RESEARCH ARTICLES

Multidimensional Scale of Perceived Social Support (MSPSS): Psychometric Properties in Peruvian Universities

Escala Multidimensional de Apoyo Social Percibido (MSPSS): propiedades psicométricas en universitarios peruanos

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Summary

The purpose of this instrumental design study was to analyze the psychometric evidence of the Multidimensional Scale of Perceived Social Support (MSPSS) for its application in university students in Metropolitan Lima. A total of 520 students participated, 292 women (56%) and 228 men (44%), between 18 and 61 years of age (M = 24.89, SD = 5.17). The confirmatory factor analysis showed acceptable values for the bifactor model: $\chi 2/gl$ = 4.645, CFI = .99, TLI = .98, SRMR = .027, RMSEA = .084 (90% C.I., .072, .096) and WRMR = .99. Additionally, a value of H = .945, PUC = .727, ECV = .695 and the ωH = .85 were obtained for the general factor. Convergent validity was examined with the General Self-Efficacy Scale (GSES) (r = .50; r^2 = .25) and divergent validity with the Test Anxiety Inventory-State (TAI-State) (r = -.32; r^2 = .10). In addition, reliability was determined through the ordinal omega coefficient for the general scale (ω = .97) and its three factors respectively: (ω = .90), (ω = .96) and (ω = .93). Finally, the factorial invariance analysis showed evidence of fairness by sex (ΔCFI<.010, ΔRMSEA <.015). In conclusion, the MSPSS has adequate psychometric properties to quantify the variable perceived social support in Lima university students.

Keywords: MSPSS Scale; Perceived social support; University students; Psychometric properties.

Resumen

El presente estudio de diseño instrumental tuvo como finalidad analizar las evidencias psicométricas de la Escala Multidimensional de Apoyo Social Percibido (MSPSS) para su aplicación en estudiantes universitarios de Lima Metropolitana. Participaron 520 estudiantes, 292 mujeres (56%) y 228 hombres (44%), entre 18 a 61 años (M = 24.89, DE = 5.17). El análisis factorial confirmatorio mostró valores aceptables para el modelo bifactor: $\chi 2/gl$ = 4.645, CFI = .99, TLI = .98, SRMR = .027, RMSEA = .084 (90% I.C., .072, .096) y WRMR = .99. Adicionalmente, se obtuvo en el factor general un valor de H = .945, PUC = .727, ECV = .695 y el ωH = .85. La validez convergente se examinó con la Escala de Autoeficacia General (EAG) (r = .50; r^2 = .25) y la validez divergente con el inventario de ansiedad ante exámenes-estado (TAI-Estado) (r = -.32; r^2 = .10). Además, la confiabilidad se determinó a través del coeficiente omega ordinal para la escala general (ω = .97) y sus tres factores respectivamente: (ω = .90), (ω = .96) y (ω = .93). Finalmente, el análisis de invarianza factorial mostró evidencias de equidad por sexo (ΔCFI<.010, ΔRMSEA <.015). En conclusión, la MSPSS reúne adecuadas propiedades psicométricas para cuantificar la variable apoyo social percibido en universitarios limeños.

Palabras claves: Escala MSPSS; Apoyo social percibido; Estudiantes universitarios; Propiedades psicométricas.

INTRODUCTION

Social support is conceived as the need for companionship and exchange of resources that arises between two people with the common goal of achieving well-being (Shumaker & Brownell, 1984). It is also understood as the available help perceived or received from friends, family or significant others that creates mental well-being in the person (Fan & Lu, 2019). Therefore, it functions as a relevant psychosocial coping resource, given that it can fight both mental (Qi et al., 2020) and physical problems (Romm et al., 2021).

Therefore, social support regulates the individual's response to stress and promotes recovery from adverse events (Guo et al., 2015). Consistent with this idea, perceived support from multiple sources (family, friends, or others) is associated with lower levels of depression and better health (Walen & Lachman, 2000). It is necessary for the recipient to perceive social support as valuable for it to be associated with positive outcomes (Magrin et al., 2015).

In this sense, lower risk of mental health problems (Karaca et al., 2019), higher life satisfaction (Harikandei, 2017), and ability to cope with stressors (Mishra, 2020) have been found to be characteristics associated with the presence of social support in university students. It also promotes progress in the development of conflict resolution skills (van Eerde & Klingsieck, 2018), increases self-confidence (Xerri et al., 2017), and contributes to overcoming difficulties in online learning (Saltzman et al., 2020).

