Development of a Brief Scale for Social Support: Reliability and validity in Puerto Rico[1]

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ABSTRACT. Social support is a human interaction in which social, emotional, instrumental, and recreational resources are exchanged. This social phenomenon is associated with stress, depression, and mental health problems. This instrumental study reports on the development and evaluation of a Social Support Scale (CAS, for its name in Spanish), as part of a larger study that aims to develop valid and reliable psychosocial instruments in the Puerto Rican context. The CAS was designed to measure the need for emotional, interpersonal and material support. Also, satisfaction with the support received was measured. Four hundred and sixty-four Puerto Rican students from the University of Puerto Rico participated in this study. The results showed an internal consistency of .68 for the seven need items and of .89 for the two items on satisfaction with the support received. The principal dimensions of the scale were analyzed using confirmatory factor analysis (CFA). Several models were designed and compared. A three-factor model with seven scale items on need for social support was supported by the data. The multidimensional aspect of the construct of social support (emotional, interpersonal, instrumental need) was supported. The use of this brief scale to measure social support is discussed.

KEYWORDS. Social Support. Psychometric Properties. Instrumental Study.

RESUMEN. El apoyo social es una interacción humana en la que recursos sociales, emocionales, instrumentales y recreacionales son intercambiados. Este fenómeno social está asociado al estrés, la depresión y a los problemas de salud mental. Este estudio instrumental presenta el desarrollo y evaluación de un Cuestionario de Apoyo Social (CAS) como parte de un estudio más amplio que pretende desarrollar instrumentos psicosociales válidos y confiables en el contexto puertorriqueño. El CAS fue diseñado para evaluar la necesidad de apoyo emocional, interpersonal y material. También la satisfacción con el apoyo recibido fue evaluado. Cuatrocientos sesenta y cuatro estudiantes puertorriqueños de la Universidad de Puerto Rico participaron en este estudio. Los resultados demostraron una consistencia interna de 0,68 para los siete reactivos de necesidad y de 0,89 para los dos reactivos de satisfacción con el apoyo recibido. Las dimensiones principales de la escala fueron analizadas utilizando un análisis confirmatorio de factores (CFA, por sus siglas en inglés). Varios modelos fueron diseñados basados en el CFA y comparados. Los datos apoyaron un modelo de tres factores con siete reactivos a escala de necesidad de apoyo social. El aspecto multidimensional del constructo de apoyo social (necesidad emocional, interpersonal, instrumental) fue apoyado por los datos. El uso de esta escala breve para evaluar apoyo social es discutido.

PALABRAS CLAVE. Apoyo social. Propiedades psicométricas. Estudio instrumental.

RESUMO. O apoio social é uma interacção humana na qual são trocados recursos sociais, emocionais, instrumentais e recreativos. Este fenómeno social está associado ao stresse, à depressão e aos problemas de saúde mental. Este estudo instrumental apresenta o desenvolvimento e avaliação de um Questionário de Apoio Social (CAS) como parte de um estudo mais amplo que pretende desenvolver instrumentos psicossociais válidos e fiáveis para o contexto de Porto Rico. O CAS foi desenhado para avaliar a necessidade de apoio emocional, interpessoal e material. Também foi avaliada a satisfação com o apoio recebido. Participaram neste estudo quatrocentos e sessenta e quatro estudantes da Universidade de Porto Rico. Os resultados demonstram uma consistência interna de 0,68 para os sete itens de necessidade e de 0,89 para os dois itens de satisfação com o apoio percebido. As dimensiones principais da escala foram analisadas utilizando uma análise factorial confirmatória (CFA, sigla em inglês). Foram desenhados e comparados vários modelos baseados na CFA. Os dados apoiam um modelo de três factores com sete itens na escala de necessidade de apoio social. Os dados apoiam a natureza multidimensional do construto de apoio social (necessidade emocional, interpessoal, instrumental). Discute-se o uso desta escala breve para avaliar apoio social.

