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*Development and validation of the
Multidimensional Social Support Questionnaire (MSSQ)*

INTRODUCTION

Social support: definitions and outcomes

Although the wide number of studies which have been published on social support, there is still no agreement about the conceptualization and consequently the operational aspects of the construct. One of the primary difficulties is related to how to define it best. According to one of the first frameworks, social support implies an enduring pattern of continuous or intermittent ties that play a significant part in maintaining the psychological and physical integrity of the individual over time: a social network provides a person with psychosocial supplies for the maintenance of mental and emotional health (Caplan, 1974). More generally, social support is usually denned as the existence or availability of people on whom one can rely, people who let her/him know that they care about, value, and love her/him (Cobb, 1976).

Current international psychological literature is tending more and more to present social support as a broad concept, comprehending a complexity of specific characteristics of an individual's social world. However, social support has been conceptualized as a resource that promotes successful adaptation, considering the wide-ranging types of external support that one might receive, from tangible assistance to the opportunity to simply have others listen to and validate one's feelings (Moran & DuBois, 2002; DuBois, Burk-Braxton, Swenson, Tevendale, Lockerd & Moran, 2002). Particularly in recent times, there has been a growing interest in studying social support as a factor that might promote well-being and/or improve resistance to health problems (Cohen, Gottlieb & Underwood, 2000; Lakey, Adams, Neely, Rhodes, Lutz & Sielky, 2002). While this relation has been recognized to some extent – and principal efforts have been directed toward understanding the role of social support as a coping resource in the relation between stress and psychological or physical disorders – limited progress has been made in understanding the more detailed mechanisms linking aspects of social support and health (Sarason, Sarason & Gurung, 2001).

At least two theories explain why and how social support can affect medical or psychological illness: the *direct effect theory* and the *buffer effect theory*. The former assumes that practical and financial assistance from friends can alleviate and/or prevent some stressful life events, providing a sense of belonging and positive reinforcement, and improving individuals' standard of living (Dalgard & Tambs, 1997). According to the *buffer* hypothesis, poor social ties reduce feedback; consequently the individual becomes confused and his/her susceptibility to disease increases (Caplan & Caplan, 2000; Coyne & Downey, 1991). In this perspective, social support acts as a buffer against environmental stresses, such as divorce or loss of loved ones, and aids in the maintenance of health, by enhancing self-esteem and positive feelings, and by helping to promote healthy behaviours (Cohen & Syme, 1985). Specifically, social support acts as a moderating effect in the relationship between stress and psychological symptoms: under conditions of high support, symptoms are low when stress increases; however, when support is low, symptoms co-vary positively with increasing stress (Wills & Fegan, 2001).

Social support measures

The large amount of definitions and the various types and sources of social support inspired the development of several measures (for reviews see Prezza & Principato, 2002), sharing the idea that social support can be considered as a multidimensional construct. Numerous researchers agree that its indicators include the size of a social network, frequency of contact with members of the social network, instrumental support, emotional support, quality of support, and reciprocal helping of others (Barrera, 1986; Tardy, 1988). Based on the highlighted multidimensional meaning, recent studies (also by meta-analytic review) suggest distinguishing two main subconstructs. The *received social support*, referring to an objective aspect, and the *perceived social support*, regarding a more subjective aspect (Prezza & Principato, 2002; Haber, Cohen, Lucas & Baltes, 2007). The first one can be viewed as the behavioural component of social support, as it requires activation in particular interpersonal transactions (Dunkel-Schetter, Blasband, Feinstein & Herbert, 1992). Therefore, it derives from the supportive behaviours that

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could be noticed also from an external observer. *Received social support* has been shown to be less reliable in buffering against the adverse effects of life stress on psychological health and less predictive of health and well-being (Vaux, 1988). In contrast, *perceived social support* represents the cognitive component of social support, as it refers to the subjective perceptions of the extent to which social network members are available to provide social support (Cohen & McKay, 1984). According to Heller and Rook (1997), it is the individual's perception that his/her supportive needs are satisfied, whereas Sarason and Sarason's (1984) perspective states it is the individual's belief that he/she can obtain aid or empathy if necessary.

Recent evidence showed that ratings of received support reflect clearly identifiable supportive actions to a much greater extent than ratings of perceived support. In this direction, Cohen, Lakey, Tiell & Neely (2005) demonstrated that a consensus between different observers was much greater for received support than for perceived support. Although received support measures may simulate coping assistance from an individual's social environment, a number of authors have suggested that received support may improve outcomes only if it modifies perceived support.

Actually, both received and perceived measures are, to some degree, measures of support perceptions: received support measures are also defined as "perceived-received" measures (Barrera, 1986). All self-report questionnaires, including received support measures, rely on the accurate reporting of information by the social support recipient; therefore, they are subjected to influence by perceptual factors. Some instru-

ments, such as the *Inventory of Socially Supportive Behaviors* (ISSB; Barrera, Sandler & Ramsay, 1981), address this issue by increasing the behavioural specificity of the rating process. For example, raters are typically instructed to consider only limited and recent periods of time (the last 30 days), and to enumerate specific behaviours.

Finally, in describing social support, most studies are based on the measurement of subjectively perceived support, whereas other researches aim at measuring social support in a more objective sense. The definition in terms of a subjective feeling of support raises the question whether social support reflects a personality trait, rather than the actual social environment (Pierce, Lakey, Sarason, Sarason & Joseph, 1997; Sarason, Sarason & Shearin, 1986). Most researchers will agree that the person as well as the situation affects perceived social support, and that the concept deals with the interaction between individual and social variables.

The Multidimensional Social Support Questionnaire (MSSQ)

The purpose of the present paper is the construction of a new instrument with a number of qualities, making it a useful addition to the already existing scales. Other scales focus separately on either received support (Holahan & Moos, 1982; Procidano & Heller, 1983; Vaux, Steward & Reidel, 1987; Zimet, Dahlem, Zimet & Farley, 1988) or perceived support (Sarason, Levine, Basham & Sarason, 1983) meaning in order to obtain measurements of both constructs, one is required to administer at least two different questionnaires. Moreover, it is worth to note that no other scale assesses the deserved support as the possibility to receive support on

the basis of one's personal value (Harter, 1987). This aspect refers to the perceived availability of people whom the individual trusts and who make one feel cared for and valued as a person deserving support. With this perspective, the deserved support could be related to the personal value one gives him/herself. Consequently, its measurement could be useful to focus social support investigation not only on external sources (out of the individuals) but also on the individuals themselves.

