

## Hindi Adaptation and Psychometric Properties of Social Connectedness Scale- Revised for Youth with Disabilities

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**Background:** Social Connectedness is a significant protective factor for everyone's psychological health. The social connectedness scale (SCS-R; Lee et al., 2001) assesses social connectedness and dysfunctional interpersonal behaviours of individuals. The Hindi adaptation and psychometric properties of the SCS-R scale still do not exist on the basis of the literature review. Therefore, the study aimed to validate the SCS-R in the Hindi language in Indian context among persons with disability.

**Method:** The original items of the SCS-R were translated into Hindi using translation and back-translation methods. The language adaptation process was modified by administering the Hindi version of the SCS-R, along with the Multidimensional Perceived Social Support Scale, Ryff's Psychological Well-being scale, and Rosenberg Self-esteem Scale, to 108 students with mobility disabilities using a purposive sampling method. Participants aged 18-30 years were included, and psychometric properties were examined.

**Results:** Cronbach's alpha coefficient for the Hindi version of the SCS-R was found to be  $\alpha = 0.80$ , and split-half reliability was reported as 0.60. The concurrent validity of the SCS-R was also adequate, as the correlation coefficients of the Hindi version of SCS, MPSSS, PWB scale, and RSES range between 0.25 to 0.59. SCS-R.

**Conclusion:** This scale can be used in social rehabilitation practice to identify and prevent the specific needs and challenges of students with disabilities. The Hindi version of the SCS-R is a reliable and valid psychometric measure for evaluating the social connectedness of students with mobility and disabilities.

**Keywords:** Social connectedness, social support, psychometric properties, and Hindi adaptation.

Social connectedness is defined as "the extent to which a person feels belonging, attachment, relatedness, togetherness, or entrenchment in one's social relationships." It is defined as subjective sentiments and attitudes towards oneself in connection to the social situation, rather than to specific interactions (Santini et al., 2015, p. 54). Social connectedness is also referred to as a person's subjective perception of being in intimate interaction with the social and personal environment as a whole (Lee and Robbins, 1995). As people meet their need for belonging and connection, they build a steady, comfortable feeling of connectivity (Baumeister & Leary, 1995). Social connectedness is linked to, but separate from, emotions of loneliness and isolation (Hawkey, Browne, & Cacioppo, 2005).

The three main components of social connectedness are socialising, social support, and sense of belonging (Crisp, 2010). Numerous studies demonstrate the effects of these social factors on people's overall well-being, including their subjective well-being, physical and mental health, employment prospects, and academic achievement (Jones, 2022). The precise manner in which social connectivity affects well-being is dependent on several other variables, including personality type, social identity strength, and the social norms within one's network. Young adults and older persons, those with low socioeconomic status, those from unstable households, single parents, those with poor health or disabilities, and those living alone all seem to be at risk of having inadequate relationships with others, resulting in outcomes (Prioste et al., 2019).

Based on the social capital and social network approach, throughout their lives, everyone participates in many social networks. These networks include inherited ties, family networks, and chosen relationships with individuals from different backgrounds. These networks have a direct and indirect impact on the attitudes of the persons, beliefs, and actions of the persons (Vacchiano & Spini, 2021). Social networks are a way of understanding social life that emphasizes the interactions between the entities that make up the network system (Scott, 2012). Social networks depict links (ties) between people's personal beliefs and social interaction. Social Network Analysis (SNA) allows for the systematic investigation of network architecture and its effects on diverse outcomes such as mental health and social cognition of psychological and emotional state (Clifton & Webster, 2017; Rosenquist et al., 2011; Smith & Christakis, 2008). It has been reported that societies and groups with strong connections have been proven to have higher levels of prosperity, subjective health, and well-being from their participation in these networks of ties (Helliwell & Putnam, 2004; Putnam, 2000). Students with disabilities have specific needs and challenges; therefore, they have more chances to develop maladjusted social and interpersonal relationships with the environment. In this situation, people with disabilities can cope with these circumstances using proactive coping strategies, including social connections and resilience (Richards, 2015).

