

PSYCHOLOGY, PSYCHIATRY & BRAIN NEUROSCIENCE SECTION

Original Research Article

Spiritual Needs among Patients with Chronic Pain Diseases and Cancer Living in a Secular Society

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Abstract

Objective. Research has shown that several patients report unmet psychosocial and spiritual needs. While most studies focus on patients with advanced stages of disease, we intended to identify unmet spiritual needs in patients with chronic pain diseases and cancer living in a secular society.

Methods. In an anonymous cross-sectional study, standardized questionnaires were provided to

German patients with chronic pain diseases (and cancer), i.e., Spiritual Needs Questionnaire (SpNQ), Spirituality/Religiosity and Coping (SpREUK-15), Spiritual Well-being (FACIT-Sp), Brief Multidimensional Life Satisfaction Scale, Interpretation of Illness Questionnaire, and Escape from Illness (Escape).

Results. We enrolled 392 patients (67% women, mean age 56.3 ± 13.6 years; 61% Christian denomination) with chronic pain diseases (86%) and cancer (14%). *Religious Needs* (mean score 0.5 ± 0.8 on the scale) and *Existential Needs* (0.8 ± 0.8 on the scale) were low, while needs for *Inner Peace* (1.5 ± 0.9 on the scale) and *Giving/Generativity* were scored high (1.3 ± 1.0 on the scale). Regression analyses indicated that *Religious Needs* can be predicted best by (religious) “Trust,” the illness interpretation “call for help,” and living with a partner; *Existential Needs* can be predicted by “call for help” and to a weaker extent by (religious) “Trust.” *Existential Needs* are influenced negatively by the illness interpretation “challenge.” Needs for *Inner Peace* were predicted only in trend by the illness interpretation “threat,” and there were no significant predictors for the *Giving/Generativity* needs in the respective regression model.

Conclusions. Patients with chronic pain diseases predominantly report needs related to inner peace and generative relatedness on a personal level, whereas needs related to transcendent relatedness were of minor relevance. Nevertheless, even religious “skeptics” can express specific religious needs, and these should be recognized. Addressing patients’ specific needs and also supporting them in their struggle with chronic illness remain a challenging task for the modern health care system.

Key Words. Spiritual Needs; Religiosity; Chronic Pain Diseases; Cancer; Coping; Interpretation of Illness; Life Satisfaction

Introduction

Most notably, Friedrich Nietzsche struggled with the sense and senselessness of pain, giving voice to the struggles which have pervaded the human experience of pain of all ages, whether they are religious or secular [1]. Facing chronic disease, many patients rely on their spirituality/religiosity (in terms of cognitive attitudes/convictions and consequential ethical commitments and formal practices) as a relevant coping resource (reviewed by [2–4])—even in secular societies [5–12]. Thune-Boyle et al. [13] pointed out that spirituality/religiosity may be beneficial for maintaining self-esteem, may provide a sense of meaning and purpose, and also provides emotional comfort and a sense of hope. Meanwhile, there is a large body of evidence which demonstrates that religious involvement is related to better psychological well-being, enhanced social support, less depression, fewer suicidal thoughts, and reduced substance abuse (reviewed in [14,15]).

Koenig [16] raised concerns about measuring spirituality in research. Traditionally, spirituality was linked to “a subset of deeply religious people,” whereas today it is “including religion but expanding beyond it.” In fact, in current health literature, many researchers have noticed a tendency to differentiate between “bad religion” and “good spirituality” [17]. One can say that modern-day spirituality is often understood as a broad concept which seems to overlap with secular concepts such as humanism, existentialism, and probably also with specific esoteric views [18–21]. Generally speaking, spirituality can be considered a person’s commitment to a higher principle, which is embodied in daily life according to implicit ethical guidelines—either within the framework of institutionalized religiosity or beyond.

If it is true that religious engagement and specific beliefs and attitudes are associated with beneficial health behavior and may be a coping resource, one has to consider that this resource might only be relevant for those with a vital religiosity and not for secular (or even agnostic/atheistic) individuals. A study among patients with rheumatoid arthritis from the United States found that these patients reported spiritual experiences “on a relatively frequent basis” [22]. A further U.S. American survey showed that more than 60% of patients with chronic pain prayed as a way to cope with pain [23]; however, German patients with chronic pain diseases demonstrate a rather low engagement in religious or spiritual mind-body practices—including prayer [7]. Despite this, German patients’ (religious) trust in a higher source of support was rather moderate, and their (spiritual) search for meaningful support and access to a spiritual source was moderate to low [7]. Thus, although the intensity of engagement or the number of patients with strong spiritual/religious convictions and beliefs might differ from more religious countries such as the United States, many patients in secular societies such as Germany also use their spirituality/religiosity as a strategy to cope with the implications of their pain disease. The 2009 review of Wachholtz and Pearce [4] summarizes empirical research

among patients with chronic pain that indicates reduced pain and higher well-being and positive affect in religious individuals.

