

Original Article

Running Title: Dignity Assessment Questionnaire for Iranian Cancer Patients

Received: April 08, 2020; Accepted: June 16, 2021

Development and Psychometrics of a "Dignity Assessment Questionnaire for Iranian Cancer Patients": A Mixed Exploratory Study

Samaneh Bagherian^{*}, PhD, Farkhondeh Sharif^{**♦}, PhD, Camellia Torabizadeh^{**}, PhD, Ladan Zarshenas^{**}, PhD, Abbas Abbaszadeh^{***}, PhD

^{*}*Department of Operating Room, Paramedical Faculty, Birjand University of Medical Sciences, Birjand, Iran. Shiraz University of Medical Sciences*

^{**}*Community Based Psychiatric Care Research Center. School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran*

^{***}*Department of Medical-surgical Nursing, School of Nursing and Midwifery, Academy of Medical Sciences Islamic Republic of Iran, Shahid Beheshti University of Medical Sciences, Tehran Iran*

♦Corresponding Author

Farkhondeh Sharif, PhD

Community Based Psychiatric Care Research Center,

School of Nursing and Midwifery,

Shiraz University of Medical Sciences,

Shiraz, Iran

Tel: +98 713 6474254

Email: fsharif2008@gmail.com

Abstract

Background: Respect for human dignity has been the focus of various studies on patients' health and treatment. Despite the increasing number of cancer patients, to date, the dimensions of dignity have not been fully identified for this group. This study was conducted with the aim of the development and psychometrics evaluation of a dignity assessment questionnaire for Iranian cancer patients.

Method: This mixed-method design with a sequential exploratory approach was conducted in Iran. In the first phase, a purposive sampling method was used to recruit the participants and the sampling continued until data saturation. The data were collected through individual semi-structured interviews. In the second phase, the validity and reliability of this instrument were assessed among 300 cancer patients.

Results: The dignity assessment questionnaire for cancer patients included four domains and 27 items. The domains of the questionnaire were "the performance of the treatment team", "respect for patients' personal space", "family support", and "adequate equipment and facilities". The internal consistency of the questionnaire was assessed using Cronbach's alpha coefficient and the split-half method. To confirm the stability, test-retest was utilized and the result of the interclass correlation coefficient for the entire questionnaire was 0.94.

Conclusion: A dignity assessment questionnaire has been developed based on the perception and understanding of cancer patients, their family caregivers, and oncology nurses. The findings of the present study could help healthcare providers to implement a scheme with the aim of strengthening support for and better treatment and care of cancer patients.

Keywords: Cancer, Psychometrics, Dignity

Introduction

Cancer is believed to be one of the major health challenges in several countries, as well as in Iran.^{1,2} It has become one of the main challenges faced by the Iranian healthcare system.³ Despite major advancement in medical sciences, globally, cancer has remained the most feared disease. In addition to experiencing physical harm and a potentially life-threatening condition, cancer patients also dread the pain and side effects associated with cancer treatments.^{4,5} Such experiences negatively affect the psychological health of cancer patients as well as their daily lives. Previous studies have reported additional parameters affecting cancer patients, such as excessive financial burden, long-term stress and anxiety, fear of death, Existential tensions, hopelessness, and a lack of social and financial support.⁶⁻¹⁰ These are particularly prevalent during the advanced stages of the disease, when an elevated level of physical and psychological burden is experienced.¹¹⁻¹³ Throughout the cancer phases, namely diagnosis, treatment, and rehabilitation, the patients face a variety of challenges¹⁴ which undermine their hope, aspirations, expectations, and will consequently affect their mental and emotional health.¹⁵ All the above-mentioned factors, on top of marital issues caused by the disease and uncertainty over the future, pose a danger to the dignity of cancer patients.^{16, 17} The word 'dignity' is derived from the Latin, dignitas, meaning the quality of worthiness and value.¹⁸ Various studies have highlighted the importance of respecting patients' dignity, particularly in cancer patients, during their treatment process.¹⁹⁻²¹ Dignity could help them regain their psychological, social, and financial balance; it also increases their resilience to deal with the disease.²²⁻²⁵ It has been shown that disrespect for patients' dignity has resulted in an increased level of stress and anxiety, negative emotions,

reduced cooperation, and disturbed sleep patterns. On the other hand, respect for patients' dignity has given them an identity and a sense of security,^{16, 26} reduced their stress level, improved their confidence in the treatment and satisfaction with the nursing care, shortened their length of hospital stay, and increased the effect of the care process.²⁷ Similarly, another study showed that respect for dignity has given the patients a sense of control, autonomy self-confidence, comfort, self-determination, and self-esteem and enhances patient-nurse relationships.^{28, 29} Various studies have reported that patients receiving care based on respect for their dignity could better cope with the treatment and were more satisfied with the received care.^{24, 28, 30-35}

The impairment of human dignity could affect the body, spirit, mood, morality, and spirituality of patients and expose them to stress and discomfort. Disrespect for human dignity will result in patients experiencing a sense of insecurity, humiliation, and shame, which may negatively affect the treatment outcomes and prolong hospitalization. Additional adverse health consequences, such as fear, skepticism, shock and denial, anger, hatred, indifference, sadness, and frustration, will in turn undeniably affect people's health.³⁶⁻³⁸

The previously discussed facts necessitated the development of a reliable and validated tool to evaluate the extent to which cancer patients' dignity was being respected. Recently, Bagheri et al. developed a questionnaire on patients' dignity.³⁹ Even though the questionnaire was designed to include Iranian culture and customs, it mainly focused on patients with heart failure. Similarly, other available questionnaires (for example, patient dignity inventory,⁴⁰ attributed dignity scale,⁴¹ and self-perceived dignity⁴²) have been designed to address patients with other types of diseases. Considering the specific needs of

cancer patients, we believed that the above-mentioned questionnaires were not sufficient to assess dignity in cancer patients. To the best of our knowledge, no dedicated questionnaires have been developed in Iran with a specific focus on cancer patients.