Secondly, in line with the literature that makes the distinction between the two main support providers – primary networks (e.g., family, friends and all significant others), and secondary networks (e.g., institutions, social organizations, services) – the MSSQ is designed to assess different dimensions of social support from two specific sources: significant others, and non-significant others. Some studies combine social support from several specified sources (e.g., family, friends and significant others) into an overall measure (Procidano & Heller, 1983; Holahan & Moss, 1982; Zimet et al., 1988; Jackson & Warren, 2000), whereas others assess support in a global manner, without identifying the specific source of support (Weist, Freedman, Paskewitz, Proescher & Flaherty, 1995; Barrera, 2000; Haber et al., 2007). According to the latter point of view, we preferred to consider the several sources of support from significant others as a unique provider. The same principle was applied for the other source of support, that is non-significant others. The choice to assess social support from significant others in a global manner can be supported by the nature of our questionnaire, that is addressed to individuals of all ages. In this regard, it is well known that in different phases of people lives,

it's more important to receive support from a specific rather than general source, for example, family instead of friends, or vice versa. Thus, it would be preferable to let participants freely choose the provider who represents the significant others. In regards to the latter source of support, non-significant others, our social interactions often involve people who are not important for us but with whom we spend a lot of time (e.g., work colleagues, expert consultants, people with specific skills). This category can be referred to as the "social capital," the possibility to rely on the number and quality of formal and informal social resources which the individual can turn to when problems arise and the likelihood that a subject will make use of those network ties (Cartland, Ruch-Ross & Henry, 2003).

The current study addresses the constructing measure's validation process, starting from the hypothesis that the MSSQ could assess three different dimensions of social support: 1) the perceived support, that is the degree to which one perceives to receive support in a real situation; 2) the available support, the degree to which one thinks that he/she could receive support in an hypothetical situation; 3) the deserved support, the degree to which one considers him/herself worthy to receive support. In line with this goal, item generation and refinement procedures were described. The structure of the scale was determined performing exploratory and confirmatory factor analyses, while its stability was investigated verifying its replication in a second group of participants. Regarding reliability, both internal consistency and temporal stability were established.

The construct validity was addressed by providing evidence of criterion validity and both convergent and discriminant validity. In this direction, the relationships between MSSQ subscales and other measures of the same or related constructs were investigated. In particular, criterion validity was verified calculating correlations with another social support scale; convergent validity was gathered exploring relations with self-esteem and self-efficacy, which on the basis of several literature models are supposed to be positively linked with social support (Prezza, Armento & Trombaccia, 1997; Prezza & Costantini, 1998; Prezza & Sgarro, 1992; Sarason et al., 1986; Sarason et.al; 1983; Sarason, Shearin, Pierce & Sarason, 1987); discriminant validity was demonstrated examining associations with depression and anxiety, on the basis of the most widespread literature findings according to which depression and anxiety are expected to be negatively related with social support (Alemi, Stephens, Llorens, Schaefer, Nemes & Arendt, 2003; Chou, 2000; Coventry, Gillespie, Heath & Martin, 2004; Dahlem, Zimet & Walker, 1991; Kazarian & McCabe, 1991; Sarason et al. 1986; Sarason et.al., 1987; Stewart, Davidson, Meade, Hirth & Makrides, 2000; Sarason et al., 1983; Zimet et al., 1988). Therefore, it was hypothesized that high levels of MSSQ's dimensions will be associated with high levels of both self-esteem and self-efficacy. It was also hypothesized that MSSQ's subscales would be negatively related to reported depression and anxiety symptoms.

SCALE DEVELOPMENT

Participants

In order to identify important dimensions of social support and to generate items for a preliminary questionnaire, fifty partic-

ipants were interviewed (42% men; 58% women). They were university students, workers, unemployed people, housewives and pensioners. Their mean age was 31.5 years (SD = 9.3; range: 20-60 years). The most frequent marital status was married (38%), followed by single (35%) and single in a committed relationship (27%). Educational level ranged from lower school certificate (6%) to university graduate (35%); 59% held high school degrees.

Procedure and instrument

All the participants replied to a survey announcement and were interviewed by a trained researcher in proper rooms at the University of Rome and Palermo. Research assistants informed participants that their involvement was strictly voluntary and anonymous, and briefly explained the procedure.

Two methods were used to probe the construct of social support and extrapolate items for our instrument: (1) review and analysis of the literature on social support, and (2) structured interviews using volunteers.

In order to ensure the content validity of the new instrument, a structured interview was developed. It was specifically aimed to explore the concept of social support in-depth, identifying its main domains and aspects. The interview format included twelve open-ended questions intended to elicit qualitative information: "What behaviour tells you that someone supports you?"; "What are the situations in which you expect those who really love you to spontaneously do something for you?"; "What kind of behaviour would you never expect from someone who really loves you?"; "What are you prepared to do for a person you really love?"; "What characteristics does someone who deserves your support

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possess?"; "What characteristics are possessed by someone who does not deserve your support?"; "In what circumstances do you really feel you deserve the support of the others?"; "Those who really love me are prepared to … for me"; "Those who really love me are already ready to … for me"; "Those who really love me would never …"; "Those who really love me immediately understand when I …"; "Those who really love me immediately understand that I …".

Answers were independently reviewed for characteristics of social support by three psychologists. Characteristics noted by reviewers (and frequencies noted across interviews) were collated. Summaries were reviewed and evaluated jointly by the authors.

Results

An examination of all interview responses produced three different dimensions of social support which were characterised as follows: a) *Perceived Support*, which refers to the degree to which one perceives to receive support in a real situation, that is the actual supportiveness (referring to both significant others and non-significant others); b) *Available Support*, which concerns the degree to which one thinks that he/she could receive support in a hypothetical situation, that is the potential received support (referring to both significant others and non-significant others); c) *Deserved Support*, that is the degree to which one considers him/herself worthy to receive support (referring to both significant others and non-significant others).

Respondents answers provided the guidelines for generating different items. In particular, thirteen recurring themes were identified through interviews: help, affection, pleasant surprises, understanding, wishes, accepta-

tion, willingness, respect, loyalty, looking after others, sharing, unpleasantness, speaking poorly (or badly) about others. At least 30 items were generated by the content analysis of 50 interviews, resulting in an initial pool of 90 items, chosen as samples of as many aspects of each hypothesized dimension as possible. This initial pool of items was then reviewed to eliminate redundant items and to ensure consistent and simple grammatical structure. With this aim, we attempted to follow the scale construction approach recommended by Jackson (1970) to generate relatively short, unambiguous items with high content saturation, including items tapping negative as well as positive instances of each construct. In addition, guidelines for item wording (Clark & Watson, 1995) were closely followed to maximize clarity, specificity and brevity. Each item was written so that subjects 18 years of age and older could understand it.