If the individual resources to deal with the challenges of illness are insufficient to restore well-being, patients may express specific needs (i.e., for support, information, emotional comfort, effective treatment, etc.). The fulfillment of these specific needs is expected to lead to the desired effects or, with respect to Alderfer’s needs model [24], lead to a desire to focus on the fulfillment of other needs. For example, when needs for self-actualization and internal esteem cannot be fulfilled under a given situation (i.e., pain-related disability), then relations with family, friends, and religious sources would become more important. While information needs are typically met by health care professionals, patients’ psychosocial and spiritual needs often remain unaddressed because of their private nature. A recent study found that 72% of patients with advanced cancer reported spiritual needs. Not surprisingly, however, these needs were supported either minimally or not at all by the medical system, and 47% also felt minimally or not at all supported by a religious community [25].

Recently, a conceptual framework for research and clinical practice was devised. This framework distinguishes between four interconnected core dimensions of spiritual needs [26], i.e., Connection, Peace, Meaning/Purpose, and Transcendence, which correspond to the underlying categories—social, emotional, existential, and religious. This model is also consistent with Alderfer’s Existence–Relatedness–Growth (ERG) model, which includes three similar categories: Existence (i.e., physiological and safety needs), Relatedness (i.e., belongingness and external esteem needs), and Growth (i.e., self-actualization and internal esteem needs) [24].

Research has shown that several patients with chronic diseases report unmet psychosocial and spiritual needs [25,27,28]; support of these needs have been associated with positive quality of life [25,29]. However, these needs are generally neither recognized by health care professionals nor adequately addressed. When they are identified, health care professionals and patients’ relatives have the chance to react and support patients in their struggle with trauma and/or chronic conditions.

In this study, we aimed to identify unmet spiritual needs in patients with chronic pain diseases (and cancer) and among “religious skeptics,” who represent a large proportion of secular societies. In addition, we intended to identify predictors of these spiritual needs. More specifically, we were interested in whether the expression of these needs is influenced by: 1) reduced life satisfaction, well-being, and pain symptoms; 2) patients’ spiritual/religious attitudes in dealing with their disease; and 3) their positive or negative interpretation of illness. Moreover, we were interested in which needs are specified by patients lacking a religious/spiritual attitude (R-S-).

Materials and Methods

Participants

All individuals of this anonymous cross-sectional study were informed about the purpose of the study, were assured of confidentiality, and consented to participate. There were no exclusion criteria, and the only inclusion criteria were having a “chronic pain disease” (or cancer) and being “at least 18 years of age.” Ethical approval was obtained by the Institutional Review Board of Witten/Herdecke University (#74/2008).

We analyzed data of 392 patients enrolled in the Pain Clinic and Palliative Treatment of Charité University Medicine, Campus Benjamin Franklin, Berlin (58%), the Clinic for Pain and Palliative Medicine at the St. Marien-Hospital, Lünen (22%), and among patients attending a conference in Cologne (15%) and Berlin (5%), respectively. Demographic data are provided in Table 1.

Measures

Spiritual Needs (SpNQ)

To measure the patients’ spiritual needs, we used the Spiritual Needs Questionnaire (SpNQ) in its 19-item version [28]. It differentiates between four main factors:

1. *Religious Needs* (Cronbach’s alpha = 0.92), i.e., praying for and with others, praying alone, participating in a religious ceremony, reading spiritual/religious books, turning to a higher presence (i.e., God, angels).
2. *Existential Needs* (Reflection/Meaning) (alpha = 0.82), i.e., reflecting on one’s life, talking with someone about the meaning of life/suffering, dissolve open aspects in life, talking about the possibility of life after death, etc.
3. *Need for Inner Peace* (alpha = 0.82), i.e., wish to dwell at places of quietness and peace, plunge into the beauty of nature, finding inner peace, talking with others about fears and worries, turning to someone in a loving attitude.
4. *Need for Active Giving/Generativity* (alpha = 0.74), i.e., actively and autonomous intention to solace someone, passing along one’s own life experiences to others, and to be assured that life was meaningful and of value.

All items were scored with respect to self-ascribed importance on a 4-point scale from disagreement to agreement (0—not at all; 1—somewhat; 2—very; 3—extremely). For all analyses, we used the mean scores of the respective scales described above; the higher the scores, the stronger the respective needs are.

