



PSYCHOMETRIC PROPERTIES OF THE MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT AMONG PERSONS WITH DISABILITIES IN BOSNIA AND HERZEGOVINA

PSIHOMETRIJSKE KARAKTERISTIKE MULTIDIMENZIONALNE SKALE ZA PROCJENU PERCIPIRANE SOCIJALNE PODRŠKE KOD OSOBA SA INVALIDITETOM U BOSNI I HERCEGOVINI

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ABSTRACT

The aim of the research was to determine the psychometric properties of the Multidimensional Scale of Perceived Social Support in individuals with disabilities in Bosnia and Herzegovina. The research included a total sample of 232 participants, with an average chronological age of 44.21 ± 19.31 years, of which 121 (52.2%) were male and 111 (47.8%) were female. The study was conducted among individuals with motor impairments, visual and hearing impairments, speech and language disorders, and combined disabilities. To achieve the research objective, the Multidimensional Scale of Perceived Social Support was applied, consisting of 12 assessment variables scaled from 1 to 7. The research data were processed using parametric and non-parametric statistical methods. A multivariate method of exploratory factor analysis was applied to identify factors in a given domain when the number and structure of factors are not previously known, along with confirmatory factor analysis using the maximum likelihood algorithm. Following factorization, the internal consistency coefficient (Cronbach's alpha) was calculated, and the reliability of the variables was assessed through inter-item statistics. Based on the obtained research results, it can be concluded that the Multidimensional Scale of Perceived Social Support has satisfactory reliability and internal consistency for use among individuals with disabilities in Bosnia and Herzegovina.

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The results of both exploratory and confirmatory factor analysis indicate a suitable three-dimensional model and confirm the original structure of the scale, which can be applied to individuals with disabilities in Bosnia and Herzegovina.

Keywords: Social support, disability, validity, reliability, factor analysis.

SAŽETAK

Cilj istraživanja bio je utvrditi psihometrijske karakteristike Multidimenzionalne skale za procjenu percipirane socijalne podrške kod osoba sa invaliditetom u Bosni i Hercegovini. Istraživanjem je obuhvaćen ukupan uzorak od 232 ispitanika prosječne hronološke dobi $44,21 \pm 19,31$ godina od čega je bilo 121 (52,2%) muških i 111 (47,8%) ženskih. Istraživanje je realizovano na populaciji osoba sa motoričkim poremećajima, oštećenjem vida, sluha, poremećajima glasovno-govorne komunikacije i kombinovanim smetnjama. U svrhu provjere postavljenog cilja istraživanja primjenjena je Multidimenzionalna skala za procjenu percipirane socijalne podrške koja se sastoji iz 12 varijabli procjene skaliranih od 1 do 7. Podaci istraživanja obrađeni su metodom parametrijske i neparametrijske statistike. Primjenjena je multivarijatna metoda eksplorativne faktorske analize prema kojoj se otkrivaju faktori u nekom području kada broj i struktura faktora nisu unaprijed poznati, kao i konfirmatorna faktorska analiza koristeći algoritam maksimalne vjerovatnoće. Poslije faktorizacije, izračunat je koeficijent unutrašnje konzistencije (Kronbahova alfa), odnosno izvršena je procjena pouzdanosti varijabli računanjem međučestične (inter-item) statistike. Na osnovu dobijenih rezultata istraživanja može se zaključiti da Multidimenzionalna skala za procjenu percipirane socijalne podrške ima zadovoljavajuću pouzdanost i unutrašnju saglasnost za primjenu kod osoba s invaliditetom u Bosni i Hercegovini. Rezultati kako eksplorativne tako i konfirmatorne faktorske analize ukazuju na odgovarajući trodimenzionalni model i potvrđuju originalnu strukturu skale koja se može koristiti kod osoba sa invaliditetom u Bosni i Hercegovini.

Ključne riječi: Socijalna podrška, invalidnost, valjanost, pouzdanost, faktorska analiza.

