

Cancer Specific Interpersonal Relationship Scale (CANSIRS): Construction and Preliminary Validation

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Cancer interrupts the life of the person diagnosed with the disease and their caregivers, it may also result in change in activities such as social and general stability of the life of both patients and caregivers. These changes have potential ramifications for relationship adjustment and the ways in which the patients and caregivers relate to and support one another. Therefore, our main objectives were to construct a self-report scale to measure the interpersonal relationship between patients with cancer and their caregivers and examine the different psychometric issues as well as to establish preliminary validation in the development of this scale. Two hundred and fifty dyads consisting of patient with breast cancer, head and neck cancer and their family caregivers were selected. Findings indicated that majority of the dimensions for both Form A and B of CANSIRS have high alpha coefficient. The results of factor analysis and preliminary validation were also discussed. The present study findings show that the scale developed with further factor analytic research, could become useful clinical tools.

Keywords: Interpersonal, Relationship, Scale, Cancer, Caregivers.

Cancer shows its effect not only in biological, but also in psychosocial aspects of a person's life. In addition to the patient, its effects are observed many times in the patient's family, friends, and close relations. Patients as well as their family members or caregivers must make many changes and adjustments in their lives to adapt to the new situation and its effects. Studies have shown that level of adjustment of patients with cancer tends to moderately correlate with the level of adjustment of their partners (Hodges, Humphris, & Macfarlane, 2005; Northouse, Templin, Mood, & Oberst, 1998; Thornton, Perez, & Meyerowitz, 2004). The life of the patients and their caregivers are disrupted by cancer as it brings with it a complete alteration in their plans, priorities, identity, roles, responsibilities, needs, and day to day functioning (Padmaja, Vanlalhruii, Rana, Tiamongla, & Kopparty, 2017). Cancer may also result in change in social activities and general stability of the patient and partner; these changes have prospective ramifications for relationship adjustment and the ways in which they relate to and support one another (Burman & Margolin, 1992; Blanchard, Albrecht, & Ruckdeschel, 1997; Mane, 1998; Oberst & Scott, 1988).

For patients suffering from cancer, the social support is an important determinant for their ability to live with illness (Bernard, Zynarska, & Adamek, 2010). The providers of this support are more often their family members who are also their primary caregivers. These primary caregivers mainly include spouse and blood relatives. When the patients are diagnosed with disease such as cancer their focus is likely to be towards pain, death and time they have left for them, and so on. On the other hand, family caregivers need to take care of the patient, plan for the treatment, need to do financial planning, worry about the patient's health status and at the same time try to maintain a positive attitude as well as and relationship towards the patients while they themselves are trying to adjust with their loved one's illness. Therefore, it is imperative to examine the crucial role played by interpersonal process and relationship in patients with cancer and their caregivers' psychological adjustment to cancer (Thornton & Perez, 2007).

We are aware that human beings have a general need of belongingness. This is explained as "a pervasive desire to form and maintain at least a minimum quantity of

lasting, positive, and significant interpersonal relationship" (Baumeister & Leary, 1995). Feelings of loneliness, anxiety, anger, and even depression manifests in those people who are deprived of the feeling of belongingness (Cacioppo, Bernison, Larsen, Poehlmann, & Ito, 2000; Hagerly, William, Coyne, & Early, 1996). Berscheid and Armazalzarso (2004) explain relationship as "two people whose behavior is interdependent in that a change in behavior in one is likely to produce a change in behavior of the other". Interpersonal relationship is the social association, connection, or affiliation between two or more people (Ejifigha, 2011). Interpersonal relation is defined by Braken (1993) as "unique and relatively stable behavioral patterns that exist or develop between two or more people as a result of individual and extra individual influences". At present, the focus is on the measurement of interpersonal relationship between patients with cancer and their family caregivers. The interpersonal relationship has been conceptualized and operationalized as an interactional process between the patients and their family caregivers focusing on their mutual communication, mutual relationship, ways in which they deal together with certain situations, availability, support and care for each other during illness. Interpersonal relationship is called a process because it involves a series of action between the patients and their family caregivers. This process is interactional in nature as both patients and their family caregivers share mutual responsibilities and influence each other.