Spirituality/Religiosity: SpREUK-15

To analyze patients’ underlying spiritual and/or religious attitudes and how this resource might be used to cope, we used the SpREUK questionnaire (SpREUK is an acronym for the German translation of “Spiritual and Religious Attitudes in Dealing with Illness”). This instrument

measures spiritual/religious attitudes and convictions of individuals dealing with chronic diseases/afflictions in life [5,30,31]. The instrument avoids exclusive terms such as God, Jesus, or church, in order not to exclude anyone; thus, it is suited particularly to secular societies. For this analysis, we used the shortened 15-item version of the instrument, the SpREUK-15, which differentiates between three factors [31]:

1. *Search Scale* (Cronbach’s alpha = 0.91), or search (for support/access to SpR) deals with patients’ searching for an access/connection to spirituality/religiosity, their conviction that finding access/connection to a spiritual or religious resource may be beneficial for coping with troubles/afflictions, renewed interest in spiritual or religious issues because of their afflictions/burdening experiences, etc.
2. *Trust Scale* (alpha = 0.91), or trust (in higher guidance/source), is a measure of intrinsic religiosity. This factor deals with patients’ trust in spiritual guidance for their life, their feeling of being connected with a higher source, trust in a higher power which carries through whatever may happen, conviction that death is not an end, etc.
3. *Reflection Scale* (alpha = 0.86), or reflection (positive interpretation of disease), deals with a patient’s cognitive reappraisal of his or her life because of troubles/burdening experiences and subsequent attempts to change (i.e., reflecting on what is essential in life, changing certain aspects of one’s life, getting to oneself better). The SpREUK scores items on a 5-point scale from disagreement to agreement (0—does not apply at all; 1—does not truly apply; 2—don’t know [neither yes nor no]; 3—applies quite a bit; 4—applies very much).

For all analyses, we used the mean scores of the respective scales described above. These scores are based on a scale of 100% (transformed scale score). Scores >50% indicate higher agreement (positive attitude), while scores <50% indicate disagreement (negative attitude).

Spiritual Well-Being

Because a lack of well-being and life satisfaction can be a reason to express psychosocial and spiritual needs, we intended to measure spiritual well-being in a subgroup of patients from the hospital in Lünen. For that purpose, we used the FACIT-Sp12 [32], a 12-item instrument which avoids traditional religious terminology and does not have a particularly religious perspective [33]. Instead of the common 2-factor model, Canada et al. [34] suggested a 3-factor model for spiritual well-being, which consists of “faith,” “meaning,” and “peace”:

1. *Meaning*: i.e., have reason for living, life has been productive, purpose in life, life lacks meaning and purpose
2. *Peace*: i.e., feel peaceful, trouble feeling peaceful, feel comfort, harmony with myself
3. *Faith*: i.e., find comfort /strength in faith; difficult times has strengthened spiritual beliefs; whatever happens with illness, things will be ok.

Spiritual Needs among Chronic Pain Patients

The items were scored on a 5-point scale ranging from “not at all” (0) to “very much” (4).

Life Satisfaction

Life satisfaction was measured using the Brief Multidimensional Life Satisfaction Scale (BMLSS) [35]. The items of the BMLSS address intrinsic (i.e., myself, life in general), social (i.e., friendships, family life), external (i.e., work situation, where I live), and prospective (i.e., financial situation, future prospects) dimensions of life satisfaction as a multifaceted construct. The internal consistency of the instrument was found to be good in the validation study (Cronbach's $\alpha = 0.87$) [35]. This current study used the 10-item version, which includes satisfaction with one's health condition and ability to deal with daily concerns about life (BMLSS-10). The scale had a good internal consistency in the given population ($\alpha = 0.83$).

Each of these 10 items was introduced by the phrase “I would describe my level of satisfaction as . . .,” and was scored on a 7-point scale ranging from dissatisfaction to satisfaction (0—terrible; 1—unhappy; 2—mostly dissatisfied; 3—mixed [about equally satisfied and dissatisfied]; 4—mostly satisfied; 5—pleased; 6—delighted). The BMLSS-10 sum score was based on a scale of 100% (“delighted”). Scores $>50\%$ indicate higher life satisfaction, while scores $<50\%$ indicate dissatisfaction.

Interpretation of Illness

Because a patient's interpretation of illness can be significantly influenced by existential and religious issues [7,36], we utilized eight items from Lipowski's “Meaning of Illness” [37], a scale which was recently validated [36]. This Interpretation of Illness Scale (IIS) includes positive interpretations (i.e., challenge, value), strategy-associated interpretations (i.e., relieving break from life, call for help), but also guilt-associated interpretations (i.e., punishment, weakness/failure), and fatalistic negative interpretations (i.e., threat/enemy, interruption of life).

The items were scored on a 5-point scale from disagreement to agreement (0—does not apply at all; 1—does not truly apply; 2—don't know [neither yes nor no]; 3—applies quite a bit; 4—applies very much). For the analyses, the respective single items were used.