The social connectedness scale was originally developed by Lee et al. (1995), while the social connectedness scale was revised in 2001. SCS-R (2001) is used frequently, and the relevance, applicability, and effectiveness of this scale can be assumed by the translation and adaptation of the SCS that have been done in various languages and participants, i.e., Argentinean (Moran et al., 2022), Italian (Capanna, 2013), Brazilian (Soares et al., 2023), and American students (Yoon et al., 2012). However Hindi translation of this scale is not available, so it is difficult to use this scale among Hindi-speaking population. Thus, this study aimed to systematically translate the social connectedness scale into Hindi and explore its psychometric properties in the Indian setting among people with disability.

## METHODS

### Participants

This study was ethically approved by the Institutional Human Ethics Committee at Banaras Hindu University, India (I.Sc./EMC-XVIII). It was conducted at Jagadguru Rambhadracharya Divyang State University, Chitrakoot, Dr. Shakuntala Mishra National Rehabilitation University, Lucknow, and Government Blind Hostel Prayagraj, Uttar Pradesh, using a purposive sampling technique. The sample consisted of 108 participants with mobility disabilities between 18 to 30 years of age. Only those participants who had given written informed consent were included. The inclusion and exclusion criteria for the participants were as follows: Benchmark disability above 40% of impairment as per yardstick of government of India, students with mobility disabilities have been included, while students with multiple disabilities, speech and language disability, intellectual disability, chronic neurological conditions, haemophilia (blood disorders), and any history of psychiatric conditions have been excluded. The sociodemographic variables include types of disabilities, severity of disability, and onset of disability. Based on the inclusion and exclusion criteria and appropriateness of the data, 108 participants with mobility disability disabilities were selected for the study.

### Measures

#### Social Connectedness Scale-Revised (SCS-R: Lee et al., 2001)

The scale evaluates individuals' sense of social connectedness or togetherness. It includes 20 items, with an equal split of 10 positive and 10 negative items. Each item is rated on a six-point Likert scale, where scores range from 1 (strongly disagree) to 6 (strongly agree). Higher score on scale indicates greater social connectedness. The scale demonstrated high reliability, with a coefficient reported of 0.92. Notably, this scale is unidimensional, meaning it does not comprise separate subscales or dimensions.

#### Multidimensional Perceived Social Support Scale (MPSSS, Zimet et al., 1988)

The perceived social support of the participants was examined by the multidimensional scale of perceived social support, developed by Zimet et al. (1988) to assess an individual's subjective perception of social support. It has three dimensions: friends, family, and significant others. The scale consists of 12 items, with 4 items dedicated to each subscale regarding family, friends, and significant others. The MPSSS has good internal consistency, with overall coefficient alpha = 0.88, and dimension-wise coefficient alpha was Significant Other ( $\alpha = 0.91$ ), Family ( $\alpha = 0.87$ ), and Friends ( $\alpha = 0.85$ ) (Zimet et al., 1988).

#### Psychological Well-Being Scale (Ryff, 1989)

The Hindi version of the Psychological Well-Being (PWB) scale, originally developed by Ryff in 1989, was utilized to evaluate psychological well-being. This scale comprises 18 items that assess six distinct components of psychological well-being, using a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Higher PWB scores indicate greater psychological well-being. The overall internal consistency of the scale was 0.85. The Cronbach's alpha values for each dimension were as follows: self-acceptance ( $\alpha = 0.66$ ), positive relations ( $\alpha = 0.74$ ), autonomy ( $\alpha = 0.79$ ), environmental mastery ( $\alpha = 0.62$ ), purpose in life ( $\alpha = 0.78$ ), and personal growth ( $\alpha = 0.85$ ).