At the end of this process, a 78-item preliminary version of the questionnaire was obtained. Items addressed relationships with significant others and non-significant others in the following areas: 1. *Perceived Support* (e.g., "How much do significant others actually help me?", "How much do non-significant others actually help me?"); 2. *Available Support* (e.g., "How much would significant others be disposed to help me?", "How much would non-significant others be disposed to help me?"); 3. *Deserved Support* (e.g., "How much do I deserve the help of significant others?", "How much do I deserve the help of non-significant others?"). Each dimension contained the same 26 items, 13 items referring to significant others and 13 items referring to non-significant others. Each item was formulated as a statement for which the participants

had to indicate the extent of agreement on a 5-point Likert scale and included anchors ranging from "Very much" (5) to "Not at all" (1).

SCALE REFINEMENT

Methods

Participants

Of the 550 questionnaires distributed, 484 questionnaires (87%) were returned to the researchers. Four participants were excluded from statistical analyses because their questionnaires had been completed improperly (i.e., the same score on an entire page and/or systematic response pattern). The data of 7 subjects were also not included because they were incomplete. Analyses were thus conducted on 473 participants, 41% men and 59% women. Their mean age was 36.1 years (*SD* = 11.9, range: 18-78 years). They were from Florence (25%), Rome (25%), Naples (19%), Cosenza (10%), Ascoli Piceno (8%), Milan (8%), and Palermo (5%). The most common marital status was married (47%), followed by single (31%) and single in a committed relationship (15%). Educational level ranged from lower school certificate (7%) to college graduate (degree) (36%); 57% held high school degrees. The group included people from a mix of socio-economic backgrounds, including factory workers, office workers, schoolteachers, business people, self-employed professionals, unemployed people, students, housewives and pensioners.

Procedure

Participants were recruited using a snowball sampling technique, in which acquaintances and colleagues were given questionnaires to pass on to members

of their family and friends. This recruitment method was used in an attempt to reach a range of participants from the general population. Participants were asked by research assistants to participate in the study; they were told they were completing questionnaires that would help the researcher to develop a scale to measure people evaluations of various events. A strong emphasis was put on the purpose of the research and on data confidentiality and participants were instructed not to write their names on the questionnaire and to be sincere, serious and to complete their questionnaire in a quiet environment. The 78-item questionnaires were distributed with instructions, stressing the importance of answering each question. Participants were asked to fill in their personal details and were instructed to complete the questionnaire themselves. Participants were asked to fill out the self-administered paper-and-pencil questionnaire, using a 5-point Likert scale to rate the degree to which each item accurately described their thoughts and feelings about perceived support (considering the last 4 weeks), available support they feel they may receive, and deserved support they acknowledge to themselves.

Data Analyses

Item analysis is considered a standard step in test development and is defined as "computation and examination of any statistical property of examinee's responses to an individual test item" (Crocker & Algina, 1986). Item analysis statistics are designed to reveal how each item functions within a test. The index of item analysis we used was item discrimination, which refers to the "degree to which an item differentiates correctly among examinees in the behav-

iour the test was designed to measure" (Anastasi, 1988). Item characteristics were examined using two retention criteria: (a) items' mean higher than 2 and lower than 4, (b) items' skewness and kurtosis lower than +1 and higher than –1 (Ercolani & Perugini, 1997). Items were removed when their values were in contrast with the two retention criteria described above.

Results

The mean values of the 78-items questionnaire ranged from 1.50 to 4.43, their univariate skewness values ranged from –1.545 to 1.940 and their univariate kurtosis values ranged from –.485 to 3.977, revealing that 27 items deviated from a normal distribution. Consequently, items rejected by item retention criteria were omitted from the initial item pool. The result of this phase of the test development was a 51-item version of the measure. In particular, 18 items covered the *Perceived Support* area (5 items referred to significant others and 13 items referred to non-significant others), 20 items covered the *Available Support* area (8 items referred to significant others and 12 items referred to non-significant others), and 13 items covered the *Deserved Support* area (4 items referred to significant others and 9 items referred to non-significant others).

PSYCHOMETRIC PROPERTIES OF THE SCALE

Structural Validity

Exploratory factor analysis

In order to identify the underlying dimensions of the questionnaire, data from the 473 participants were subjected to exploratory factor analysis. With the 51-item questionnaire, we were able to satisfy the minimum five

participants-per-item ratio, that is usually recommended for factor analysis; a number of nine subjects per item ensured that reliable factors would emerge from the factor analysis. Prior to EFA, data were inspected to ensure items were significantly correlated, using Bartlett's Test of Sphericity, and shared sufficient variance, using KMO's Test of Sampling Adequacy. Moreover, in order to evaluate whether items share sufficient variance to justify factor extraction, Kaiser's Test of Sampling Adequacy (MSA) was used. Sampling adequacy values that are less than .50 are considered unacceptable, values that are between .50 and .60 are considered marginally acceptable, and values greater than .80 and .90 are considered excellent (Hair, Anderson, Tatham, & Black, 1996). Bartlett's Test of Sphericity was significant ($p<.001$), and the Sampling Adequacy (Kaiser-Meyer-Olkin) was .89. MSA values were between .79 and .93, indicating that the constructing questionnaire's items were appropriated for a factor analysis.

Principal axis factoring was selected as the method of factor extraction. An oblique rotation method (promax criterion) was used to obtain a simple structure. To determine the number of factors, both Kaiser's criterion (items with eigenvalues greater than 1) and the Scree test were used. The following three criteria were used to determine salience: a) a factor loading of at least .5 on the primary factor, ensuring a high degree of association between the item and the factor, b) a difference of .3 between loading on the primary factor and loading on other factors, when an item was loading simultaneously on two factors, c) a minimum of three items for each factor, thus ensuring meaningful interpretation of stable factors (Tabachnick & Fidell, 1996).

