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Validation of the Scale Intended for the Assessment of the Quality of Life of Persons With Lumbal Syndrome[1]

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Abstract: *In order to determine the metric characteristics of the scale intended for the assessment of the quality of life of persons with lumbar syndrome (PQL-LS) on a sample of 202 subjects (M = 93; F = 109), three procedures for checking its metric characteristics were applied: factor analysis (Principal Components Analysis) with the Direct Oblimin method, in order to identify the latent structure of the perception of the quality of life of the respondents; Scale Reliability Analysis based on Cronbach's alpha coefficient; and a validation check based on the coefficient of internal correlation of the scale (Spearman's correlation of rank - rho). The results show that the scale has good metric characteristics and that it has a multi-item character (twenty-seven indicators). The internal accordance of the scale is in the high reference range of the Cronbach's alpha coefficient (0.947). The values of correlation coefficient of subscale scores: physical health, mental health, social relations and environment show a high degree of correlation with the overall mean value of the entire scale, which confirms the validity of the analyzed domains (subscale) and the scale as a whole (at the level of significance r <0.001). All 27 variables yielded the corresponding weight of the single extracted component (KMO = 0.901; Sig. = 0.000), which determined that the scale had adequate validity. Based on the identified good metric characteristics, this scale can be recommended for use as a unique/ autonomous multi-item scale designed to assess the quality of life of adults with lumbar syndrome.*

Key words: *quality of life, lumbar syndrome, scale, validation*

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Validacija skale namenjene proceni kvaliteta života osoba sa lumbalnim sindromom[1]

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Apstrakt: *U cilju utvrđivanja metrijskih karakteristika skale namenjene proceni kvaliteta života osoba sa lumbalnim sindromom (PKŽ-LS) na uzorku od 202 ispitanika (M=93; Ž=109), primenjena su tri postupka provere njenih metrijskih karakteristika: faktorska analiza (analiza glavnih komponenti – Principal Components Analysis) sa metodom kose rotacije (Direct Oblimin), radi identifikacije latentne strukture percepcije kvaliteta života ispitanika; proverom unutrašnje saglasnosti (Scale Reliability Analysis) zasnovane na Kronbahovom alfa koeficijentu); i proverom validnosti zasnovane na koeficijentu unutrašnje korelacije skale (Spirmanova korelacija ranga – ro). Rezultati pokazuju da skala ima dobre metrijske karakteristike i da je odlikuje multiajtemski karakter (dvadeset sedam indikatora). Unutrašnja saglasnost skale je u visokom referentnom opsegu Kronbahovog alfa koeficijenta (0,947). Vrednosti koeficijenta korelacije skorova subskala: telesno zdravlje, psihičko zdravlje, socijalni odnosi i okolina pokazuju visoku povezanost sa ukupnom srednjom vrednošću cele skale, što potvrđuje validnost analiziranih domena (subskala) i skale u celini (na nivou značajnosti r < 0,001). Svih 27 varijabli dalo je odgovarajuću faktorsku težinu jedinoj ekstrahovanoj komponenti (KMO=0,901; Sig. = 0,000) čime je utvrđeno da skala ima odgovarajuću validnost. Na osnovu identifikovanih dobrih metrijskih karakteristika ova skala se može preporučiti za primenu kao jedinstvena/samostalna multiajtemska skala namenjena proceni percepcije kvaliteta života odraslih osoba sa lumbalnim sindromom.*

Ključne reči: *kvalitet života, lumbalni sindrom, skala, validacija.*

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Introduction

When considering various issues of the quality of life of a modern man, the determinant that becomes the center of attention is his/hers overall well-being. It is influenced by many factors, from objective indicators, to subjective perception in the evaluation of physical, material, emotional and social well-being, personal development, etc. Thus, the concept of quality of life can be viewed through two, mutually correlative, aspects. The first is subjectivity, as a determinant of understanding from the perspective of individuals, while the other is related to multidimensionality, as a factor in the psychometric tradition of measuring health status that assimilates the assessment of several different dimensions of the individual's life (Nešić, 2016).

Therefore, the quality of life can be described as an essential determinant of individual existence of a man, his/hers social connections, life and work preferences, biological and reproductive prosperity, etc. Therefore, it is necessary for the quality of life to be regarded as a multidimensional construct under the complex influence of the physical health of an individual, his/hers psychological state, level of independence, social relations, personal beliefs and attitudes toward important aspects of the individual environment.

The World Health Organization represents the quality of life as a personal perception of one's own life position, in the context of a cultural and value system in which an individual lives and in relation to his/hers goals, expectations, standards and interests (WHOQOL group, 1998). Therefore, the assessment of the quality of life can generallybe considered from two aspects: (1) subjective, as an individual's self-assessment, and (2) objective, as an observer's assessment - expert judgment. So, depending on who is evaluating, in complex research, sometimes occurrences and divergent grades are possible (Stojković et al., 2010). Pain in the lumbar spine is one of the most common health problems of a modern man, so it is considered one of the dominant causes of temporary inability to work (Mačak-Hadžiamerović, Čustović-Hadžimuratović & Mujezinović, 2009).

In support of this are the data of individual epidemiological studies (Božić, 2017) that show that in the area of Vojvodina the frequency of lumbar pain is most pronounced amongst the population between the age of 50 and 59. Also, it is certain that this problem as a cause of incapacity to work occurs in more than 25% of the working age population that is younger than 45 years of age. Similar studies performed abroad show that in 60-85% of the population of a country, at least once during their life-

Uvod

Kada se razmatraju različita pitanja kvaliteta života savremenog čoveka u središte pažnje se, svakako, postavlja determinanta da je to njegovo sveukupno blagostanje. Na njega utiču brojni faktori, od objektivnih pokazatelja, pa do subjektivne percepcije u vrednovanju telesnog, materijalnog, emocionalnog i socijalnog blagostanja, ličnog razvoja, itd. Dakle, koncept kvaliteta života može se posmatrati kroz dva, međusobno korelativna aspekta. Prvi je subjektivnost, kao determinanta razumevanja iz perspektive pojedinca, dok se drugi vezuje za multidimenzionalnost, kao faktor psihometrijske tradicije merenja zdravstvenog statusa koji apostrofira procenu više različitih dimenzija života pojedinca (Nešić, 2016). Stoga se o kvalitetu života može govoriti kao bitnoj odrednici individualne egzistencijalizacije čoveka, njegovog društvenog povezivanja, životnih i radnih preferencija, biološko-reproduktivne celishodnosti, itd.

Prema tome, kvalitet života je neophodno posmatrati kao višedimenzionalni konstrukt koji se nalazi pod kompleksnim uticajem fizičkog zdravlja pojedinca, njegovog psihološkog stanja, nivoa nezavisnosti, socijalnih odnosa, ličnih verovanja i odnosa prema važnim aspektima individualnog okruženja. Svetska zdravstvena organizacija kvalitet života predstavlja kao lično opažanje sopstvene životne pozicije, u kontekstu kulturnog i vrednosnog sistema u kome pojedinac živi i u odnosu prema svojim ciljevima, očekivanjima, standardima i interesima (WHOQOL group, 1998). Zbog toga se procena kvaliteta života, u principu, može razmatrati iz dva ugla: (1) subjektivnog, kao individualna ocena (samoprocena) pojedinca i, (2) objektivnog, kao ocena posmatrača-ekspertska procena. Tako da, u zavisnosti od toga ko vrši procenu, kod kompleksnih istraživanja, moguća je nekada pojava i divergentnih ocena (Stojković i sar., 2010).