PALAVRAS CHAVE. Apoio social. Propriedades psicométricas. Estudo instrumental.

Introduction

Social support is a human interaction in which socio-emotional, instrumental, and recreational resources are exchanged (Bravo, 1989; Bravo, Canino, Rubio-Stipec, and Serrano-García, 1991; Cohen and Syme, 1985; Depner, Wethington, and Ingersoll-

Dayton, 1984; Mitchell and Trickett, 1980; Thoits, 1982). This construct plays an important moderating role in mental health outcomes because of its potential to protect people from a variety of physical and psychological disorders (Cobb, 1976). Social support appears to be associated to stress, depression, and mental health problems (Gottlieb, 1985). For instance, lack of social support showed a his/her positive association with psychosomatic symptoms (Newby-Fraser and Schlebusch, 1997) and high levels of perceived social support were associated with low levels of depression (Zimet, Dahlem, Zimet, and Farley, 1988). The measurement of social supports is critical to investigators interested in the study of social and interpersonal processes that moderate outcomes of mental health interventions. Working in a Latino context, Bravo (1989) identified various components of the social support construct suggesting the multidimensional nature of the phenomenon. For instance, social support may be divided in three types: resources of the support network, behaviors that offer support, and evaluation (Vaux, 1988). These aspects of support are related to the characteristics of the support networks, the specific behaviors that bring about help, and the personal evaluation of the support resources. In addition, Vaux (1988) reported six dimensions of social support: emotional, advice, practical support, socialization, material support, and feedback. Other aspects of support considered as moderately stable factors over time were problems with relatives, problems with friends, support from relatives, confidants, or friends, and social integration (Kendler, 1997).

One of the early resources for evaluating the social support of Latinos is the Inventory of Socially Supportive Behavior (ISSB) and the Arizona Social Support Interview Schedule (ASSIS) (Barrera, 1981, 1986; Barrera and Ainlay, 1983). The ASSIS differentiates the number of providers of social supports from the amount of socially supportive behaviors. Both of these instruments serve to distinguish network size, the amount of supportive behaviors and the satisfaction with social supports. Barrera (1981) suggested that all three of these concepts could occur in six areas: material aid, physical assistance, intimate interaction, guidance, feedback, and social participation. Analyses of the ISSB (Barrera, Sandler, and Ramsay, 1981) corroborated a hypothesized 4-factor measurement model of received social support. Examination of the influence of the separate dimensions of the ISSB indicated that the four dimensions correlated in opposite directions with depression. All four dimensions of the ISSB exhibited positive relations with life satisfaction, and total ISSB scores explained as much variance in life satisfaction as did individual sub-scales. These findings illustrate the utility of a multidimensional conceptualization of the construct of enacted social support (Finch *et al.*, 1997).

Active coping, perception of severity of disability, and social support were significant predictors of depression for Latinos (Zea, Belgrave, Townsend, Jarama, and Banks, 1996). These three were associated with increased depression. Stress, severity of disability, and social support explained a high percentage (54%) of the variance for depression (Jarama, Reyst, Rodríguez, Belgrave, and Zea, 1998). Vera (1989) suggested that social support is associated with the psychological well being of students with high levels of

stress. Social support was found to moderate the relationship between stress and distress (Solberg and Villarreal, 1997). Other authors have suggested that social support acts as a buffer to dysfunctional thoughts or attitudes that in turn lead to depression (Bonilla, 1997). Solberg and Villarreal (1997) investigated social support and cognitive factors to determine whether self-efficacy and social support moderate the relationship between stress and physical and psychological distress among Latino college students. Latino students who perceived social support as available had lower distress rating than students who perceived social support as less available.