Escape from Illness

A depressive intention to “escape from illness” might be an indicator of a patient's struggle with disease and might also be associated with psychosocial and spiritual needs. The 3-item scale “Escape from Illness” (Escape) is an indicator of such an escape-avoidance strategy for dealing with illness (i.e., “fear what illness will bring,” “would like to run away from illness,” “when I wake up, I don't know how to face the day”) [8]. In a study involving patients with depressive disorders, we demonstrated that this Escape scale correlated strongly with depression, with disease

perceptions (appraisals) such as “weakness/failure” and “punishment,” and negatively with life satisfaction [38,39].

The items were scored on a 5-point scale from disagreement to agreement. For all analyses, we used the mean scores of the Escape scale based on a scale of 100%. Scores $>50\%$ indicate the presence of this attitude, and scores $<50\%$ represent a lack of this attitude.

Self-Perceived Health Affection

Patients' self-perceived pain perception (“symptom score”) was measured with a visual analog scale (VAS) ranging from 0 (none) to 100 (unbearable). In cancer patients, the same scale assessed perceived symptoms (either pain or physical and/or psychological afflictions).

Statistical Analyses

Descriptive statistics as well as analyses of variance, first-order correlations, and regression analyses were computed with SPSS 20.0 (IBM Corporation, Armonk, NY, USA). We considered a $P < 0.05$ as significant; for correlation analyses, we chose a significance level $P < 0.001$. With respect to the strength of the observed correlations, we regarded $r > 0.5$ as a strong correlation, r between 0.3 and 0.5 as a moderate correlation, r between 0.2 and 0.3 as a weak correlation, and $r < 0.2$ as a negligible correlation.

Results

Participants

We enrolled 392 patients (67% women, 33% men) with a mean age of 56.3 ± 13.6 years (Table 1). Sixty-one percent had a Christian denomination, 3% had a non-Christian denomination, and 36% had no denomination. Most had chronic pain diseases (86%), among them were 24 with cancer as underlying disease. To assess the impact of cancer as an underlying disease, we also included patients with cancer (14%). Neuralgia pain was predominant (75%). On average, the duration of disease was 85.5 ± 123.3 months. All further demographic data are provided in Table 1.

Patients' symptom scores (55.5 ± 21.5) indicated a moderate burden. Consequently, life satisfaction scores were rather low (56.1 ± 19.6), indicating that the individuals were not really satisfied but also not fully dissatisfied. Moreover, the Escape scores (49.6 ± 30.8) were moderate (Table 2).

Spiritual Needs in the Sample and the Influence of Socio-Demographic Variables

Because several patients would regard themselves as non-religious, some did not respond to the items of the SpNQ ($N = 24$). The following analyses thus refer to a data set of 368 patients.

Table 1 Characteristics of 392 participants

Variables	Number (%*)/ Mean
Gender, N (%)	
Women	232 (67%)
Men	116 (33%)
Age (years), mean \pm SD	56.3 \pm 13.6
Family status, N (%)	
Married	205 (54%)
Living with partner	52 (14%)
Divorced	49 (13%)
Single	54 (14%)
Widowed	21 (6%)
Educational level, N (%)	
Through Grade 9 (Hauptschule)	116 (31%)
Through Grade 10 (Realschule)	114 (30%)
High school diploma (Gymnasium)	85 (23%)
Other	60 (16%)
Religious denomination, N (%)	
Christian	226 (61%)
Other	12 (3%)
None	134 (36%)
Disease, N (%)	
Chronic pain condition	337 (86%)
Cancer	55 (14%)
Duration of disease(months), mean \pm SD	85.5 \pm 126.3
Health-associated variables; mean \pm SD, (range)	
Self-perceived health affliction (NRC)	55.5 \pm 21.5 (0–100)
General life satisfaction (BMLSS-10)	56.1 \pm 19.6 (0–100)
Escape from illness (Escape)	49.6 \pm 30.8 (0–100)
Symptom score (VAS)	57.1 \pm 20.3 (0–100)

* Percent were calculated with respect to the number of respondents.

Within this sample, *Religious Needs* were shown to be low (mean score 0.5 ± 0.8 on the scale). Half of the participants had mean scores of 0, indicating no religious needs; however, 10% of patients had mean scores ≥ 2 , indicating strong needs ($Q_{0.50} = 0.2$; $Q_{0.75} = 0.8$). *Existential Needs* also had low scores (mean score 0.8 ± 0.8 on the scale), i.e., 26% had mean scores of 0, indicating no existential needs; 11% had scores ≥ 2 , indicating strong needs ($Q_{0.50} = 0.6$; $Q_{0.75} = 1.2$). With a mean score of 1.5 ± 0.9 , needs for *Inner Peace* were indicated to a greater extent. Only 7% of participants had mean scores of 0, indicating no needs for inner peace, and 36% had scores ≥ 2 , indicating strong needs ($Q_{0.25} = 0.7$; $Q_{0.75} = 1.5$; $Q_{0.75} = 2.2$). Also, needs of active *Giving/Generativity* were indicated to a large extent (mean score 1.3 ± 1.0 on the scale). Twenty percent had mean scores of 0, indicating no needs for active giving, and 33% had scores ≥ 2 , indicating strong needs ($Q_{0.25} = 0.7$; $Q_{0.50} = 1.3$; $Q_{0.75} = 2.0$).