This study was conducted with the aim of the development and psychometrics evaluation of a dignity assessment questionnaire for Iranian cancer patients.

Methods

The present exploratory study was conducted from February 2017 to December 2018 in the Internal Medicine ward and Special Diseases Clinic of Vali-e-Asr Hospital (Birjand, Iran). The target populations were cancer patients, family caregivers, and nurses. The purposive sampling method was used to recruit the participants and the sampling continued until data saturation. The inclusion criteria for the patients were: those aged >18 years, awareness of their diagnosis, ability to provide rich information about the concept, physical and mental ability, and willingness to participate in the study. The exclusion criteria in the present study were the patients with mental disorders or suicidal tendencies. Since the main target population was cancer patients, the participation of family caregivers in the study was conditioned to providing full-time live-in care. The inclusion criteria for the nurses were a university degree in nursing and a minimum of five years of working experience with cancer patients. Efforts were made to select the participants with the maximum variation (age, sex, types of cancer, the time elapsed before cancer diagnosis) contributed to the diversity of experiences. Accordingly, 13 cancer patients, three family caregivers, and three oncology nurses were recruited. The data were collected through individual semi-structured interviews and analyzed using SPSS software (version 16.0).

With the permission of the participants, an audio recording of the interviews was made and the data were analyzed via the content analysis method. The initial text of the questionnaire was defined based on the interview data and similar questionnaires. Subsequently, the validity of the questionnaire was confirmed using qualitative and quantitative face validity, qualitative and quantitative content validity, and construct validity (exploratory factor analysis and convergent validity). The reliability of the questionnaire was confirmed employing the internal consistency evaluation (Cronbach's alpha coefficient and split-half technique) and stability (test-retest) methods.

To ensure face validity, the minimum sample size should be 10 participants.^{43, 44}

Qualitative face validity of the questionnaire was assessed through a review by five experienced nurses and 10 cancer patients. Their feedback resulted in certain modifications in the items of the questionnaire; however, no items were omitted. Afterwards, quantitative face validity of the questionnaire was assessed by scoring the relevancy and clarity of each item. To this end, 15 cancer patients were requested to rate each item for its importance on a point scale based on which a scoring system was developed. The items were considered appropriate if they had an impact score equal to or greater than 1.5.⁴⁵

To ensure content validity, the minimum sample size should be 10 participants.^{43,44}

Qualitative content validity of the questionnaire was assessed based on the feedback from 15 specialists with adequate knowledge and clinical experience in the field of nurse ethics, education, and tool design. To assess the quantitative content validity, the content validity ratio (CVR) was used to select the questionnaire's most important and correct items. In addition, we utilized the content validity index (CVI) to

determine the relevancy and clarity of each item on the concept of cancer patients' dignity. The kappa coefficient for inter-rater agreement without chance agreement and the total content validity (S-CVI) were also calculated. For CVI calculation, relevancy and clarity of each item was examined by experts based on a four-point scale.⁴⁶

Exploratory factor analysis and convergent validity were used to assess the construct validity of the questionnaire. Prior to factor analysis, a sample size of 50 individuals was used to analyze each item in order to determine Cronbach's alpha coefficient for the preliminary reliability, identify the items that influenced reliability, and examine the correlation among the items. 20 or more participants is known to be an acceptable sample size for item analysis.⁴⁶

In accordance with a previous study, a sample size of 5-10 individuals per item was used for factor analysis;^{44, 46} the total number of cancer patients was eight times the total number of the items. The dignity assessment questionnaire for cancer patients was evaluated in 300 cancer cases. Table 1 represents the demographic characteristics of the patients in the stage of determining the validity of structure. The mean age of the patients was 48.47±15.09 years (mean +/- SD).

Exploratory factor analysis was performed with the Kaiser-Meyer-Olkin (KMO) index and Bartlett's test (BT) of sphericity. Further analysis included the principal component analysis (PCA) with varimax rotation and scree plot with a sample size of 300 cancer patients.

The initial phase of factor analysis involved sampling quality index evaluation via the KMO test. Afterwards, the initial Eigen values (Kaiser Criterion) and scree plot were applied to determine the exact number of factors in the questionnaire. Since the number of factors was too high and the results could not be readily interpreted, the

scree plot was initially utilized to determine the extracted factors followed by exploratory factor analysis with varimax rotation. Convergent validity is defined as the similarity of different questionnaires measuring the same concept determined by their correlation ratio. In the present study, the designed questionnaire (dignity assessment in cancer patients) was correlated with the questionnaire by Bagheri et al.⁴⁷ (inherent dignity in patients with heart failure). In addition, we examined the intuitiveness of the questionnaire (floor-ceiling effect) and the scoring system.

The reliability of the questionnaire was confirmed using the internal consistency evaluation (Cronbach's alpha coefficient and split-half technique) and stability (test-retest) methods. The internal consistency and stability of the questionnaire were verified with a sample size of 300 and 50 cancer patients, respectively. To verify the test-retest reliability, the participants filled out the questionnaire twice with an interval of two weeks and the interclass correlation coefficient for each item and that for the complete questionnaire were calculated.

Ethical Considerations

The Ethics Committee of Shiraz University of Medical Sciences, Shiraz, Iran approved the present work (code: IR.Sums.Rec.1395.S1005). Prior to the interviews, the research goals and method were explained, the confidentiality of any disclosed information was guaranteed, and voluntary participation was emphasized. Written informed consent was obtained from all the participants.

Results

The findings are presented in terms of both qualitative and quantitative sections.