#### Rosenberg Self-esteem Inventory (Rosenberg 1965)

Self-esteem was assessed using the Rosenberg self-esteem scale. It consisted of 10 items that could be responded to on a 4-point Likert scale, strongly disagree (1) to strongly agree (4). The total scores on the scale range between 10 to 40. Higher scores on the scale reflect higher self-esteem. It has good internal consistency, and Cronbach's alpha was reported as 0.79 (Zhao et al., 2021)

### Procedure

In present study, standard procedure was followed to translate and validate the revised social connectedness scale. First, authorization for the Hindi modification and psychometric evaluation of the social connectedness measure was obtained from its original authors. Then the scale was translated by two bilingual researchers who were fluent in both English and Hindi and had previously translated and back-translated scales. After the translation, it was checked by researchers in psychology who were familiar with the questionnaire's premise and objectives. Furthermore, the translated items were

shared with two more researchers for back translation. To avoid biases, the back-translation work was assigned to translators who were unaware of the original English version of the scale. Finally, the original scale of SCS and translated versions were checked together to identify any inconsistencies. The backward-translated text had no apparent differences in meaning from its original scale. There were no culture-sensitive elements on the scale; hence, no culture-specific modifications were made. Following the completion of the translation of the SCS, pilot study was done, and then the psychometric evaluation of the Hindi-translated version began. The Hindi version was given to participants, along with the psychological well-being scale, Rosenberg self-esteem inventory, and multidimensional perceived social support scale to see the association between the scales.

### Statistical Analysis

Descriptive statistics, reliability analysis, and correlation analysis were computed using Statistical Package for the Social Sciences (SPSS), IBM-20 version. Cronbach's alpha coefficient and split-half reliability were computed to examine the reliability of the scale, and further Pearson correlation coefficient was performed to examine the concurrent validity of the SCS-R. This scale does not have any cut-off point for the percentile distribution of the scores.

## RESULTS

### Sample Characteristics

The sample for the present study consists of 115 students with disabilities. After checking the appropriateness of the questionnaires, 7 data were excluded due to incompleteness of responses, and 108 data were found suitable for the analysis. Participants' mean ( $\pm$ SD) age was 25.17 ( $\pm$ 3.49) years. Males with disabilities 54 (50%) and females with disabilities 54 (50%), most of the participants were post-graduates 50 (46.3%), graduates 35 (32.4%), and others, Ph.D. 23 (21.3%). 72 (65.7%) participants were disabled in later life, whereas 37 (34.3%) participants had disability by birth. The mean and ( $\pm$ SD) severity of disability of the participants was 59.37 ( $\pm$ 15.34) (**Table 1**).

**TABLE 1 Sociodemographic information of the participants (n=108)**

| Sociodemographic Variables |                 | Mean ( $\pm$ SD)     | Frequency | Percentage (%) |
|----------------------------|-----------------|----------------------|-----------|----------------|
| Age                        | Years           | 25.17 ( $\pm$ 3.49)  |           |                |
| Sex                        | Male            |                      | 54        | 50             |
|                            | Female          |                      | 54        | 50             |
| Education                  | Graduation      |                      | 35        | 32.4           |
|                            | Post-graduation |                      | 50        | 46.3           |
|                            | Others          |                      | 23        | 21.3           |
| Resident                   | Urban           |                      | 32        | 29.6           |
|                            | Rural           |                      | 76        | 70.4           |
| Onset of Disability        | By Birth        |                      | 37        | 34.3           |
|                            | Later life      |                      | 71        | 65.7           |
| Severity of Disability     | 40-100          | 59.37 ( $\pm$ 15.34) |           |                |

The mean and SD of each item are described in **Table 2**. Skewness and kurtosis have also been examined to see the dispersion of the items. Cronbach's alpha is presented in each item, and further, Pearson's correlation is presented between item-wise correlation coefficient with total correlation coefficient of SCS-R.