Next, we analyzed the influence of socio-demographic variables on the respective needs. As shown in Table 2,

women had significantly higher *Existential Needs*, *Religious Needs*, and needs for *Inner Peace* than men (Table 2). Patients living alone (either single, divorced, or widowed) had significantly higher *Existential Needs* and tended to also have higher other needs than patients living in relationship (either married or not) (Table 2). In regard to education, patients with a high school education had significantly higher needs for *Inner Peace* than patients with lower educational levels ($F = 3.1$; $P = 0.027$). With respect to age, there were no significant differences in needs (data not shown); only *Religious Needs* tended to be higher in patients >60 years of age ($F = 2.8$; $P = 0.064$). Overall, the strongest needs were found in patients with cancer. As to be expected, patients with no religious affiliation had the lowest *Religious Needs* along with lower *Existential Needs* and a lower need for active *Giving/Generativity* than patients with a religious affiliation (Table 2).

Spiritual Needs among Religious Skeptics

Because patients lacking a religious affiliation had lower needs scores, we specifically focused on their spiritual needs and relied on data from patients recruited in Berlin (located in eastern Germany) who responded to the statement “as a rational individual I do not need any belief in higher beings” ($N = 213$). Among them, 27.8% agreed (so-called “skeptics”), 54.6% disagreed, and 17.6% were undecided (neither yes nor no). Although *Religious Needs* of “skeptics” were significantly lower ($F = 10.4$; $P < 0.0001$), the intensity of *Existential Needs* ($F = 1.1$; n.s.), needs for *Inner Peace* ($F = 0.2$; n.s.) and *Giving/Generativity* ($F = 2.4$, $P = 0.097$) did not significantly differ between “skeptics” and those who disagreed with this statement (data not shown). Interestingly, a small group of the “skeptics” expressed a need to pray by themselves (13%), to attend a religious service (13%), or to have someone pray for them (10%); moreover, 24% of them stated that they have a need to be forgiven and to forgive (27%).

Variables with a Significant Impact on Spiritual Needs

As shown in Table 3, the respective spiritual needs were strongly intercorrelated and associated with patients’ underlying spiritual/religious attitudes, i.e., *Religious Needs* were strongly associated with SpREUK’s *Search* and *Trust* scales, *Existential Needs* most strongly with *Search* and *Reflection*, need for *Inner Peace* most strongly with *Reflection*, and need for active *Giving/Generativity* was moderately associated with *Search* and *Reflection*.

To assess whether a reduced quality of life/life satisfaction measures lead to greater spiritual needs, the spiritual needs from the SpNQ measure were analyzed with respect to the quality of life variables (Table 3). Patients’ symptom scores as well as the pain disability index were not significantly associated with the respective spiritual needs. Only *Existential Needs* were weakly correlated with depressive *Escape from Illness*. *Life Satisfaction* was marginally positively associated with *Religious Needs*, yet negatively with *Existential Needs* and the need for *Inner Peace* (Table 3).

Table 2 Sociodemographic variables and spiritual needs

		Religious Needs	Existential Needs	Inner Peace	Giving/Generativity
All individuals	Mean	0.54	0.77	1.45	1.29
	SD	0.78	0.77	0.87	0.96
Gender					
Women	Mean	0.65	0.84	1.54	1.28
	SD	0.81	0.78	0.86	0.98
Men	Mean	0.35	0.54	1.26	1.26
	SD	0.71	0.66	0.93	0.93
<i>F</i> -value		10.8	11.5	7.2	0.0
<i>P</i> -value		0.001	0.001	0.008	n.s.
Disease					
Chronic pain	Mean	0.44	0.71	1.34	1.23
	SD	0.72	0.74	0.85	0.95
Cancer	Mean	1.10	1.10	1.93	1.64
	SD	0.92	0.84	0.82	0.95
<i>F</i> -value		35.6	12.7	20.4	8.4
<i>P</i> -value		<0.0001	<0.0001	<0.0001	0.004
Family status					
Living with partner (either married or not)	Mean	0.49	0.68	1.38	1.24
	SD	0.75	0.71	0.85	0.94
Living alone (single, divorced, widowed)	Mean	0.65	0.96	1.57	1.42
	SD	0.85	0.86	0.89	0.98
<i>F</i> -value		3.0	10.4	3.7	2.8
<i>P</i> -value		0.084	0.001	0.055	0.093
Denomination					
Religious affiliation*	Mean	0.76	0.83	1.48	1.38
	SD	0.87	0.79	0.86	0.95
No religious affiliation	Mean	0.20	0.64	1.44	1.15
	SD	0.45	0.74	0.89	0.99
<i>F</i> -value		46.3	5.1	0.1	4.5
<i>P</i> -value		<0.0001	0.024	n.s.	0.035

* Including 12 patients with non-Christian denominations.