On the other hand, the transition to the university stage is considered a critical period in which young people develop their identity and adapt to adult life (Arnett, 2000). Therefore, the lack of social support creates disadvantages in the adaptation to the new context during the first years of university, due to low academic satisfaction, anxiety, and depression; in addition, it can create a risk in the persistence of university studies (Conley et al., 2014). Similarly, stress is recognized as part of the academic experience; however, it can have counterproductive effects on academic performance (Poots & Cassidy, 2020).

Similarly, family support has been recognized as playing an important role in academic persistence (Sosu & Pheunpha, 2019) in terms of providing well-being and academic success (Maymon et al., 2019). Peer support is also associated with good academic performance (Li et al., 2018). Receiving help from academic staff has been shown to be important for both transition to the university and well-being (Meehan & Howells, 2017).

Social support is part of the cognitive approach because it examines "aspects that influence the individual's cognitive and contextual state, such as his or her mood, beliefs, goals, level of motivation, or areas of interest, among others" (Vargas-Quesada et al., 2002, p.108). In other words, it allows the study of how these aspects interact. Among the various theories that support the principles of social support is the one proposed by Cohen and Wills (1985), called the buffer effect, which focuses on reducing the negative effects that stressful situations generate.

For this reason, this research focuses on the buffering effect model, as social support provides the essential resources, both material and psychological, to cope with stress (Cohen, 2004); moreover, it promotes both recovery and community integration (Cohen et al., 2000). In

this context, it is crucial to emphasize that this theoretical model acquires a particular importance compared to other models that already describe more precisely the influence of social support on human health (Aneshensel, 1992).

Over time, no specific concept has been defined to describe this variable; however, there is consensus that it is a protective factor that reduces the negative behavioral and physiological effects of stress (Uchino et al., 1999). On the other hand, four of its main functions stand out: emotional, because it provides the person with feelings of trust, affection and security; informational, because it helps to face adverse events through the advice of the social support network; instrumental, because it provides tangible and material help in solving a problem; and valuational, because the person feels that he/she has someone to support him/her (Vega-Angarita & Gonzalez-Escobar, 2009). It is also seen as an interpersonal process that fosters two life contexts: adversity experience and opportunities for growth in the absence of adversity (Feeney & Collins, 2015).

Similarly, social support is seen as a multidimensional concept (Lourel et al., 2013), because it is defined as the social and psychological support a person receives or perceives as available from family, friends, and the community (Awang et al., 2014). Consistent with this idea, the role of social support in the improvement of mental health (Tough et al., 2017) and its protective effects (Zhang et al., 2018) have been highlighted. In fact, it works as a help to face adverse situations through the intervention of other people who are willing to give help to change the situation (Zimet et al., 1988).

Over time, several instruments have been developed to assess perceptions of social support, among which the *Social Support Questionnaire* created by Sarason et al. (1983), which has a 6-item structure and 2 dimensions (number of social supports and satisfaction with available social support), stands out. Similarly, Vaux et al. (1986) developed the *Social Support Appraisals Scale* (SS-A), which consists of 23 items and 3 dimensions (family, friends, and others). Similarly, Broadhead et al. (1988) developed the *Duke-UNC Functional Social Support Questionnaire*, which consists of 11 items and 2 dimensions (confidential social support and affective social support). In turn, Zimet et al. (1988) created the *Multidimensional Scale of Perceived Social Support*, which has 12 items and 3 dimensions (family, friends and significant others).

At an international level, Zimet et al. (1988) developed the MSPSS scale and applied it for the first time to a sample of 275 American university students between the ages of 17 and 22. The overall reliability was also acceptable. On the other hand, Calderón et al. (2021) conducted a study in Spain on a total sample of 925 cancer patients between the ages of 24 and 85 years, verifying an adequate fit of the three-factor model. The overall reliability and the reliability of the respective factors were pertinent.

In addition, López-Angulo et al. (2021) conducted a study with a sample of 1975 Chilean university students between the ages of 17 and 25, validating the fit of the second-order model and acceptable reliability. In turn, Oyarzún and Iriarte (2020) developed a study of 1200 Chilean students between the ages of 14 and 18, which confirmed an adequate fit of the model. Similarly, the overall reliability and the reliability of the respective factors were acceptable.