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The more meaningful and psychometrically satisfactory solution was kept in the final version of the questionnaire, consisting of a set of 34 items assessing five intelligible dimensions, which accounted for 46.65% of the total variance. The first factor included 9 items (5 items come from the key area *Perceived Support* referred to significant others, and 4 items from the key area *Available Support* referred to significant others). On the basis of its item content, this first factor was named *Available and Perceived Support referred to significant others*. The second factor included 8 items (all coming from the key area *Available Support* referred to non-significant others); consequently, it was called *Available Support referred to non-significant others, positive attitudes*. The third factor included 8 items (all coming from the key area *Deserved Support* referred both to significant others and non-significant others); thus, it was labelled *Deserved Support referred to significant and non-significant others*. The fourth factor included 4 items (2 items come from the key area *Perceived Support* referred to non-significant others and 2 items from the key area *Available Support* referred to non-significant others); accordingly, it was called *Available and Perceived Support referred to non-significant others, negative attitudes*. The fifth factor included 5 items (all coming from the key area *Perceived Support* referred to non-significant others); thus, it was labelled *Perceived Support referred to non-significant others, positive attitudes*. A four-factor solution, a three-factor solution and a two-factor solution were also obtained but only accounted for 38.57%, 34.46% and 28.09% of the variance, respectively. Item factor loadings regarding the five-factor solution are presented in Table 1.

Table 1
Results of Principal Axis Factor Analysis of the MSSQ

Subscales Items	Factor loadings				
	F 1	F 2	F 3	F 4	F 5
Available and Perceived Support referred to significant others 71. How much would significant others be disposed to accept me?	.729				
69. How much would significant others be disposed to understand me?	.712				
47. How much would significant others be disposed to be open with me?	.704				
76. How much would significant others be disposed to take care of me?	.689				
57. How much would significant others be disposed to acquiesce to my wishes?	.650				
55. How much would significant others be disposed to prepare pleasant surprises for me?	.638				
34. How much do significant others respect me?	.621				
49. How much are significant others actually loyal to me?	.611				
36. How much do significant others actually look after me?	.605				

(table continues)

Table 1 *(continued)*

Subscales	Factor loadings				
Items	F 1	F 2	F 3	F 4	F 5
Available Support referred to not significant others, positive attitudes					
63. How much would non-significant others be disposed to share my happy moments?	.815				
62. How much would non-significant others be disposed to look after me?	.730				
67. How much would non-significant others be disposed to show me affection?	.690				
61. How much would non-significant others be disposed to be loyal to me?	.654				
70. How much would non-significant others be disposed to acquiesce to my wishes?	.647				
58. How much would non-significant others be disposed to accept me?	.618				
56. How much would non-significant others be disposed to understand me?	.597				
68. How much would non-significant others be disposed to prepare pleasant surprises for me?	.577				
Deserved Support referred to significant and not significant others					
16. How much do I deserve to receive pleasant surprises from non-significant others?		.684			
24. How much do I deserve to be taken care of by non-significant others?		.625			
20. How much do I deserve non-significant others be open with me?		.615			
18. How much do I deserve non-significant others acquiesce to my wishes?		.595			
11. How much do I deserve significant others look after me?		.595			
15. How much do I deserve non-significant others' affection?		.585			
14. How much do I deserve to receive help from significant others?		.552			
3. How much do I deserve to receive pleasant surprises from significant others?		.521			

(table continues)

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Table 1 *(continued)*

Subscales / Items	Factor loadings				
	F 1	F 2	F 3	F 4	F 5
Available and Perceived Support referred to not significant others, negative attitudes					
60. *How much would non-significant others be disposed to be unpleasant to me?*				.809	
78. *How much would non-significant others be disposed to speak poorly of me?*				.765	
52. *How much do non-significant others actually speak poorly of me?*				.737	
45. *How much are non-significant others actually unpleasant to me?*				.736	
Perceived Support referred to not significant others, positive attitudes					
27. *How much do non-significant others actually help me?*					.730
28. *How much do I actually receive affection from non-significant others?*					.723
39. *How much do non-significant others actually open up to me?*					.597
43. *How much do non-significant others actually understand me?*					.543
31. *How much do non-significant others actually acquiesce to my wishes?*					.542
Eigenvalue	7.11	3.28	2.58	1.76	1.12
% Variance	20.92%	9.64%	7.60%	5.18%	3.31%
Cronbach's alpha	.88	.87	.81	.85	.80

Correlations between the five factor mean scores (i.e., sum of the items/number of items) were also computed. As expected, dimensions correlated significantly ($p<.01$, two-tailed tests) but moderately, with each other ($-.33 \leq r \leq .50$, $p<.01$), indicating that the questionnaire's scales measured several approaches of the social support concept that are relatively distinct from one another, except for the non-significant correlation between factor 3 (*Deserved Support* referred to significant and non-significant others) and factor 4 (*Available* and *Perceived Support* referred to non-significant others, negative attitudes) ($r = -.07$). To assess the association between the subscales and the questionnaire total score, we then computed correlations between the overall scale score and each of the five factors. Results showed that the correlations between the total score and each subscale were significantly related ($.30 \leq r \leq .61$, $p<.01$). Pearson's correlations are presented in Table 2.

The factor structure stability was explored in two ways. First, to examine whether the factor structure was different for men and women, separate factor analyses were performed. In both the men's and women's groups the factors remained

Table 2
Subscales inter-correlations

Subscales	F1	F2	F3	F4	F5	Overall score
Available and Perceived Support referred to significant others	–					
Available Support referred to non-significant others, positive attitudes	.204 (**)	–				
Deserved Support referred to significant and non-significant others	.179 (**)	.306 (**)	–			
Available and Perceived Support referred to non-significant others, negative attitudes	–.183 (**)	–.334 (**)	–.066	–		
Perceived Support referred to non-significant others, positive attitudes	.350 (**)	.497 (**)	.283 (**)	–.256 (**)	–	
Overall score	.547(**)	.488(**)	.298(**)	.293(**)	.607(**)	–

** Correlation is significant at the .01 level (2-tailed)

essentially the same, with only two items (item 31 and item 43) loading on a different factor for men. Second, an additional factor analysis was performed on a random subsample of the entire population (chosen using approximately half of the participants): the five-factor solution was cross-validated on 236 of the 473 participants. Results revealed a structure similar to that underlying the full data set, with only one item (item 31) loading on a different factor. In both cases, items loaded in substantially the same way, confirming the factorial structure. The differences emerging in the solution consisted merely of small changes in the relative order of some of the factors.

Confirmatory factor analysis

The five-factor structure emerged from EFA was verified using con-

firmatory factor-analytic techniques. In particular, a confirmatory factor analysis, using ML Robust estimation, was conducted on the data from all participants in the scale development group ($N = 473$). Both orthogonal and oblique five-factor models were tested.