Qualitative section

The qualitative phase of the study involved individual interviews with the patients, family caregivers, and nurses to establish the

concept of dignity among the cancer patients. A total of 19 individuals participated in this stage of the study comprising 13 patients, three oncology nurses, and three family caregivers. The age of the participants ranged from 24 to 70 years. The mean age of the patients was 47.23 ± 1.57 years. The patients (five men and eight women) suffered from various types of cancer, namely breast, ovarian, uterine, prostate, and leukemia. The majority of the participants were married with diverse employment statuses (housewives, retired, public employees, teachers). The time elapsed prior to cancer diagnosis ranged from four months to eight years.

The analysis of the obtained data led to the extraction of 970 codes in the first step, 29 sub-categories, and 12 categories, which formed three themes as follow: patient reverence, support network patient support loop, and adequate resources resource adequacy. Accordingly, the concept was defined as "Dignity is a relative multi-dimensional concept experienced by cancer patients through respect for their dignity, access to a comprehensive support network (treatment team, family, and the society), and an environment with adequate human and physical resources."

Quantitative section

The second phase involved drafting the questionnaire to measure cancer patients' dignity. Initially, the questionnaire contained 98 items, yet this number increased to 123 items upon a literature review. Following multiple joint meetings, the research team managed to combine similar items and eventually 77 items were selected for the validity and reliability assessment phase.

An evaluation by the research team, supported by experts in tool design and language editing, led to certain modifications of the items. Face validity of the questionnaire was assessed through a review by professionals in the fields of

Persian literature and language editing, tool design, psychiatry, oncology, medical ethics, and nursing. Assessing the quantitative face validity, four items scored >1.5 and were removed from the question list.

Subsequently, the remaining 73 items were used in the qualitative face validity assessment. Following further evaluation, supported by experts in questionnaire design and nursing, the items in the list reduced to 49 after combining similar items. The calculation of the CVR value led to the elimination of 11 items scoring less than 0.49. According of lawshe table, the acceptable CVR was reported as 0.49.⁴⁸ The remaining 38 items were then assessed using the CVI (0.78 cut-off), in which all the items scored above the minimum required level. In this study, $CVI > 0.78$ was considered to be appropriate.⁴⁶ In addition, the calculated Kappa coefficient and the S-CVI of 0.99 were classified as excellent.

The reliability of the questionnaire, with a sample size of 50 individuals, was assessed based on Cronbach's alpha coefficient (0.95). The analysis of the items in terms of their correlation coefficient with the total score resulted in the elimination of two items. The remaining 36 items had a correlation with at least one other item (range: 0.2-0.3) and no further items had to be combined.

The construct validity of the questionnaire, as part of the first stage of factor analysis, was evaluated with the KMO index test. The result showed a sampling adequacy index of 0.889, which was also confirmed with the BT test of sphericity with significance at $P < 0.001$ (Table 2). To determine the exact number of the constructs of the questionnaire, the initial eigenvalues (Kaiser Criterion) and the scree plot were employed. The results indicated that the initial analysis using eigenvalues >1 together with eight factors accounted for 63.84% of the observed variance. The scree plot also

implied that the major variance was assigned to the first factor and the chart followed a flat line after the ninth factor (Figure 1). The number of factors, based on the initial eigenvalues and scree plot, were too high and the results could not be readily interpreted. Therefore, a minimum variance of 5% was used to determine the number of factors. Based on this criterion, four factors were selected for the factor analysis and the constructs and the items were assessed.

In the next stage of the exploratory factor analysis, we utilized varimax rotation (Table 3). A factor loading of 0.4 was considered as the minimum acceptable correlation between each item and the extracted domain.⁴⁵ The items with the highest correlation were grouped under the same domain. Based on the results of factor analysis, four domains were determined comprising 50.179% of the variance. Table 4 depicts the obtained variance by each factor pre- and post-rotation and the total variance determined by the four extracted factors. Following discussions among the research team, nine items with a factor loading below 0.4 or with duplicated meaning were eliminated. The remaining items were then categorized under the four domains. The items common in different domains were assigned to one of the domains based on their loading factor and the nature of the item. Eventually, the domains of the questionnaire were defined as:

1. The performance of the treatment team (14 items)
2. Respect for patients' personal space (seven items)
3. Family support (three items)
4. Adequate equipment and facilities (three items) (Table 5)

To assess convergent validity, two questionnaires ("dignity assessment in cancer patients" and "dignity assessment in patients with heart failure") were

simultaneously distributed to 100 cancer patients and the corresponding scores were correlated. The results showed an average level of correlation ($r = 0.57, P < 0.001$).

Regarding the internal consistency of the questionnaire, the Cronbach's alpha coefficient for the entire questionnaire was 0.89 and for each domain, namely the performance of the treatment team, respect for patients' personal space, family support, and adequate equipment and facilities, it was 0.88, 0.75, 0.68, and 0.71, respectively (Table 6). The results confirmed the reliability of the entire questionnaire and each domain. In addition, the split-half technique was used to re-confirm the internal consistency of the questionnaire. The correlation coefficient between the first and second half of the questionnaire was 0.83, indicating good reliability. Based on test-retest results, the interclass correlation coefficient for each domain (the performance of the treatment team, respect for patients' personal space, family support, and adequate equipment and facilities) was 0.96, 0.82, 0.86, and 0.72, respectively. This coefficient for the entire questionnaire was 0.94 with significance at $P < 0.001$. Note that a coefficient >0.8 indicates good reliability of a questionnaire. Two methods were used to assess the intuitiveness of the questionnaire, namely the average time needed to fill out the questionnaire and the percentage of people who did not respond to an item. The findings exhibited an average time of 10 minutes (range: 8 to 12) and unresponsiveness between 0 to 5%, both within acceptable levels. The results of the floor-ceiling effect showed that the minimum and maximum scores for the entire questionnaire and the domains were below 15%, indicating no floor-ceiling effect.

