

# A Review of the ENRICHD Social Support Inventory Psychometric Instrument

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## Abstract

**Background:** Social support is an increasingly important construct in health research. A growing body of evidence demonstrates that limited social support is associated with adverse health outcomes. Nursing researchers are uniquely positioned to advance the science of social support to improve patient outcomes. The purpose of this review is to provide an overview of the ENRICHD Social Support Inventory (ESSI), an instrument designed to measure social support. **Methods:** A CINAHL search was used to locate publications that provided psychometric attributes of the ENRICHD Social Support Inventory (ESSI) instrument. The COSMIN (Consensus-based Standards for Selection of Health Measurement Instruments) was used as the framework to evaluate the psychometric qualities of the social support instrument. **Results:** The ESSI measure concept and construct design were fairly identified. Multiple inquiries have revealed confounding mechanisms of instrument administration and scoring, which were reported by different studies. Investigators have made several instrument adaptations. **Conclusion:** The use of psychometric measurement principles and practices is essential for well-designed research studies on social support. It is important to prioritize the development of linguistically appropriate social support tools to effectively support ethnically diverse populations.

**Keywords:** social support, psychometric measurement

## 1. Introduction

Social support is essential for an individual's psychological and physical health. It has been employed in a number of research studies in a variety of fields such as nursing, sociology, biomedicine, and psychology. The purpose of this manuscript is to provide a review of the ENRICHD Social Support Inventory (ESSI), an instrument designed to measure social support. In order to report on the psychometric qualities of the ESSI and to avoid the risk of bias, COSMIN (Consensus-based Standards for the Selection of Health Measurement Instruments) (Mokkink, 2018) was utilized for the work presented.

## 2. Background

Over time, the concept of social support has become increasingly important for patients, nurses, and other healthcare providers. Its relevancy is due primarily to the strong associations between supportive socially based resources and the maintenance of patients' health, engagement in care, adaptability to chronic disease, and recuperation from severe illness (Bodschwinna et al., 2021). Decades ago, Stewart and colleagues (1993) emphasized the critical importance of social support in furthering knowledge with a view toward health-promoting interventions.

Studies conducted on various patient groups have revealed that inadequate social support can lead to adverse health consequences over time. For instance, individuals with a limited social support system are at a higher risk of mortality compared to those with a robust social network (Sticinski et al., 2022). Therefore, it becomes an important necessity to measure social support as part of research studies. Such studies require reliable social support instruments that generate valid data among the specific population being studied, especially when the desire is to predict health. If limited social support is identified early enough, targeted strategies to improve a patient's social support network may prevent the deterioration of health.

### 3. Social Support Definitions

For more than four decades, there has not been a consensus definition for social support. For example, Lin et al (1979) defined social support as "support available to an individual through social ties to other individuals, groups, and the larger community" (p.109). Social support is defined by the National Cancer Institute's Dictionary of Cancer Terms as "a network of family, friends, neighbors, and community members who are available in times of need to provide psychological, physical, and financial assistance" (National Cancer Institute, 2023). The American Psychological Association (APA) defines social support as "the provision of assistance or comfort to others, typically to assist them in coping with biological, psychological, and social challenges" (APA, 2020). Finally, Mitchell et al. (2003) described social support as the feeling of being cared for, having aid available from others, and, most importantly, being a member of a supportive social network.

### 4. ENRICHD Social Support Inventory

The ENRICHD Social Support Inventory (ESSI) was originally developed as an efficient method for measuring social support in patients affected by cardiovascular complications, specifically patients who experienced ischemic heart disease (Mitchell et al., 2003).

The first version ENRICHD Social Support Inventory (ESSI), a short 7-item social support instrument, is the product of a number of years of work. The ESSI items originated from the Medical Outcomes Survey (MOS) (Gorlin, 1993). Specifically, MOS items that addressed perceived social support were utilized by Mitchell (2003) to begin constructing a dedicated instrument to measure social support. Mitchell next added items to more precisely capture perceived social support as experienced by patients affected by cardiovascular complications such as myocardial infarction.

### 5. Utilization and Performance of the ESSI in Research

The ESSI has been referenced in over fifty publications worldwide, including publications from the United States, South America, Southeast Asia, and Europe. Two versions of the ESSI were located; one 6-item version and the more common 7-item version. Not surprisingly, the ESSI was first used in Mitchell's Enhancing Recovery in Coronary Heart Disease Patients (ENRICHD) study, a multicenter, randomized control clinical trial sponsored by the National Heart, Lung, and Blood Institute (Mitchell et al, 2003). The primary aim of this clinical trial was to examine the patterns of social support following acute myocardial infarction (AMI) among patients who had low perceived social support (LPSS). Secondary aims were to a) investigate the association between social support (at the time of AMI) and future medical morbidity and death, and b) describe any changes in social support after AMI that were associated with subsequent mortality (Burg, et al, 2005). The ENRICHD study employed the ESSI social support instrument to measure social support among participants, categorizing them into low social situation or moderate social situation. Study participants were randomly divided into two groups – one group received cognitive therapy interventions, such as emotional needs, attitudes, and beliefs surveys related to social ties and networks, and the other group underwent conventional treatment for their heart disease. In the cognitive therapy group, all four groups demonstrated improvement in perceived social support. Additionally, the combined end goal of mortality and myocardial infarction was 10% in the heart attack comparison group and 23% in the low-perceived social support group throughout a 29-month follow-up. It was also revealed that improvements in ESSI scores and perceived social support did not predict death among individuals.