The measurement of the concept of social support is critical to researchers interested in examining the role that support plays in the development and treatment of mental health problems (Macdonald, 1998). Reviews of the literature on ethnic minority caregivers suggest that ethnicity and culture play a significant role in the stress and coping process for Latino caregivers. Ethnicity and culture can also influence the appraisal of stress full events, the perception and use of family support, and coping behaviors (Aranda and Knight, 1997). The lack of comparative research of levels of support or how patterns of support vary across subpopulations undoubtedly reflects a more general problem in defining and operationalizing the concept of social support (Vaux, 1988). The diversity of social support measurements reflects that the social support construct captures a wealth of ideas, but much of the empirical research received inadequate attention to sorting out this complexity (Vaux, 1988). Most measures of social support either focused on different facets of social support or incorporated elements from a variety of facets. Others are long and time consuming. Also, many investigations are vague on exactly what an instrument was intended to measure, and data on the instrument's reliability and validity are not available for different populations. In this study, social support is conceptualized as a basic process in the development of interpersonal relationships. This process is characterized by the exchange of emotional, instrumental, and recreational resources. Our conceptualization of social support is based on the need for emotional, instrumental, and interpersonal support, as well as the satisfaction with support received. Based on this conceptualization of the construct and a critical review of the literature, we developed a questionnaire to measure this interpersonal phenomenon.

This instrumental study (Montero and León, 2002) describes the development of a brief self-report instrument to measure need for and satisfaction with social supports. Below, the psychometric properties and a confirmatory factor analysis of a social support scale within a Puerto Rican context are presented. Also, the structure of this article follows the norms suggested by Bobenrieth (2002) for research papers on health science.

Method

Participants

The sample was obtained combining two data sets (Bonilla, 1997; Martinez-Taboas, 1997). The total sample included 464 students (206 females and 69 males) from the University of Puerto Rico, Río Piedras, Mayagüez and Bayamón Campuses. The sample was selected by availability. About 75.1% of the participants were females and the

24.9% were males. This sample is relative by proportional to the ratio of females and males at the University of Puerto Rico. The mean age was 21.71. Eighty six percent of the participants were single and 9.3 were married; 74.5% were from the San Juan metropolitan area, and 24.7% from the rural area. Mean substitution missing data procedure was used on less than one percent of the cases (n=33) and a single case with more than half of the items missing was eliminated from the analyses.

Measures

A socio-demographic questionnaire and the "Cuestionario de Apoyo Social" (CAS) were administered to all participants. A number of other instruments were also administered as part of a larger study (e.g., Beck Depression Inventory, Symptom Checklist-36, Dysfunctional Attitudes Scale, the Life Events Scale, Irrational Beliefs Test, among others), but are not part of this report. Social Support Questionnaire (CAS, for its initials in Spanish). This instrument consists of 9 items in a likert 5-point scale. The first seven items measure the type of social support needed (emotional, interpersonal, and material). Two other items evaluate the satisfaction with the social support received. Appendix 1 includes the list of the items in both English and Spanish.

After evaluating existing social support instruments (i.e., ISSB, ASSIS), items targeting multiple dimensions of the social support construct were developed. Need for social support and satisfaction with social support received, were the two dimensions included. Need for support was conceptualized as the perception of lacking emotional, spiritual, interpersonal, material, and instrumental support. The dimension of satisfaction with the social support received was conceptualized as sufficiency in the perception social support received. Initially, the instrument consisted of 18 items, where three of them consisted of open-ended questions taping qualitative characteristics as well as size of the social support network. A preliminary analysis with 171 participants in the data set led us to discard the three open ended questions because the data was unreliable or missing. We also eliminate six items because they were either highly correlated with other items or did not contribute a significant additional percent to the variance of social support. The CAS now consisted of nine items evaluating emotional (item 2, item 3, and item 4), social (item 5 and item 7), and instrumental (item 8 and item 9) need for social support. Two additional items assessed the sufficiency of (item 10) and satisfaction (item 11) with the social support received. Each item was rated on a 5-point likert-type scale ranging from none (1), to almost none (2), some (3), a lot (4), and very much (5).