Bol u lumbalnom delu kičme predstavlja jednu od najčešćih zdravstvenih tegoba savremenog čoveka, tako da se smatra jednim od dominantnih uzroka privremene nesposobnosti za rad (Mačak-Hadžiamerović, Čustović-Hadžimuratović & Mujezinović, 2009). U prilog ovome govore podaci pojedinih epidemioloških studija (Božić, 2017) koje su utvrdile da je na području Vojvodine učestalost lumbalnog bola najizraženija u delu populacije između 50. i 59. godine života. Takođe, izvesno je da se ovaj problem kao uzročnik nesposobnosti za rad javlja u više od 25% radno sposobne populacije koja je mlađa od 45 godina. Slične studije rađene u inostranstvu pokazuju da se kod 60-85% populacije stanovništva jedne zemlje bar jednom tokom života javi lumbalni bol, a da

time, lumbar pain occurs, with recurrence in at least 50% of patients who are undergoing medical treatment (Middleton & Fish, 2009; Barkhordari, Halvani & Barkhordari, 2013). In that sense, there is almost always a consensus in the professional circles that the lumbar syndrome, due to its negative effects on physical and mental health, represents a major socio-economic problem for every society (Karahan & Bayraktar, 2004).

The exact source of lumbar pain is difficult to identify. It is manifested as unspecified back pain, and it represents a relatively big problem for setting the exact diagnosis. It can arise as a result of dysfunction of various tissues including muscles, soft connective tissue, ligaments, cartilage, and blood vessels (Božić, 2017: 11). In any case, lumbar pain can be observed in the general context of defining pain as an unpleasant sensory or emotional experience that is associated with actual or potential tissue damage (Maxwell, 2012). It is most commonly localized in the loin-shaped part of the spinal column (below the arterial arc to the lower part of the gluteal region), and is expressed in the form of "twitching" (tightening) and reflecting along the nerves (Yilmaz & Dedeli, 2012).

Causes which lead to the occurrence of pain in the lumbar part of the spine (lumbar syndrome) are very heterogeneous (Božić, 2017). In accordance with the etiological factors, they can be grouped according to the following factors: (1) caused by congenital or acquired diseases, (2) due to biomechanical disorders of the spinal column, (3) as a result of injuries, (4) caused by diseases of other organs in which the disease is reflected in the lower part of the spine (Popović, 2003). Primary prevention of lumbar syndrome is definitely focused on appropriate regular physical exercise (Henewer ET all, 2011). In this context, special attention should be paid to the muscles of the back that act as support for the spinal column and play the role of maintaining its stability. Insufficient back muscle strength (especially m. erector spinae and m. multifidus) can lead to lumbar pain, causing frequent repeated painful conditions (Lee et all, 2012).

Method

Within the empirical non-experimental transversal study, which concerned the identification of some aspects of the quality of life of persons with lumbar syndrome, a scale for the self-assessment of quality of life was applied. The sample of the research entities consisted of a total of 202 subjects (M = 93; F = 109), persons with lumbar syndrome, who were, at the time of the survey, undergoing a physiotherapist treatment at the Physical Medicine and Rehabilitation Ordinations in four Vojvodina

se recidivi pojavljuju kod najmanje 50% pacijenata koji su podvrgnuti i medicinskim tretmanima (Middleton & Fish, 2009; Barkhordari, Halvani & Barkhordari, 2013). U tom smislu gotovo da postoji konsenzus u stručnim krugovima oko toga da lumbalni sindrom, zbog svojih negativnih efekata na fizičko i mentalno zdravlje, predstavlja veliki socio-ekonomski problem za svako društvo (Karahan & Bayraktar, 2004).

Tačan izvor pojave lumbalnog bola je teško identifikovati. Manifestuje se kao nespecifičan bol u leđima, te predstavlja relativno veliki problem za postavljanje tačne dijagnoze. Može nastati kao posledica disfunkcije različitih tkiva uključujući mišiće, meko vezivno tkivo, ligamente, hrskavicu i krvne sudove (Božić, 2017: 11). U svakom slučaju, lumbalni bol se može posmatrati u opštem kontekstu definisanja bola kao neprijatnog čulnog ili emocionalnog iskustva koje je povezano sa stvarnim ili potencijalnim oštećenjem tkiva (Maxwell, 2012). Najčešće je lokalizovan u slabinskom delu kičmenog stuba (ispod rebarnog luka do donjeg dela glutealne regije), a ispoljava se u vidu "trnjenja" i reflektuje duž nerava (Yilmaz & Dedeli, 2012). Uzroci koji dovode do pojave bola u lumbalnom delu kičmenog stuba (lumbalnog sindroma) su vrlo heterogene prirode (Božić, 2017). U skladu sa etiološkim faktorima mogu se grupisati prema sledećim činiocima: (1) uzrokovani kongenitalnim ili stečenim bolestima, (2) usled biomehaničkih poremećaja kičmenog stuba, (3) kao posledica povreda, (4) uzrokovan bolestima drugih organa kod kojih se bolest reflektuje u slabinski deo kičme (Popović, 2003).0

Primarna prevencija lumbalnog sindroma je definitivno usmerena ka odgovarajućem redovnom fizičkom vežbanju (Henewer et all, 2011). Posebna pažnja se, u ovom kontekstu, treba posvetiti mišićima leđa koji deluju kao podrška kičmenom stubu i ostvaruju ulogu održavanja njegove stabilnosti. Nedovoljna snaga leđnih mišića (posebno *m. erector spinae i m. multifidus*) mogu dovesti do pojave lumbalnog bola, odnosno uzrok su čestih ponovljenih bolnih stanja (Lee et all, 2012).

Metod

U okviru empirijske neeksperimentalne transverzalne studije, koja se odnosila na identifikaciju nekih aspekata kvaliteta života osoba sa lumbalnim sindromom, primenjena je skala za samoprocenu kvaliteta života.

Uzorak entiteta istraživanja sačinjavalo je ukupno 202 ispitanika (M=93; Ž=109), osoba sa lumbalnim sindromom, koje su se u vreme anketiranja nalazile na fizijatrijskom tretmanu u Ordinacijama fizikalne medicine i rehabilitacije u četiri vojvođanska grada (Novi Sad, Su-

towns (Novi Sad, Subotica, Kanjiža and Bačka Palanka). The average age of the respondents was 47.5 years. The research data was collected through a survey using a questionnaire whose design was based on a modified WHOQOL-BREF version of the World Health Organization Quality of Life Questionnaire (BREF) in Serbian language, designed for self-assessment of quality of life. This essentially shortened version of the WHOQOL-100 questionnaire (De Vries & Van Heck, 1997) treats quality of life as a multidimensional space.