Interpersonal relationship is affected by personal factors, proximity, and similarity (Essay, Uk, 2013). It was suggested by Berscheid and Regan (2016) that social environment (approval of social network and availability of alternative) and physical factors (proximity) are factors in the development and maintenance of interpersonal relationship. Research has shown a consistent link between perceived availability of social support with better psychological and physiological adaptation to major illness (Wimberly, Carver, & Antoni, 2008). It is also observed that the major source of their stress and interpersonal conflict is the social network (Rana & Hariharan, 2015). Communication problems are also commonly cited by the patients

(Gordon, et al., 1977). Patients diagnosed with cancer and their partners may have experienced significant reduction in emotion, social, and physical functioning depending on the patient's response to their cancer (Thornton, Perez, & Meyerowitz, 2004; Mane, 1998). Interpersonal relationship between patients with cancer and their caregivers is constructed as a multidimensional and complex construct. Measures such as Interpersonal Solidarity (Wheeler, 1976), Interpersonal Support Evaluation List (Cohen & Hoberman, 1983), and Fundamental Interpersonal Relation Orientation-Behavior (Schutz, 1958; Waterman, 2004) are developed to measure interpersonal relationship among general population. Scales such as The Trust in Physician Scales (Anderson & Dedrick, 1990), Psychological and Interpersonal Relationship Scale, PAIR (Swindle, Cameron, Lockhart & Rosen, 2004) and 15-item short form of PAIR (Swindle, Cameron & Rosen, 2006) for erectile dysfunction patients have been found. However, in the context of patients with cancer and their family caregivers, specific scales which measure their interpersonal relationship has not been found in literature search.

The objectives of the present study was to (i) construct a self-report scale to measure the interpersonal relationship between patients with cancer and their family caregivers from the caregiver's perspective, (ii) construct a self-report scale to measure the interpersonal relationship between patients with cancer and their family caregivers from the patient's perspective (iii) examine the different psychometric issues and (iv) establish preliminary validation of these scales.

Phases of Construction and Development

The scale was developed through three phases—item writing, content evaluation and naming and establishment of psychometric properties and preliminary validation.

Phase 1: Item Writing. Before the items were constructed, extensive review of literature on interpersonal relationship was done. Four scales on the related areas were also referred, such as Fundamental Interpersonal Relationship Orientation-Behaviour (Schutz,

1958). Interpersonal Solidarity Scale (Wheelees, 1976), Relationship Assessment Scale (Vaughn & Baier, 1999), and Dyadic Adjustment Scale (Spangler, 1976). Multiple in-depth interview sessions were also conducted with patients with cancer (diagnosed with breast cancer, head and neck cancer) and their family caregivers. Three psychologists and an oncologist having more than 10 years of experience were consulted during item writing phase. Basing on these, five major theoretical dimensions related to interpersonal relationship were identified—mutual communication, mutual relationship, attention and support, availability and providing comfort, and mutual care. Subsequently, items were written for family caregivers of patients with cancer. Initially, 50 items belonging to the five dimensions were generated. These items were revisited to increase the readability and were administered on the target group (n=20) and feedback was collected from each of the participants. Based on the feedback, some of the items were modified to improve clarity and simplicity. After modification, all 50 items were retained.

Phase 2: Content Evaluation and Naming. The scale underwent the standard process of content evaluation to find out if the scale captured the essence of interpersonal relationship. Therefore, 10 experts from the field of Psychology and Oncology were requested to read the scale. They were asked to mark each item if it was 'essential' or 'non-essential' to measure the interpersonal relationship between patients with cancer and their family caregivers. Only items that were marked essential by all the experts were retained and in this way 35 items were retained. As per the suggestion, a 5-point scale was adopted to rate each item (1= never to 5= always). The scale was named as Cancer Specific Interpersonal Relationship Scale-Caregiver and abbreviated as CANSIRS.

Phase 3: Establishment of the Psychometric Properties and Preliminary Validation

After naming, the scale was ready for pre-test to assess its initial psychometric properties and to establish preliminary validation.

Participants

Initially 290 caregivers of patients with cancer who are also their family members were contacted from regional cancer centers located in two different cities in India—Hyderabad and Aizawl. Finally, 250 dyads were selected for the study. The selected patients with cancer included patients with breast cancer (50%) and with the head and neck cancer (50%). The age of the patients with cancer ranged between 20-65 years. The patients undergoing curative treatment and having no cases of mental illness were included in the study. The 250 patients included equal number of men and women. The family caregivers included their spouses, children, or blood relations. Their inclusion criteria include age between 18-65 years and without reported history of mental illness.

Measures

In addition to the newly developed scale, two other measures—European Organization for the Treatment and Research of Cancer Quality of Life Questionnaire-QLQ-C30, version 3.0. and Caregiver Quality of Life Index - Cancer (CQOLC)—were used for establishment of psychometric properties and preliminary validation.