INTRODUCTION

Humans are social beings, and as such, they have a need for social support, which is a significant factor in an individual's overall psychophysical health. Social support can generally be defined as any process through which social relationships can influence an individual's physical or mental health (Cohen, Underwood & Gottlieb, 2000). Cohen and Wills (1985) describe social support as a stress buffer. Social support refers to the perceived care, respect, or assistance that a person receives from other individuals or groups (Sarafino, 2002). Social support is a multidimensional phenomenon since it depends on the socio-political context of the person, their socialization process, and personal values, among other factors (Dambi, Corten, Chiwaridzo et al., 2018). Perceived social support includes our perceptions of what our friends and family say and do about stressful events, and also whether social support is available. It is primarily based on a person's history of active social support (Lakey & Orehek, 2011, cited in Özmete, 2020). While received social support is defined as actions and behaviors that clearly express the existence of support, perceived

social support refers to the cognitive evaluation of being connected to others (Bokszczanin, 2012, cited in Özmete, 2020). According to some authors, social support can be divided into two dimensions: emotional and instrumental (Cohen & Wills, 1985). The emotional dimension of social support includes aspects such as acceptance, attention, and comfort, while the instrumental dimension includes aspects like providing information, advice, and encouragement. In addition to this division, MacDonald (1998) states that social support can also be informational or involve self-esteem support. Informational support relates to giving advice or instructions, whereas self-esteem support involves providing feedback necessary for self-evaluation (Cohen & Wills, 1985).

Social support is of immense importance for individuals with disabilities because it can influence their quality of life and mental health. For individuals with disabilities, social inclusion is vital, with family, friends, and the community playing a crucial role. Weak social support and a limited social network can lead to social isolation (Karačić, 2012). This may result in physical symptoms through which an individual inappropriately seeks help, attempts to draw attention to themselves, or tries to control others (Cohen, 1990, cited in Karačić, 2012). Therefore, the assessment of perceived social support is very important for individuals with disabilities, as it is not only a matter of the objective availability of help but also how much the individual perceives that support as genuine and useful. In this research, the psychometric properties of the scale of perceived social support for individuals with disabilities will be examined. As noted by Wang, Wan, Huang et al. (2017), specific population groups may have different expectations regarding social support, social networks, and cultural backgrounds compared to individuals with typical development. Hence, verifying the reliability and validity of scales in various specific groups is highly necessary and beneficial (Kim et al., 2008, cited in Wang, 2017). The Multidimensional Scale of Perceived Social Support (MSPSS) will be assessed (Zimet et al., 1988). The MSPSS is a 12-item questionnaire, which is a self-administered measure of perceived social support developed by Zimet et al. (1988). The 12-item scale uses a 7-point Likert-type response format (1 – very strongly disagree; 7 – very strongly agree). Each of the three subscales (that is, family, friends, significant other) is assessed with four items. These authors found that the MSPSS had good reliability (with a Cronbach's alpha of 0.85 to 0.91).

MATERIALS AND METHODS

Sample of Participants

The study included a total sample of 232 participants, with an average chronological age of 44.21 ± 19.31 years, of whom 121 (52.2%) were male and 111 (47.8%) were female. The research was conducted in the Federation of Bosnia and Herzegovina, with 14.7% of participants from the Tuzla Canton, 21.6% each from the Sarajevo and Zenica-Doboj Cantons, and 42.2% from the Herzegovina-Neretva Canton. Of the total sample, 38.8% were individuals with motor impairments, 8.6% with visual impairments, 19.5% with hearing impairments, 1.7% with speech and language communication disorders, 24.6% with combined disabilities, and 6.9% classified as other.

Measuring Instruments

For the purpose of assessing the research objective, the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, and Farley, 1988) was applied. The scale consists of 12 statements, with four statements each measuring perceived support from family, friends, and a significant other. Responses to the statements are rated on a scale from 1 to 7 (1 = strongly disagree to 7 = strongly agree), indicating the level of agreement with each statement.