The scoring system for the questionnaire was based on a five-point Likert scale, namely never (1 score), seldom (2 scores),

sometimes (3 scores), often (4 scores), and always (5 scores). The total score ranged from 27 to 135 and was categorized as low (27-63), average (64-99), and high (100-135). A linear equation was applied to convert the scores into percentages.

Discussion

In the present exploratory study, we aimed to develop a dignity assessment questionnaire for cancer patients. The questionnaire contained 27 items, the validity and reliability of which were confirmed. Based on our literature review on patients' dignity and its associated factors, the developed questionnaire is currently the only available tool in Iran to assess dignity in cancer patients, which is the main strength of the present work.

In recent decades, various research activities have focused on developing tools to assess patients' dignity. Bagheri et al. (2013) developed the questionnaires "Inherent Dignity", "Social Dignity", and "Dignity Conserving Repertoire" for patients with heart failure.³⁹ Chochinov et al. (2008) developed the "Patient Dignity Inventory" (PDI) and assessed its psychometric properties.⁴⁰ In another study, Jacelon et al. provided "Attributed Dignity Scale".⁴¹ The PDI tool was mainly designed for patients in the final stages of life and was not applicable to other types of patients. As a result, Vlug et al. (2011) modified, removed, and added certain items to develop a questionnaire for assessing the factors affecting patients' self-perceived dignity.⁴²

The CVI for each item of our questionnaire was generally at an acceptable level (>0.9). It indicated an accurate process in assessing the content validity and face validity of the questionnaire using the qualitative and quantitative methods. Although Bagheri et al. adequately described the content validity and face validity processes, Chochinov and Jacelon did not report the validity or the CVI

value.³⁹⁻⁴¹ Furthermore, the study by Vlug only reported the face validity of their questionnaire and other validity assessments were not performed.⁴²

The developed questionnaire in the present study included four domains, namely the performance of the treatment team, respect for patients' personal space, family support, and adequate equipment and facilities. Based on the outcome of factor analysis, Bagheri et al. developed three questionnaires. The "Inherent Dignity" questionnaire included 24 items and three domains (inherent dignity in the family, society, and treatment environments). The "Social Dignity" questionnaire comprised 77 items and five domains (family relationship and support, social relationship and support, communication with and support from the treatment team, physical-mental-social dependency, and financial dependency). Their third questionnaire, "Dignity Conserving Repertoire", consisted of 45 items and four domains (hopefulness, spiritual-religious performance, role performance, and autonomy-acceptance).³⁹ The PDI questionnaire developed by Chochinov et al. was applied to 253 patients receiving palliative care at their final stages of life. The authors identified five domains, namely symptom distress, existential distress, dependency, peace of mind, and social support.⁴⁰ The "Attributed Dignity Scale" questionnaire developed by Jacelon et al. included 23 items and three domains (self-esteem, self-respect, and respect for others).⁴¹ In a study by Vlug et al., the response of 292 patients (suffering from diabetes, cancer, asthma, and depression) on dignity and its affecting factors was analyzed utilizing the qualitative method. Based on the results, they developed a questionnaire containing 31 items and four domains (self-assessment in relation to others, functional status, mental status, and clinical care status).⁴²

Certain items in our questionnaire had some commonality with those developed by Bagheri et al.³⁹ the domain “respect for patients’ personal space” in our questionnaire was repeatedly mentioned in the “Inherent Dignity” questionnaire. In addition, the domains “family support” and “adequate equipment and facilities” shared meaning with the domains in the “Social Dignity” questionnaire (family relationship and support, social relationship and support, communication with and support from the treatment team). The latter domain specifically mentioned the patients’ personal space. In the “Dignity Conserving Repertoire” questionnaire, autonomy-related phrases could be linked to the dimension “the performance of the treatment team” in our questionnaire. Although the “Dignity Conserving Repertoire” questionnaire is compatible with the Iranian culture, it was not in-line with the main goal of the present study and not used for measuring the dignity in cancer patients.

The domains in the Chochinov’s questionnaire were different from those of the present study; however, some phrases in PDI referred to respect for personal space and support of family, friends, treatment team, and society.⁴⁰ These phrases were also used in our questionnaire. We found no commonality between the domains concerning the “Attributed Dignity Scale” questionnaire and our questionnaire.⁴¹ It seems as though the questionnaire only addressed the domains of self-esteem, self-respect, and respect for others; meanwhile, our questionnaire extracted further domains of dignity. This could be due to the difference in the topic, the contents of the questionnaires, and the type of patients. The domain “clinical care status” as reported by Vlug et al. included references to respect, privacy, and patients’ support from the treatment team. These were in-line with the phrases in our study.⁴²

Similar to the reviewed questionnaires in other studies, the results of the present paper revealed high reliability of our questionnaire. Bagheri et al. reported the internal consistency of their “Inherent Dignity” questionnaire with Cronbach’s alpha coefficient ($\alpha = 0.94$) and its reliability with the split-half technique ($r = 0.96$). These were $\alpha = 0.97$ and $r = 0.99$ for the “Social Dignity” and $\alpha=0.96$ and $r=0.98$ for the “Dignity Conserving Repertoire” questionnaires.³⁹ For the PDI questionnaire, Chochinov et al. reported an internal consistency ($\alpha = 0.93$) and test-retest reliability of 0.85 (with 24-hour interval).⁴⁰ Jacelon et al. reported the internal consistency of the dimensions of “Attributed Dignity Scale” questionnaire to range between 0.39 to 0.85.⁴¹ For note, Vlug et al. did not report the validity and reliability of their questionnaire.⁴²