In a subset of patients with chronic pain diseases, we observed that *Existential Needs* and the need for *Inner Peace* were negatively correlated with spiritual well-being, particularly in regard to the “peace” and the “meaning” subscales of the FACIT-Sp. In contrast, *Religious Needs* were positively associated with the “faith” component of spiritual well-being (Table 3). Furthermore, the need for active *Giving/Generativity* was positively associated with the meaning component of spiritual well-being. Life satisfaction was strongly associated with the subscales “meaning” ($r = 0.574$) and “peace” ($r = 0.529$), and moderately correlated with the “faith” subscale ($r = 0.336$).

Next, we analyzed the influence of patients’ positive or negative interpretation of illness on their spiritual needs. In this study, most patients interpreted their illness either as an adverse interruption of life or a threat rather than as a challenge, a call for help, something of value, or a matter of one’s own failure (Figure 1). Interestingly, *Religious Needs* were moderately associated with the interpretations “Call for Help” and “Something of Value,” while *Exis-*

tential Needs were correlated moderately with “Something of Value” and “Relief.” The need for *Inner Peace* was correlated most strongly with the interpretation that illness is an “Interruption of Life,” and the need for *Giving/Generativity* was associated most strongly with the interpretation “Call for Help” (Table 3).

Because we empirically investigated several variables that could have influenced patients’ spiritual needs, we performed regression analyses to identify the most significant predictors (Table 4). The variables which were recognized to have a significant impact on the respective needs included gender, living without partner, non-religiosity, symptom score, life satisfaction, Escape, SpREUK’s Search, Trust and Reflection Scales, and IIS. As shown in Table 4, *Religious Needs* can be predicted best by (religious) “Trust,” by the illness interpretation “Call for Help,” and living with a partner; reduced life satisfaction was of relevance only in trend. *Existential Needs* were predicted best by “Call for Help,” and (religious) “Trust;” a negative predictor of *Existential Needs* was the illness interpretation

Table 3 Correlation analyses

	SpNQ scales			
	Religious Needs	Existential Needs	Inner Peace	Giving/Generativity
Spiritual needs (SpNQ) (N = 368)				
Religious needs	1	0.519**	0.348**	0.398**
Existential needs		1	0.622**	0.526**
Inner peace			1	0.529**
Giving/generativity				1
Spiritual/religious attitudes (SpREUK) (N = 211)				
Search	0.556**	0.415**	0.267**	0.307**
Trust	0.691**	0.368**	0.214**	0.245**
Reflection	0.485**	0.386**	0.318**	0.325**
Quality of life measures				
Life satisfaction (BMLSS-10) (N = 356)	0.174**	-0.151**	-0.141**	0.065
Escape from illness (escape) (N = 352)	0.055	0.212**	0.137	0.070
Pain disability index (N = 207)	0.087	0.126	0.084	0.091
Symptom score (VAS) (N = 298)	-0.148	-0.004	-0.087	-0.027
Interpretation of illness (IIQ) (N = 350)				
Threat	0.227**	0.165**	0.187**	0.196**
Interruption	0.114	0.231**	0.294**	0.120
Punishment	-0.056	0.044	0.119	0.069
Weakness/failure	-0.014	0.193**	0.170**	0.005
Relief	0.149**	0.301**	0.158**	0.110
Call for help	0.361**	0.258**	0.212**	0.240**
Challenge	0.205**	0.255**	0.124	0.067
Value	0.332**	0.424**	0.253**	0.199**
FACIT-Sp score (N = 82)				
Meaning subscale	0.080	-0.302**	-0.254	0.226
Peace subscale	0.126	-0.312**	-0.355**	0.068
Faith subscale	0.654**	-0.072	-0.108	-0.020

** $P < 0.01$ (Pearson). VAS = visual analog scale.

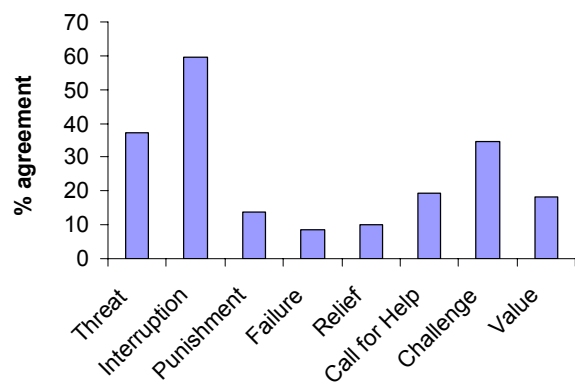


Figure 1 Interpretation of Illness (% of patients who agreed).