The starting point for the creation of this questionnaire in this study was the character of the respondents (persons with lumbar syndrome), and the basic version of WHOQOL-BREF was used in some earlier studies (Martinis, 2005), as well as the modified version of AQL-S (Nešić, 2016), redesigned by adjusting the formulations of a single number of items.

The quality of life profile in the applied questionnaire has been identified through the self-assessment scale, i.e. the perception of the quality of life of people with lumbar syndrome (PQL-LS), which includes four areas (domain) - physical health, mental health, social relations and the environment. A part of the questioner that defines the system of dependent variables has the form of a ten item Likert scale (the scale of the intensity of the indicators from 1 to 10) with a total of 29 items. The domains of quality of life concerned: physical health (8 items), mental health (7 items), social relations (5 items) and the environment (9 items). The timeframe for the questions asked (indicators) was "in the past two weeks".

Metrics of the applied scale was tested using three procedures: (1) factor analysis (Principal Components Analysis) with the Direct Oblimin method, in order to identify the latent structure of the perception of the quality of life of the respondents; (2) checking its internal compliance (Scale Reliability Analysis based on Cronbach's alpha coefficient); (3) validation based on the coefficient of internal correlation of the scale (Spearman's correlation of rank - rho). The selection of these procedures was conditioned, first and foremost, by the nature of the research and the applied research instrument. As in this case it is a type of instrument whose metric characteristics are checked through several similar studies, as a logical choice of the data analysis method, whose orientation towards the validation of the redesigned scale of self-assessment, has been devised by the PCA approach.

According to Tabachnick and Fidell, (Tabachnick & Fidell, 2007: 635) it is a far superior solution when it comes to the usual empirical compression of a data set in relation to the CFA (common factor analyzes) procedure.

botica, Kanjiža i Bačka Palanka). Prosečna starost ispitanika iznosila je 47,5 godina.

Istraživački podaci su prikupljeni anketnim putem, uz korišćenje upitnika čiji se konstrukt zasnivao na modifikovanoj verziji WHOQOL-BREF upitnika/skale na srpskom jeziku (*World Health Organization Quality of Life Questionnare – BREF*) namenjenog samoproceni kvaliteta života. Ova, u suštini, skraćena verzija upitnika WHOQOL-100 (De Vries & Van Heck, 1997) kvalitet života tretira kao multidimenizonalni prostor. Kao polazna osnova za kreiranje upitnika u ovom istraživanju pošlo se od karaktera ispitanika (osobe sa lumbalnim sindromom), te je osnovna verzija WHOQOL-BREF primenjena u nekim ranijim studijama (Martinis, 2005), kao i modifikovana verzija PKŽ-S (Nešić, 2016), redizajnirana prilagođavanjem formulacija jednog broja ajtema.

Profil kvaliteta života je u primenjenom upitniku identifikovan kroz skalu samoprocene, odnosno ***p**ercepcije **k**valiteta života osoba sa **l**umbalnim **s**indromom* (PKŽ-LS), gde su obuhvaćena četiri prostora (domena) - telesno zdravlje, psihičko zdravlje, socijalni odnosi i okruženje. Deo uptinika kojim je definisan sistem zavisnih varijabli ima je oblik desetostepene Likertove skale (raspon intenziteta vrednovanja indikatora od 1 do 10) sa ukupno 29 ajtema. Domeni kvaliteta života su se odnosili na: telesno zdravlje (8 ajtema), psihičko zdravlje (7 ajtema), socijalni odnosi (5 ajtema) i okruženje (9 ajtema). Vremenska odrednica za postavljena pitanja (indikatore) bila je "u poslednje dve nedelje".

Metrika primenjene skale testirana je primenom tri postupka: (1) faktorskom analizom (analiza glavnih komponenti – *Principal Components Analysis*) sa metodom kose rotacije (*Direct Oblimin*), radi identifikacije latentne strukture percepcije kvaliteta života ispitanika; (2) proverom njene unutrašnje saglasnosti (*Scale Reliability Analysis* koja je zasnovana na Kronbahovom alfa koeficijentu); (3) proverom validnosti zasnovane na koeficijentu unutrašnje korelacije skale (Spirmanova korelacija ranga – ro). Izbor navedenih procedura bio je uslovljen, u prvom redu, karakterom istraživanja i primenjenim istraživačkim instrumentom. Kako je u ovom slučaju reč o tipu instrumenta čije su metrijske karakteristike proveravane kroz više sličnih istraživanja, to se kao logičan odabir metode analize podataka, čije je usmerenje ka validaciji redizajnirane skale samoprocene, namentnuo PCA pristup. On je, prema Tabačniku i Fidelu (Tabachnick & Fidell, 2007: 635) znatno superiornije rešenje kada je reč o uobičajenom empirijskom sažimanju skupa podataka, u odnosu na CFA postupak (*common factor analysis*). Takođe i preporučeni aspekti

Also, the recommended aspects of each instrument scale test (Pallant, 2009) have directed us to selecting a statistical procedure for determining the reliability of a particular sample, applying the Scale Reliability Analysis based on the Cronbach's alpha coefficient. Likewise, in this case it is a statistical data representing the ordinal sizes (scales), and to determine the coefficient of inertial correlation, in addition to the Crohnbach's alpha coefficient (as a procedure for determining internal accordance) Spearman's correlation of rank (Chen & Popovich, 2002) was imposed as a correct procedure.

Results

The instrument for assessment of perception of the quality of life was constructed as a ten-step scale, which provides an individual assessment of the quality of life of people with lumbar syndrome (Perception of Quality of Life - Lumbar Syndrome). The initial questionnaire consisted of a total of 29 items, modeled on the PQL-S scale (Nešić, 2016), and according to the WHOQOL-BREF basic version model (WHQOL Group, 1998; Skevington, Lotfy & O'Connell, 2004). The domains in the function of quality of life identification included four subspaces (within a single scale): physical health, mental health, social relations and living environment.

The validation of the scale was preceded by several test analyzes. Using the Factor Analysis Procedure (PCA) Item analysis identified two that with their coefficient of correlation (less than 0.3) do not meet the recommended acceptability criteria for items in the structure of an isolated factor (Tabachnick & Fidell, 2007; Pallant, 2009). As for items whose omission in the context of the indicator base does not disturb the construct and logic of the scale as a whole (QPZ10 and QPZ13), as well as the logical coverage of the corresponding subscale (mental health), the continuation of the analysis and validation of the applied scale took place in the coverage of the remaining 27 items. The subscale construct of this solution had the following distribution of quality of life indicators: physical health (8), mental health (5), social relations (5), and environment (9).

The reliability of the scale, which is based on its internal accordance, was analyzed using the Cronbach's alpha coefficient. The obtained results clearly indicate the appropriate internal accordance (Cronbach's alpha coefficient = 0.947), which significantly exceeds the recommended theoretical value of 0.7 (De Vellis, 2003) (Table 1).

provere svakog instrumenta tipa skale (Pallant, 2009) usmerili su nas na izbor statističke procedure za utvrđivanje pouzdanosti na konkretnom uzorku ka primeni *Scale Reliability Analysis* zasnovane na Kronbahovom alfa koeficijentu. Isto tako, kako se u ovom slučaju radi o statističkim podacima koji predstavljaju ordinalne veličine (skale), kao korektna procedura za utvrđivanje koeficijenta untrašnje korelacije, pored kronbahovog alfa koeficijenta (kao procedure za utvrđivanje unutrašnje saglasnosti), nametnula se Spirmanova korelacija ranga (Chen & Popovich, 2002).