Cancer specific interpersonal relationship scale (CANSIRS). This newly developed scale—CANSIRS—is a self-report psychological instrument to measure the degree and kind of interpersonal relationship between patients with cancer and their family caregivers. This scale has two parallel forms—Form A family caregivers and Form B for patients with cancer. Each form consisted of 35 items measure using a 5-point scale (1= never, 2 = rarely, 3 = sometime, 4 = often, 5 = always). Each form has five dimensions—mutual communication (e.g. I talk openly with him/her about his/her illness), mutual relationship (e.g. I am close to him/her after his/her illness), attention and support (e.g. Attending on him/her creates stress for me), availability and providing comfort (e.g. I try to make him/her forget about his/her illness), and mutual care (e.g. His/her illness does not stand in the way for his/her care towards me). The score of the items of a particular dimension are

to be added to calculate the dimensions score, whereas the scale score is to be calculated by adding the score of all the dimensions. The higher the score the better is the interpersonal relationship.

European organization for the treatment and research of cancer quality of life questionnaire-QLQ-C30, version 3.0. (EORTC QLQ-C30 v. 3.0). EORTC QLQ (Aaronsen et al., 1993) was used to assess the quality of life of patients with cancer (BC and HNC). The questionnaire contains 30 items and is designed to cover a range of quality of life issues for patients with cancer. The questionnaire comprises of five functional scales (such as physical, role, emotional, cognitive and social), seven symptoms scales (such as fatigue, nausea and vomiting, pain, dyspnea, insomnia, appetite loss, constipation, diarrhea, and financial difficulties) and global health status/QoL. Except for global health status items, all other items were score using 4-point scale (1 = not at all, 2 = a little, 3 = quite a bit, 4 = very much), where as in global health status, items were rated in a scale of 1 to 7. EORTC QLQ- C30 includes items such as 'Have you had pain? Did you need rest? A high score for functional scale represents a high or healthy level of functioning, a high score for the global health status/QoL represents a high QoL. However, it should also be noted that a high score for a symptom scale represents a high level of symptomatology. Cronbach alpha coefficient of the questionnaire ranged from .54 to .86 (Aaronsen et al., 1993).

Caregiver quality of life index-Cancer (CQOLC). CQOLC (Weitzner, Jacobsen, Wagner, Friedland, & Cox, 1999) was used to measure the QoL of the family caregivers of patients with cancer. The questionnaire consisted of 35 items which were scored on a 5-point scale (0=not at all to 4= very much). CQOLC includes items such as I feel nervous, I get support from my friends and neighbors, I have developed a closer relationship with my loved one. The total score was found by addition of the item scores and the higher the score the poorer was the QoL. CQOLC was divided into four dimensions such as burden, disruptiveness,

positive adaptation and financial concern and support (Tamayo, Broxson, Munsell, & Cohen, 2010). The test-retest reliability was 0.95 and internal consistency coefficient was 0.91. In addition to this, the scale also has adequate validity.

Procedure

Before starting the study, approval of the Institutional Ethics Committee of the University where the authors work was obtained. In addition to this, permissions from the authorities of the three cancer specific hospitals were obtained. Basing on the inclusion and exclusion criteria, the participants (dyads consisting of patients and their family caregivers) were selected. During the process of selection, rapport was established, and informed consent was obtained from each member of the dyad. Such dyads were excluded, where informed consents were not given by either members or both dyad. After final selection of the participants, the measures were administered individually on each member of the dyad. The duration of the administration varied between 20 to 35 minutes (M = 25 minutes). During administrations, the doubts raised by the participants were clarified. At the end, the participants were debriefed.

Results

Reliability analysis. Data obtained were analyzed by means of reliability analysis with alpha model using IBM SPSS statistics for windows, version 20.0. Cronbach's Alpha for the total items for Form A (Caregiver's) i.e. was found to be .93. Those items where total correlation less than .30 were deleted which were item numbers 8, 21, 33, and 35.

Factor Analysis. Factor analysis using Principal Component Analysis and varimax rotation was run and those items with communalities value less than .50 were deleted. These items were 14 (Communalities=.464), 16 (Communalities = 404), and 26 (Communalities=.422). After deletion of the above mentioned seven items, factor analysis using Principal Component Analysis and varimax rotation was run again and those items with communalities which had a value less than .50 were deleted. These items were item number 17 (Communalities=.365), and item no.32 (Communalities=.431). With the

remaining 26 items, factor analysis using the Principal Component Analysis and extraction method was done and five-factors were extracted. Item numbers 9 and 20 were deleted at this stage because in rotation component matrix their value in the five-factors was less than .50. The remaining 24 items were then retained.