“Challenge.” As with *Religious Needs*, again reduced life satisfaction was of relevance only in trend. *Inner Peace* were predicted with low power only in trend by illness interpretation Threat. Needs for *Giving/Generativity* were not significantly predicted by any of the included variables. As the regression coefficients may be compromised by collinearity, we checked the variance inflation factor (VIF) as an indicator for collinearity. A VIF higher than 10 is indicative of high collinearity. Results suggest that a VIF was not present in the respective models.

Discussion

We intended to analyze unmet spiritual needs in patients with chronic pain conditions (and cancer). Furthermore, we were interested in finding relationships between these needs and the following variables: quality of life/life satisfaction, specific spiritual/religious attitudes for coping with

Table 4 Regression analyses with spiritual needs as dependent variables (enter method)

Model	Beta	T	P	95% Confidence Intervals to B		Collinearity Statistics*	
				Lower	Upper	Tolerance	VIF
Dependent variable: Religious needs ($R^2 = 0.808$)							
(constant)		-1.000	0.324	-1.972	0.670		
Gender (female/male)	0.073	0.851	0.400	-0.162	0.396	0.728	1.374
Age group	0.065	0.684	0.499	-0.008	0.016	0.600	1.666
No religious affiliation	0.059	0.592	0.558	-0.227	0.414	0.535	1.868
Living with/without partner	0.309	3.326	0.002	0.217	0.896	0.619	1.615
Illness: challenge	-0.123	-1.224	0.229	-0.187	0.046	0.532	1.881
Illness: threat	-0.069	-0.723	0.474	-0.135	0.064	0.588	1.699
Illness: interruption	-0.097	-1.082	0.286	-0.162	0.049	0.660	1.515
Illness: weakness/failure	-0.050	-0.541	0.592	-0.160	0.093	0.628	1.592
Illness: value	0.124	1.039	0.306	-0.086	0.267	0.377	2.655
Illness: relieving break	-0.007	-0.082	0.935	-0.185	0.170	0.741	1.350
Illness: call for help	0.482	4.648	0.000	0.155	0.394	0.496	2.015
Escape from Illness	-0.024	-0.238	0.813	-0.006	0.005	0.529	1.891
Life satisfaction	-0.187	-1.830	0.075	-0.016	0.001	0.513	1.949
Symptom score (VAS)	0.041	0.436	0.666	-0.008	0.013	0.613	1.632
SpREUK's search	-0.122	-0.837	0.408	-0.014	0.006	0.250	4.003
SpREUK's trust	0.751	5.517	0.000	0.013	0.029	0.289	3.461
SpREUK's reflection	0.116	0.981	0.333	-0.004	0.012	0.383	2.610
Dependent variable: Existential Needs ($R^2 = 0.700$)							
(constant)		-0.108	0.915	-1.783	1.603		
Gender (female/male)	0.059	0.555	0.582	-0.260	0.456	0.728	1.374
Age Group	0.060	0.509	0.614	-0.012	0.020	0.600	1.666
No religious affiliation	0.186	1.495	0.144	-0.108	0.713	0.535	1.868
Living with/without partner	0.108	0.930	0.359	-0.236	0.635	0.619	1.615
Illness: challenge	-0.273	-2.181	0.036	-0.310	-0.011	0.532	1.881
Illness: threat	0.011	0.089	0.929	-0.122	0.133	0.588	1.699
Illness: interruption	-0.112	-0.993	0.327	-0.202	0.069	0.660	1.515
Illness: weakness/failure	0.131	1.139	0.262	-0.071	0.253	0.628	1.592
Illness: value	0.076	0.512	0.612	-0.169	0.284	0.377	2.655
Illness: relieving break	0.162	1.528	0.135	-0.056	0.399	0.741	1.350
Illness: call for help	0.568	4.382	0.000	0.178	0.485	0.496	2.015
Escape from Illness	0.160	1.277	0.210	-0.002	0.011	0.529	1.891
Life Satisfaction	-0.246	-1.932	0.061	-0.021	0.000	0.513	1.949
Symptom score (VAS)	0.021	0.181	0.858	-0.012	0.014	0.613	1.632
SpREUK's search	-0.147	-0.806	0.425	-0.018	0.008	0.250	4.003
SpREUK's trust	0.404	2.378	0.023	0.002	0.022	0.289	3.461
SpREUK's reflection	0.122	0.826	0.414	-0.006	0.015	0.383	2.610
Dependent variable: Need for Inner Peace ($R^2 = 0.386$)							
(constant)		1.025	0.312	-1.290	3.928		
Gender (female/male)	0.167	1.094	0.281	-0.254	0.849	0.728	1.374
Age group	-0.060	-0.355	0.725	-0.029	0.020	0.600	1.666
No religious affiliation	0.095	0.534	0.597	-0.466	0.799	0.535	1.868
Living with/without partner	-0.034	-0.204	0.839	-0.738	0.603	0.619	1.615
Illness: challenge	-0.207	-1.157	0.255	-0.361	0.099	0.532	1.881
Illness: threat	0.306	1.796	0.081	-0.022	0.370	0.588	1.699
Illness: interruption	-0.012	-0.073	0.943	-0.217	0.202	0.660	1.515
Illness: weakness/failure	-0.097	-0.590	0.559	-0.322	0.177	0.628	1.592
Illness: value	-0.030	-0.141	0.888	-0.374	0.325	0.377	2.655
Illness: relieving break	0.003	0.020	0.984	-0.347	0.354	0.741	1.350
Illness: call for help	0.231	1.244	0.222	-0.091	0.382	0.496	2.015
Escape from illness	-0.037	-0.205	0.839	-0.011	0.009	0.529	1.891