Data Processing Methods

The research data were processed using parametric and non-parametric statistical methods. Basic statistical parameters, including measures of central tendency, measures of dispersion, frequencies, and percentages, were calculated. To assess the research objective, a multivariate method of exploratory factor analysis was applied, as well as confirmatory factor analysis using the maximum likelihood algorithm. Following factorization, the internal consistency coefficient (Cronbach's alpha) was calculated, and the reliability of variables was assessed through inter-item statistics. The research data were processed using the statistical software packages SPSS 22 and AMOS.

RESULT AND DISCUSSION

With the aim of reducing manifest variables to latent dimensions, the multivariate method of exploratory factor analysis was utilized, allowing for the identification of factors in a specific domain when the number and structure of factors are not predetermined. Since factor analysis begins with intercorrelation, the results indicate that all 12 assessment variables were included in the analysis. Following an examination of the intercorrelation of manifest variables, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test were conducted. Based on the obtained coefficients (KMO = 0.88 and Bartlett's test reliability $h^2 = 2633.04$), it was determined that the set of variables was suitable for factor analysis.

The method of principal components by Harold Hotelling was applied, with direct oblimin rotation chosen for rotation. For criteria, the Guttman-Kaiser criterion was applied, which retains factors or components with eigenvalues greater than one. In Table 1, it can be observed that the system of 12 manifest variables was reduced to three main components. It is evident that the first main component explains the largest amount of variance among the variables, accounting for 57.27% of variability. The second main component accounts for 16.47%, while the third explains 9.43%.

Table 1. Total Variance Explained

Faktor	Eigenvalue	% of Variance	Cumulative %
1	6.87	57.27	57.27
2	1.97	16.47	73.74
3	1.13	9.43	83.17

In Table 2, the projections of the variables onto the first isolated component are presented. It can be observed that the largest projections onto the isolated factor were achieved by four variables with high parallel and orthogonal projections. The highest parallel and orthogonal projections were achieved by the variables "I get the emotional help and support I need from my family," "My family is willing to help me make decisions," "I can talk about my problems with my family," and "My family really tries to help me."

The largest projections onto the second isolated factor were achieved by four variables. The highest parallel and orthogonal projections were achieved by the variables "I can talk about my problems with my friends," "I can count on my friends when things go wrong," "My friends really try to help me," and "I have friends with whom I can share my joys and sorrows."

The largest projections onto the third isolated factor were achieved by four variables. All four variables ("There is a special person who is around when I am in need," "There is a special person with whom I can share my joys and sorrows," "I have a special person who is a real source of comfort to me," and "There is a special person in my life who cares about my feelings") achieved high parallel and orthogonal projections.

Table 2. Main Isolated Components

	Variable	PAP	ORP
1	I get the emotional help and support I need from my family	.96	.92
	My family is willing to help me make decisions	.92	.91
	I can talk about my problems with my family	.84	.89
	My family really tries to help me	.82	.89
2	I can talk about my problems with my friends	.95	.93
	I can count on my friends when things go wrong	.95	.92
	My friends really try to help me	.90	.92
	I have friends with whom I can share my joys and sorrows	.87	.91
3	There is a special person who is around when I am in need	.91	.92
	There is a special person with whom I can share my joys and sorrows	.78	.91
	I have a special person who is a real source of comfort to me	.63	.88
	There is a special person in my life who cares about my feelings	.99	.81

Figure 1 presents the results of the confirmatory factor analysis. The model fit indices suggest an acceptable fit. The Chi-Square value for the default model was significant, $\chi^2(34) = 236,65$, $p = .000$, with a CMIN/DF ratio of 4,64, indicating a reasonable fit relative to the degrees of freedom. The Comparative Fit Index (CFI) and Normed Fit Index (NFI) were 0.92 and 0.91, both indicating a acceptable fit. Additionally, the Root Mean Square Error of Approximation (RMSEA) was .12 with a 90% confidence interval of 0.11 to 0.14, and a PCLOSE value of 0.00, suggesting poor fits well in terms of error approximation. The factor loadings ranged from 0.70 to 0.91. To our knowledge, this study was the first to test the psychometric properties of the MSPSS in people with disabilities in Bosnia and Herzegovina and in the countries of Western Balkans (Serbia, Montenegro, North Macedonia, Albania and Kosovo).