Rezultati

Instrument za procenu percepcije kvaliteta života konstruisan je kao desetostepena skala kojom se vrši inidividualna procena indikatora kvaliteta života osoba sa lumbalnim sindromom (***P**ercepcija **K**valiteta Života – **L**umbalni **S**indrom*). Incijalni upitnik se sastojao od ukupno 29 tvrdnji, po uzoru na skalu PKŽ-S (Nešić, 2016), odnosno prema modelu osnovne verzije WHOQOL-BREF upitnika (WHQOL Group, 1998; Skevington, Lotfy & O'Connell, 2004). Domenima koji su u funkciji identifikacije kvaliteta bila su obuhvaćena četiri subprostora (u okviru jedinstvene skale): telesno zdravlje, psihičko zdravlje, socijalni odnosi i životno okruženje.

Postupku validacije skale prethodilo je nekoliko probnih analiza. Primenom procedure faktorske analize (PCA) ajtem analizom identifikovana su dva koja svojim koeficijentom korelacije (manji od 0,3) ne zadovoljavaju preporučene kriterijume prihvatljivosti ajtema u strukturi izolovanog faktora (Tabachnick & Fidell, 2007; Pallant, 2009). Kako je reč o ajtemima čije izostavljanje u kontekstu indikatorske osnove ne narušava konstrukt i logiku skale u celini (QPZ10 i QPZ13), kao ni logički obuhvat pripadajuće subskale (psihičko zdravlje), to se nastavak analize i validacije primenjene skale odvijao u obuhvatu preostalih 27 ajtema. Subskalni konstrukt ovakvog rešenja je imao sledeću distribuiranost indikatora kvaliteta života: telesno zdravlje (8), psihičko zdravlje (5), socijalni odnosi (5), okruženje (9).

Pouzdanost skale, koja se zasniva na njenoj ununtrašnjoj saglasnosti, analizirana je pomoću Kronbahovog alfa koeficijenta. Dobijeni rezultati jasno ukazuju na odgovarajuću unutrašnju saglasnost (Kronbahov alfa koeficijent = 0,947) koji je značajno premašuje preporučenu teorijsku vrednost od 0,7 (De Vellis, 2003) (Tabela 1).

Table 1. *Elements of internal accordance PQL-LS scale*

Tabela 1. *Elementi unutrašnje saglasnosti PKŽ-LS skale*

Broj / *№*		Indikator / *Indicator*	Skalarni prosek / *Scalar average*	Uticaj uklanjanja stavke na alfa koeficijent / *Cronbach's Alpha if Item Deleted*
1	TZ1	Nivo dnevnih fizičkih aktivnosti / *Level of daily physical activity*	5.58	.942
2	TZ2	Redovnost bavljenja sportsko-rekreativnim aktivnostima / *Regularity of sports-recreational activities*	4.00	.943
3	TZ3	Telesna kondicija / *Body condition*	5.00	.942
4	TZ4	Zdravlje u celini / *Health in general*	6.11	.941
5	TZ5	Bolovi i nelagodnost u telu / *Pain and discomfort in the body*	5.00	.944
6	TZ6	Spavanje i odmor / *Sleep and rest*	6.06	.941
7	TZ7	Kvalitet i redovnost dnevnih obroka / *Quality and regularity of daily meals*	7.01	.943
8	TZ8	Opšti radni kapacitet / *General working capacity*	6.65	.941
9	PZ9	Predstava o svom telesnom izgledu / *The image of your physical appearance*	6.62	.942
10	PZ11	Učestalost pozitivnih osećanja / *The frequency of positive feelings*	6.54	.942
11	PZ12	Samopouzdanje / *Self-confidence*	6.98	.940
12	PZ14	Lična uverenja / *Personal beliefs*	7.80	.942
13	PZ15	Pamćenje i koncentracija / *Memory and concentration*	7.67	.942
14	SO16	Lično (unutrašnje) stanje / *Personal (internal) condition*	7.11	.940
15	SO17	Društveni odnosi i podrška okoline / *Social relations and environmental support*	7.23	.940
16	SO18	Seksualna aktivnost / *Sexual activity*	6.12	.942
17	SO19	Odnosi sa vršnjacima/prijateljima / *Relationships with peers/friends*	7.60	.941
18	SO20	Kontakti na društvenim mrežama / *Contacts on social networks*	5.70	.943
19	O21	Izvori finansija/finansijska stabilnost / *Sources of finance/financial stability*	6.45	.940
20	O22	Osećaj slobode, fizičke bezbednosti i lične sigurnosti / *A sense of freedom, physical security and personal security*	7.29	.941
21	O23	Kvalitet i dostupnost zdravstvene i socijalne zaštite / *Quality and accessibility of health and social care*	6.12	.943
22	O24	Radno mesto / *Workplace*	6.15	.942
23	O25	Porodično okruženje / *Family environment*	8.06	.942
24	O26	Mogućnosti za sticanje novih znanja i veština u našoj zemlji / *Opportunities for acquiring new knowledge and skills in our country*	5.94	.942
25	O27	Mogućnosti za upražnjavanje rekreacije i sporta u mestu stanovanja / *Possibilities for practicing recreation and sports in the place of residence*	6.02	.942
26	O28	Kvalitet životne sredina (zagađenje, buka, klima) / *Environmental quality (pollution, noise, climate)*	5.48	.945
27	O29	Kvalitet saobraćaja i prevoza u mestu stanovanja / *The quality of traffic and transport in the town of residence*	5.39	.946
		Kronbahov alfa koeficijent: / *Cronbach's alpha coefficient:*		.947

Also, within the four subscales, their high internal accordance was established (Table 2). Although there is no full agreement on the minimum acceptable alpha coefficient, a number of authors (Hair et al., 1998; Huh et al., 2006) believe that this is a value of 0.6. In the context of the metric characteristics of the subscales in our research, this methodological attitude was accepted.

Takođe je i unutar četiri subskale utvrđena njihova visoka unutrašnja saglasnost (Tabela 2). Mada ne postoji potpuna saglasnost oko minimalne prihvatljive vrednosti za alfa koeficijent, jedan broj autora (Hair et al. 1998; Huh et al. 2006) smatra da je to vrednost 0,6. U kontekstu metrijskih karakteristika subskala u našem istraživanju prihvaćen je ovakav metodološki stav.