Procedure

The CAS and several other instruments as part of a larger study were administered to undergraduate students at the University of Puerto Rico. Permission was obtained from professors to conduct the study with their classes. Information about the purpose of the study was offered to all participants and informed consent forms were used to document the voluntary nature of their participation. The questionnaire was administered in a group format during class time. Participants did not receive class credit or compensation for their participation.

Results

Statistical procedures

Model of social support. The proposed model was based on the conception of social support as presented in Bravo (1989). The first three factors described the dimension of need of social support: emotional, interpersonal and material. The fourth factor described the satisfaction dimension of the social support construct.

Confirmatory Factor Analysis. The confirmatory factor analyses (CFA) were performed using structural equation modeling (SEM), with Maximum-Likelihood estimation using MPLUS Software (Muthén and Muthén, 1998). CFA was used to evaluate the goodness of fit of a three vs. four-factor model. The four-factor model tests if satisfaction should be included in the model of social support in addition to need for emotional, interpersonal and material support. The three-factor model evaluates the social support model without satisfaction as a latent factor. Goodness-of-fit indexes were re-calculated and compared to the independence model, based on estimates of means and variances, instead of the Analysis of Moment Structures (AMOS) independence model.

Absolute and relative indexes were used to evaluate the goodness-of fit of the four vs. three factor models. Absolute fit indexes, such as chi-square and General Fit Index (GFI), describe the degree to which covariances implied by the fixed and free parameters specified in the model, match the observed covariances from which free parameters were estimated. Relative fit indexes, such as the Tucker Lewis Index (TLI), the Non Normed Fit Index (NNFI) and the Comparative Fit Index (CFI), describe the degree to which the model in question is superior to an alternative model.

Hu and Bentler (1999) identify cut off criteria for indexes in covariance structure analysis. The CFI and the TLI should be between .90 and .95 to be considered marginally acceptable, although .95 is considered the state of the art cut off point for having a good fit to the data (Hu and Bentler, 1999). For the Root Mean Square Error of Approximation (RMSEA), a cut off value of less than .05 is suggested, and for the Standardized Root Mean Residual (SRMR) a value less than .08 is indicated (Hu and Bentler, 1999). Another index to evaluate global fit is the ratio of the X^2 and the degrees of freedom (df), which should be less than two (<2.0).

Descriptive statistics

Mean and standard deviation of each manifest variable are reported in Table 1. The correlation matrix is reported in Table 2.

TABLE 1. Mean and Standard Deviation of items in CAS (n = 464).

Variable	Label	Mean	Standard Deviation
CAS 2	Emotional need	3.46	1.01
CAS 3	Spiritual need	3.04	1.23
CAS 4	Advice need	2.78	1.13
CAS 5	Sharing with other persons	3.64	.90
CAS 7	Sharing at social activities	3.42	.95
CAS 8	Material need	3.29	1.18
CAS 9	Task need	2.95	1.02
CAS 10	Satisfaction	3.85	.79
CAS 11	Sufficiency	3.92	.81

TABLE 2. Intercorrelations between items (N > 454).

Item	2	3	4	5	7	8	9	10	11
2	—	.426**	.584**	.368**	.202**	.097*	.250**	-.188**	-.164**
3		—	.385**	.194**	.067	.128**	.219**	.054	.064
4			—	.397**	.161**	.021	.207**	-.122**	-.091
5				—	.420**	.224**	.171**	-.022	-.033
7					—	.130**	.113*	.055	-.032
8						—	.236**	-.083	-.091
9							—	-.031	-.078
10								—	.800**
11									—

Note. ** p < 0.01, two-tailed. *p< 0.05, two-tailed.

Psychometric properties of the CAS

Psychometric properties were evaluated by Cronbach's alpha index of internal reliability. The reliability coefficients fluctuated between .89 and .36 (see Table 3). The lowest coefficient was reported by the factor that described the need for material support with only two items. Low reliability coefficients can be explained because of the quantity of items in the factor. The internal consistency of the seven items was .68.

TABLE 3. Reliability Coefficients in each factor.