On the other hand, some authors propose that social support consists of two dimensions, primarily family and friends (Chou, 2000); however, the three-dimensional model that includes significant others has greater empirical support (Denis et al., 2015). In fact, in everyday life, not only family or friends are considered significant others, but also other special people such as a partner (Moller et al., 2021), classmates, work colleagues, and teachers because of the support they provide in coping with stressful situations (Novoa & Barra, 2015).

Thus, social support is categorized into three dimensions in which people form an affective bond with family, friends, or significant others (Calderón et al., 2021). Therefore, family support represents stability, unconditional support and allows to be closer to the individual in difficult times (Troncoso & Soto-López, 2018). Likewise, the support of friends is a bond that is built with other people over time, in which trust, and mutual support are transmitted (Bohórquez & Rodríguez-Cárdenas, 2014). Finally, the support of significant others influences the way of thinking and perceiving specific situations, these can be a partner, a childhood friend, a co-worker, or others (Montoya et al., 2016).

Although most research on the psychometric properties of the MSPSS has focused on the general adult population, studies in the university population are limited. The availability of a valid, reliable, and equitable instrument would be fundamental to improving psychoeducational assessment and intervention, thereby contributing to the emotional well-being and interpersonal relationships of university students.

In this context, the objective of this research is to analyze the psychometric evidence of the MSPSS, Chilean adapted version (Arechabala & Miranda, 2002). Following a sequential order, specific objectives were established: 1) perform a preliminary statistical analysis of the items, 2) examine the evidence of validity based on internal structure, 3) analyze the evidence of validity in relation to other variables, 4) assess the evidence of reliability and, finally, 5) examine the evidence of fairness for its use in university students in Metropolitan Lima.

METHOD

Design

This study follows an instrumental design, as it aims at analyzing the psychometric properties of the MSPSS scale (Ato et al., 2013).

Participants

A total of 573 young people completed the questionnaire. However, at the end of the data collection phase, 53 protocols were discarded because they showed a linear pattern in their responses or scored 5 points on the truthfulness/distortion scale. Therefore, the final sample consisted of 520 adults, 292 women (56%) and 228 men (44%), aged between 18 and 61 years (M = 24.89, SD = 5.17). A total of 7.5% lived in central Lima, 66.3% in northern Lima, 8.5% in southern Lima, 7.7% in eastern Lima, and 10% in Callao. The selection was done using the non-probabilistic convenience sampling.

Instruments

Multidimensional scale of perceived social support (MSPSS).

Developed by Zimet et al. (1988), originally with 24 items; however, to increase the reliability of the instrument, it was reduced to 12 items divided into three factors (family, friends, and a significant others) and translated into several languages, including Spanish, by Arechabala and Miranda (2002). It is self-administered. The items have four response levels on an ordinal scale: *(rarely = 1, sometimes = 2, often = 3, and almost always or always = 4)*. Regarding the adapted version, the results show acceptable reliability: α = .88 and of its factors: (α = .87), (α = .85) and (α = .88). It also has adequate fit indexes: CFI = .90 and GFI = .86.

General Self-Efficacy Scale (GSE).

It was originally developed by Baessler and Schawarser (1996) and adapted to the Ecuadorian context by Bueno-Pacheco et al. (2018). In addition, the scale has 10 items respectively and is self-administered. Similarly, the scale is unidimensional and has four Likert-type response options (never = 1, rarely = 2, almost always = 3 and always = 4). Concerning the psychometric properties of the adapted version of the instrument, it shows adequate fit indexes: χ^2/gl = 1.61, NFI = .97, CFI = .98, TLI = .97, RMSEA = .058, and SRMR = .042, and acceptable reliability: α = .91.

Test Anxiety Inventory-State (TAI-State).

This scale was developed by Spielberger et al. (1978) and later interpreted in several languages, including Spanish, by Bauermeister et al. (1983) in a Puerto Rican population. This scale consists of 15 items and is self-administered. Likewise, it is unidimensional and provides 4 response options (not at all = 1, somewhat = 2, quite a lot = 3, a lot = 4). Regarding the adapted version, results show acceptable reliability (ω = .94), and adequate fit indexes: χ^2/gl = 2.556, CFI = .943, TLI = .933, RMSEA = .075, and SRMR = .040.

Sociodemographic variables questionnaire.