**TABLE 2 Item-wise Mean, SD, Skewness, Kurtosis, Alpha Coefficient, and Correlation (r) of the SCS-R**

| SCS-R-20 Items                                                                                         | Mean | SD   | Skew  | Kur   | $\alpha$ | Item (r) with Total (r) |
|--------------------------------------------------------------------------------------------------------|------|------|-------|-------|----------|-------------------------|
| *मैं लोगों से दूरी महसूस करता/करती हूँ।<br>I feel distant from people.                                 | 4.20 | 1.47 | -.97  | .28   | 0.79     | 0.51                    |
| *मैं अधिकांश लोगों से जुड़ा हुआ महसूस नहीं करता/करती हूँ।<br>I don't feel related to most people.      | 4.01 | 1.62 | -0.51 | -0.71 | 0.79     | 0.40                    |
| *मैं स्वयं को बाहरी व्यक्ति (गैर) की तरह महसूस करता/करती हूँ।<br>I feel like an outsider.              | 4.36 | 1.33 | -0.81 | 0.41  | 0.78     | 0.56                    |
| *मैं खुद को अकेला पाता/पाती हूँ।<br>I see myself as a loner.                                           | 4.30 | 1.48 | -0.92 | .05   | 0.79     | 0.44                    |
| *मैं अपने आस-पास की दुनिया से कटा हुआ महसूस करता हूँ।<br>I feel disconnected from the world around me. | 4.11 | 1.54 | -0.72 | -0.29 | 0.79     | 0.48                    |

|                                                                                                                                                                |      |      |       |       |      |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------|-------|------|------|
| *मुझे नहीं लगता कि मैं किसी व्यक्ति के साथ या समूह में भाग लूं।<br>I don't feel I participate with anyone or any group.                                        | 4.43 | 1.42 | -1.14 | .74   | 0.79 | 0.46 |
| मैं खुद को लोगों के करीब (जुड़ा हुआ) महसूस करता/करती हूँ।<br>I feel close to people.                                                                           | 4.63 | 1.40 | -0.92 | 0.20  | 0.79 | 0.42 |
| *यहां तक कि मैं जिन लोगों को जानता/जानती हूँ उनके बीच मुझे कोई संबंध नहीं महसूस होता/होती है।<br>Even around people I know, I don't feel that I really belong. | 4.50 | 1.45 | -1.04 | 0.47  | 0.79 | 0.45 |
| मैं अपने हम उम्र साथियों से संबंध रखने में सक्षम हूँ।<br>I am able to relate to my peers.                                                                      | 4.59 | 1.52 | -0.86 | -0.12 | 0.79 | 0.52 |
| *मुझे लगता है कि समाज के साथ मेरा संबंध कमजोर होता जा रहा है।<br>I catch myself losing a sense of connectedness with society.                                  | 4.50 | 1.30 | -1.13 | 1.16  | 0.79 | 0.37 |
| मैं दूसरों के साथ जुड़ने में सक्षम हूँ।<br>I am able to connect with other people.                                                                             | 4.69 | 1.24 | -0.65 | -0.01 | 0.78 | 0.57 |
| मुझे लगता है कि जिन लोगों को मैं जानता/जानती हूँ वे मुझे समझते हैं।<br>I feel understood by the people I know.                                                 | 4.64 | 1.41 | -0.90 | 0.12  | 0.79 | 0.54 |
| मैं लोगों को मित्रवत और उत्साहपूर्ण के भाव से देखता/देखती हूँ।<br>I see people as friendly and approachable.                                                   | 4.78 | 1.17 | -0.59 | -0.28 | 0.79 | 0.49 |
| मैं नई परिस्थितियों में खुद को ढालने में उपयुक्त हूँ।<br>I fit in well in new situations.                                                                      | 4.73 | 1.35 | -0.74 | -0.36 | 0.79 | 0.52 |
| *मैं अपने हम उम्र साथियों के साथ बहुत कम एकजुट (जुड़) हो पाता/पाती हूँ।<br>have little sense of togetherness with my peers.                                    | 3.35 | 1.49 | -0.94 | 0.11  | 0.79 | 0.50 |
| मेरे मित्र मुझे परिवार की तरह लगते हैं।<br>My friends feel like family.                                                                                        | 4.68 | 1.28 | -0.99 | 0.77  | 0.79 | 0.50 |
| वास्तव में मैं खुद को लोगों के जीवन में जुड़ा हुआ महसूस करता/करती हूँ।<br>I find myself actively involved in people's lives.                                   | 4.40 | 1.46 | -0.70 | -0.29 | 0.79 | 0.51 |
| *यहां तक कि मेरे मित्रों के बीच भाई-बहन जैसा कोई नाता नहीं है।<br>Even among my friends, there is no sense of brother/sisterhood.                              | 4.63 | 1.37 | -1.25 | 1.31  | 0.80 | 0.29 |
| संसार के साथ मेरा ताल-मेल (सामंजस्य) ठीक है।<br>I am in tune with the world.                                                                                   | 4.47 | 1.33 | -1.06 | .94   | 0.80 | 0.32 |
| मैं अजनबियों की उपस्थिति में खुद को सहज महसूस करता/करती हूँ।<br>I feel comfortable in the presence of strangers.                                               | 4.37 | 1.43 | -0.54 | -0.60 | 0.80 | 0.35 |