Factor	Number of items	Alpha Coefficient
1. Satisfaction	2	.89
2. Need for emotional support	3	.71
3. Need for interpersonal support	2	.59
4. Need for material support	2	.38
CAS	7	.68

Confirmatory factor analysis

A Confirmatory Factor Analysis (CFA) statistical procedure was used to evaluate the goodness of fit of the three (emotional, interpersonal, and material support) vs. the four-factor (satisfaction with support, emotional, interpersonal, and material support) model. The goodness-of-fit indexes of the three-factor model (X^2(11)=34.695, NFI=.940, IFI=.959, CFI=.958, and RMSEA=.068) were acceptable (Table 4). The three-factor model had better fit indexes than the four-factor model, which showed a decrease of the fit indexes (X^2 (21)=72.132, NFI=.935, IFI=.953, CFI=.952, and RMSEA=.073). The goodness-of-fit for the three-factor model suggested that this model provided a better fit to the data than the four-factor model (Figure 1 and 2).

TABLE 4. Goodness-of –fit indexes of the three vs. four-factor model.

Model	X^2	df	Diff in X^2	Diff in df	P	NFI	IFI/ BL89	CFI	RMSEA
3 factor	34.695	11	—	—	.000	.940	.959	.958	.068
4 factor	72.132	21			.000	.935	.953	.952	.073

FIGURE 1. Three factor measurement model of the Social Support Scale.
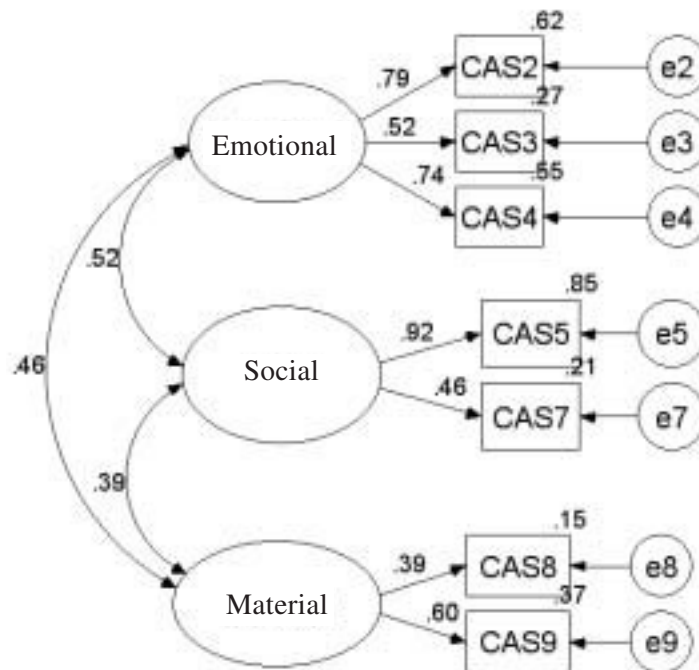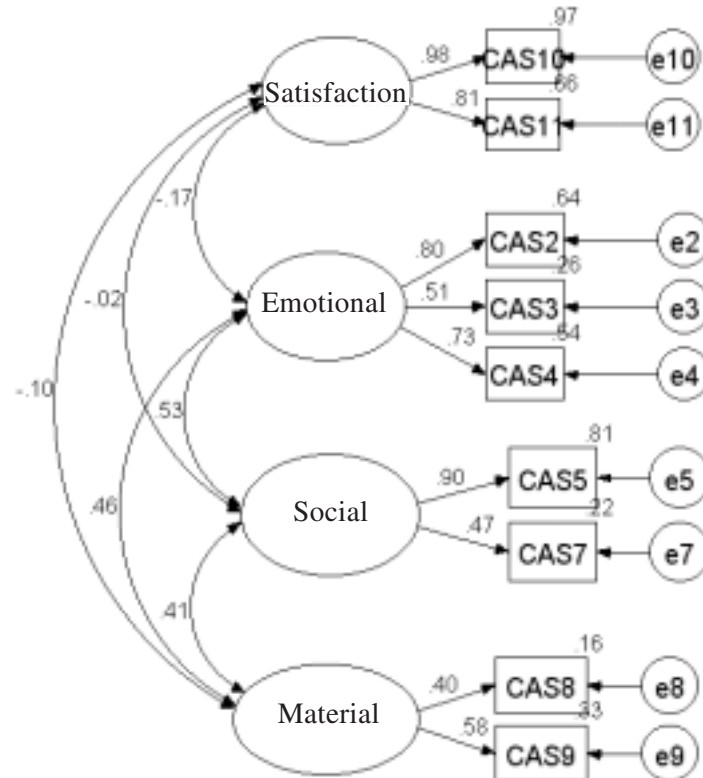
FIGURE 2. Four factor measurement model of the Social Support Scale.

