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Research Article

Reliability and Validity of the Italian Version of the HOPE Scale in a Sample of Cancer Patients

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Abstract

The hope in the future is related to positive physical and mental health outcomes. The aim of this study was to measure the reliability and validity of the HOPE scale in a sample of Italian cancer patients.

Methods: One-hundred patients completed the HOPE scale and the Hospital Anxiety Depression Scale while waiting for the visit with the psycho-oncologist. Cronbach's alpha has been used as measure of reliability; the face, content and construct validity were evaluated.

Results: Cronbach alpha for internal consistency was good (0.811 for HOPE-Agency and 0.903 for HOPE-Pathways). Agency thinking and Pathways thinking resulted negatively associated with Depression (r=-0.51 and r=-0.31, respectively) and Anxiety (r=-0.29, for both). No differences emerged with respect to disease and treatment characteristics, nor between males and females.

Conclusion: Findings suggest that the scale can be used as a reliable and valid tool for the assessment of the hope in the future among cancer patients with advanced or not disease.

Keywords: Cancer; HADS; HOPE scale; Depression.

Introduction

The hope in the future is related to positive physical and mental health outcomes [1,2]. Oncologists know the importance of not taking hope away from their patients, even in the final stages of the disease, even if sometimes they do not know how to balance between telling the truth and giving hope. When the prognosis is very serious and the oncologist deems the transition to palliative care or referral to hospice appropriate, how can information are given? The task of the oncologist, like any other doctor, is to adapt the communication to the understanding capacity of the assisted person, respond to requests for clarification, and take into account the sensitivity and emotional reactivity of the patient and family members, without excluding elements of hope. In this case, hope understood not as hope to heal, but as "confident expectation of something that one hopes for", of something that happens according to one's desires. "I hope to live longer than expected", "I hope a new drug is discovered", "I hope to die at home", "I hope I don't feel pain".

Since the late 1950s, attempts have been made to define the concept and one of the first studies is that of Menninger [3]. The author defines hope "that vital and dynamic multidimensional force characterized by a realistic expectation of achieving a goal .... capable of making us look ahead" (1959). Contrasting apathy, isolation, poverty [4] and fear [5]. Johnson [6] identifies 10 essential attributes of the concept: positive expectation; personal qualities; spirituality; goals; comfort; help/caring; interpersonal relationships; control; legacy; and life review. What seems important is the multidimensionality

of the concept, the people's ability to change perspective and adapt to the life stage, and the relationship between hope in the future and psychological distress. Among the tools available to measure hope from the patient's point of view we have chosen the Hope scale developed by Snyder starting from his definition of hope.

"A positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy) and (b) pathways (planning to meet goals)" [7].

The aim of this study was to measure the reliability and validity of the HOPE scale in a sample of Italian patients with cancer and the relationship between hope, anxiety and depression.

Methods

Participants were 100 consecutive cancer patients attending for the visit with the psycho-oncologist. The study had 100% of response rate. A written consent form was signed by the participants.

The study protocol was approved by the local Ethics Committee of the Hospital Sant'Andrea of Rome.

Questionnaires

The HOPE scale is a self-report 12-item questionnaire developed to measure hope in respect of Snyder's theory [7], modulated on two specific domains, the Agency thoughts, refer to the motivation we have to undertake the routes towards our goals, and the Pathway thoughts, refer to the routes we take to achieve our desired goals and the individual's perceived ability to produce these routes [8]. Four items measure Agency (item 2, 9, 10 and 12; e.g. "I energetically pursue my goals") and four Pathways (item 1, 4, 6 and 8; e.g. "I can think of many ways to get out of a jam"). The remaining 4 items are fillers. Items are scored on an eight-point Likert scale (From definitely false to definitely true). Is possible to calculate three scores: a total hope score by summing the agency and pathway items, and two separate scores that measure Agency and Pathways independently. The total hope scale score can range from 8 to 64, agency and pathway scores range from 4 to 32. Higher scores representing higher hope levels.

The Hospital Anxiety and Depression Scale (HADS) [9] is a 14-item scale, seven for anxiety (Anxiety subscale; HADS-A) and seven for depression (Depression subscale; HADS-D) that measures emotional distress in cancer patients stem from the joint assessment of anxiety and depressive symptoms without referring to physical symptoms of anxiety and depression. It has been designed to identify cases of anxiety and depression among individuals with medical conditions. Examples of items assessing anxiety include: 'I feel tense or wound up' and of those assessing depression include: 'I have lost interest in my appearance'. Responses are scored from 0 ('not at all') to 3 ('most of the time') indicating the strength of agreement with each item. Good reliability and validity coefficients have been reported. The best threshold for mental disorders screening is 11 for both HADS subscales [9,10].