All confirmatory factor-analytic procedures were performed using the EQS structural equation modeling program (Bentler, 1995). The model's goodness of fit was evaluated using multiple fit indexes. Chi-square is sensitive to sample size and may be significant when the actual differences between the observed and implied model covariances are slight (Kline, 1998). Therefore, we did not use this statistic as an evaluation of absolute fit, but referred to the ratio of chi-square to degrees of freedom, the *Normed Fit Index* (*NFI*; Bentler & Bonett, 1980), the *Comparative*

Fit Index (*CFI*; Bentler, 1995), and the *Standardized Root Mean Square Residual* (*RMR*) to evaluate adequacy of fit of each model (Bollen, 1989). We also reported the *Root Mean Square Error of Approximation* (*RMSEA*; Steiger, 1990) to provide an indication of the global fit of the model.

The viability of the five-factor oblique model emerged from EFA was examined as compared to a five-factor orthogonal model and a three-factor orthogonal and oblique model (*Perceived Support*, *Available Support* and *Deserved Support*). Results clearly supported the five-factor oblique solution, with the five scales as latent variables and nine items as indicators for the first latent variable, eight items as indicators for the second latent variable, seven items for the third, four for the fourth and five for the fifth. Because the chi-square test is biased by sample size and the

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number of variables and degrees of freedom in a model, the statistically significant chi-square values were not surprising: $\chi^2_{(485, \ N = 473)}$ = 1132.52; $p<.001$; χ^2/df = 2.33. The confirmatory factor analysis showed the reasonable goodness-of-fit for a five-factor oblique model. The fit indexes were quite good which indicated that the hypothesized factor structure was plausible: NFI = .90; NNFI = .94; CFI = .94; RMSR = .04. The RMSEA indicated an acceptable fit of the model (RMSEA = .05; 90% confidence interval = .049-.057) (Browne & Cudeck, 1993). The five-factor oblique solution provided a significantly better fit to the data than did the five-factor orthogonal model and three-factor orthogonal and oblique model (Table 3). All manifest variables loaded significantly ($p<.001$) on their hypothesized latent factors. Figure 1 shows the completely standardized factor loadings.

The five-factor model of the MSSQ was judged to be an adequate explanation of the data, confirming that the instrument is comprised of five unidimensional subscales, providing further evidence for the construct validity of the constructing measure.

Reliability

The internal consistency of the five factors, as a measure of the reliability of the scales, was computed by Cronbach's coefficient alfa. Corrected item-scale correlations were examined for each of the five scales. For item selection it was decided that adjusted item-total correlations for each item of a scale should exceed .40, recommended as the standard for supporting item-internal consistency (De Vellis, 1991). The first factor *Available and perceived support referred to significant others*, consisting of nine variables, had a Cronbach's alfa of .88, which delineates good internal consistency of this subscale. If one or more items of the first factor are eliminated, Cronbach's alfa drops off. The second factor *Available support referred to non-significant others, positive attitude*, involving eight items, had a Cronbach's alfa of .87, which can be considered to be high. The deletion of any of the eight items could not increase the internal consistency of this dimension. One item was removed from the third factor scale *Deserved Support referred to significant and non-significant others* due to correlations below .40 (item 3 "How much do I deserve to receive pleasant surprises from significant others?"). Thus, alfa for the third factor, now consisting of seven variables, was .81. If more items of the third factor are eliminated, alfa drops under .80. Despite the reduction to only four items, the fourth factor *Available and perceived support referred to non-significant others, negative attitude*, showed adequate internal consistency, as demonstrated by Cronbach's alfa = .85. If one or more items of the fourth factor are eliminated, Cronbach's alfa drops under .77. The fifth factor *Perceived support referred to non-significant others, negative attitude*, consisting of five items, had a Cronbach's alfa of .80. There were no items that would have increased the scale reliability if they were deleted.
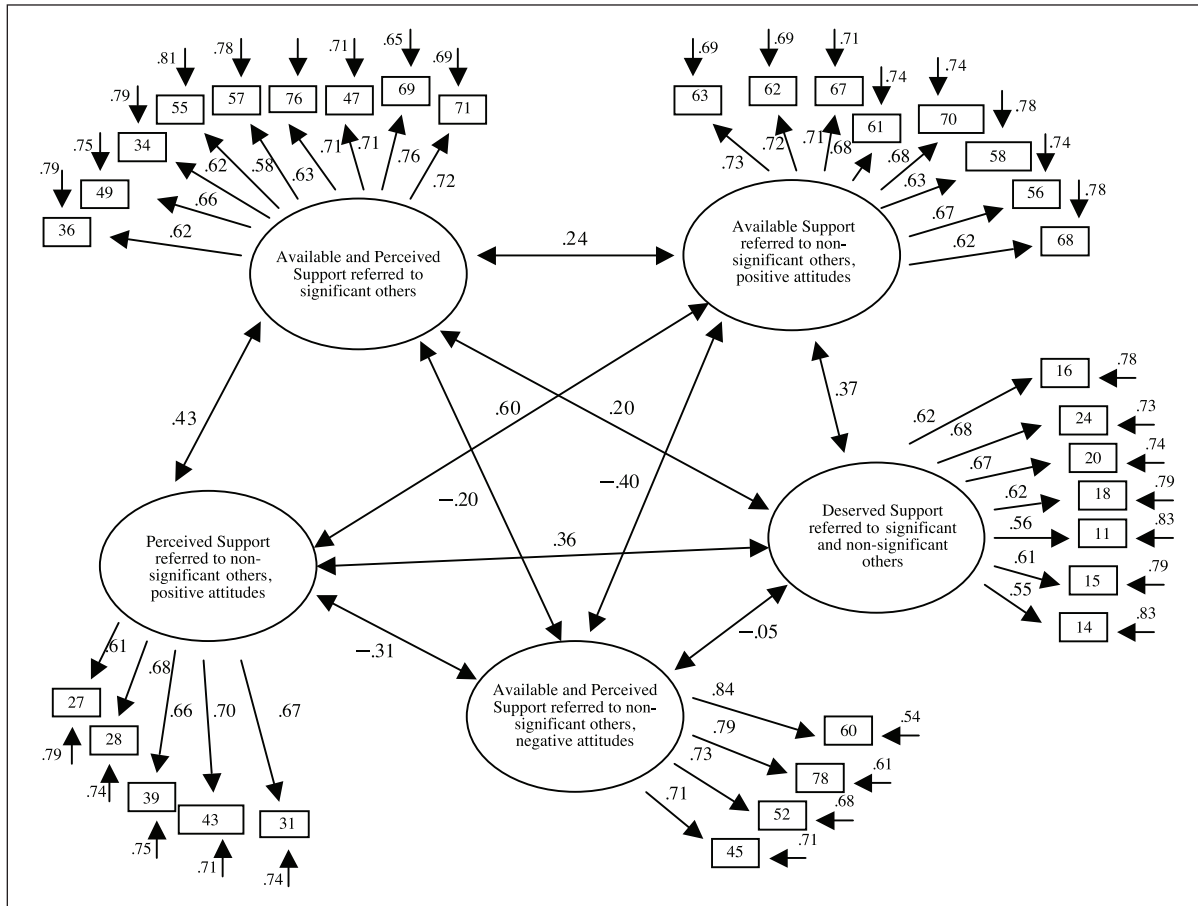
Table 3
Fit indices for the orthogonal and oblique three- and five-factor models of the MSSQ