A questionnaire developed specifically for this research to collect relevant information from the participants, covering the following variables: sex, age, area of residence, employment status and university management.

Truthfulness/distortion scale.

This scale is used to assess a person's honesty during the test and consists of 5 items with dichotomous responses. Those who score 5 on this scale may not be completely honest in their answers.

Procedure

Data collection was carried out through a virtual form that included the general guidelines of the research, emphasizing its anonymous and voluntary nature. The dissemination was carried out in different social networks during November 2022. Informed consent was obtained by selecting one of two options at the beginning of their participation: "Yes, I agree to participate" or "I do not agree" to comply with the ethical principles of the research. With this assurance, students were

given instructions, a 10-minute time limit, and were reminded of the confidential nature of the study and their right to withdraw at any time. Sociodemographic data were collected and measuring instruments were added such as the MSPSS, the GSD to measure convergent validity, and the TAI-State to measure divergent validity. In addition, a 5-item truthfulness scale was used to eliminate protocols that showed a linear trend in their responses. Upon completion of the questionnaire, the data were cleaned according to the pre-defined selection criteria and stored in a Microsoft Excel spreadsheet. Subsequently, analyses were carried out using the free RStudio program.

Data analysis

First, item analysis was conducted using descriptive and inferential statistics to examine the mean (M), standard deviation (SD), Fisher's coefficient of skewness (g1), Fisher's coefficient of kurtosis (g2) (Dominguez, 2013), and Corrected Homogeneity Index (CHI) of each item (Tamargo et al., 2006); in addition, the communality will be analyzed (h^2) (Ferrando & Anguiano-Carrasco, 2010).

Second, the internal structure of the MSPSS was analyzed using the confirmatory factor analysis (CFA) using the polychoric correlation matrix (Lloret-Segura et al., 2014) combined with weighted least squares means, and variance adjusted (WLSMV). This approach was used to evaluate three measurement models because these methods are already considered relevant when working with ordinal scale variables (Juárez-García et al., 2018). These CFAs were executed with the help of the Lavaan package, a library available in R language. In addition, the following fit indexes were taken into consideration: $\chi^2/gl < 5$, CFI $\geq$ .90, TLI $\geq$ .90, RMSEA $\leq$ .08, SRMR $\leq$ .08, WRMR $\leq$ 1.0 (DiStefano et al., 2017; Escobedo et al., 2016; Dominguez-Lara & Rodriguez, 2017; Flores-Flores et al., 2017; Hu & Bentler, 1999).

In addition, specific fit indexes for the bifactor model were analyzed using Dueber's calculator (2017). Measures such as hierarchical omega coefficient (ωH) (Zinbarg et al., 2006), H-coefficient (Hancock, 2001), explained common variance (ECV) (Sijtsma, 2009), item-level explained common variance (IECV) (Stucky et al., 2013), and percentage of uncontaminated correlations (PUC) were used (Reise et al., 2012).

Third, evidence of validity was examined in relation to other variables, being convergent with general self-efficacy and discriminant with test anxiety. For this purpose, Pearson's correlation coefficient was used (Hernández et al., 2018) and Cohen's (1988) criteria for interpreting effect sizes (r^2) were considered: small = 0.01, medium = 0.10, and large = 0.25.

Fourth, evidence of reliability was examined by the internal consistency method, using the omega coefficient. Values between .70 and .90 were considered acceptable (Ventura-León & Caycho-Rodriguez, 2017).

Fifth, evidence of fairness was analyzed using factorial invariance analysis in relation to sex (Ventura-León et al., 2017); likewise, configural, metric, strong and strict levels (Vandenberg & Lance, 2000) were taken into account, following the parameters of ΔCFI < .010 and ΔRMSEA < .015 (Chen, 2007; Cheung & Rensvold, 2002).

RESULTS

Descriptive analysis

First, the matrix of polychoric correlations of the MSPSS items is presented (see Table 1).

Table 1.