Discussion

The preliminary results with the CAS are encouraging. The aim of the study was to test the model fit of a social support model by using the. Based on the theoretical definitions of social support (Bravo, 1989), we expected that the Social Support Scale (CAS) measured a multiple dimensions of the social support construct, including emotional, material, and interpersonal need, as well as satisfaction. The Confirmatory Factor Analysis, however, suggests that a three-factor model of social support including only sources of need of social support (e.g. emotional, material, and interpersonal) was supported by the data. An alternative explanation for the fact that satisfaction was not included in the final model of social support can be related to methodological limitations. The dimension of satisfaction with social support received was only assessed with two items, whereas the dimension of need of social support was measured with a total of seven items. In other words, significant differences in the number of items used to evaluate each dimension of social support can associated with the fact that the dimension of satisfaction with social support received was not robust enough to be included in the final model. Therefore,

the confirmatory factor analysis modeled only the factors associated with the dimension of need of social support.

Previous research has also evaluated the factors of need of social support described in the present study. Most of the social support definitions include the sense of "closeness" (Bravo, 1989), which can be related to the first factor of need for emotional support. The factor of need for material support represents "tangible" or instrumental support related to the "provision" of services (House, 1981; Kaplan, 1977). Also, other definitions of social support describe the need for counseling and socialization (Barrera *et al.,* 1981; Hirsh, 1980), which can be associated with the third factor of the need for interpersonal support. The dimension of satisfaction and sufficiency with the support received, however, might need to be evaluated with an additional set of items. Adding items to the dimension of satisfaction with social support. This might allow researchers to examine the role of satisfaction in addition to the role of need for social support when evaluating multiple dimensions (Barrera, 1986; Barrera and Ainlay, 1983; Zimet *et al.,* 1988) of social supports in adults.

The multidimensionality of the CAS-7 offers interesting possibilities for intervention research. For instance, the differentiation of factors within the CAS-7 may be useful in characterizing particular social support needs. Differences in the dimensions identified in the CAS-7 may have implications for assessing the particular area where social support may need to be mobilized (emotional, interpersonal, or material). This information may also be useful in deciding on the type of intervention to be delivered to individuals with particular social support needs. Understanding multiple dimensions of social support offers unique opportunities for advancing intervention research. First, it is critical to have a set of outcome measures that have sound psychometric properties for use with Spanish speaking populations. In this respect, the findings suggest that the CAS-7 is a reliable measure of social support with Puerto Ricans. Second, having measures such as the CAS-7 can also serve to evaluate mediators and moderators of change in treatment research. A brief scale with sound psychometric properties can serve as a screening instrument in both clinical and research settings. For clinicians, the scale can function as a resource that is simple to administer and as an indicator of areas that need special attention. For research, a highly reliable 7-item scale can be efficiently incorporated in larger research protocols lowering the burden of time for the participants and costs for his investigators.