Table 2. *Elements of internal accordance subscales*

Tabela 2. *Elementi unutrašnje saglasnosti subskala*

Subskala / *Subscale*	Pitanje / *Question*	Uticaj uklanjanja stavke na alfa koeficijent / *The effect of removing an object on an alpha coefficient*	Kronbahov alfa koeficijent / *Cronbach's alpha coefficient*
1) Telesno zdravlje / *Physical health*	1	,862	,882
	2	,865	
	3	,853	
	4	,859	
	5	,882	
	6	,869	
	7	,877	
	8	,862	
2) Psihičko zdravlje / *Mental health*	9	,811	,825
	10	,781	
	11	,747	
	12	,784	
	13	,821	
3) Socijalni odnosi / *Social relations*	14	,805	,868
	15	,814	
	16	,813	
	17	,817	
	18	,848	
4) Okruženje / *Environment*	19	,818	,855
	20	,822	
	21	,831	
	22	,829	
	23	,828	
	24	,838	
	25	,830	
	26	,849	
	27	,852	
		Kronbahov alfa koeficijent: / *Cronbach's alpha coefficient:*	,947

The validation of the scale was performed by the method of identifying the coefficient of internal correlation (Spearman's correlation of rank) (Table 3). The values of the coefficient of correlation of the scores of individual domains (subscales: physical health, psychological health, social relations, environment) show a high correlation with the total mean value of the entire scale, which confirms the validity of the analyzed domains (subscales) and the scale as a whole (level of significance - r <0.001).

Provera validnosti skale izvršena je postupkom identifikacije koeficijenta unutrašnje korelacije (Spirmanova korelacija ranga) (Tabela 3). Vrednosti koeficijenta korelacije skorova pojedinačnih domena (subskale: telesno zdravlje, psihičko zdravlje, socijalni odnosi, okolina) pokazuju visoku povezanost sa ukupnom srednjom vrednošću cele skale, što potvrđuje validnost analiziranih domena (subskala) i skale u celini (na nivou značajnosti- r < 0,001).

Table 3. *Values of coefficient of correlation of subscales with the score of overall PQL-LS scale*

Tabela 3. *Vrednosti koeficijenta korelacije subskala sa skorom ukupne PKŽ-LS skale*

Subskale	PKŽ-LS / *PQL-LS*	
	Spirmanov koef. / *Spearman's correlation*	Sig.
1) Telesno zdravlje / *Physical health*	.823	.000
2) Psihičko zdravlje / *Mental health*	.870	.000
3) Socijalni odnosi / *Social relations*	.868	.000
4) Okruženje / *Environment*	.866	.000
Statistička značajnost korelacije na nivou / *level of significance p= 0,001*		

In this way, the established high metric values of the PQL-LS scale create a good basis and the capacity for its research applicability. In addition, the context of the identified scalar averages, based on the self-assessment of all indicators of the quality of life, points to the prominence of respondents' responses towards the positive end of the scale (Sv = 6,36) (Table 4). Such results enabled further analysis of its metric characteristics through the determination of factuality.

Na ovaj način utvrđene visoke metrijske vrednosti PKŽ-LS skale stvaraju dobru osnovu i kapacitet za njenu istraživačku primenljivost. Uz to i kontekst identifikovanih skalarnih proseka, zasnovanih na samoproceni svih indikatora kvaliteta života, ukazuju na prominentnost odgovora ispitanika koji su usmereni ka pozitivnom kraju skale (Sv = 6,36) (Tabela 4). Ovakvi rezultati su omogućili dalju analizu njenih metrijskih karakteristika kroz utvrđivanje faktorijabilnosti.

Table 4. *Scalar processes of self-assessment of the quality of life by persons with lumbal syndrom*

Tabela 4. *Skalarni proseci samoprocene kvaliteta života osoba sa lumbalnim sindromom*

RB / *№*		**Telesno zdravlje / *Physical health*:**	**Sv**
1	TZ1	Nivo dnevnih fizičkih aktivnosti / *Level of daily physical activity*	5.58
2	TZ2	Redovnost bavljenja sportsko-rekreativnim aktivnostima / *Regularity of sports-recreational activities*	4.00
3	TZ3	Telesna kondicija / *Body condition*	5.00
4	TZ4	Zdravlje u celini / *Health in general*	6.11
5	TZ5	Bolovi i nelagodnost u telu / *Pain and discomfort in the body*	5.00
6	TZ6	Spavanje i odmor / *Sleep and rest*	6.06
7	TZ7	Kvalitet i redovnost dnevnih obroka / *Quality and regularity of daily meals*	7.01
8	TZ8	Opšti radni kapacitet / *General working capacity*	6.65
		Ukupno TZ / *Total PH*:	***5.68***
		Psihičko zdravlje / *Mental Health*:	Sv
9	PZ9	Predstava o sopstvenom telesnom izgledu / *The image of your physical appearance*	6.62
10	PZ11	Učestalost pozitivnih osećanja / *The frequency of positive feelings*	6.54
11	PZ12	Lično samopouzdanje / *Self-confidence*	6.98
12	PZ14	Lična uverenja / *Personal beliefs*	7.80
13	PZ15	Pamćenje i koncentracija / *Memory and concentration*	7.67
		Ukupno PZ / *Total MH*:	***7.12***
		Socijalni odnosi / *Social relations*:	Sv
14	SO16	Lično (unutrašnje) stanje / *Personal (internal) condition*	7.11
15	SO17	Društveni odnose i podrška okoline / *Social relations and environmental support*	7.23
16	SO18	Seksualna aktivnost / *Sexual activity*	6.12
17	SO19	Odnosi sa vršnjacima/prijateljima / *Relationships with peers/friends*	7.60
18	SO20	Kontakti na društvenim mrežama / *Contacts on social networks*	5.70
		Ukupno SO / *Total SR*:	***6.75***
		Okruženje / *Environment*:	Sv
19	O21	Izvori finansija/finansijska stabilnost / *Sources of finance/financial stability*	6.45
20	O22	Osećaj slobode, fizičke bezbednosti i lične sigurnosti / *A sense of freedom, physical security and personal security*	7.29
21	O23	Kvalitet i dostupnost zdravstvene i socijalne zaštite / *Quality and accessibility of health and social care*	6.12
22	O24	Radno mesto / *Workplace*	6.15
23	O25	Porodično okruženje / *Family environment*	8.06
24	O26	Mogućnosti za sticanje novih znanja i veština u našoj zemlji / *Opportunities for acquiring new knowledge and skills in our country*	5.94
25	O27	Mogućnosti za upražnjavanje rekreacije i sporta u mestu stanovanja / *Possibilities for practicing recreation and sports in the place of residence*	6.02
26	O28	Kvalitet životne sredina (zagađenje, buka, klima) / *Environmental quality (pollution, noise, climate)*	5.48
27	O29	Kvalitet saobraćaja i prevoza u mestu stanovanja / *The quality of traffic and transport in the town of residence*	5.39
		Ukupno O / *Total E*:	***6.32***
		Ukupna Sv – PKŽ-LS / *Total Sv – PQL-LS*:	**6.36**

In order to further assess the validity of PQL-LS, the process of factor analysis was applied. All 27 scale items were subjected to an analysis of the main components (PCA), preceded by an assessment of the adequacy of data for factor analysis. By examining the correlation matrix, a lot of coefficients of value of 0,3 and more were recorded. In accordance with the Kaiser-Meyer-Olkin (Sampling Adequacy) criterion, which defines the necessary recommended value of 0.6 (Kaiser, 1970, 1974), in this case it was exceeded at a statistically viable level (0.901). Also, Bartlett's test of sphericity (Bartlett, 1954) reached a statistical significance (Sig. = ,000) indicating high factuality of the correlation matrix.