Five-factors were identified from the remaining 24 items. The scale explains 63.66% of the total variance, where factor one is explaining 39.66%, factor two is explaining 8.57%, factor three is explaining 5.74%, factor four is explaining 5.50%, and factor five is

explaining 4.16%. Each item loaded .50 or higher on its expected factor. The CANSIRS items, pattern and structure coefficient (factor loadings), along with reliability estimates are presented in Table 1.

After the identification of factors from the remaining 24 items, the factors were named as per their contents. Factor 1 was named as 'Mutual Communication' as all the nine items loading in this factor emphasized on perception regarding communication between the caregivers and their patients with cancer. Further, the items in this factor refer to the perception of the caregiver

Table 1: Component matrix for principal component analysis with varimax rotation of CANSIRS Caregiver's perspective

CANSIRS Items: original item number	Component				
	1	2	3	4	5
Item 6	.782				
Item 18	.780				
Item 3	.748				
Item 24	.748				
Item 15	.724				
Item 11	.704				
Item 23	.636				
Item 22	.603				
Item 12	.543				
Item 19		.824			
Item 7		.797			
Item 10		.634			
Item 13		.633			
Item 25		.557			
Item 28		.515			
Item 31			.737		
Item 29			.612		
Item 30			.567		
Item 5				.695	
Item 4				.624	
Item 27				.533	
Item 2					.695
Item 34					.618
Item 1					.558
Coefficient Alpha	.912	.867	.624	.695	.602
Number of items	9	6	3	3	3
Mean inter-item correlation	.534	.524	.361	.437	.345
Percentage of explained variance	39.67	8.58	5.75	5.50	4.16

in openness and sharing, it is the process and extent to which patients and their caregivers exchange information, ideas, feelings, news in relation to themselves and about the illness, about several facets of life like illness, financial planning, family matter etc., during the present period i. e. after the onset of illness.

Factor 2 was labeled as 'Mutual Relationship' as all the six items loading on this factor reflected on the caregiver's perception of relationship between him/her with his/her ward. The items in this factor reflected the caregiver's perception of the way in which caregivers and patients acknowledge the mutual support they share as well as trust, bonding, respect, acceptance, shared interest and values in the present situation i.e. after the onset of illness.

Factor 3 was labeled 'Attention and Support' as all three items in these factors refers to the caregiver's perception of self and partner's stress and ways of dealing with it. Factor 4 was labeled 'Availability and Providing Comfort' as the three items in this factor reflected the caregiver's perception of being available and supportive physically and emotionally during the course of the patient's illness. Factor 5 was named 'Mutual Care' as all three items in this factor reflected on the caregiver's perception of the feelings of care they give to and receive from patient being cared for.

As the investigators were interested in the perception of patients with cancer on the interpersonal relationship with their caregivers, parallel items were generated based on the 24 items retained. This patient's perspective on interpersonal relationship with their caregivers was named CANSIRS Form B (Patient's Perspective) while the caregiver's perspective was named CANSIRS Form A (Caregiver's Perspective).

Preliminary Validation of CANSIRS (Caregiver's Perspective). Pearson correlation r was run to establish correlation between the newly developed CANSIRS Form A and quality of life of family caregivers of patients with breast cancer and head and neck cancer (Table 2). Significant and negative correlations were found between CANSIRS Form A's mutual communication and caregivers' quality of life

dimensions such as burden [$r(248) = -.170$, $p < .01$], disruptiveness [$r(248) = -.336$, $p < .01$], positive adaptation and financial concern [$r(248) = -.322$, $p < .01$], and support [$r(248) = -.145$, $p < .05$]. This indicated that when the caregivers perceived increase in their mutual communication with the patient, he/she is caring for their scores in CQOLC dimension such as burden, disruptiveness, positive adaptation and financial concern, and their need of support from family and friends decreased.

CANSIRS Form A's mutual relationship was found to have significant and negative correlations with CQOLC dimensions such as disruptiveness [$r(248) = -.238$, $p < .01$], positive adaptation and financial concern [$r(248) = -.383$, $p < .01$], and support [$r(248) = -.169$, $p < .01$]. This indicated that when caregivers perceived increase in mutual relationship with the patients, their scores of disruptiveness, positive adaptation and financial concern, and their need of support from family and friends decreased.