The ESSI has also been used in the Multi-Ethnic Study of Atherosclerosis (MESA) (Ortiz et al., 2015). One of the aims of this study was to identify if social support could moderate the relationship between psychosocial stressors and metabolic syndrome among different Latino subgroups. Study results documented that social support was not associated with the presence of metabolic syndrome. However, social support did have a moderating effect between stress and sadness.

The ESSI instrument was also used in a study describing the association between social support and metabolic syndrome among Mexican American women living in an underserved community (Esquer, 2021). Overall, social support was moderate among all of the participants, noting it did not vary across the sample. In other words, there were no differences between those with or without metabolic syndrome. Potentially cannot differentiate social support between the 2 groups. In summary, the use of the ESSI in research studies has not been studied in Mexican American women with limited English proficiency.

### 6. Description of Social Support Instrument

The ESSI is a self-administered 7-item instrument intended to measure social support (Mitchell et al., 2003). The process of completing the instrument requires about five minutes. The ESSI is designed to measure three

components of social support: structural support (presence of a partner) (1 item), instrumental support (presence of tangible help) (1 item), and emotional support (caring) (5 items). There is a lesser-used 6-item version of the ESSI where the presence of a partner item is omitted.

### 7. Scoring

Structural support is measured using one (yes/no) dichotomous item with 5 points allocated for a yes and zero points for a no response to *Do you have a partner?* The 6 instrumental and emotional support items are measured using the five-point Likert scale (1 = "None of the time", 5 = "All of the time"). All item scores are summed to calculate a total score. Total scores for the 7 items can range from 6 to 35. Total score ranges can be used to categorize the level of social support. Specifically, low social support (score <12) and moderate social support (> 12) (Burg et al., 2005).

### 8. Reliability & Validity

Reliability and validity are two key factors to consider when selecting any instrument for use in research studies (Waltz et al., 2017). Reliability is defined as the probability that a measure will perform its intended function adequately without failure. Validity refers to how well the score results among the study participants represent true findings among similar individuals outside the study (Waltz et al., 2017).

### 9. Reliability

Several statistical approaches, such as internal consistency and test-retest reliability, can be used to evaluate instruments. According to Waltz et al. (2017), Cronbach's alpha is the ideal indicator of internal consistency reliability, measuring the dispersion of different items within a single domain. Cronbach's alpha values can range from 0.00 to 1.00, with 0.8 or above being desired. Cronbach alpha coefficients for the ESSI have ranged from 0.86 to 0.94 (Bodschwinna, 2020; Eithinzer, 2021; Kalaitzaki, 2022; Mitchell, 2003; Ortiz et al., 2015; Sticinski, 2022 & Zahid, 2022). For the 6-item version (dichotomous [yes/no] omitted), Cronbach's alpha was 0.88 (Ortiz, 2015 & Norskov, 2021).

Reproducibility of measurement is also an important concept to consider when selecting an instrument. To measure reproducibility, the ESSI's test-retest reliability was calculated using paired t-tests of mean ESSI scores delivered one month apart. The participant's level of perceived social support pre-one month (M= 27.8, SD= -1.4) did not differ significantly from their level of perceived social support post-one month (M = 27.8, SD = -1.5);  $t_{xxx}$ ;  $p=0.98$  (Vaglio et al., 2004).

On the other hand, the Intraclass Correlation Coefficient (ICC) is another valuable descriptive statistical measure that was used in determining the level of similarity between outcomes within the same or different clusters. The ICC is important in evaluating the reliability and consistency of research outcomes (Waltz, et al., 2017). The intra-class correlation of the ESSI has been reported to be 0.94 (Vaglio et al., 2004), indicating optimal reliability (Koo & Li, 2016).

### 10. Validity

Considering the lack of an acceptable standard measure of support, several constructs were evaluated to ensure the validity of the ESSI (Vaglio et al., 2004). Vaglio and colleagues expected that ESSI scores among depressed patients would be lower than non-depressed patients. To quantitatively measure construct validity, independent sample t-tests of baseline mean ESSI scores were compared among depressed versus non-depressed patients. The correlation coefficient between the ESSI total score and the SF-36 Social Functioning subscale, the SF-36 Physical and Mental Component Scores, and the Seattle Angina Questionnaire - Quality of Life (SAQ-QOL) scale at baseline and 6-months post-revascularization was calculated to measure concurrent and predictive validity (Vaglio et al., 2004).