A literature review on patients’ dignity questionnaires indicated that the majority of the designed and validated tools did not fully evaluate the psychometric properties. The main limitation of such studies is the small sample size or exclusion of face validity, construct validity, content validity, and/or reliability assessments. In addition, they did not examine the floor-ceiling effect, which is the main criterion for validating a questionnaire. In the present study, the developed “Dignity Assessment in Cancer Patients” questionnaire had an acceptable level of validity and reliability. The main strength of the study is the determination of tool intuitiveness using the floor-ceiling effect. The developed questionnaire contains an appropriate number of items that facilitate its use and can be applied as an effective tool for assessment of dignity in cancer patients. One of the main limitations of the present study was that the participants were solely recruited from public health care centers. The inclusion of cancer patients from private centers would have broadened

the scope of the study. In addition, the data were collected through individual interviews during the first phase of the study. Utilizing other data collection methods would have led to a richer outcome. It could be recommended that further studies on the dignity of cancer patient include private health care centers and utilize methods such as observation and focused groups besides individual interviews. The instrument developed in the present study demonstrated acceptable psychometric properties. Its usage is recommended in future research as well as educational and practical courses on the assessment of dignity in cancer patients. Furthermore, it helps the practitioners to better assess the concept of dignity and identify the needs of cancer patients and subsequently, design supportive programs to enhance dignity in such patients. It is also recommended to conduct additional research using other types of qualitative research methods in order to identify different aspects of patient dignity and the associated factors from the perspective of patients with other chronic and life-threatening diseases. Moreover, intervention studies employing the Dignity Assessment Questionnaire to promote the dignity of cancer patients could be recommended.

The obtained findings herein draw the attention of treatment teams in medical oncology departments toward maintaining the dignity of their patients and encouraged them to develop appropriate guidelines. Additionally, our findings would be positively effective on the quality of nursing care. They could encourage the treatment team not only to provide care, but also to preserve patients' dignity at the same time. The medical teams, particularly those in the oncology department, are guided to develop an appropriate action plan toward maintaining patients' dignity. Clinical and educational instructors could utilize our results to review nursing care syllabus and

include patients' dignity in teaching and training curriculum. Finally, the Iranian healthcare authorities are also provided with a set of evidence-based recommendations to provide optimal care services. A dignity assessment questionnaire was developed based on the perception and understanding of cancer patients, their family caregivers, and oncology nurses. The self-administered questionnaire consisted of four domains and 27 items. The main features of the questionnaire were an appropriate number of items, ease-of-use, simple scoring system, straightforward language, and acceptable validity and reliability. The findings of the present investigation could be conducive to implementing a scheme with the aim of strengthening support for and better treatment and care of cancer patients. It also provided guidelines for future studies to conduct dignity assessment on other types of patients.

Acknowledgments

This study is the result of the research project issued by medical universities located in Southeast of Iran. The authors sincerely thank the patients who participated in this study.

Funding

This study was funded by the Vice Chancellor for Research, Shiraz University of Medical Sciences, Shiraz, Iran (No. 12148).

Conflict of Interest

None declared.

References

1. Saeedi B, Khoshnood Z, Dehghan M, Abazari F, Saeedi A. The effect of positive psychotherapy on the meaning of life in patients with cancer: A randomized clinical

- trial. *Indian J Palliat Care*. 2019; 25(2):210-7. doi:10.4103/IJPC.IJPC_171_18.
2. Khoshnood Z, Iranmanesh S, Rayyani M, Dehghan M. Body-Mind Healing Strategies in Patients with Cancer: a Qualitative Content Analysis. *Asian Pac J Cancer Prev*. 2018; 19(6):1691-6. doi:10.22034/APJCP.2018.19.6.1691.
 3. Koiek S, Gharib A. Iran's healthcare system challenges at a glance. *Chron Dis J*. 2013;1(2):96-7. doi: 10.22122/cdj.v1i2.35.
 4. Abdollahzadeh F, Aghahossini SH, Rahmani A, Asvadi Kermani I. Quality of life in cancer patients and its related factors. *J Caring Sci*. 2012; 1(2):109-14. doi:10.5681/jcs.2012.016.
 5. Shahabi S, Fazlalizadeh H, Stedman J, Chuang L, Shariftabrizi A, Ram R. The impact of international economic sanctions on Iranian cancer healthcare. *Health Policy*. 2015; 119(10):1309-18. doi:10.1016/j.healthpol.2015.08.012.
 6. Röing M, Hirsch JM, Holmström I. Living in a state of suspension—a phenomenological approach to the spouse's experience of oral cancer. *Scand J Caring Sci*. 2008;22(1):40-7. doi: 10.1111/j.1471-6712.2007.00525.x.
 7. Smith HR. Depression in cancer patients: Pathogenesis, implications and treatment. *Oncol Lett*. 2015;9(4):1509-14. doi: 10.3892/ol.2015.2944.
 8. Chapple A, Ziebland S, McPherson A. Stigma, shame, and blame experienced by patients with lung cancer: qualitative study. *BMJ*. 2004;328(7454):1470. doi: 10.1136/bmj.38111.639734.7C.
 9. Khoshnood Z, Dehghan M, Iranmanesh S, Rayyani M. Informational needs of patients with cancer: A qualitative content analysis. *Asian Pac J Cancer Prev*. 2019; 20(2):557-62. doi:10.31557/APJCP.2019.20.2.557
 10. Khoshnood Z, Iranmanesh S, Rayyani M, Dehghan M. Getting out or remaining in the cage of inauthentic self: The meaning of existential challenges in patients' with cancer. *Indian J Palliat Care*. 2018;24(2):131. doi: 10.4103/IJPC.IJPC.179.17.
 11. Ripamonti CI, Buonaccorso L, Maruelli A, Bandieri E, Pessi MA, Boldini S, et al. Patient dignity inventory (PDI) questionnaire: the validation study in Italian patients with solid and hematological cancers on active oncological treatments. *Tumori J*. 2012;98(4):491-500. doi: org/10.1177/030089161209800415.
 12. Chambers SK, Dunn J, Occhipinti S, Hughes S, Baade P, Sinclair S, et al. A systematic review of the impact of stigma and nihilism on lung cancer outcomes. *BMC Cancer*. 2012;12(1):184. doi: 10.1186/1471-2407-12-184.
 13. Cataldo JK, Jahan TM, Pongquan VL. Lung cancer stigma, depression, and quality of life among ever and never smokers. *Eur J Oncol Nurs*. 2012;16(3):264-9. doi: 10.1016/j.ejon.2011.06.008.
 14. Cebeci F, Yangin HB, Tekeli A. Life experiences of women with breast cancer in south western Turkey: A qualitative study. *Eur J Oncol Nurs*. 2012;16(4):406-12. doi: 10.1016/j.ejon.2011.09.003.
 15. Nasrabadi AN, Bahabadi AH, Hashemi F, Valiee S, Seif H. Views of Iranian patients on life with cancer: a phenomenological study. *Nurs health sci*. 2011;13(2):216-20. doi: 10.1111/j.1442-2018.2011.00604.x.
 16. Bagherian S, Sharif F, Zarshenas L, Torabizadeh C, Abbaszadeh A, Izadpanahi P. Cancer patients' perspectives on dignity in care. *Nurs Ethics*. 2020;27(1):127-40. doi: 10.1177/0969733019845126.
 17. Fathollahzade A, Rahmani A, Dadashzadeh A, Gahramanian A, Esfahani A, Javanganji L, et al. Financial distress and its predicting factors among Iranian cancer patients. *Asian Pac J Cancer Prev*. 2015;16(4):1621-5. doi: 10.7314/apjcp.2015.16.4.1621.

