SRH. Other predictors of worse self-assessment that we found could be grouped as biological (higher age, female gender), socio-economic (unemployed and lower education level) and frequency of health services utilisation (patients that frequently come to the practice regardless of the reason for the visit self-assess their health worse). Risk for coronary disease was not found to be an independent predictor of self-rated health.

4.2 Strengths and limitations of the study

We performed the study strictly in compliance with the protocol, with special emphasis on random sampling. This was made possible by patient lists and registers of coronary patients and high-risk patients that every practice must keep, according to the requirements of the National preventive programme. The response rate of the practices and the included patients was not very high, but it was the highest among the participating countries in the international EPA-Cardio study. The patients were distributed into three groups by their GPs, which represented a global level of physical health: group 1 (patients with coronary disease) with the worst health, group 3 (low risk for cardiovascular disease) in the best physical health. We have to mention that the grouping was made according to the aim of the EPA-Cardio study, which examined the quality of cardiovascular prevention on three levels and the groups were not homogenous according to gender (more men in high risk and coronary group). Physical health was also determined by every patient as a self-assessed number of all chronic diseases from the presented list of chronic diseases as an additional variable of physical health. We did not check these data in medical documentation.

We realise that the included predictors did not explain two thirds of the variance of the model. We did not include psychological characteristics of the patients into the model. There exists in particular a question of the patient's stress and the personal response. This would demand additional questions related to stress and to psychological characteristics, which were not included in the purpose of the study. Finally, this study was cross-sectional, which means that it does not give any information about the predictive value of this measurement. Further research should explore it.

4.3 Interpretation of the study results

Our results about the impact of physical health and multimorbidity are in line with other studies. Multimorbidity showed negative impact on SRH in specific population in the study of Vos (23) as well. SRH in our study was better in healthier groups of patients. Those with coronary heart disease assessed their health worse than those at high risk for CVD or those at low risk for CVD. Nevertheless, we could not prove that the CVD risk groups of patients were an independent predictor of self-rated health. Multimorbidity seems to be more important for self-assessment of health than a single chronic disease, if we do not take into account the stage and functional disability due to this disease. These results can be compared to other studies that show that patients with an advanced stage of chronic diseases assess their health as worse compared to patients with a less severe stage of disease (17).

We found lower SRH in patients with a lower education level. The level of education can be connected with unhealthy behaviour, as shown in other studies (24). Associations of lower education and economic status on the self-assessment of health and negative prediction of chronic diseases on the self-rating of health were also found in other studies (25, 26). Several similar studies used quality of life as an outcome. Frequency of attendance was shown to be associated with lower perceived quality of life (27). Similar results were found in the Klemenc-Ketis study, showing that lower HRQL was found in older, less educated patients and those with specific health problems mostly associated with chronic pain (rheumatic diseases, back pain) (19). Women, who rated their health as poor, stated severe pain syndromes more frequently (23). In our study, female gender showed to be an independent predicting variable for lower self-rated health, while CVD risk groups of patients were not.

Patients with lower SRH also more critically evaluated their practice. A higher number of clinical visits and lower satisfaction with the doctor were found also in Linn's study, showing that occasionally physicians do not realise that additional intervention is necessary for patients who self-assess their health as low, have more symptoms and a greater need for health care and thus are not getting what they need (15). However, they are probably not able to communicate their perception of health and their needs to the doctor, who presumably rates patients' health differently from them. Therefore, this simple measure can provide the patients' perspective towards the doctor and with the Jylhä theoretical model can serve as a screening tool for patients' health status; it can also support doctor-patient relationships and guarantee further attention in case of poor SRH (28).

We could not prove the connection of SRH with marital status and with the length of attachment to the practice. The model explained 32% of the variance, showing that there are other determinants of it. The impact of stress and adaptation to perceived health was addressed and showed to be important in various other studies (29).

Associations in lower education and social status, higher scores of anxiety and depression, the number of chronic somatic diseases and a lower perceived quality of life have also been identified in Slovenian General Practice attendees (21), showing that the analysis of quality of life and SRH share similar determinants.

Other studies showed that some life-style factors can have an impact on SRH and this can even predict weight change in the future. We included only one (indirect) parameter of life-style - BMI and showed that lower body weight is associated with better self-assessment of health, similar to other studies (30, 31).

5 CONCLUSION

Self-assessment of health is a simple and short evaluation of a patient's well-being. It is a result of demographic predictors, social context, physical health and psychological factors. SRH can provide family doctors with additional information about patients' perceived health problems, especially in frequent visitors to the practice. A patient's lower SRH is associated with worse patient evaluation of the practice and points to possible problems in the patient-doctor relationship. It can show the GP that he/she might not be aware of the patients' needs and expectations. Further studies should address its usefulness in the clinical approach to the patient, usefulness in long-term evaluation and possibly the usefulness of self-assessment of health as a predictor of the development of a disease or disability (32).

Conflict of interest

The authors declare that there is no conflict of interest

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