Matrix of polychoric correlations of the MSPSS Scale (n=520)

Items	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Item 1	1	-	-	-	-	-	-	-	-	-	-	-
Item 2	.77	1	-	-	-	-	-	-	-	-	-	-
Item 3	.55	.54	1	-	-	-	-	-	-	-	-	-
Item 4	.56	.58	.82	1	-	-	-	-	-	-	-	-
Item 5	.68	.74	.54	.62	1	-	-	-	-	-	-	-
Item 6	.57	.61	.49	.46	.58	1	-	-	-	-	-	-
Item 7	.54	.60	.47	.48	.56	.89	1	-	-	-	-	-
Item 8	.55	.62	.64	.75	.64	.48	.48	1	-	-	-	-
Item 9	.55	.61	.46	.47	.54	.79	.81	.54	1	-	-	-
Item 10	.61	.68	.49	.53	.79	.57	.55	.59	.56	1	-	-
Item 11	.51	.50	.54	.61	.52	.42	.45	.66	.48	.52	1	-
Item 12	.51	.56	.39	.42	.53	.78	.80	.47	.89	.57	.46	1

Source. Elaborated by the author.

Second, the items of the MSPSS scale, which has three dimensions, were analyzed. In terms of response percentage (%), the minimum value was 3.85 and the maximum value was 41.73, which proves that the students responded without bias or social desirability (De las Cuevas & Gonzáles de Rivera, 1992). We can also see that the mean varies between 2.56 and 3.14, indicating that most of the participants chose option 2 = sometimes. The standard deviation values are close to 1.0, which indicates a low dispersion, so the responses are similar. In contrast, Fisher's coefficients of skewness and kurtosis show a normal distribution, and the values are within the range of +/-1.5 (Pérez & Medrano, 2010). Likewise, the corrected homogeneity index > .30 (Pérez & Tornimbeni, 2008) and the communalities are > .40 (Costello & Osborne, 2005). In Yesntesis, the items are adequate for assessing the variable (see Table 2).

Validity evidence based on internal structure

Three models were tested to assess the internal structure of the MSPSS, and the best fit indexes were obtained in the bifactor model, which allowed assessing the multidimensionality of the construct (χ^2/gl = 4.645, CFI = .99, TLI = .98, RMSEA = .084 (90% I.C., .072, .096), SRMR = .027 y WRMR = .993) (DiStefano et al., 2017; Dominguez-Lara & Rodríguez, 2017; Escobedo et al., 2016; Flores-Flores et al., 2017; Hu & Bentler, 1999) (see Table 3).

Table 2.
Preliminary statistical analysis of the MSPSS scale items. (n=520)

Factors	Items	RF				M	SD	g^1	g^2	CHI	h^2	Acceptable
		Rarely	Sometimes	Often	Always or almost always							
F1	Item 3	3.85	20.19	34.23	41.73	3.14	0.87	-0.62	-0.59	.75	.67	Yes
	Item 4	6.92	25.77	36.35	30.96	2.91	0.92	-0.37	-0.81	.84	.86	Yes
	Item 8	16.35	32.12	30.77	20.77	2.56	1.00	-0.03	-1.06	.78	.69	Yes
	Item 11	14.23	38.08	31.92	15.77	2.49	0.92	0.08	-0.84	.67	.50	Yes
F2	Item 6	5.96	31.73	40.77	21.54	2.78	0.85	-0.14	-0.72	.87	.81	Yes
	Item 7	6.54	34.81	35.19	23.46	2.76	0.89	-0.07	-0.90	.89	.85	Yes
	Item 9	9.23	35.19	34.23	21.35	2.68	0.91	-0.05	-0.89	.88	.84	Yes
	Item 12	9.81	37.31	30.77	22.12	2.65	0.93	0.01	-0.96	.87	.82	Yes
F3	Item 1	4.6	31.3	42.1	21.9	2.81	0.83	-0.13	-0.71	.76	.64	Yes
	Item 2	7.7	31.5	37.9	22.9	2.76	0.89	-0.16	-0.81	.82	.76	Yes
	Item 5	8.1	28.3	32.9	30.8	2.86	0.95	-0.30	-0.95	.83	.79	Yes
	Item 10	7.5	25.6	31.2	35.8	2.95	0.96	-0.42	-0.92	.76	.66	Yes

Note. F1: Family; F2: Friends; F3: Significant others; RF: Response Format; M: Mean; SD: Standard deviation; g^1: Fisher's skewness coefficient; g^2: Fisher's coefficient of kurtosis; CHI: Corrected homogeneity index; h^2: communality.
Source. Elaborated by the author.