Model	χ^2	df	p	NFI	NNFI	CFI	RMSR	RMSEA	90% CI
3-factor orthogonal model[1]	2711.64	524	<.000	.49	.51	.54	.174	.094	.090-.097
3-factor oblique model[1]	2477.73	521	<.000	.54	.56	.59	.120	.089	.086-.093
5-factor orthogonal model[2]	1409.35	495	<.001	.88	.91	.92	.113	.063	.059-.066
5-factor oblique model[2]	1131.44	485	<.001	.90	.94	.94	.045	.053	.049-.057

1. F1 = *Perceived Support*; F2 = *Available Support*; F3 = *Deserved Support*.
2. F1 = *Available and Perceived Support referred to significant others*; F2 = *Available Support referred to not significant others, positive attitudes*; F3 = *Deserved Support referred to significant and not significant others*; F4 = *Available and Perceived Support referred to not significant others, negative*; F5 = *Perceived Support referred to not significant others, positive attitudes*.

Figure 1
Path diagram of the MSSQ factor model

Therefore, all the coefficients alfa for the five factors can be considered to be high, ranging from .80 to .88 (see Table 1). These values are considered satisfactory and indicate good subscales' homogeneity. In addition, the part-whole correlations between items and scale are between .50 and .74, which is in the desired range.

The test-retest reliability was evaluated with 102 undergraduate students (7.8% men and 92.2% women) attending Psychology at the University of Palermo. They were on average 21.57 years of age (*SD* = 2.75; range: 19-42 years) and they completed the questionnaire a second time within one month of the first admin-istration and prior the start of lesson. To ensure confidentiality, participants were asked to supply only their nickname to aid identification during the second occasion. Test-retest reliabilities for each subscale were .77 (*p*<.01) for the first factor, .86 (*p*<.01) for the second factor, .80 (*p*<.01) for the third factor, .75 (*p*<.01) for the fourth factor, .80 (*p*<.01) for the fifth factor. For the whole scale, the value obtained was .88 (*p*<.01).

Construct validity

Participants

Two groups of participants were used in these analyses. A first group of 512 participants, in addition to our questionnaire, completed the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965), and the General Self-Efficacy Scale (Pierro, 1997). They were 24.2% men and 75.8% women. Their mean age was 27.51 (*SD* = 11.3; range: 18-79 years). They were from Palermo (54.7%), Florence (8.4%), and Rome (36.9%). The group included students (62.5%), employees (14.8%), factory workers (10%), self-employed professionals (8.8%), housewives (2.1%), and pensioners (1.8%). The most frequent marital status was single in a committed rela-tionship (45.3%), followed by single (34.6%), married (16.6%), and divorced (3.5%). Educational

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level ranged from lower school certificate (15.2%) to college graduate (degree) (8.8%); 76% held high school degrees.

One hundred and twenty-two participants, in addition to our questionnaire, completed the *Multidimensional Scale of Perceived Social Support* (*MSPSS*; Zimet et al., 1988), the *Beck Depression Inventory* (*BDI*; Beck, Rush, Shaw & Emery, 1979), and the *State Trait Anxiety Inventory* (Spielberg, Gorsuch & Luschene, 1980). They were from Palermo (25.4% men; 74.6% women), with a mean age of 30.3 years (*SD* = 11.2; range: 18-60 years). The group included students (51.6%), employees (26.2%), self-employed professionals (26.2%), pensioners (.8%), factory workers (1.6%), and housewives (6.6%). The most frequent marital status was single in a committed relationship (39.3%), followed by single (32.8%), married (26.2%), and divorced (1.6%). Educational level ranged from lower school certificate (7.3%) to college graduate (degree) (14.7%), 77.9% held high school degrees.

Instruments

In order to gather construct validity, in addition to MSSQ, five self-report measures were administered to different groups of participants:
1. The Italian validation of the *Multidimensional Scale of Perceived Social Support* (Prezza & Principato, 2002): a 12-item self-report scale designed to measure perceived social support received from family, friends, and significant others on a 7-point Likert format of response, from "Very strongly disagree" to "Very strongly agree".
2. The Italian validation of the *Rosenberg Self-Esteem Scale* (Prezza et al., 1997): a 10-item self-report unidimensional scale addressed to measure

global self-esteem, in terms of personal worth, self-confidence, self-satisfaction, self-respect, and self-deprecation, on a 4-point Likert scale, from "Strongly agree" to "Strongly disagree".
3. The Italian validation of the *General Self-Efficacy Scale* (Pierro, 1997): a 17-item self-report questionnaire devoted to assess general self-efficacy, in terms of general efficacy magnitude, general efficacy strength, and general efficacy competence, on a 5-point Likert scale, from "Strongly disagree" to "Strongly agree".
4. The Italian version of the *Beck Depression Inventory* (Scilligo, 1983): a 21-multiple choice item self-report inventory designed to measure depression symptoms on a four-point scale ranging from 0 (symptom not present) to 3 (symptom very intense).
5. The Italian version of the *State Trait Anxiety Inventory* (Lazzari & Pancheri, 1980): a 40-item self-report measure of state and trait anxiety with a 4-point Likert scale, from "Not at all" to "Very much".

Results

Support for concurrent validity was demonstrated by significantly positively correlations between our questionnaire's subscales and the *Multidimensional Scale of Perceived Social Support* (from $r = .28$ to $r = .70$, $p<.01$).
Evidence for convergent validity was provided by correlations between our instrument's subscales and both the *Rosenberg Self-Esteem Scale* and the *General Self-Efficacy Scale*. The relationships, even if moderate, were significant and positive: from $r = .13$ to $r = .29$ ($p<.01$) and from $r = .10$ ($p<.05$) to $r = .31$ ($p<.01$), respectively.
Support for discriminant validity was provided by correlations

between our scale and both the *Beck Depression Inventory* and the *State Trait Anxiety Inventory*. The relationships, as expected, were significant and inverse: from $r = -.23$ ($p<.05$) to $r = .58$ ($p<.01$) in respect to depression, from $r = -.28$ to $r = -.62$ ($p<.01$) in respect to state anxiety, and from $r = -.21$ to $r = -.58$ ($p<.01$) in respect to trait anxiety. These results are reported in Table 4.

