

Brief Methodological Report

Dimensionality, Stability, and Validity of the Beck Hopelessness Scale in Cancer Patients Receiving Curative and Palliative Treatment

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Abstract

Context. Hopelessness is a clinically important construct in patients with advanced illness.

Objectives. To evaluate the dimensionality, stability, and validity of the Beck Hopelessness Scale (BHS) in cancer patients receiving either curative or palliative treatment.

Methods. Following a longitudinal design, we assessed a sample of cancer patients receiving either curative or palliative treatment ($N = 315$) at baseline and at follow-up after 12 months ($N = 158$). In addition to hopelessness, we measured depression (Patient Health Questionnaire–9), anxiety (General Anxiety Disorder–7), and health-related quality of life (Short-Form Health Survey–8). We analyzed dimensionality, stability, and construct validity of the BHS using confirmatory factor analysis, exploratory factor analysis and correlational analysis.

Results. Independent of treatment intention, confirmatory factor analyses resulted in unsatisfactory model fits. Exploratory factor analysis yielded a two-factor solution in both groups receiving curative or palliative treatment. Factor 1 reflected pessimistic/resigned beliefs (Cronbach alpha ≥ 0.85), Factor 2 reflected positive beliefs toward the future (Cronbach alpha = 0.73). Both subscales showed significant associations with anxiety, depression, and decreased health-related quality of life. The factorial structure was partially replicated in patients being reexamined after 12 months (CMIN/DF = 2.130, Standardized Root Mean Square Residual = 0.0716, Comparative Fit Index = 0.904, Tucker-Lewis-Index = 0.883, Root Mean Square Error of Approximation = 0.085). Hopelessness scores were significantly higher in patients reporting suicidal ideation according to the Patient Health Questionnaire–9.

Conclusion. Our study demonstrates psychometric limitations of the BHS in patients receiving both curative and palliative treatment, suggesting reduced utility in cancer populations. Given the clinical importance of the construct, a cancer-specific approach to capture the unique meaning of hopelessness in patients with severe medical illness is recommended. *J Pain Symptom Manage* 2016;51:615–622. © 2016 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

Key Words

Hopelessness, Beck Hopelessness Scale, confirmatory factor analysis, advanced illness, cancer

Introduction

Hopelessness along with anxiety, depression, and decreased quality of life is one of the most frequent

psychological symptoms found in cancer patients.^{1–11} Hopelessness is associated with suicidal ideation and was found to be strongly related to the desire for hastened death in terminally ill cancer patients.^{12–16}

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Accepted for publication: November 9, 2015.

Literature reviews and recent studies indicate that cancer patients reporting depression and elevated levels of hopelessness are at higher risk for suicide.^{17–20}

The Beck Hopelessness Scale (BHS) is the most widely used measure of hopelessness in different clinical populations, including patients with advanced and terminal cancer.^{21–23} Yet, the conceptualization of hopelessness underlying the BHS items (i.e., a cognitive pattern with negative expectations about one's self and the future) causes potential problems in populations with advanced illness.²⁴ In patients with limited life expectancy, items expressing uncertainty regarding the future (e.g., Items 4 and 13, see Table 3) may reflect a realistic understanding of the medical prognosis rather than a hopeless attitude or a pessimistic cognitive style, thus decreasing the validity of the scale.^{25,26}

A few studies investigated the dimensionality of the BHS in patients undergoing palliative treatment, yielding different results with regard to the factorial structure. In patients with advanced AIDS, a three-factor solution was supported by confirmatory factor analysis (CFA), reflecting the three-factor structure of optimism, pessimism, and a lack of motivation to make changes that is commonly observed in psychiatric populations.²³ Mystakidou et al. found a one-factor solution in patients with advanced lung and breast cancer using exploratory factor analysis (EFA).²¹ Nissim et al.²⁷ proposed a two-factor model following a sequential exploratory-confirmatory approach in patients with advanced lung and gastrointestinal cancer. Both factors "negative expectations" and "loss of motivation" comprised 10 items and were highly inter-correlated ($r \geq 0.57$).

We aimed to further evaluate the dimensionality, stability, and validity of the BHS separately in cancer patients receiving curative or palliative treatment. In patients receiving palliative treatment, we expected the factorial structure to resemble the two factors reported by Nissim et al.²³ In patients receiving curative treatment, we had no specific expectation. We rather aimed to determine whether 1) irrespective of curative or palliative treatment intention, a severe medical illness is sufficient to experience uncertainty regarding the future, leading to similar factor structures and associations with psychological distress or whether 2) receiving curative treatment defines a distinct condition leading to a distinct factor structure from that found in patients receiving palliative treatment.

Methods

Sample

We recruited participants as part of a prospective observational study investigating meaning-focused

coping and mental health in cancer patients. In total, 723 eligible adult cancer patients receiving treatment with curative or palliative intention in inpatient and outpatient cancer care facilities in Northern Germany were asked to participate. Exclusion criteria included the presence of severe physical and/or cognitive impairment or a lack of German language skills that interfered with the patient's ability to give informed consent for research. All patients provided written informed consent before study participation. The study protocol was approved by the local medical association research ethics committee (reference number PV3421).

At baseline (T_1), 315 patients (44%) participated in the study. Participants were significantly younger ($P < 0.001$) than nonparticipants but did not differ in gender ($P = 0.78$). At 12-month follow-up (T_2), all participants were mailed a second questionnaire, and 158 patients (77%) could be reassessed (Table 1). Mean scores in hopelessness did not differ between participants and dropouts at T_2 ($P = 0.49$).

Measures

Demographic and medical information was gathered using standardized questionnaires and medical records.

Beck Hopelessness Scale. The BHS rates 20 items on a six-point Likert scale (from "1" fully disagree to "6" completely agree) to measure hopelessness.²⁸

Patient Health Questionnaire Depression Module (PHQ-9). The frequency of depressive symptoms is assessed with nine items.²⁹ Items are scored on a four-point scale rated from 0 (not at all) to 3 (nearly every day), with a total score ranging from 0 to 27 indicating depression severity. One item measures suicidal ideation. If patients answered this item with 1, 2, or 3, presence of suicidal ideation was coded.

General Anxiety Disorder Questionnaire-7. With seven items, the frequency of core symptoms of generalized anxiety disorder is assessed.²⁹ Items are scored analogously to the Patient Health Questionnaire-9, with a total score ranging from 0 to 21 indicating anxiety severity.

Short-Form Health Survey-8. Health-related quality of life (HRQOL) was measured with eight items; the physical health composite score (PCS) and mental health composite score (MCS) was calculated. A score of 0 indicates the lowest level of HRQOL, and a score of 100 indicates the highest level of HRQOL.³⁰

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