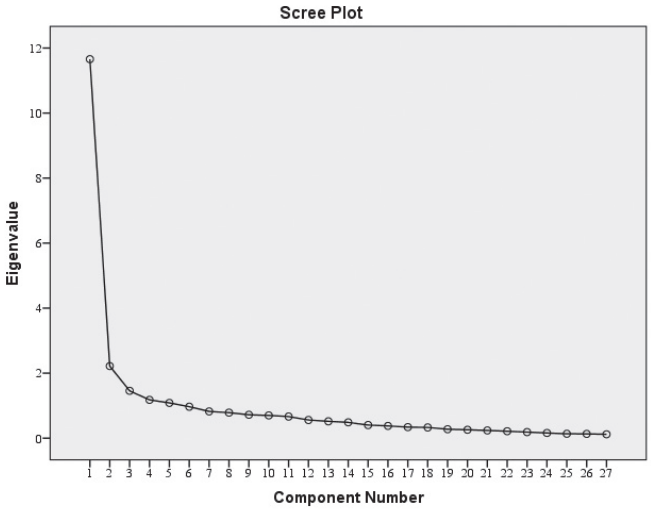
The analysis of the main components obtained after the Oblimin rotation revealed the presence of five components with characteristic values (Eiegenvalues) over one, which explain 43.17%, 8.27%, 5.37%, 4.29% and 4.07% variance. However, the obtained fracture diagram (Scree plot) showed a clear fracture point already behind the first component (Figure 1).

Figure 1. *Scree Plot scale PQL-LS*

U cilju nastavka procene validnost PKŽ-LS primenjen je postupak faktorske analize. Svih 27 ajtema skale podvrgnuto je analizi glavnih komponenti (PCA), čemu je prethodila ocena prikladnosti podataka za faktorsku analizu. Pregledom korelacione matrice evidentirano je veoma mnogo koeficijenata vrednosti 0,3 i više. U skladu sa Kajzer-Majer-Olkinovom kriterijumom (*Kaiser-Meyer-Olkin Measure of Sampling Adequacy*) koji definiše neophodnu preporučen u vrednost od 0,6 (Kaiser, 1970, 1974) u ovom slučaju je bila premašena na statistički visokom nivou (0,901). Takođe je i Bartletov test sferičnosti (*Bartlett's test of sphericity*) (Bartlett, 1954) dostigao statističku značajnost (*Sig.*= ,000) što ukazuje na visoku faktorabilnost korelacione matrice.

Analiza glavnih komponenti dobijenih nakon Oblimin rotacije, otkrila je prisustvo pet komponenti sa karakterističnim vrednostima (*Eiegenvalues*) preko jedan, koje objašnjavaju 43,17%, 8,27%, 5,37%, 4,29% i 4,07% varijanse. Međutim, dobijeni dijagram preloma (*Scree plot*) pokazao je postojanje jasne tačke preloma već iza prve komponente (Slika 1).

Slika 1. *Tačka preloma (Scree Plot) skale PKŽ-LS*



Based on Kattel's criterion (Kattel, 1966), it was decided to retain only one component. This was also supported by the results of a parallel analysis with one component whose characteristic values exceed the corresponding threshold values obtained using an equally large matrix of random numbers (27 variables x 202 subjects). This one-component solution explained the acceptable part of the total variance (43.17%), which is in line with the recommended procedures for interpreting the results of factor analysis (Pallant, 2009).

Na osnovu Katelovog kriterijuma (Kattel,1966) odlučeno je da se zadrži samo jedna komponenta. To su podržali i rezultati paralelne analize sa jednom komponentom čije karakteristične vrednosti premašuju odgovarajuće vrednosti praga dobijene pomoću jednako velike matrice slučajnih brojeva (27 varijabli x 202 ispitanika). Ovakvo jednofaktorsko rešenje (*single component*) objasnilo je prihvatljiv deo ukupne varijanse (43,17%), što je u skladu i sa preporučenim procedurama tumačenja rezultata faktorske analize (Pallant, 2009).

All 27 variables gave the corresponding weight of the single extracted component (Table 5) to determine that the PQL-LS scale has a correct validity.

Svih 27 varijabli dalo je odgovarajuću faktorsku težinu jedinoj ekstrahovanoj komponenti (Tabela 5) čime je utvrđeno da PKŽ-LS skala ima korektnu validnost.

***Table 5**. Descriptiv statistic the PQL-LS scale for isolated factor*

***Tabela 5.** Deskriptivni pokazatelji PAŽS skale izolovanog faktora*

RB / *No.*	Ajtemi skale / *Aitems*	Matrica strukture / *Structure matrix*	Komunaliteti / *Communalities*
1	TZ1	.636	.405
2	TZ2	.584	.341
3	TZ3	.638	.407
4	TZ4	.757	.573
5	TZ5	.416	.173
6	TZ6	.690	.476
7	TZ7	.574	.329
8	TZ8	.713	.509
9	PZ9	.648	.420
10	PZ11	.674	.455
11	PZ12	.788	.620
12	PZ14	.696	.484
13	PZ15	.612	.374
14	SO16	.821	.674
15	SO17	.809	.655
16	SO18	.679	.461
17	SO19	.715	.512
18	SO20	. 589	.347
19	O21	.780	.609
20	O22	.744	.554
21	O23	.532	.283
22	O24	.665	.442
23	O25	.670	.449
24	O26	.641	.412
25	O27	.667	.445
26	O28	.340	.116
27	O29	.366	.134
KMO Measure of Sampling Adequacy = 0,901 / *KMO Measure of Sampling Adequacy = 0,901*			
Bartlett's Test of Sphericity = 3550,034 Sig.= ,000 / *Bartlett's Test of Sphericity = 3550,034 Sig.= ,000*			

Also, the results of the internal characteristics of the subscales (within the PQL-LS scale) showed good factuality, which clearly speaks of the metric correctness of this instrument (Table 6).

Takođe su i rezultati unutrašnjih karakteristika subskala (unutar PKŽ-LS skale) pokazale dobru faktorabilnost, što jasno govori o metrijskoj korektnosti ovog instrumenta (Tabela 6).

Table 6. *Descriptive indicators of factoriability within the subscales (PQL-LS)*

Tabela 6. *Deskriptivni pokazatelji faktorabilnosti unutar subskala (PKŽ-LS)*

RB / *No.*	Subskala / *Subscale*	KMO & Bartletts'	% varijanse / *% varijance*	Ajtemi / *Ajtems*	Matrica strukture / *Structure matrix*	Komunaliteti / *Communalities*
1	Telesno zdravlje / *Physical health*	KMO = 0,852 BTS = 834,368 Sig.=0,000	55.45	TZ1	0786	.618
2				TZ2	.773	.597
3				TZ3	.855	.732
4				TZ4	.809	.654
5				TZ5	.522	.273
6				TZ6	.721	.520
7				TZ7	.653	.427
8				TZ8	.784	.615
9	Psihičko zdravlje / *Mental health*	KMO = 0,809 BTS = 369,718 Sig.=0,000	59.17	PZ9	.704	.495
10				PZ11	.798	.637
11				PZ12	.870	.757
12				PZ14	.793	.629
13				PZ15	.664	.440
14	Socijalni odnosi / *Social relations*	KMO = 0,844 BTS = 474,477 Sig.=0,000	65.55	SO16	.867	.751
15				SO17	.835	.697
16				SO18	.812	.659
17				SO19	.811	.658
18				SO20	.720	.519
19	Okruženje / *Environment*	KMO = 0,836 BTS = 734,710 Sig.=0,000	47.87	O21	.822	.676
20				O22	.827	.684
21				O23	.695	.483
22				O24	.731	.535
23				O25	.748	.560
24				O26	.645	.416
25				O27	.700	.490
26				O28	.468	.219
27				O29	.497	.247

Based on the identified good metric characteristics, this scale can be recommended for use as a unique/autonomous multi-item scale designed to assess the perception of the quality of life of adults with lumbar syndrome (general quality of life factor).