#### \* Negative Items (Reverse coded)

**Abbreviations-** Kur, Kurtosis; r, Correlation coefficient; SCS-R, Social Connectedness Scale-Revised; SD, Standard Deviation; Skew, Skewness;  $\alpha$ , Alpha Coefficient.

#### Reliability

The reliability of the scale was assessed by using the Cronbach's alpha coefficient. The high Cronbach alpha coefficient values for the full scale were found to be  $\alpha = 0.80$ , and McDonald's omega (W) was 0.72, estimated at 95% confidence interval. It indicates that the SCS-R has adequate internal consistency. Internal consistency was also assessed using split-half methods reported as  $r=0.60$ ,  $p=0.01$ . It indicates satisfactory internal consistency of the scale.

#### Concurrent validity

To examine the concurrent validity of the scale correlation coefficient was performed among the obtained responses of SCS-R with PWB scale, MPSSS, and RSES (Table 3). The Pearson correlation coefficient result was reported as satisfactory validity of the present scale. It has been reported that SCS-R was significantly associated with PWB ( $r=0.25$ ,  $P=0.01$ ), self-esteem ( $r=0.44$ ,  $P=0.01$ ), and MPSSS ( $r=0.59$ ,  $P=0.01$ ).

**TABLE 3 Correlation with the Hindi version of the SCS-R with scales of PWB, Self-esteem, and MPSSS**

| Variables                | Tools     | N   | Social Connectedness | p-value |
|--------------------------|-----------|-----|----------------------|---------|
| Psychological Well-being | PWB Scale | 108 | 0.25***              | < 0.001 |
| Self-esteem              | RSEI      | 108 | 0.44***              | < 0.001 |
| Perceived Social Support | MPSSS     | 108 | 0.59***              | < 0.001 |

\*\*\* <0.001; **Abbreviations:** PWB, Psychological well-being; RSEI, Rosenberg Self-esteem Inventory; MPSSS, Multidimensional Perceived Social Support Scale.

## DISCUSSION

This study was conducted to adapt and validate the SCS-R in the Hindi language. For linguistic adaption for this scale forward and back-forward methods have been used (Talbert et al., 2013; Maki et al., 2015). In this process, recommended guidelines were used for the translation focusing on the conceptual and cross-cultural equivalence of SCS-R (Wang et al., 2006).

The Hindi version of SCS-R has been well-validated to be a valid and reliable scale. Cronbach's alpha values for the entire scale ( $\alpha = 0.80$ ) were obtained; the items of the Hindi version of the scale are homogenous and adequate, and each item was significantly associated with the total coefficient (range between 0.36 to 0.59). Furthermore, the concurrent validity was also examined using the Pearson correlation coefficient. As the literature shows social connectedness is a positive construct, therefore, it was performed in association with positive variables, i.e., psychological well-being, self-esteem, and perceived social support. SCS-R was significantly associated with psychological well-being ( $r = 0.23$ ), self-esteem ( $r = 0.36$ ), and social support ( $r = 0.59$ ).