The results of both the Exploratory and Confirmatory Factor Analysis (CFA) pointed to the appropriateness of a three-dimensional model. Accordingly, the model confirms the instrument's original structure (Zimet et al., 1988), and it is consistent with the results of other studies of evidence of the validity of the scores (Pérez-Villalobos, Briede-Westermeyer, Schilling-Norman et.al., 2021; Aroian et al., 2010; Carvalho et al., 2011; Stewart et al., 2014; Wongpakaran et al., 2011 according to Martin and Felipe 2017).

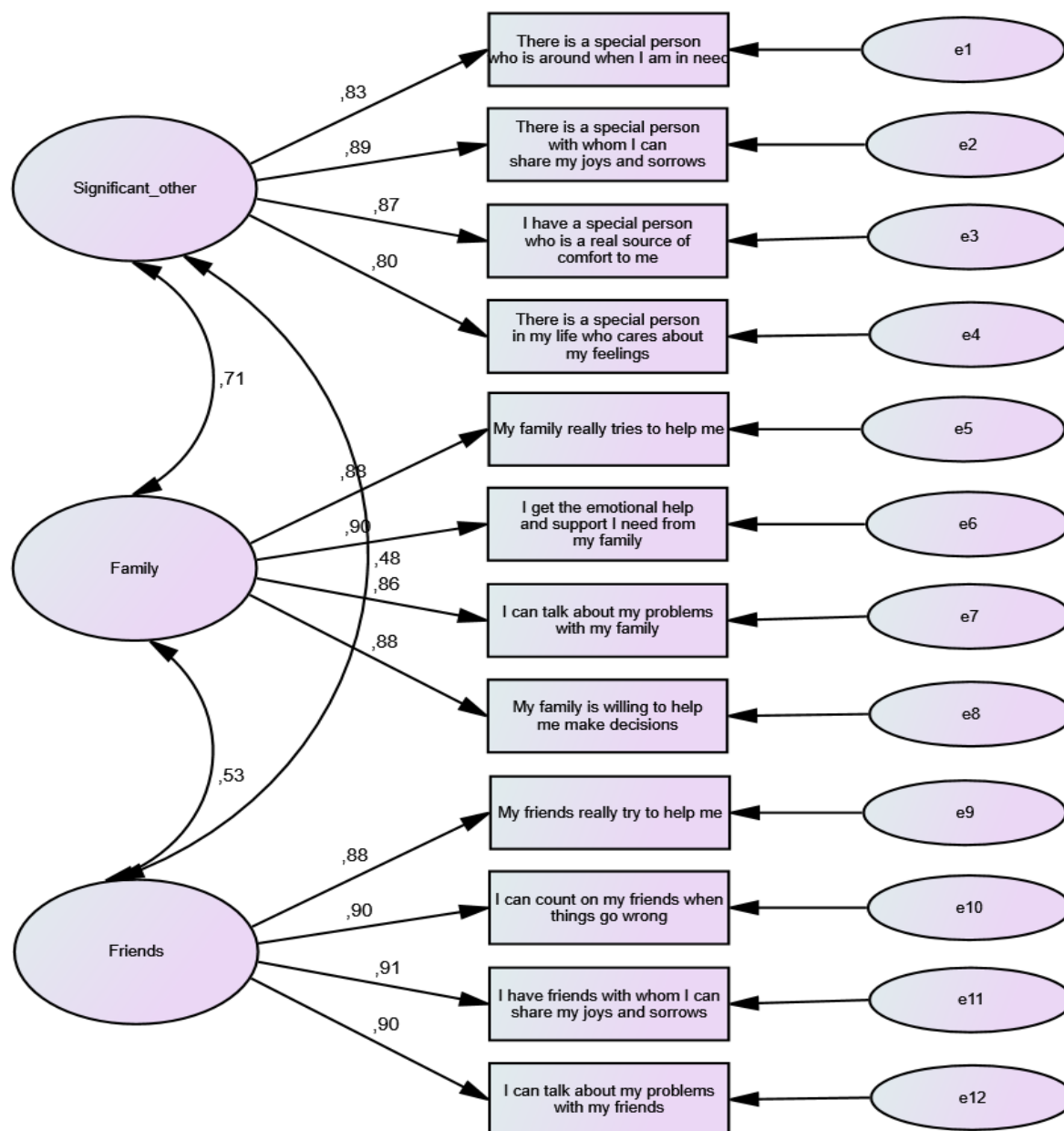


Figure 1. Confirmatory Factor Analysis of the Multidimension Scale of Perceived Social Support in Persons with Disability in Bosnia and Herzegovina

After factorization, the set of 12 variables was subjected to the calculation of the internal consistency coefficient, Cronbach's alpha, and the reliability of the variables was assessed by computing the inter-item statistics.

Based on the obtained results, the Cronbach's alpha value of 0.93 indicates that the set of 12 variables from the Multidimensional Scale of Perceived Social Support demonstrates satisfactory reliability and internal consistency for use with persons with disabilities. The Family, Friends, and Significant Other subscales demonstrated α of .93, .94, and .91 respectively. This result is consistent with the original study by Zimet et al. (1988). In addition, the Multidimensional Scale of Perceived Social Support had good internal consistency reliability with composite reliability values of more than 0.7. These results suggest that the Multidimensional Scale of Perceived Social Support is a reliable and valid measure of social support for persons with disabilities. This result is also consistent with studies by Dahlem, Zimet, Walker (1991), Wang, Wan, Huang et al. (2017), Islam (2021), and Murshid, Chen, Rahman et al. (2023). Table 1 presents the inter-item statistics and reliability within the instrument. The arithmetic means of the instrument range from 62.66 to 63.27; scale variances range from 154.52 to 160.35; and the Cronbach's α coefficient ranges from 0.84 to 0.86. The intercorrelations of the variables with the instrument range from 0.92 to 0.93. The obtained matrix of intercorrelations of the manifest variables shows correlations of 0.60 and above for all 12 evaluation variables, which were ultimately selected for factorization.