Discussion

An assessment of the quality of life is an area that has an expressed dispersivity, i.e. different aspects from which it can be observed. Thus, for example, nutritionists convey a healthy and proper diet as the dominant factor in the quality of life, environmentalists put the preservation of the environment at the forefront, sociologists favor the issue of group dynamics in social relations, economists give preference to economic factors, psychologists study the quality of life from the individual's position, kinesiologists dominantly speak and insist on the importance of physical activity in raising the quality of life, etc. For these and similar reasons, recent research practice has created numerous instruments to assess the quality of life construct.

The assessment of the quality of life, which relates to the area of human health, is comprised of a group of research instruments comprising three subspaces (Martinis,

Na osnovu identifikovanih dobrih metrijskih karakteristika ova skala se može preporučiti za primenu kao jedinstvena/samostalna multiajtemska skala namenjena proceni percepcije kvaliteta života odraslih osoba sa lumbalnim sindromom (generalni faktor kvaliteta života).

Diskusija

Procena kvaliteta života je područje koje ima izraženu disperzivnost, odnosno različite aspekte sa kojih se može posmatrati. Tako, na primer, nutricionisti apostrofiraju zdravu i pravilnu ishranu kao dominantan činilac kvaliteta života, ekolozi u prvi plan stavljaju očuvanost životne sredine, sociolozi favorizuju pitanje grupne dinamike u društvenim odnosima, ekonomisti prednost daju ekonomskim faktorima, psiholozi proučavaju kvalitet života sa pozicija pojedinca, kineziolozi dominantno govore i insistiraju na značaju fizičke aktivnosti u podizanju kvaliteta života, itd. Iz ovih i sl ičnih razloga novija istraživačka praksa je kreirala brojne instrumente kojima se procenjuje konstrukt kvaliteta života.

Procena kvaliteta života, koji se povezuje sa prostorom čovekovog zdravlja, obuhvaćena je grupom istraživačkog instrumentarija koji razmatra tri subprostora

2005): (1) multidimensional questionnaires that cover a number of areas of quality of life and are applied, as in the population with various diseases , as well as in healthy people; (2) instruments related to specific illnesses developed for use in patients with similar health problems and which include domains of quality of life that are relevant to the individual disease; (3) a group of instruments aimed at measuring individual domains of quality of life (physical health, physical functioning, mental health, etc.)

Thus, the assessment of the quality of life is a complex area that sets many "pitfalls" for researchers, that is, poses a dilemma - how to measure a certain context of quality of life. One of the possible "exits" for researchers related to the field of kinesiology may be based on the current position of the World Health Organization (WHO, 1996), which defines quality of life as the perception of the role of an individual in the context of culture and value patterns in which he/she lives and in relation to individual goals, expectations, standards and aspirations.

As far as the context of a subjective evaluation of the quality of life is concerned (within the broader understanding of the social environment in which an individual exists), questionnaires have been constructed to create the conditions for responding to complex questions about the interaction of psychological, physical and social variables with the individual's health. One of these is WHOQOL-100 questionnaire (estimates 6 domains of quality of life: physical and mental health, independence, social relations, environment and personal beliefs), or its reduced version of WHOQOL-BREF, which evaluates four areas of quality of life (physical health, psychological health, social relations and environment).

Questionnaires are suitable for use, both in the afflicted population and in the healthy population. Metric characteristics, both the basic versions of the questionnaire, and their different shapes and degrees of modification, were confirmed in several studies (De Vries & Van Heck, 1997; Skevington, Lotfy, O'Connell, 2004; Martinis, 2005; Ač-Nikolić, Čanković , Dragnić & Radić, 2010; Karahasanović, Ostojić, & Jukić, 2013; Jašić & Kaluđerović, 2015; Nešić, 2016).

Conclusion

The presented study documented a construct of metric characteristics of a questionnaire designed to assess the quality of life in adults with lumbar syndrome. Based on previous research, the baseline for the selection and design of the assessment scale, and within the research study in the area of AP Vojvodina, a scale was designed for (self) assessment of the quality of life in persons with

(Martinis, 2005): (1) višedimnezionalni upitnici kojima se zahvata veći broj područja kvaliteta života i primenjuju se, kako kod populacije sa različitim oboljenjima, tako i kod zdravih osoba; (2) instrumenti vezani za konkretna oboljenja, razvijeni za korišćenje kod pacijenata sa sličnim zdravstvenim tegobama i obuhvataju domene kvaliteta života koji su značajni za pojedino oboljenje; (3) grupacija instrumenata usmerena ka merenju pojedinačnih domena kvaliteta života (telesnog zdravlja, fizičkog funkcionisanja, psihičkog zdravlja, i sl.)

Dakle, procena kvaliteta života predstavlja kompleksno područje koje postavlja mnoge "zamke" za istraživače, odnosno postavlja dilemu – kako meriti određeni kontekst kvaliteta života. Jedan od mogućih "izlaza" za istraživače koji su povezani sa područjem kineziologije, može biti oslonjen na još uvek aktuelan stav Svetske zdravstene organizacije (WHO, 1996) kojim se kvalitet života definiše kao percepcija uloge pojedinca u kontekstu kulture i vrednosnih obrazaca u kojima živi i, u odnosu na individualne ciljeve, očekivanja, standarde i težnje. Kako se ovde radi o kontekstu subjektivne evaluacije kvaliteta života (u okviru šireg poimanja socijalnog okruženja u kojem pojedinac egzistira) konstruisani su upitnici kojima se nastojalo stvoriti uslove za davanje odgovora na kompleksna pitanja o međusobnom uticaju psiholoških, fizičkih i socijalnih varijabli na zdravlje pojedinca. Jedan od takvih je i WHOQOL-100 upitnik (procenjuje 6 domena kvaliteta života: telesno i psihičko zdravlje, nezavisnost, socijalne odnose, okolinu i lična uverenja), odnosno njegova redukovana verzija WHOQOL-BREF kojom se procenjuju četiri prostora kvaliteta života (telesno zdravlje, psihičko zdravlje, socijalni odnosi i okruženje). Upitnici su podesni za primenu, kako kod obolelih osoba, tako i kod zdrave populacije. Metrijske karakteristike, kako osnovnih verzija upitnika, tako i njihovih različitih oblika i stepena modifikacije, potvrđene su u više istraživanja (De Vries & Van Heck, 1997; Skevington, Lotfy, O'Connell, 2004; Martinis, 2005; Ač-Nikolić, Čanković, Dragnić & Radić, 2010; Karahasanović, Ostojić, & Jukić, 2013; Jašić & Kaluđerović, 2015; Nešić, 2016).

