

PERCEIVED STRESS AND HEALTH RELATED QUALITY OF LIFE IN A GROUP OF ROMANIAN ADULTS

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Abstract: Background: The impact of stress on Health Related Quality of Life is considered a certainty in modern society, but the magnitude of this phenomenon is still not very well known. Measuring perceived stress level and assessing the correlations with perceived Health Related Quality of Life scores may bring valuable information for medical, public health and also for social interventions. Objective: to assess the level of perceived stress in relationship with self evaluated Health Related Quality of Life both on physical and mental components and by the eight domains. Materials and methods: A sample of 928 adult subjects was selected through "snow ball method" from different geographic regions of Romania. Two well-known tools have been used for collecting data: Perceived Stress Scale 14 items (PSS-14) for measuring perceived stress level and SF-36v2 Health Survey, for perceived Health Related Quality of Life assessment. Possible correlation between PSS-14 scores level and different levels of SF-36 scores, by physical and mental components and by the eight domains, have been analyzed. Results: The lowest SF-36 score value was registered for vitality (61.8 ± 17.69) and the highest for physical functioning (84.1 ± 20.52), MCS and PCS had closed values (71.7 ± 19.02 and 74.5 ± 19.44 respectively). Males and people from urban areas tend to have a better perceived HRQoL, also people from Transilvania. Perceived HRQoL score decreases with age, especially after 55 years but it is positively correlated with education and income level, excepting an intriguing gap in 2000 – 2499 lei group. Significant moderate negative correlations were identified between PSS-14 scores and all SF-36 Health Survey components – both Physical and Mental scores and for all of the eight analyzed domains. Conclusions: Study results provide additional arguments regarding the importance of perceived stress level assessment in medical, public health and social interventions, together with tailored stress reduction measures.

Cuvinte cheie: adulți, stres perceput, calitatea vieții legată de starea de sănătate, corelații, cerc vicios vs. cerc virtuos

Rezumat: Impactul stresului asupra calității vieții legată de starea de sănătate (HRQoL) este considerat o certitudine în societatea modernă, dar magnitudinea acestui fenomen nu este încă foarte bine cunoscută. Măsurarea nivelului stresului perceput și evaluarea corelațiilor cu scorurile HRQoL ar putea furniza informații valoroase pentru intervențiile din domeniul medical și al sănătății publice, dar și social. Obiectiv: Evaluarea nivelului stresului perceput în relație cu nivelul scorurilor HRQoL, pe componenta fizică și mentală și pe cele opt domenii. Materiale și metodă: Un lot de 928 subiecți adulți a fost selecționat, prin metoda "bulgărelui de zăpadă", din diferite zone geografice ale României. Pentru culegerea datelor au fost utilizate două instrumente bine-cunoscute: Scala Stresului Perceput cu 14 items (PSS-14) pentru măsurarea nivelului stresului perceput și SF-36v2 Health Survey, pentru Calitatea vieții legată de starea de sănătate percepută. Au fost analizate posibilele corelații între nivelul scorurilor PSS -14 și diferitele niveluri ale scorurilor SF-36, pe componenta fizică și mentală și pe cele opt domenii. Rezultate: Cele mai mici valori ale SF-36 au fost înregistrate pentru domeniul Vitalitate, (61.8 ± 17.69), iar cele mai înalte pentru funcționalitatea fizică (84.1 ± 20.52), însă scorurile MCS și PCS au înregistrat valori relative apropiate (71.7 ± 19.02 , respectiv 74.5 ± 19.44). Bărbații și subiecții din mediul urban tind să aibă o percepție mai bună a HRQoL, ca și cei din Transilvania. Scorul HRQoL scade cu vârsta, mai ales după 55 de ani, dar este corelat pozitiv cu nivelul educației și al veniturilor, exceptând o depresiune surprinzătoare înregistrată la nivelul grupului cu venituri între 2000 – 2499 lei. Între scorurile PSS-14 și toate elementele SF-36 Health Survey, componentele fizică și mentală și cele opt domenii analizate, a fost identificată o corelație negativă moderată semnificativă. Concluzii: Rezultatele studiului furnizează argumente suplimentare în ceea ce privește importanța evaluării nivelului stresului perceput în intervențiile din domeniile medical, al sănătății publice și social, împreună cu măsuri ținute de reducere a stresului.

INTRODUCTION

"Never before has there been so much interest in stress, world-wide, among social and bio- scientists and on the part of general public. This interest extends to diverse clinical

practitioners, who apply scientific knowledge to help ameliorate emotional distress, dysfunctions, physical diseases and social ills, generated by stress" – postulated Lazarus back in 1999.(1) These days, his words are truer than ever. Stress became one of

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the most important factors which have a big impact on our social, physical and psychological health and, at the end of the day, on our quality of life.(2,3) Assessing potential correlations between Perceived stress level and perceived Health Related Quality of Life scores may provide valuable information for further design of different public health, medical and social interventions.

PURPOSE

The main purpose of this study was to investigate the relationships between the perceived stress and perceived Health Related Quality of Life, based on the assumption that a higher level of perceived stress is associated to worse perception of health status.