Table 3. Inter-item Statistics and Reliability within the Instrument

Variables	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Correlation	Cronbach's Alpha if Item Deleted
There is a special person who is around when I am in need	62,76	160,35	0,61	0,93
There is a special person with whom I can share joys and sorrows	62,77	157,69	0,69	0,92
I have friends with whom I can share my joys and sorrows	62,42	160,25	0,74	0,92
I get the emotional help and support I need from my family	62,58	158,47	0,70	0,92
I have a special person who is a real source of comfort to me	62,77	156,75	0,74	0,92
My friends really try to help me	63,21	155,09	0,67	0,93
I can count on my friends when things go wrong	63,27	155,24	0,67	0,93
I can talk about my problems with my family	62,61	158,60	0,74	0,92
I have friends with whom I can share my joys and sorrows	63,05	154,52	0,74	0,92
There is a special person in my life who cares about my feelings	62,66	157,21	0,72	0,92
My family is willing to help me make decisions	62,53	159,68	0,73	0,92
I can talk about my problems with my friends	63,16	158,50	0,66	0,93

CONCLUSION

The results of this study indicate that the Multidimensional Scale of Perceived Social Support demonstrates satisfactory reliability and internal consistency for use with persons with disabilities in Bosnia and Herzegovina. Both exploratory and confirmatory factor analysis results point to an appropriate three-dimensional model and confirm the original structure of the scale, which can be used for persons with disabilities in Bosnia and Herzegovina. These results are theoretically consistent and in accordance with the available literature. A limitation of this study is that the sample of respondents is heterogeneous in terms of the type of disability, as most studies (albeit relatively few) have been based on one type of disability. Additionally, the sample of respondents is not balanced according to the type of disability, which partially reduces the generalizability of the results.

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