18. Borhani F, Abbaszadeh A, Rabori RM. Facilitators and threats to the patient dignity in hospitalized patients with heart diseases: a qualitative study. *Int J Community Based Nurs Midwifery*. 2016; 4(1):36.
19. Woogara J. Human rights and patients' privacy in UK hospitals. *Nurs Ethics*. 2001;8(3):234-46. doi: 10.1177/096973300100800308.
20. Matiti MR, Trorey GM. Patients' expectations of the maintenance of their dignity. *J Clin Nurs*. 2008; 17(20):2709-17. doi: 10.1111/j.1365-2702.2008.02365.x.
21. Baillie L. Patient dignity in an acute hospital setting: a case study. *Int J Nurs Stud*. 2009;46(1):23-37. doi: 10.1016/j.ijnurstu.2008.08.003.
22. Cheraghi MA, Manookian A, Nasrabadi AN. Human dignity in religion-embedded cross-cultural nursing. *Nurs Ethics*. 2014;21(8):916-28. doi: 10.1177/0969733014521095.
23. Lin YP, Tsai YF. Maintaining patients' dignity during clinical care: a qualitative interview study. *J Adv Nurs*. 2011;67(2):340-8. doi: 10.1111/j.1365-2648.2010.05498.x.
24. Di Lorenzo R, Cabri G, Carretti E, Galli G, Giambalvo N, Rioli G, et al. A preliminary study of Patient Dignity Inventory validation among patients hospitalized in an acute psychiatric ward. *Neuropsychiatr Dis Treat*. 2017;13:177-190. doi:10.2147/NDT.S122423.
25. Julião M, Oliveira F, Nunes B, Carneiro AV, Barbosa A. Effect of dignity therapy on end-of-life psychological distress in terminally ill Portuguese patients: A randomized controlled trial. *Palliat Support Care*. 2017; 15(6):628-37. doi: 10.1017/S1478951516001140.
26. Sawada NO, Correia FdA, Mendes IAC, Coleta JAD. Personal and territorial space of the patients: a nursing ethics question. *Med Law*. 1996;15:261.
27. Walsh K, Kowanko I. Nurses' and patients' perceptions of dignity. *Int J Nurs Pract*. 2002; 8(3):143-51. doi: 10.1046/j.1440-172X.2002.00355.x.
28. Baillie L, Gallagher A, Wainwright P. Defending dignity: challenges and opportunities for nursing. London: Royal College of Nursing; 2008.46p.
29. Er RA, İncedere A, Öztürk S. Respectful care of human dignity: how is it perceived by patients and nurses? *J Med Ethics*. 2018; 44(10):675-80. doi: 10.1136/medethics-2017-104666.
30. Tadd W, Hillman A, Calnan S, Calnan M, Bayer T, Read S. Right place-wrong person: dignity in the acute care of older people. *Quality in Ageing and Older Adults (QAOA)*. 2011;12(1):33-43. doi: 10.5042/qiaoa.2011.0143.
31. Beach MC, Sugarman J, Johnson RL, Arbelaez JJ, Duggan PS, Cooper LA. Do patients treated with dignity report higher satisfaction, adherence, and receipt of preventive care? *Ann Fam Med*. 2005; 3(4):331-338. doi:10.1370/afm.328.
32. Baillie L, Matiti M. Dignity, equality and diversity: an exploration of how discriminatory behaviour of healthcare workers affects patient dignity. *Divers Equal Health Care*. 2013;10(1):5-12.
33. Mohammadi F, Rakhshan M, Molazem Z, Zareh N, Gillespie M. Caregivers' perception of dignity in teenagers with autism spectrum disorder. *Nurs Ethics*. 2019;26(7-8):2035-46. doi: 10.1177/0969733018796679.
34. Ebrahimi H, Torabizadeh C, Mohammadi E, Valizadeh S. Patients' perception of dignity in Iranian healthcare settings: a qualitative content analysis. *J Med Ethics*. 2012; 38(12):723-8. doi: 10.1136/medethics-2011-100396.
35. Torabizadeh C, Ebrahimi H, Mohammadi E, Valizadeh S. Incongruent perceptions among nurses and patients: a qualitative study of patient's dignity in Iran.