Information about gender and age were also collected.

Statistical analysis

Reliability

The internal-consistency reliability of the scales was computed as Cronbach's coefficient alpha [11], which reflects the degree to which items comprising a scale are homogeneous, or address the same construct. Value greater than 0.7 are considered adequate [12]. Conceptually, reliability is defined as "the degree to which measures are free from error and therefore yield consistent results". As such, the reliability of a scale places a limit on its construct validity.

Validity

Face and content validity of the Italian version of the HOPE, translated with the back-translation method, were evaluated by ten experts in psychology. They were requested to judge the appropriateness and relevance of items. They first evaluated the correspondence of each item with Agency and Pathways dimensions, then rated the essentiality of the items on a 5-point Likert scale from "completely not essential" to "completely essential", a higher score indicates greater agreement among the experts. As a measure of construct validity, the strength of the relationship between HOPE dimensions, HADS

subscales scores, and Thermometer of Distress has been used.

Descriptive analysis

For descriptive purposes the study's quantitative continuous variables were categorized. We have subdivided subjects into two groups with respect to years of education (<=8,;>8), HADS-Anxiety score (<11; >=11), HADS-Depression score (<11; >=11), into five groups with respect to age (27–45, 46–55, 56–65, 66–75, 76–81); into six with respect to length of the disease (0, 1, 2, 3–4, 5–7, 8+ years). A median split on the HOPE subscales was used to create two groups (low vs. high). Data are presented as proportions or means and Standard Deviations (SDs). Differences between groups were tested with Chi-squared, or Fisher exact test, and t-test, or Mann-Whitney non-parametric test. The Pearson r correlation was used to examine the relationship between variables.

Data were analysed with STATA software (Stata 11.0; StataCorp LP, College Station, TX, USA). All tests were two-tailed.

Results

The mean age was 59.25 years (SD=12.63); 63% were women. In Table 1 are shown the sample characteristics, separately for gender. Out of the 100, 41% had breast cancer, 14% colorectal cancer, 14% lung cancer and 31% other cancer; 78% had radiotherapy, 49% chemotherapy, 51% surgery. Out of the 100, 44% were classified as having anxiety and 18% were classified as having depression (scoring above the HADS cutoff of 11 for each subscale).

Table 1: Sample characteristics.

	Males (n=37)	Females (n=63)	p-value
Age (y), mean (SD)	63.16 (12.72)	56.95 (12.09)	*0.017*
Married, N (%)	33 (89.19)	47 (74.60)	*0.078*
Years of school (>13), N (%)	23 (62.16)	44 (69.84)	*0.430*
Metastasis, N (%)	26 (70.27)	50 (79.37)	*0.304*
Years since diagnosis, N (%)			*0.911*
0	6 (16.22)	12 (19.05)	
1	14 (37.84)	18 (28.57)	
2	5 (13.51)	11 (17.46)	
3–4	4 (10.81)	7 (11.11)	
5–7	5 (13.51)	7 (11.11)	
8+	3 (8.11)	8 (12.70)	
HOPE-Agency, mean (SD)	20.41 (6.53)	21.08 (6.52)	*0.619*
HOPE-Pathways, mean (SD)	20.54 (7.56)	20.75 (7.28)	*0.893*
HADS-Anxiety, mean (SD)	9.27 (3.58)	11.17 (9.27)	*0.235*
HADS-Depression, mean (SD)	7.59 (3.00)	8.46 (7.44)	*0,260*

The face and content validity were satisfactory. The ten experts (100%) agreed in attributing item 2, 9, 10 and 12 to Agency construct, and item 1, 4, 6, 8 to Pathways construct (100%). They judged item 3, 5, 7, and 11 neither Agency nor Pathways item (100%). Each item has been judged "essential" or "very essential" in relation to the content, the ratings range from 45 to 48.

The Cronbach α values (>0.7) demonstrated good internal consistency among the items (HOPE-Agency α =0.811 and HOPE-Pathways α =0.903) as the corrected item-total correlation that range from 0.734 to 0.910.

In Table 2 are reported mean, SD, corrected item-total correlation and Cronbach α of the scale if item deleted, for each item.