In CANSIRS Form A, attention and support have significant and negative correlations with CQOLC dimensions such as burden [$r(248) = -.221$, $p < .01$], disruptiveness [$r(248) = -.312$, $p < .01$], positive adaptation and financial concern [$r(248) = -.519$, $p < .01$], and support [$r(248) = -.322$, $p < .01$]. This indicated with an increase in caregivers' perception of attention and support, their scores in CQOLC dimension such as burden, disruptiveness, positive adaptation and financial concern, and their need of support from family and friends decreased.

Significant and negative correlation was found between CANSIRS Form A's availability and providing comfort and CQOLC's burden [$r(248) = -.145$, $p < .05$], disruptiveness [$r(248) = -.235$, $p < .01$], and positive adaptation and financial concern [$r(248) = -.201$, $p < .01$]. This indicated that when the caregivers perceived increase in their availability and providing comfort for the patient, their scores in CQOLC dimension such as burden, disruptiveness, and positive adaptation and financial concern decreased.

In CANSIRS Form A mutual care have significant and negative correlations with

Table 2: Correlation between caregivers' perception of interpersonal relationship and their Quality of Life

Variables	Mutual Communication	Mutual Relationship	Attention and Support	Availability and providing comfort	Mutual Care
Burden	-.170**	-.101	-.221**	-.145*	-.132*
Disruptiveness	-.336**	-.238**	-.312**	-.235**	-.285**
PAFC	-.322**	-.383**	-.519**	-.201**	-.345**
Support	-.145*	-.169**	-.322**	-.121	-.190**

Note: **< .01, * < .05. PAFC-Positive Adaptation and Financial Concern

Table 3: Correlation between patients' perception of interpersonal relationship and their Quality of Life

Variables	Mutual Communication	Mutual Relationship	Attention and Support	Availability and providing comfort	Mutual Care
GHS	.063	.073	-.039	.022	.134*
Physical Functioning	.123*	.073	.059	.070	.166**
Role Functioning	.111	.072	.038	-.015	.074
Emotional Functioning	.112	.059	-.062	.027	.121
Cognitive Functioning	-.076	-.132*	-.140*	-.119	-.053
Social Functioning	.031	-.057	-.027	-.070	.140*
Fatigue	-.150*	-.134*	.054	-.060	-.132*
Nausea and Vomiting	-.045	-.036	.120	.072	-.046
Pain	-.179**	-.117	-.057	-.102	-.059
Dyspnea	-.079	.021	.163**	.013	-.028
Insomnia	-.056	-.031	-.002	.043	-.209*
Appetite Loss	-.146*	-.091	-.061	.001	-.160*
Constipation	-.083	-.080	.016	-.145*	-.041
Diarrhea	-.023	.027	-.054	-.008	.080
Financial Difficulties	-.030	.050	.067	.060	-.091

Note: **< .01, * < .05. GHS-Global Health Status

CQOLC's burden [r (248) = -.132, p < .05], p < .01], and support [r (248) = -.190, p < .01]. This disruptiveness [r (248) = -.285, p < .01], positive indicated that when the caregivers perceived adaptation and financial concern [r (248) = -.345, increase mutual care, their scores in CQOLC

dimension such as burden, disruptiveness, positive adaptation and financial concern, and their need of support from family and friends decreased.

Preliminary Validation of CANSIRS (Patient's Perspective). Pearson correlation r was run to establish correlation between CANSIRS Form B and quality of life of patients with breast cancer and head and neck cancer (Table 3). CANSIRS Form B which measures patients' perception of mutual communication has positive correlation with physical functioning [r (248) = .128, p < .05]. This indicated that with the increase in patient's perception of mutual communication there is an increase in physical functioning of the patients. Mutual Communication also has significant and negative correlations with fatigue [r (248) = -.150, p < .05], pain [r (248) = -.179, p < .01] and appetite loss [r (248) = -.146, p < .05]. As per the interpretation of EORTC QLQ-C30, when score in physical symptoms items/dimension increases it indicates more problem. So, when patients perceived an increase in mutual communication with their caregivers, their fatigue, pain and appetite loss decreased.