METHODS

We performed a cross-sectional study, conducted on a sample of 928 Romanian adult subjects, selected using "the snow ball method", from three different geographic regions of Romania. As tools for data collection, we used two well-known questionnaires (auto-administrated, on paper format): Perceived Stress Scale - 14 items (PSS-14) for perceived stress level measurement and SF-36v2 Health Survey, for Health Related Quality of Life. This study is a part of a larger research, where PSS -14 and SF-36 have been applied simultaneously, together with a questionnaire collecting demographic and socio-economic data (age, gender, education, income, occupation).

PSS -14 is a self-reported questionnaire designed to measure "the degree to which individuals appraise situations in their lives as stressful".(4,5) Practically it is used for measurement of perceived stress level. In our study we used a Romanian version of the PSS-14 scale, previously applied in other studies.(6,7) Due to the conditions associated to the use of this tool, we put an inclusion criterion of having minimum eight years of education for the sample selection. The PSS comprises fourteen items covering a number of direct queries about potential stressful situations experienced during the last month. Items 1, 2, 3, 8, 11, 12 and 14 are negatively stated and the response "never" is quantified as 0 points. Items 4, 5, 6, 7, 9, 10 and 13 are the positively stated items and the response "never" is quantified in 4 points. PSS-14 overall score is obtained by summing across all 14 items, ranging from 56 to 0, with higher scores indicating higher levels of stress. There are no specified thresholds in the literature, but in other Romanian studies, the perceived stress was classified upon the global PSS score as "low" (0 – 14), "moderate" (15 – 28), "high" (29 – 42) or "very high" (43 – 56).(7)

The second tool - SF-36 questionnaire - has been applied for perceived Health Related Quality of Life assessment. SF-36v2 Health Survey is a multi-purpose, short-form health survey with 36 questions, considered to be a generic measure, "as opposed to one that targets a specific age, disease, or treatment group".(8) It yields an 8-scale profile of functional health and well-being scores (physical functioning, role limitations related to physical health, role limitations caused by emotional problems; energy/fatigue, emotional well-being, social functioning, pain and general health. These scores can be summarized in two psychometrically-based measures (physical component score "PCS" and mental component score "MCS"). Accordingly, the SF-36 has proven useful in surveys of general and specific populations, comparing the relative burden of diseases and in differentiating the health benefits produced by a wide range of different health interventions.(3,9) We used the improved Version 2 in Romanian. This version 2 has been translated for use in more than 60 countries and languages (including Romanian) as part of the International Quality of Life

Assessment (IQOLA) Project and it was also tested for reliability and validity.(10) The SF-36 v2 questionnaire is suitable for self-administration, computerized administration or administration by a trained interviewer in person or by telephone, to persons age 14 and older. In our study, SF-36 v2 questionnaire was self-administrated in adult subjects.

Data analysis:

We investigated the PSS-14 score in the study population, overall, by gender, age-group, residency environment, geographical region, education and income category. The results were published in a previous paper.(11) SF-36 scores were calculated by each of the two main components and eight scales: Physical Component - Physical Functioning (PF), Role Limitation Physical (RP), Bodily Pain (BP), General Health (GH) - and Mental Component - Vitality (VT), Social Functioning (SF), Role Limitation - Emotional (RE), Mental Health (MH) -using the Scoring Instructions for MOS Core Survey Instrument.(12,13) We calculated means and standard deviations in each scale. The normality was assessed using the Kolmogorov-Smirnov test. The non-symmetric scale variables were reported as medians (range). Parametric (T student test) or nonparametric tests (Mann-Whitney U-test or Kruskal Wallis) were used for means/medians comparison. A p-value <0.05 was considered for statistical significance (two tailed test). Categorical data were presented as proportions with one decimal and compared by using Chi square test (p<0.05). Spearman correlation was used to analyze the PSS14 – SF36 relationship. Microsoft Office Excel 2007 for Windows was used for data entry and statistical analysis was performed with SPSS software, version 17.0.

RESULTS

A total population of 928 adult subjects has been investigated, with 1:2 male: female ratio and a mean age of 40.22 ± 13.109 years (18 – 90 years), most of them living in urban areas (77.7%). In terms of geographic region 47.3%, 28.8% and 23.9% came from Moldova, Muntenia and Transilvania respectively and 69%, 24.5% and 6.6% had high, medium and respectively low education (subjects with less than 8 years of school were excluded). The correlation between demographic and socio-economic characteristics and the PSS-14 scores were described in a previously published paper.(11)

The SF-36 scores in overall population are shown in Fig. 1. The lowest value was registered for vitality (61.8 ± 17.69) and the highest for physical functioning (84.1 ± 20.52), but MCS and PCS had closed values (71.7 ± 19.02 and 74.5 ± 19.44 respectively). Analysis by gender revealed higher scores in males (figure no. 2) and in urban areas for all the scales, except vitality which is equal in both rural and urban areas.