Discussion

The present study moved from the purpose to construct a new self-report measure: the *Multidimensional Social Support Questionnaire* (MSSQ). In literature instruments that do not distinguish between different dimensions of support are regularly used. This produces confusion and improper evaluations because the label "perceived support" often is referred to aspects which should be considerate in a separated way. Based on this consideration, the paper was aimed to develop a scale addressed to assess: (1) the degree to which both significant and non-significant others are actually supportive, (2) how much significant and non-significant others would be supportive, (3) the degree to which one believes to deserve this support. In other words, the new scale could be useful to measure: (1) actual support provided in a real situation in the present or recent past, (2) the feeling of supportiveness, based on the appraisal of the potentials of their network, (3) the actual deserved support. The idea of this research derived from the relevance to measure with one only instrument both the perception of the actual received support and the support that one is expecting to receive in case problems occur. Perceived support has actually been provided, whereas available support

Table 4
Correlations with administered measures

	MSSQ (total score)	F1	F2	F3	F4	F5
Multidimensional Scale of Perceived Social Support	.70**	.72**	.63**	.28**	.40**	.69**
Rosenberg Self-Esteem Scale	.26**	.29**	.13**	.13**	.13**	.16**
General Self-Efficacy Scale	.28**	.31**	.18**	.10*	.14**	.19**
Beck Depression Inventory	–.57**	–.52**	–.51**	–.22*	–.45**	–.59**
State Anxiety Inventory	–.62**	–.62**	–.56**	–.28**	–.47**	–.54**
Trait Anxiety Inventory	–.58**	–.57**	–.54**	–.21*	–.45**	–.51**

F1 = *Available and Perceived Support referred to significant others*; F2 = *Available Support referred to not significant others, positive attitudes*; F3 = *Deserved Support referred to significant and not significant others*; F4 = *Available and Perceived Support referred to not significant others, negative*; F5 = *Perceived Support referred to not significant others, positive attitudes*.
*$p<.05$ (2-tailed)
**$p<.01$ (2-tailed)

is the support one has not actually received but one expects to receive in an imaginary situation. The deserved support is added as a relevant aspect to be measured, in order to stress not only the role of other people but also the role of the self-evaluator in the perception of social support. This last aspect might assume a control function: very high levels of deserved support associated to very low levels of both perceived and available support could be an indicator of the tendency to show a better self-image and a worst representation of other people. Differentiating various domains of social support should be helpful to investigate how they could have differential effects on adjustment and functioning (Mitchell & Zimet, 2000).

Moreover, although literature presents a large amount of evidence about social support and its relation with several outcome variables, theoretical implications are often constrained by existing measures, which classify social support according to different frameworks: support providers (family, friends, confidant relationships), needs, adequacy of the support, satisfaction with the support, whether the support is actually provided or perceived to be available if needed, tangible support, appraisal support, self-esteem support, belonging support. Even if most authors recognize social support as a multifaceted construct, a lack of accordance on its dimensional aspects indicates a low level of agreement between different perspectives.

Our aim was, thus, to represent in a unique psychometric instrument the most common ways in which researchers differ in assessing social support: the received support and the available support. In spite these types of support measures pres-

ent limitations due to the probable influence of the experience of life events and ability to cope with them, in our point of view they are both to be considered, given their relation to health outcome variables. The perception of available support may be the most potent factor in producing a protective effect and actually received support may enhance evaluation objectivity. Within each of these dimensions, no distinctions are done in respect to the different functions that a person's network might provide, insofar as previous studies revealed that they measure much the same thing (Sarason, 1987). In addition, we addressed the introduction of a third unmeasured aspect, which might offer a more complete assessment tool. In regards to the distinctions within support sources, although most researchers differentiate between sources of social support (fam-

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ily, friends, special persons) and suggest that studies which fail to consider the source of support may lose important information (Procidano & Heller, 1983; Mitchell, Zimet, 2000), the target population of the constructing scale (ranging from adolescents to old people) persuaded us that the definition of the source could determine a response bias. In fact, partners, family members or close friends can be identified as significant others in a very different way by people according to their age, marital status or educational level (Prezza et al., 2002). Besides, the composition of a person's support network is likely to change over time. Consequently, we preferred respondents felt free to think about anyone they want when referring to significant others. Moreover, we chose to consider also non-significant others because they are part of the social resources one may effectively turn to face difficulties.

Consistent with recommendations regarding content validation, a multistep process was firstly followed to establish the domains of social support and develop an initial item pool that was representative of and relevant to them. Based on findings from a wide-ranging sample, initial item pool was reduced to obtain high item discriminant level. Subsequently, exploratory and confirmatory factor analyses provided support for the multidimensionality of the scale and suggested that it assesses five distinct aspects of social support: *Available and Perceived Support referred to significant others*, *Available Support referred to non-significant others, positive attitudes*, *Deserved Support referred to significant and non- significant others*, *Available and Perceived Support referred to non-significant others, negative attitudes*, and *Perceived Support referred to non-significant others, positive attitudes*.

In regards to the interpretation of each factor, *Perceived Support* and *Available Support* areas result in a unique factor when referred to significant others. It seems that the trust in significant others might lead people to believe they can receive the same support in both real and potential situations. Likewise, *Perceived Support* and *Available Support* areas result in a unique factor, when referred to non-significant others, in case of their negative attitudes. It seems that people tend to generalize when expecting non-significant others will show the same negative attitudes both in real and possible situations. By contrast, *Perceived Support* and *Available Support* areas result in two different factors when referred to non-significant others and their positive attitudes. In this case, it seems that people doubt that non-significant others who show positive attitudes in real situations could demonstrate the same attitudes also in a possible situations. Therefore, they show to distinguish the actual non-significant others' support (i.e., perceived support) from the potential non-significant others' support (i.e., available support). It is worth noting that this kind of social support can create positive affective states, providing individuals with access to positive social influence which can encourage healthy behaviors. On the community level, the assessment of social support from non-significant others refers to the support received from social network ties and the social integration through the size of the social network. The occurrence of social support, however, depends on the opportunities for interaction with other people, which are determined by a number of contextual variables (McKenzie, Whitley & Weich, 2002).