- Ethics & Behavior*. 2013;23(6):489-500. doi: 10.1080/10508422.2013.793162.
36. Mehdipour-Rabori R, Abbaszadeh A, Borhani F. Human dignity of patients with cardiovascular disease admitted to hospitals of Kerman, Iran, in 2015. *J Med Ethics Hist Med*. 2016;9:8.
37. Borhani F, Abbaszadeh A, Moosavi S. Status of human dignity of adult patients admitted to hospitals of Tehran. *J Med Ethics Hist Med*. 2014;7:20.
38. Jackson A, Irwin W. Dignity, humanity and equality: Principle of nursing practice A. *Nurs Stand*. 2011; 25(28):35-37. doi:10.7748/ns2011.03.25.28.35.c8396.
39. Bagheri H YF, Ashktorab T. Development & psychometric evaluation of dignity instruments and test of "Dignity Conserving Model" in heart failure patients[dissertation].[Tehran]: Shahid Beheshti University of Medical Sciences; 2012.355p.
40. Chochinov HM, Hassard T, McClement S, Hack T, Kristjanson LJ, Harlos M, et al. The patient dignity inventory: a novel way of measuring dignity-related distress in palliative care. *J Pain Symptom Manage*. 2008;36(6):559-71. doi: 10.1016/j.jpainsymman.2007.12.018.
41. Jacelon CS, Dixon J, Knafl KA. Development of the attributed dignity scale. *Res Gerontol Nurs*. 2009;2(3):202-13. doi: 10.3928/19404921-20090421-03.
42. Vlug MG, de Vet HC, Pasman HRW, Rurup ML, Onwuteaka-Philipsen BD. The development of an instrument to measure factors that influence self-perceived dignity. *J Palliat Med*. 2011;14(5):578-86. doi: 10.1089/jpm.2010.0513.
43. Mousazadeh S, Rakhshan M, Mohammadi F. Investigation of content and face validity and reliability of Sociocultural Attitude towards Appearance Questionnaire-3 (SATAQ-3) among female adolescents. *Iran J Psychiatry*. 2017; 12(1):15.
44. Mohammadi F, Rakhshan M, Molazem Z, Zareh N, Gillespie M. Development of parental competence scale in parents of children with autism. *J Pediatr Nurs*. 2019. doi:10.1016/j.pedn.2019.04.006.
45. Hajian S, Mehrabi E, Simbar M, Houshyari M, Zayeri F, Hajian P. Designing and psychometric evaluation of adjustment to illness measurement inventory for Iranian women with breast cancer. *Iran J Cancer Prev*. 2016;9(4):e5461. doi:10.17795/ijcp-5461.
46. Waltz CF, Strickland OL, Lenz ER. Measurement in nursing and health research. New York: Springer publishing company; 2010.p.163.
47. Bagheri H, Yaghmaei F, Ashktorab T, Zayeri F. Evaluation inherent dignity and its related factors in heart failure patients.[Persian] . *Knowledge & Health*. 2015;10(2):56-62.
48. Ayre C, Scally AJ. Critical values for Lawshe's content validity ratio: revisiting the original methods of calculation. *Meas Eval Couns Dev*. 2014;47(1):79-86. doi: 10.1177/0748175613513808.

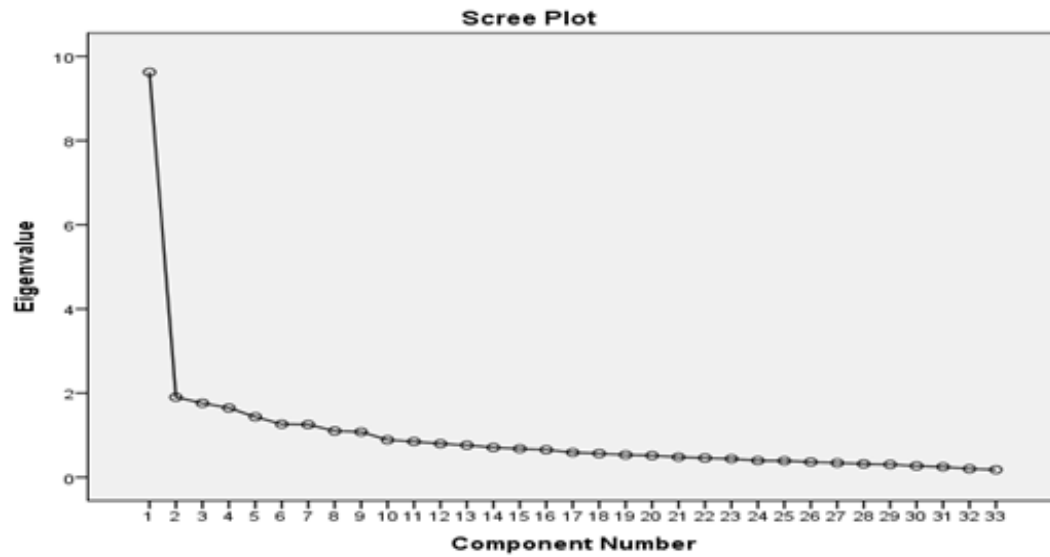


Figure 1. This figure represents the Scree plot to determine the number of components of the Dignity Assessment Questionnaire for Iranian Cancer Patients.