Table 3.
Fit for the measurement models of the MSPSS scale (n=520)

Model	χ^2	p value	gl	χ^2/gl	CFI	TLI	RMSEA	90% IC RMSEA	SRMR	WRMR
Model 1	301.186	$p<.001$	51	5.906	.984	.979	.097	[.087; .108]	.036	1.264
Model 2	301.186	$p<.001$	51	5.906	.984	.979	.097	[.087; .108]	.036	1.264
Model 3	195.082	$p<.001$	42	4.645	.990	.984	.084	[.072; .096]	.027	0.993

Note. Model 1: Oblique; Model 2: Second order; Model 3: Bifactor.
Source. Elaborated by the author.

In addition, the overall H value is .945, indicating that there is a correlation between a factor and an optimally weighted item, as high H values (> .80) indicate a latent and well-defined state of the variable (Hancock & Mueller, 2001). Similarly, the PUC value = .727, ECV = .695 and ω_H = .850. Based on the results, it can be stated that when PUC < .80, ECV > .60 and ωH > .70 suggest the presence of some multidimensionality, in addition, a strong General Factor is evident (Reise et al., 2012). (See Table 4)

Validity evidence based on relationship with other variables

The MSPSS showed a statistically significant, positive, and large effect size correlation ($p<.05$, $r = .50$, $r^2 = .25$) concerning the GSD, which indicates that the higher the perceived social support, the higher the self-efficacy, and this is evidence of convergent validity. Similarly, the MSPSS showed a statistically significant, negative, medium effect size correlation with the TAI-State ($p<.05$, $r = -.32$, $r^2 = .10$), which indicates that the higher the perceived social support, the lower the test anxiety, providing evidence of discriminant validity.

Table 4.
Factor loadings and fit indexes of the MSPSS bifactor model (n=520)

Items	General Factor	Factor 1	Factor 2	Factor 3
	λFG	$\lambda F1$	$\lambda F2$	$\lambda F3$
3.- I am sure that my family tries to help me.	.634	.554		
4.- I get the emotional help and support I need from my family.	.674	.690		
8.- I can talk about my problems with my family.	.724	.387		
11.- My family helps me make decisions.	.640	.316		
6.- I am sure that my friends try to help me.	.691		.606	
7.- I can count on my friends when I have problems.	.680		.617	
9.- I can share my joys and sorrows with my friends.	.685		.624	
12.- I can talk about my problems with my friends.	.646		.653	
1.- When I need something, I know there is someone who can help me.	.822			.205
2.- There is someone who can help me when I have sorrows or joys.	.878			.149
5.- There is one person who offers me comfort when I need it.	.860			.171
10.- There is a person who is interested in what I feel.	.829			.390
Ω	.970	.903	.957	.933
ω_H	.850	.313	.441	.063
H	.945	.621	.720	.216
ECV	.695	.366	.461	.079
PUC		.727		
% Explained variance	48.37	13.38	21.28	.620

Note λ: Factor loadings; ω: Omega Coefficient; ω_H: Omega Hierarchical; H: Coefficient H; ECV: Explained common variance; PUC: Percentage of uncontaminated correlations.
Source. Elaborated by the author.

Reliability evidence

In addition, high levels of reliability were found using the ordinal omega coefficient, which showed a ω = .97 in the General Factor and also by factors: F1 (ω = .90), F2 (ω = .96) and F3 (ω = .93) (Ventura-León & Caycho-Rodríguez, 2017).

Evidence of fairness

The factorial invariance of the MSPSS by sex was examined, with evidence of configural, metric, strong, and strict ΔCFI < .010, which shows invariance in the measurement (Brown, 2006). Similarly, the ΔRMSEA $\leq$ .015, which is considered acceptable for evidence of fairness (Chen, 2007). Therefore, these results indicate equivalence between the male and female groups (see Table 5).

Table 5.
Factorial invariance analysis by sex (n^1_{women} = 292 and n^2_{men} = 228)

Model	χ^2	$\Delta\chi^2$	gl	Δgl	P	CFI	ΔCFI	RMSEA	ΔRMSEA
Configural	256.386	-	96	-	.000	.991	-	.008	-
Metric	322.184	65.798	116	20	.000	.988	.003	.083	.003
Strong	311.274	10.91	128	12	.000	.989	.001	.074	.008
Strict	357.159	45.884	140	12	.000	.987	.002	.077	.003

Note. $\Delta\chi^2$: Variation in the chi-square test; Δgl: Variation of degrees of freedom; p: probability; ΔCFI: Goodness-of-fit index variation; ΔRMSEA: Variation of root mean square error of approximation.
Source. Elaborated by the author.