Patients' perspective on mutual relationship negatively correlates with cognitive functioning [r (248) = -.132, p < .05] and fatigue [r (248) = -.134, p < .05]. This indicated that when patients perceived an increase in mutual relationship, their cognitive functioning decreased. This may be because when patients perceived themselves as having good relationship with their caregivers during their illness they may depend excessively on them in terms of reasoning, planning, decision making and so on, and on issues related to their illness. As mentioned earlier, when score in physical symptoms items/dimension increases it indicates more problem. Thus, when patients perceived an increase in mutual relationship with their caregivers, their fatigue decreased.

Patients' perspective on attention and support have negative correlation with cognitive functioning [r (248) = -.140, p < .05]. When patients perceive an increase in attention and support there is decrease in their cognitive functioning. Positive correlation was found between patients' perspective on attention and support and dyspnea [r (248) = .163, p < .01].

When the patients perceived an increase in attention and support, dyspnea i.e. difficulty in breathing increased. This may be attributed to the physical state of the patient thus result in getting more attention and support from the caregivers. Significant and negative correlation was found between patients' perspective on availability and providing comfort with their constipation [r (248) = -.145, p < .05]. As mentioned earlier, when score in physical symptoms items/dimension increases it indicated more problem. So, when the patients perceived their caregiver as available and comfort is being provided to them the symptoms of constipation decreased.

Patient's perception of mutual care has significant and positive correlations with patient's global health status [r (248) = .134, p < .05], physical functioning [r (248) = .166, p < .05] and social functioning [r (248) = .140, p < .05]. This indicated that when the patients' perceived themselves as being loved, not being a burden and are caring towards their caregivers despite their illness their global health status, physical functioning and social functioning increased. Patient's perspective on mutual care was negatively correlated with fatigue [r (248) = -.132, p < .05], insomnia [r (248) = -.209, p < .05] and appetite loss [r (248) = -.160, p < .05]. As per the interpretation of EORTC QLQ-C30, when score in physical symptoms, items/dimension increases it indicates more problem. So, when the patients' perceived themselves as being loved, not being a burden and are caring towards their caregivers despite their illness they experienced less fatigue, insomnia and appetite loss.

Discussion

A study conducted by Chung and Hwang (2012) reported that patients with breast cancer and their husbands cope through mutual help, support, concern, and sharing what is important for the patient. The same study also reported that husband tries to help their wives more actively by providing care. There are studies which suggested the need to focus on patients with cancer and their caregivers open communication (Wittenberg, Borneman, Koczywas, DelFerraro & Ferrell, 2017; Bachner & Carmel, 2009), the areas where improvement in

communication are needed (Ellington, Clayton, Reblin, Donaldson, & Latimer, 2017; Kimberlin, Brushwood, Allen, Radson, & Wilson, 2004) and exploration of mutual needs of patients and caregivers (Dobrina, Vianello, Tenze, & Palese, 2015). The present tools thus add value to these suggestions. The main objective of the present study was to construct a self-report scale to measure the interpersonal relationship between patients with cancer and their family caregivers from the caregiver's perspective. The finding of this study indicates that CANSIRS has established high internal consistency. Five-factor structure—mutual communication, mutual relationship, attention and support, availability and providing comfort and mutual care—has been identified with a substantial number of family caregivers of patients with cancer.

The constructed instruments are the first of its kind to measure the perspective of both caregivers and cancer patients. Though the scales have been developed using caregivers and patients with breast cancer and head and neck cancer dyads, the instruments can be extended to any caregivers and patients suffering from cancer and other chronic diseases and is designed for use with both men and women. The scales will clarify the relationship between patients and their caregivers, it will help the researchers and practitioners in quantifying the relationship between patient and their caregivers.

In this ongoing research work, though the scales show good preliminary psychometric properties, potential users need to be aware of the limitations. Confirmatory factor analysis or other approaches needs to be done to establish construct validity. It is also necessary to establish the norms of the scales for better interpretation and understanding of the caregiver and patient's perspective. Although the scales have few limitations, the findings in this study indicate that CANSIRS Form A and B have well defined structure and high reliabilities. As with any new self-report scale, range of psychometric properties can be established for the scale.

Conclusion

In conclusion, it may be said that a strong interpersonal relationship involving mutual

communication, mutual relationship, attention and support, availability and providing comfort and mutual care between patient with cancer and their caregiver may enhance the quality of care and support provided to the patients. The present scales may be useful for assessment of interpersonal relationship of patients with cancer and their family caregivers. Based on the results of this assessment if areas which need to be strengthened in their interpersonal relationship are identified, appropriate psychological interventions may be planned. This strengthening may in turn have a positive influence on several other facets of their lives.

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