Figure no. 1. Mean SF-36 scores in overall study population
Mean SF 36 scores - overall population

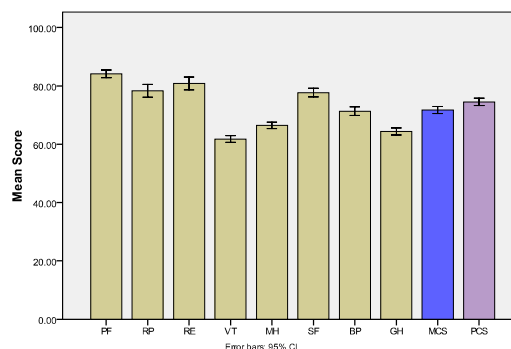
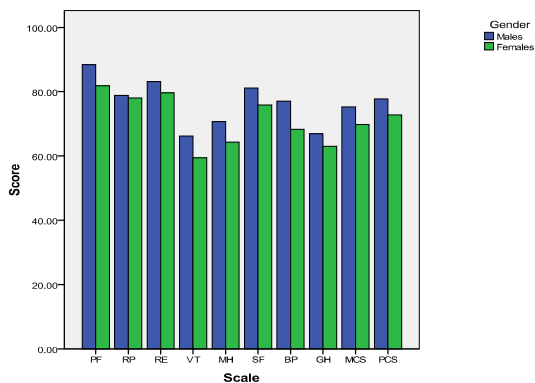
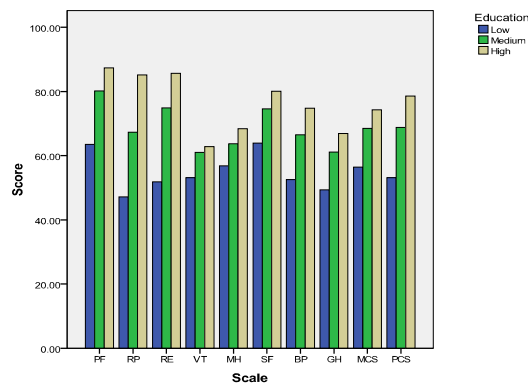


Figure no. 2. SF- 36 scores by gender

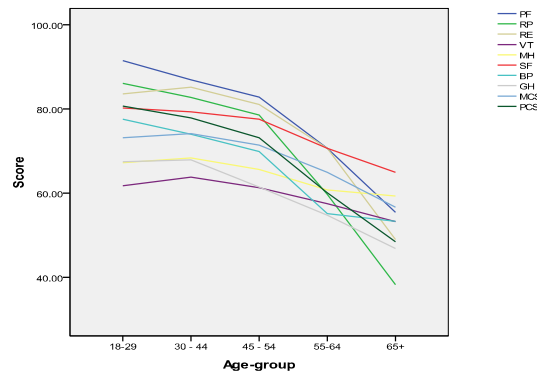
Also, people from Muntenia tend to have the lowest scores in all scales, those from Moldova showed little higher scores, while the highest were found in Transilvania.

Education seems to be a factor influencing the good health perception. People with higher education showed obviously higher scores in all the scales (figure no. 3).

Figure no. 3. SF- 36 scores by education

Also all the scores were higher in younger age-groups (figure no. 4), decreasing with age, with a visible steep slope

after 55 years. Scores were higher in higher income categories with an interesting gap at the 2000 – 2499 lei / family member level group.

Figure no. 4. SF- 36 scores by age-groups

Regarding the main objective of the study, we have investigated the relationship between PSS-14 and SF-36 scores.

The correlation coefficients are shown in table no. 1.

Significant moderate negative correlations were identified between PSS-14 scores and all SF-36 Health Survey components – both Physical and Mental scores, together with all of the eight domains.

Table no. 1. Correlation coefficients of PSS 14 score to SF 36 scores.

PSS 14	PF	RP	RE	VT	MH	SF	BP	GH	MCS	PCS
Pearson Correlation	-.303**	-.372**	-.398**	-.623**	-.677**	-.489**	-.443**	-.507**	-.620**	-.494**
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

DISCUSSIONS

Despite its main limitation - "the snow ball" sample selection method, due to the large number of responders and the diversity of their demographic and socio-economic characteristics, this study provided interesting results.

The direct relationship between SF-36 scores with education and income is not a surprise, but the gap identified in the 2000 - 2499 lei/ family member group, which is over the average income level in Romania, may suggest that this particular category, which represent a pretty important segment of the Romanian active population, may be under additional pressure and their situation needs further investigation. Another worrying finding is the steep slope revealed for people over 55 years old, taking into account that people of this age are still a very important part of the active population.

An important point to stress on is the potential vicious circle - significant moderate negative correlation between perceived stress and perceived HRQoL suggests that subjects who have a higher degree of stress level tend to have a poorer perception of their health status/ Health Related Quality of Life and, in the same time, a worse perception of HRQoL may increase the stress level.

CONCLUSIONS

In our opinion, study results provide additional arguments regarding the importance of perceived stress level assessment as a routine test for situation scan phase in medical, public health and social field, together with tailored stress reduction measures as part of interventions in these domains, in order to transform the vicious circle into a virtuous one.

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