Table 1. Demographic and clinical features of the patients with cancer participating in the research (n=300)

Variable	Classes	No. (%)
Gender	Female	168(56)
	Male	132(44)
Marital status	single	245(81.6)
	married	30(10)
	other	25(8.3)
location	Birjand	248(82.6)
	other	52(17.3)
Level of education	Illiterate	56(18.6)
	Under-Diploma and Diploma	157(52.3)
	Collegiate	87(29)
Risk of other chronic diseases	It has	52(17.3)
	Does not have	248(82.6)
Employment status	Housewife	93(31)
	Official employed	76(25.3)
	Self-employed	52(17.3)
	retired	46(15.3)
	unemployed	12(4)
	other	21(7)
coverage health insurance	Yes	174(58)
	No	126(42)
Treatment stage	Before starting treatment	12(4)
	During treatment	127(42.3)
	Complete treatment	161(53.6)
Type of cancer	Breast	98(32.6)
	Prostate	34(11.3)
	Digestion	47(15.6)
	Bone	14(4.6)
	Lung	13(4.3)
	Hematology	41(13.6)
	Uterus and ovaries	32(10.6)
	Other	21(7)

Table 2. The Kaiser-Meyer-Olkin (KMO) index and the result of Bartlett's Test (BT) of sphericity

Bartlett's test of Sphericity	KMO measure of sampling adequacy	0.889
	Approx Chi-Square	4021/935
	Degree-of-freedom	528
	<i>P</i> -value	<i>P</i> <.001

P<.001

Table 3. Varimax factor loadings of the items of the instrument (n=300)

Item	Factor1 The performance of the treatment team	Factor2 Respect for patients' personal space	Factor3 Family support	Factor4 Adequate equipment and facilities
1. I am involved in the decision-making process about my treatment and its follow-up	0/557			
2. The treatment team did not conceal information about my illness	0/436			
3. The treatment team was fully transparent about the state of my illness	0/512			
4. The hospital staff treat my chaperon respectfully	0/586			
5. The treatment team promptly attends to the physical problems related to my illness	0/655			
6. The treatment team provides me with the required coaching (textual, verbal) about my illness.	0/640			
7. When needed, my chaperone receives the required information about my illness and treatment side-effects	0/652			
8. The treatment team fully understands my illness-related concerns about the future	0/775			
9. The treatment team gives me hope about the prospect of my illness.	0/677			
10. The physician mentally prepares me prior to the disclosure of illness-related diagnosis	0/606			
11. In my presence, the treatment team describes medical terms in a simple and understandable manner.	0/555			
12. The medical team treats me with respect.	0/607			
13. The treatment team respects my spiritual and religious beliefs	0/507			
14. The treatment team has adequate knowledge and skills to treat and care for me	0/572			
15. There is no inessential exposure of my body parts during treatment and		0/629		

care tasks				
16. Physical examinations are performed in private without the presence of others		0/682		
17. The physicians and nurses respectfully ask for my permission prior to any physical examinations		0/661		
18. Patients and visitors in my hospital room are of the same gender		0/537		
19. My preference for a physician or nurse is respected		0/534		
20. In the hospital, unnecessary and unrelated curiosity about my illness is avoided		0/538		
21. The treatment team respects the confidentiality of my medical and personal information		0/700		
22. My family and friends treat me respectfully			0/788	
23. My family provides moral support during my illness			0/809	
24. I receive financial support from my family			0/615	
25. I receive all the necessary radiation and chemotherapy treatments and disease-related drugs				0/541
26. The physical condition of the ward (lighting, cooling-heating air conditioner, etc.) is satisfactory				0/529
27. Decoration and arrangement of my hospital room are well-thought-out				0/541

Table 4. The obtained variance for each factor pre- and post-rotation

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.625	29.356	29.356	9.625	29.365	29.356	5.879	21.774	21.774
2	1.902	5.801	35.157	1.902	5.801	35.157	3.527	13.064	34.838
3	1.763	5.377	40.534	1.763	5.377	40.534	2.284	8.458	43.295
4	1.647	5.023	45.557	1.647	5.023	45.557	1.859	6.884	50.179
Extraction method: Principal component analysis									

Table 5. The four domains and 27 items of the designed dignity assessment questionnaire for cancer patients

1: The performance of the treatment team	
1.1	I am involved in the decision-making process about my treatment and its follow-up.
1.2	The treatment team did not conceal information about my illness.
1.3	The treatment team was fully transparent about the state of my illness.
1.4	The hospital staff treat my chaperon respectfully.
1.5	The treatment team promptly attends to the physical problems related to my illness.
1.6	The treatment team provides me with the required coaching (textual, verbal) about my illness.
1.7	When needed, my chaperone receives the required information about my illness and treatment side-effects.
1.8	The treatment team fully understands my illness-related concerns about the future.
1.9	The treatment team gives me hope about the prospect of my illness.
1.10	The physician mentally prepares me prior to the disclosure of illness-related diagnosis.
1.11	In my presence, the treatment team describes medical terms in a simple and understandable manner.
1.12	The medical team treats me with respect.
1.13	The treatment team respects my spiritual and religious beliefs.
1.14	The treatment team has adequate knowledge and skills to treat and care for me.
2: Respect for patients' personal space	
2.1	There is no inessential exposure of my body parts during treatment and care tasks.
2.2	Physical examinations are performed in private without the presence of others.
2.3	The physicians and nurses respectfully ask for my permission prior to any physical examinations.
2.4	Patients and visitors in my hospital room are of the same gender.
2.5	My preference for a physician or nurse is respected.
2.6	In the hospital, unnecessary and unrelated curiosity about my illness is avoided.
2.7	The treatment team respects the confidentiality of my medical and personal information.
3: Family support	
3.1	My family and friends treat me respectfully.
3.2	My family provides moral support during my illness.
3.3	I receive financial support from my family.
4: Adequate equipment and facilities	
4.1	I receive all the necessary radiation and chemotherapy treatments and disease-related drugs.
4.2	The physical condition of the ward (lighting, cooling-heating air conditioner, etc.) is satisfactory.
4.3	Decoration and arrangement of my hospital room are well-thought-out.

Table 6. The internal consistency of the sub-scales and the entire dignity assessment questionnaire in patients with cancer

Factor	Subscale	Number of items	Cronbach's alpha
1	The performance of the treatment team	14	0.88
2	Respect for patients' personal space	7	0.75
3	Family support	3	0.68
4	Adequate equipment and facilities	3	0.71
The entire questionnaire		27	0.89