Table 2: Cronbach Alpha and Corrected Item Total Correlation.

	mean	SD	Corrected item-total correlation	Cronbach α if item deleted	α
Agency items					
2. I energetically pursue my goals	5.13	2.16	0.839	0.737	**0.811**
9. My past experiences have prepared me for my future	5.27	2.17	0.838	0.738	
10. I've been pretty successful in life	5.10	1.98	0.734	0.805	
12. I meet the goals that I set for myself	5.33	1.79	0.784	0.764	
Pathways items					
1. I can think of many ways to get out of a jam	5.36	2.19	0.845	0.899	**0.903**
4. There are lots of ways around any problem	5.13	2.02	0.910	0.855	
6. I can think of many ways to get the things in life that are important to me.	4.90	2.04	0.888	0.868	
8. Even when others get discouraged, I know I can find a way to solve the problem.	5.28	2.09	0.888	0.874	
HOPE total score = Agency items + Pathway items					**0.915**

The results of the Pearson correlation analysis showed a significant negative relationship between the HOPE-Agency and the HADS-Depression ($r = 0.50$, $p < 0.001$), and between HOPE-Pathways and the HADS-Depression ($r = 0.35$, $p < 0.001$) providing support for the concurrent validity of the scale.

The correlation between HADS-Anxiety and HOPE-Agency was r=-0.16 (p-value=0.110) and with HOPE-Pathways r=-0.15 (p-value=0.133).

Patients with anxiety (HADS-Anxiety score>11) had a mean HOPE-Agency score of 18.25 (SD=6.71) versus 22.86 (SD=5.60) in those with less symptoms of anxiety (p-value<0.001), and a mean HOPE-Pathways score of 18.20 (SD=7.83) versus 22.61 (SD=6.37) (p-value=0.003). Among the 37 males, 15 (41%) were cases of anxiety and the mean HOPE-Agency score was 18.13 (SD=6.74 vs mean=21.95; SD=6.05; p=0.08), the mean HOPE-pathways score was 18.07 (SD=8.62 vs mean=22.23; SD=6.41; p=0.101). Among the 63 females, 29 (46%) were cases of anxiety and the mean HOPE-Agency score was 18.31 (SD=6.81 vs mean=23.44; SD=5.29; p=0.001), the mean HOPE-Pathways score was 18.28 (SD=7.54 vs mean=22.85; SD=6.43; p=0.022).

Patients with depression (HADS-Depression score>11) had a mean HOPE-Agency score of 15.56 (SD=5.54) versus 21.99 (SD=6.14) in those with less symptoms of anxiety (p-value<0.001), and a mean HOPE-Pathways score of 16.39 (SD=6.88) versus 21.61 (SD=7.15)

(p-value=0.006). Among the 37 males, 3 (8.1%) were cases of depression and the mean HOPE-Agency score was 12.33 (SD=7.51 vs mean=21.18; SD=6.05; p=0.023). The mean HOPE-Pathways score was 15.67 (SD=10.02 vs mean=20.97; SD=7.35; p=0.250). Among the 63 females, 15 (23.8%) were cases of depression and the mean HOPE-Agency score was 16.02 (SD=5.16 vs mean=22.60; SD=6.18; p<0.001). The mean HOPE-Pathways score was 16.53 (SD=6.56 vs mean=22.06; SD=7.05; p=0.009).

Discussion

The purpose of this study was to determine the reliability and validity of the Italian version of the HOPE scale among cancer patients. The measures of the reliability were satisfactory (Cronbach's alpha > 0.7 and corrected item-test correlations), indicating that each scale items are measuring a similar concept (Agency thinking and Pathways thinking). Scores on the HOPE-Agency and the HOPE-Pathways resulted negatively correlated with scores on the HADS Depression subscale and unrelated to the HADS-Anxiety subscale, thus supporting the discriminant validity of this scale. The results showed a significant negative correlation between Agency thinking and depression, as measured by HADS) and between Pathways thinking and depression, consistent with other of studies [13, 14].

Hope in the future, in the oncological field, is of great importance. Patients seek the meaning of their life through relationships with family members and carers, through a positive spirit, through control over the symptoms and decisions to be made, thus fueling the sense of hope and adapting more easily to cancer. Communication can act as a tool to increase hope. The theory of Snyder and collaborators (1991) is sufficiently exhaustive. The authors describe hope as that unconscious motivational force consisting of two components. The first, called "Agency", indicates the mental capacity to plan the goals to be achieved, the second, "Pathway", refers to personal motivation in pursuing the set goals. Both components are necessary to increase the sense of hope. Both are severely affected by a depressive state. The study has some limitations. The first was related to the use of self-report questionnaires to elicit information from participants. The second is that only 100 patients were enrolled in the study, although no significant differences emerged from the type of cancer, treatment and years from diagnosis.

Conclusion

This study confirmed adequate psychometric characteristics of the HOPE scale in a sample of Italian cancer patients. Findings suggest that the scale can be used as a reliable and valid tool for the assessment of the hope in the future among cancer patients with advanced or not disease. Its brevity and ease make it a tool that can be used in clinical routine.

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