DISCUSSION

The objective of the research was to analyze the psychometric evidence of the MSPSS scale in university students in Metropolitan Lima. A preliminary statistical analysis of the items was performed using the standard deviation with values close to 1.0, indicating a similar pattern of responses in the data. In addition, both Fisher's skewness and kurtosis are within the desired range of +/-1.5 (Pérez & Medrano, 2010), indicating a normal distribution of values. The corrected homogeneity index also shows acceptable values, indicating that the items adequately measure the construct. In addition, the communalities show values >.40, evidencing the relationship between each factor and its corresponding items (Costello & Osborne, 2005). In conclusion, the items are considered acceptable for measuring the variable.

Then, three models of the internal structure were examined using the Confirmatory Factor Analysis (CFA), highlighting an optimal fit of the bifactor model, and demonstrating the multidimensionality of the MSPSS scale. However, it is important to mention that an oblique model has been observed, as shown in the study by Oyarzún and Iriarte (2020) with a three-factor oblique model, which was confirmed in another study by Calderón et al. (2021). On the other hand, studies of the second-order model have been reported, such as that of López-Angulo et al. (2021), who analyzed four models and obtained better results with the second-order model.

In addition, it was evidenced that the factor loadings in the general factor showed values >.30, which is considered acceptable (Fernandez, 2015). Furthermore, an explained variance of 48.37% was evidenced. On the other hand, the overall H value is >.80, which means that there is a correlation between the factor and the optimally weighted item, and high values indicate a latent and well-defined state of the variable (Hancock & Mueller, 2001). The results also showed that the PUC <.80, ECV >.60 and ωH >.70, which shows the presence of some multidimensionality. Also, there is evidence of a strong general factor (Reise et al., 2012).

As for the validity of the MSPSS scale concerning the GSE scale and the TAI-State inventory, a statistically significant and positive large effect size correlation was found between the MSPSS scale and the GSE scale (Mondragón, 2014). This suggests that students who perceive good social support tend to develop higher self-efficacy. Similarly, a statistically significant, negative and medium effect size correlation was observed between the MSPSS scale and the TAI-State inventory (Caycho, 2017). Consequently, the results showed that a poor perception of social support is associated with higher test anxiety. In summary, acceptable evidence of convergent and discriminant validity was obtained.

As for reliability, the internal consistency of the MSPSS scale was analyzed using the omega coefficient. Based on the results obtained, it was found that the general factor and the three factors showed high reliability. This is supported by the study by López-Angulo et al. (2021) in which they conducted their research on the MSPSS scale in a similar sample. It should be noted that these results are also similar to the study by Calderón et al. (2021). Therefore, these results are considered acceptable, since the values range from .70 to .90 (Campo-Arias & Oviedo, 2008).

Fairness was analyzed using the factorial invariance of the MSPSS scale according to sex, presenting the bifactor model as a basis; therefore, the values of change in CFI (Δ CFI<.010) and RMSEA (Δ RMSEA<.015) at the configural, metric, strong and strict levels were taken into account (Chen, 2007), providing the expected differences in the models. Similarly, in the study by López-Angulo et al. (2021), factorial invariance by sex was performed and invariance was evidenced between the groups of men and women. Therefore, no convincing reasons were found to reject the factorial invariance of the psychometric instrument.

However, there are still some limitations to consider. First, the research sample was limited to 520 participants, while the study by Oyarzún and Iriarte (2020) included 1200 Chilean adolescents. Second, the non-probabilistic sampling shows a certain disadvantage, since the participants were selected according to the author's scope, which does not confirm the total representation of the population (Otzen & Manterola, 2017). Third, the significant others factor does not specify exactly who it is related to, as it could be the sentimental partner, personal health assistant, and work relationships. Fourth, this instrument has rarely been used in similar samples. Finally, since the information was collected virtually, it was not possible to clarify the questions more precisely.

In summary, the perception of the social support received is linked to the ability to face adverse situations and adapt to university life. Therefore, it is essential to have valid, reliable and fair measurement instruments for its implementation in the Peruvian context. In this sense, the MSPSS scale is presented as a useful tool to assess perceived social support in university students in Metropolitan Lima, which can serve as a basis for future research. In addition, this scale can be used in the academic setting to improve psychoeducational assessment and intervention.

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