Future studies should continue to examine the psychometric properties of this brief scale of social support with other populations. In addition, it would be desirable to study how this brief instrument compares with other scales of social support and its association to stress, cognitions, and depression. Finally, based on the measurement model presented, it may be possible to explore further the relationship between satisfaction with and needs for social support as an indicator of the quality of support.

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APPENDIX 1. Social Support Scale.

Emotional

2. How much emotional support did you need last month? (e.g., comfort, strength, etc.)
3. How much spiritual support did you need last month? (e.g., prayer, meditations, religious meetings, helps from a religious leader, etc.)
4. How much advice did you need last month? (e.g., family, friends, professionals, religious leaders, other groups, etc.)

Interpersonal

5. How much companionship from other persons did you need last month? (e.g., friends, partner, other persons or groups, etc.)
7. How much did you need to participate in social activities last month? (e.g., parties, movies, sports events, clubs, etc.)

Material

8. How much material support did you need last month? (e.g., money, food, home, transportation, etc.)
9. How much did you need support in performing tasks or working last month? (e.g., home work, school homework, etc.)

Satisfaction

10. Was the social support received sufficient?
11. How satisfied are you with the support received?

CUESTIONARIO DE APOYO SOCIAL (CAS-9)

Emocional (.71)

2. ¿Cuánto **apoyo emocional** necesitó durante el *último mes*? (ejs. Consuelo, desahogo, fortaleza)
3. ¿Cuánto **apoyo espiritual** necesitó durante el *último mes*? (ejs. Oración, reflexión, asistir a reuniones religiosas)
4. ¿Cuánto **consejo** necesitó durante el último mes? (ejs. Familiares, amistades, profesionales)

Interpersonal (.59)

5. ¿Cuánto **apoyo de la compañía de otras personas** necesitó durante el último mes? (ejs. Amistades, compañero/a, entre otras personas o grupos)
7. ¿Cuánto **apoyo en actividades sociales** necesitó durante el último mes? (ejs. Fiestas, cine, eventos deportivos, clubes, entre otros)

Material (.36)

8. ¿Cuánto **apoyo material o económico** necesitó durante el último mes? (ejs. dinero, comida, albergue, transportación, entre otras)
9. ¿Cuánto **apoyo de labores o tareas** necesitó durante el último mes? (ejs. Trabajo del hogar, asignaciones escolares, arreglar el carro, entre otras)

Satisfacción (.89)

10. ¿Fue **suficiente** el apoyo recibido durante el último mes?
11. ¿Cuán **satisfecho/a** se sintió con el apoyo recibido *durante el último mes*?

Cuestionario de Apoyo Social (CAS-7)

Instrucciones: A continuación aparece una serie de preguntas cuyo objetivo es conocer como usted percibe el apoyo social durante **el último mes**. Conteste cada una de las preguntas usando la escala provista. Marque con una X en el encasillado que mejor describa como usted se siente o piensa en relación a cada pregunta.

	Nada	Casi Nada	Algo	Bastante	Muchísimo
1. ¿Cuánto **apoyo emocional** necesitó durante el *último mes*? (ejs. Consuelo, desahogo, fortaleza)					
2. ¿Cuánto **apoyo espiritual** necesitó durante el *último mes*? (ejs. Oración, reflexión, asistir a reuniones religiosas)					
3. ¿Cuánto **consejo** necesitó durante el último mes? (ejs. Familiares, amistades, profesionales)					
4. ¿Cuánto **apoyo de la compañía de otras personas** necesitó durante el último mes? (ejs. Amistades, compañero/a, entre otras personas o grupos)					
5. ¿Cuánto **apoyo en actividades sociales** necesitó durante el último mes? (ejs. Fiestas, cine, eventos deportivos, clubes, entre otros)					
6. ¿Cuánto **apoyo material o económico** necesitó durante el último mes? (ejs. dinero, comida, albergue, transportación, entre otras)					
7. ¿Cuánto **apoyo de labores o tareas** necesitó durante el último mes? (ejs. Trabajo del hogar, asignaciones escolares, arreglar el carro, entre otras)					