Finally, *Deserved Support* area results in a unique factor in respect to both significant

and non-significant others. Individuals would need to focus on their own instead of on others in evaluating how much they deserve support: if one deserves support, he/she deserves it, regardless of who provides it.

Results of the factor analyses did not provide evidence for the construct validity of the three hypothesized social support subscales for this group of participants. Rather, five factor emerged, reflecting five independent dimensions of social support. The question arises as to why five factors emerged in the presented results, instead of three (*perceived*, *available* and *deserved support*) or six factors (perceived, available and deserved support separated for significant and non-significant others). One probable reason could be that the five-factor solution may be due to the participants we used in the current study. The examined group is very heterogeneous and it requires maybe to be enlarged and divided into subgroups (for instance, adolescents, college students living abroad, adults, married and no longer married, high educational level people and low educational level people) for data analyses, in order to reveal eventually changed factorial structures, which could emerge from group differing for the extent of the relative social network. In some studies, in fact, it was found that: (a) less educated elderly people have fewer contacts with friends than more educated elderly people, (b) the support of significant others decreases with age, (c) the support of significant others is higher for both married and never married compared to those who are no longer married, (d) the very young feel they are more supported by significant others, whereas the elderly perceives less support, confirming that old age is often characterized by a lack of significant relationships, prob-

ably due to losses within their social network (Prezza & Pacilli, 2002).

The intercorrelations among the five subscales were moderate, indicating relatively distinct dimensions, and suggesting a high level of score independence. Furthermore, the factorial structure was confirmed by replication in different groups of participants. Reliability analyses showed good internal consistency and adequate stability over the time period indicated. This suggests that the items on the questionnaire are homogeneous and that they are measuring the same concept.

Construct validity was supported providing evidence of criterion, convergent and discriminant validity. Concurrent validity was demonstrated by positive relationships between our questionnaire's subscales and another measure of social support: the *Multidimensional Scale of Perceived Social Support*. Convergent validity was provided by significant positive correlations between all our instrument's dimensions and both self-esteem and self-efficacy. In particular, deserved social support was less strongly positively related to self-esteem and self-efficacy than others MSSQ's subscales. This study does not make possible a definite causal statement about the relationships between these variables. However, it might be that having many supportive relationships offer more chance to develop self-esteem and enhance self-efficacy. Although moderate evidence for convergent validity was provided by the significant but low level of MSSQ's subscales/RSE and MSSQ's subscales/GSE correlations, further research that takes into account the relative degree of personal value might yield a higher level of construct validity for the MSSQ. Discriminant validity was provided by significant inverse

correlations between our questionnaire's subscales and both the affective variables of depression and anxiety symptomatology. In particular, deserved support was less strongly inversely associated to anxiety and depression than other subscales. These correlational data provided no clue in respect to the causality of the negative relationships. In spite of this, it is possible to generate some interpretation hypotheses. According to widely shared empirical evidences, the depressive affective state is not appealing to others. Depressed individuals, in fact, are consistently described as unpleasant to relate to. Pervasive depression is logically consistent with a lack of satisfaction in most kind of interpersonal contacts and a failure in the development of supportive relationships. These results are consistent with findings by numerous research studies (Andrews, Tennant, Hewson & Vaillant et al., 1978; Prezza et al., 1997; Sarason et al., 1983; Zimet et al., 1988). Although the reported correlations provided some validation of the MSSQ and its subscales, future research will be concentrated on a more rigorous and comprehensive evaluation of validity (e.g., the multitrait-multimethod matrix approach).

A strength of the present study is the participants' recruiting methodology aimed to achieve relatively heterogeneous groups of participants. In fact, we have attempted to conduct our study with a range of participants rather than just a college student group, as it has been done in much of other scale development works. Significant assets of the MSSQ include its brevity and easy language that makes it simple to use in a variety of settings. Overall, the present evidence suggests the questionnaire is a promising instrument for assessing social support,

encouraging further validation studies. In particular, additional analyses are required to cross-validate the scale. In fact, even if factor analysis represent one method for investigating the structural validity of a proposed multidimensional measure, additional techniques must be used to derive conclusions about the various constructs under investigations. Future research employing a cross-cultural sample might confirm if the actual findings could be generalized to other cultural groups.

Although the MSSQ seems a sound research instrument, the current study presents some methodological limitations. Firstly, the sampling technique adopted was a non-probabilistic one making weak the external validity of the obtained results. It would be important, therefore, to investigate the psychometric properties and factorial structure of the instrument with a representative sample of the population being studied. Secondly, the causal direction of social support and construct validity variables cannot be defined in this correlational study; a longitudinal study should be conducted to clarify the causal nature of the reported relationships. Thirdly, the role of the deserved support factor should be explored deeper to better explain its role and association with other support scales and related variables. In this direction, research involving demographics and social competence are strongly foreseen in future studies.

Including in itself the possibility to measure the perception of the support that has been received, the support that is perceived to be available, and the support that is perceived to be deserved, the new tool might be used to assess social support in a relatively complete and brief manner in numerous areas of psychology, such as psychology

of individual differences, psychopathology, and organizational psychology. The availability of the MSSQ as a reliable, valid, and easy-to-administer scale might facilitate the examination of the mechanism involved in the link between deserved support and the perception of both actual and potential received support. The scale's utility in research could be enhanced up taking the questionnaire to deeper investigate causal connections between social support and both personality traits and symptomatological states. The MSSQ represents a potentially useful tool for such research and suggests possible key approaches to social support examination.

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SUMMARY. Introduction: A critical evaluation of the diverse models and methodological issues in the assessment of social support highlighted the need to create a new measure. With this aim, the present paper addresses the development and preliminary validation of a 33-item self-report instrument – the *Multidimensional Social Support Questionnaire (MSSQ)* – designed to assess three different aspects of social support: perceived support, available support and deserved support from two specific sources: significant others and non-significant others. **Methods:** Several analyses were conducted a) to examine item dispersion, b) to explore and confirm the factorial structure of the scale, c) to investigate its internal consistency, d) to establish its temporal stability, e) to provide its construct validity evidence, in terms of concurrent, convergent and discriminant validity. **Results:** Results indicate that the questionnaire has promising psychometric properties. **Conclusions:** The usefulness of the measure and implications of the findings are briefly discussed.

Keywords: *Perceived Social Support, Available Social Support, Deserved Social Support.*

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