The reliability of this scale was found to be good and acceptable for measuring connectedness and dysfunctional behaviours of students with disabilities. Inter-item correlation was found to be adequate and satisfactory, along with adequate concurrent validity. SCS-R was significantly and moderately positively associated with perceived social support, as people with disability have low levels of connectedness; therefore, they get lower social support from the family and significant others. Several findings have suggested that feelings of isolation, low social support, diminished self-esteem, and psychopathology can gradually lead to a lower quality of life and reduced social connectedness (Arslan, 2017; Shaikh & Pratika, 2022; Asante & Karikari, 2022; Asante & Castillo, 2018).

Social connectedness was significantly and positively associated with the self-esteem of students with disabilities, as they have low self-esteem and report lower social connectedness. Several studies have reported that social connectedness can lead to self-esteem that facilitates higher levels of psychological well-being among university students (Rehman et al., 2021). It has also been reported that social connectedness was significantly and positively associated with psychological well-being (Yelpaze et al., 2021). Because people with disability reported lower levels of social connectivity, therefore they had more chances to develop social isolation and lack of social inclusion, which in turn may lead to poor psychological well-being. It is noteworthy that the correlation coefficients among these test scores are significant but moderate and lower in strength. This moderate correlation may be attributed to the influence of various other factors on an individual's social support, psychological well-being, and self-esteem. Especially, the social support scale has a significant moderate correlation with social connectedness. Because of social support encompasses the practical, emotional, and informational aid provided by others, which helps individuals manage stress and face challenges in dimensions like family, friends, and significant others. On the other hand, social connectedness refers to a sense of belonging and the feeling of being part of a community or group, focusing on the quality and depth of relationships rather than specific supportive actions (Cornwell et al., 2008). Thus, while both constructs are related, they are still distinct from each other.

It was observed that human connectedness significantly influences the outcome variables of mental and physical health, suggesting that it can serve as a strong protective factor against the deterioration of cognitive function and physical and mental health in the elderly (Xu et al., 2021). In addition, social connectedness can facilitate a fruitful sense of self and belonging, and it was negatively associated with mental health issues, i.e., anxiety, stress, and depressive symptoms, and positively associated with mental and emotional wellness (Wickramaratne et al., 2022).

Psychometric properties of this whole scale were found to be good, acceptable, and fruitful for assessing the social connectedness and dysfunctional interpersonal behaviours of students with disabilities. It has been reported that the validation process was done by Watts et al. (2022) and Lee and Robbins (1998), and it has been concluded that the above psychometric properties of this nature were reliable and valid for participants. Moreover, it is suspected that the discovered structural variations are also related to cultural settings, namely spirituality, connectedness, open communication, and dependent resources of society. However, these findings suggest that methods may be used to get diverse viewpoints, which is an intriguing development for the subject of disability and social atmosphere (Gardiner et al., 2019).

It has some limitations. Firstly, the sample size was fairly small. Additionally, the cross-language equivalence of the scale was not assessed. The Hindi version was validated exclusively for students with mobility disabilities. Consequently, future research could validate this tool for students without disabilities and those with other types of disabilities, such as speech and language disabilities, intellectual disabilities, and psychiatric patients.

## Conclusion

Social connectedness is a significant protective factor for mental health, quality of life, and connectivity with the social environment of people with disabilities. This factor helps to improve the quality of life and psychological well-being, and

also facilitates coping with the mental health problems of students with disabilities. Although this study would be helpful for rehabilitation psychologists, clinical psychologists, counsellors, social workers, and other disability service providers in measuring the social connectedness of people with disabilities. Based on the findings of the present study, the Social Connectedness Scale-Revised can now be utilized for further research among Indian adults, advancing the field of interpersonal behaviour and enhancing the understanding of this construct in India, which would allow rehabilitation professionals to address the need for social connectedness in practice.

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