The content validity of the ESSI was measured by comparing it to three other scales: the Perceived Support Scale (24 items), the Social Network Questionnaire (a more complex inventory requiring listing up to 15 people and identifying each on six parameters), and the Inventory of Social Support (40 items). The ESSI and the Perceived Social Support Scale had a large association of 0.64, although the other two scales had lesser statistically significant correlations ranging from 0.25 to 0.34 (Mitchell et al., 2003). Cronbach's alpha was determined to be 0.86 for the Mitchell et al. (2003) research (N=199; one-third of non-Hispanic White individuals). The mean total was 29.9 (standard deviation 5.7), with a range of 9-35. The developers additionally compared only the emotional support items (5 items) to all 7 items and discovered a very good correlation between results of 0.96. A test-retest of the ESSI in a group of heart disease patients revealed no variations in score after 1 month and revealed a slight association between the SF-36's social functioning subscale and the ESSI. (Vaglio et al., 2004)

### **11. Instrument Strengths**

The ESSI measure concept and construct design were fairly identified. This self-reported instrument is a convenient and cost-effective way to measure social support. The ESSI instrument is easy to follow and can be completed in less than 5 minutes. The final version of ESSI instrument is in the public domain; however, the scoring guidelines are not readily available.

### **12. Instrument Limitations**

Multiple studies have revealed unclear procedures of instrument delivery and scoring. Unfortunately, the MESA study did not release the sample's ESSI mean score or standard deviation. The construct validity of the ESSI was established on a small sample of non-Hispanic White patients who had had a MI or had cardiac procedures. A number of studies among different Latino demographic subgroups have employed the social support measure. Using this social support instrument, Ortiz and colleagues clearly did not identify a wide range of social support. Prior research has revealed that people with a high number or quality of social support had a lower risk of death as compared to those with a poor quantity or quality of social ties.

The ESSI sample's cross-cultural validity was found to be insufficient. Given that this measure did not capture felt social support among the Latino population, it was unable to identify variations in it. The findings' generalizability to the overall number of cardiac subjects should be questioned, therefore the necessity to recruit people from other ethnic groups should be addressed. Ortiz and colleagues (2005) expected social support to moderate the relationship between chronic stress, depressive symptoms, and metabolic syndrome, in part because the Latino population has been described as having high levels of social support from family, and several studies have reported positive mental and physical health outcomes as a consequence of family support (Bird et al., 2001). Limited evidence of exploratory or confirmatory factor analysis performed were identified in ESSI. In order to improve construct validity testing, dimensions should be established based on factor analysis. Including the measurement of the different social support subscales may provide a more comprehensive illustration of the social support concept. Because social support was so strong in both previously cited research, it may be difficult to analyze this connection when there is minimal variation among study participants.

### **13. Recommendations for Further Psychometric Testing**

Future culturally and linguistically appropriate social support instrument development is needed in Latino sub-groups in order to capture perceived social support among this understudied ethnic group. Spanish language translation with adequate literacy level of the population is highly recommended. Social support instruments are limited. Instrument adaptation or testing in the Latino population was not fully identified. As a result, future research among the Latino population could call for the development of quantitative instruments.

### **14. Potential Use of Instrument in Diverse Populations**

A well-designed social support instrument will be useful to assist research investigators in measuring the concept of social support in diverse populations. Moreover, a reliable instrument that yields valid data might be used to identify psychological health risks early enough to lead to the adoption of research-based interventions that might prevent further worsening of health and thus prevent future associated health risk behaviors.

### **15. Conclusion**

Recognition of the importance of psychometric considerations will assist to confirm the reliable construction of the instrument and the validity of the collected study data. It has been suggested that previously published instruments already applied in research studies can be implemented in other research projects. However, the selected instrument should be tested for reliability and validity with any new population under study. This process will confirm that the instrument performs, as intended, in a study with the new study population.

To fully understand the meaning of social support, it is necessary to explain what it is, what causes it, and how it can be defined as a measurable variable. The literature on social support and health is robust and continues to be an active area of investigation. The implementation of psychometric measurement principles and practices should be an essential component of well-designed social support research studies. It becomes highly necessary to validate research findings as a basis for the foundation of clinical practice (Waltz et al., 2017). A social support psychometrically sound measure having adequate estimated reliability and validity is highly needed among ethnically diverse groups.

**Data Availability**

Data are available from the corresponding author upon request.

**Disclosures**

No disclosures.

**Conflict of Interest**

The author declares that there are no conflicts of interest regarding the publication of this article.

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