Zaključak

Prezentovana studija dokumentovala je konstrukt metrijskih karakteristika jednog upitnika namenjenog proceni kvaliteta života kod odraslih osoba sa lumbalnim sindromom. Na temelju ranijih istraživanja, kao polazne osnove za izbor i dizajn skale procene, a u okviru istraživačke studije na području AP Vojvodine, konstruisana je skala namenjena (samo)**p**roceni **k**valiteta života kod osoba sa **l**umbalnim **s**indromom (PKŽ-LS). Primenjeni upitnik/

lumbar syndrome (PKŽ-LS).

The applied questionnaire/scale is based on the WHOQOL-BREF instrument and is determined by the coverage of four domains of quality of life (subscales): physical health - 8 items, mental health - 5 items, social relations - 5 items, environment - 9 items.

The instrument is dimensioned in the form of a ten-step numerical scale, where the intensity of one (1) represents the lowest, and ten (10) highest levels of satisfaction in each indicator of quality of life that make up its construct. Such a metric solution enables the results of (self) assessment of quality of life, based on the range of scalar averages, to obtain qualitative features: (1-2) poor quality of life, (3-4) satisfactory quality of life, (5-6) good quality of life, (7-8) very good quality of life, (9-10) excellent quality of life.

The use of the Scale Reliability Analysis process has determined the high value of the Cronbach's Alpha Coefficient (Cronbach's Alpha = 0.947) for the scale as a whole. Also, in the context of the internal accordance of the defined subscales, the acceptable values of this coefficient were obtained: the physical health domain (0.882), the mental health domain (0.825), the social relations domain (0.868) and the environment domain (0.855), which confirms the good reliability of the PQL-LS scale.

The validity of the scale was analyzed by the method of determining its internal correlation, using the Spearman's Correlation Rank (Spearman's rho). The values that show a high degree of internal correlation of individual domain scores with the total scalar value of the PQL-LS scale (physical health - 0.823; psychological health - 0.870; social relations - 0.868; environment - 0.866) with statistical significance of correlation at the level p = 0.001 Sig. = 0.000).

In order to determine the latent structure of the factors that determine the perception of the quality of life of adults with lumbar syndrome, factor analysis was applied. In this way, additional confirmation of the metric validity of the PQL-LS scales as a whole was performed. The obtained values of the Bartlett's sphericality test (Bartlett's Test of Sphericity = 3550,034) and the Kaizer-Meyer-Oklin sample of adequacy (KMO = 0,901) indicate a high validity of the scale and the justification of the application of factor analysis, given that all 27 variables of the scale gave the corresponding factor weight of the single extracted component (general quality of life factor).

The application of the PQL-LS scale was shown on the example of a number of people with lumbar syndrome from the area of AP Vojvodina who was undergoing a physical treatment at the Physical Medicine and Rehabilitation Ordinations in four Vojvodina towns (Novi Sad, Subotica, Kanjiža and Bačka Palanka) . The following surveys are

skala baziran je na instrumentu WHOQOL-BREF i determiniše ga obuhvat četiri domena kvaliteta života (subskale): telesno zdravlje – 8 ajtema, psihičko zdravlje – 5 ajtema, socijalni odnosi – 5 ajtema, okruženje – 9 ajtema.

Instrument je dimenzioniran u obliku desetostepene numeričke skale, gde je intenzitet jedan (1) predstavlja najniži, a deset (10) najviši stepen zadovoljstva u svakom indikatoru kvaliteta života koji čine njen konstrukt. Ovakvo metričko rešenje omogućava da rezultati (samo)procene kvaliteta života, na osnovu raspona skalarnih proseka, dobiju kvalitativna obeležja: (1-2) *loš* kvalitet života, (3-4) *zadovoljavajući* kvalitet života, (5-6) *dobar* kvalitet života, (7-8) *veoma dobar* kvalitet života, (9-10) *odličan* kvalitet života.

Primenom postupka kojim se vrši identifikacija unutrašnje saglasnosti skale (*Scale Reliability Analysis*) utvrđena je visoka vrednost Kronbahovog alfa koeficijenta (*Cronbach's Alpha* = 0,947) za skalu u celini. Takođe i u kontekstu unutrašnje saglasnosti definisanih subskala dobijene su prihvatljive vrednosti ovog koeficijenta: domen *telesno zdravlje* (0,882), domen *psihičko zdravlje* (0,825), domen *socijalni odnosi* (0,868) i domen *okruženje* (0,855), što potvrđuje dobru pouzdanost PŽS-LS skale.

Validnost skale je analizirana postupkom utvrđivanja njene unutrašnje korelacije, primenom Spirmanove korelacije ranga (*Spearman's rho*). Identifikovane su vrednosti koje pokazuju visok stepen unutrašnje korelacije skorova pojedinačnih domena sa ukupnom skalarnom vrednošću PŽS-LS skale (telesno zdravlje – 0,823; psihičko zdravlje – 0,870; socijalni odnosi – 0,868; okruženje – 0,866) uz statističku značajnost korelacije na nivou *p= 0,001* (Sig. = 0,000).

Radi utvrđivanja latentne strukture faktora koji determinišu percepciju kvaliteta života odraslih osoba sa lumbalnim sindromom primenjena je faktorska analiza. Na ovaj način je, ujedno, izvršeno dodatno potrđivanje metrijske valjanosti PKŽ-LS skale u celini. Dobijene vrednosti Bartletovog testa sferičnosti (*Bartlett's Test of Sphericity* = 3550,034) i Kajzer-Majer-Oklinovog pokazatelja adekvatnosti uzorka (*KMO* = 0,901) ukazuju na visoku validnost skale i opravdanost primene faktorske analize, obzirom da je svih 27 varijabli skale dalo odgovarajuću faktorsku težinu jedinoj ekstrahovanoj komponenti (generalni faktor kvaliteta života).

Primena PKŽ-LS skale prikazana je na primeru jednog broja osoba sa lumbalnim sindromom sa područja AP Vojvodine koje su se u vreme anketiranja nalazile na fizijatrijskom tretmanu u Ordinacijama fizikalne medicine i rehabilitacije u četiri vojvođanska grada (Novi Sad, Subotica, Kanjiža i Bačka Palanka). Od narednih istraživanja se očekuje da prikazani upitnik/skalu provere na sličnoj

expected to check the displayed questionnaire/scale on a similar population, but in a wider geographical scope. Starting from the good metric characteristics obtained in this study, with respect to and certain limitations of this instrument, it is realistic to expect the PQL-LS questionnaire to be considered applicable in further research practice.

populaciji, ali u širem geografskom obuhvatu. Polazeći od dobrih metrijskih karakteristika dobijenih u ovoj studiji, uz uvažavanje i određenih ograničenja ovog instrumenta, realno je očekivati da se PKŽ-LS upitnik pokaže primenljivim u daljoj istraživačkoj praksi.

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