Table 4 Continued

Model	Beta	T	P	95% Confidence Intervals to B		Collinearity Statistics*	
				Lower	Upper	Tolerance	VIF
Life satisfaction	-0.189	-1.036	0.307	-0.024	0.008	0.513	1.949
Symptom score (VAS)	0.008	0.050	0.961	-0.020	0.021	0.613	1.632
SpREUK's search	0.265	1.015	0.317	-0.010	0.030	0.250	4.003
SpREUK's trust	0.222	0.915	0.366	-0.008	0.022	0.289	3.461
SpREUK's reflection	0.023	0.109	0.914	-0.015	0.017	0.383	2.610
Dependent variable: Giving/Generativity ($R^2 = 0.425$)							
(constant)		-1.608	0.116	-5.242	0.605		
Gender (female/male)	0.096	0.645	0.523	-0.421	0.814	0.728	1.374
Age group	0.271	1.660	0.106	-0.005	0.050	0.600	1.666
No religious affiliation	0.031	0.180	0.858	-0.646	0.772	0.535	1.868
Living with/without partner	0.066	0.410	0.684	-0.599	0.903	0.619	1.615
Illness: challenge	0.067	0.387	0.701	-0.209	0.307	0.532	1.881
Illness: threat	0.103	0.627	0.534	-0.152	0.288	0.588	1.699
Illness: interruption	0.048	0.308	0.760	-0.199	0.270	0.660	1.515
Illness: weakness/failure	0.200	1.254	0.218	-0.107	0.453	0.628	1.592
Illness: value	0.043	0.211	0.834	-0.351	0.432	0.377	2.655
Illness: relieving break	0.198	1.350	0.185	-0.131	0.655	0.741	1.350
Illness: call for help	0.032	0.176	0.861	-0.242	0.288	0.496	2.015
Escape from illness	0.218	1.254	0.218	-0.004	0.019	0.529	1.891
Life satisfaction	0.066	0.372	0.712	-0.015	0.021	0.513	1.949
Symptom score (VAS)	0.101	0.627	0.535	-0.016	0.030	0.613	1.632
SpREUK's search	0.079	0.313	0.756	-0.019	0.026	0.250	4.003
SpREUK's trust	0.081	0.346	0.731	-0.014	0.020	0.289	3.461
SpREUK's reflection	0.178	0.872	0.389	-0.010	0.025	0.383	2.610

* Because the regression coefficients may be compromised by collinearity, we checked the variance inflation factor (VIF) as an indicator for collinearity. VIF > 10 is indicative of high collinearity. VAS = visual analog scale.

disease, and patients' interpretations of illness. Analysis revealed that explicitly *Religious Needs* and *Existential Needs* were of lower relevance to the patients than the need for *Inner Peace* and active *Giving/Generativity*. In general, unmet spiritual needs were highest in women and patients with cancer; however, *Existential Needs* were highest in patients living without a partner (either divorced, widowed, or single) when compared with patients living with a partner.

One important finding was that patients' symptom scores and pain disability scores were not related to specific spiritual needs. Yet, *Existential Needs* and needs for *Inner Peace* were particularly associated with a lack of spiritual well-being, and *Existential Needs* were also weakly related to the depressive avoidance strategy "Escape from Illness." Surprisingly, *Religious Needs* were positively (yet weakly) associated with life satisfaction and were strongly associated with the faith component of spiritual well-being; this would indicate that faith is a prerequisite for expressing *Religious Needs*. Active *Giving/Generativity* was strongly associated with the "meaning" aspect of spiritual well-being and might thus point to specific resources

that patients are using. Therefore, we conclude that spiritual needs are not necessarily expressed because of a reduced satisfaction with life or high symptom burden, but are probably related to specific views and attitudes.

In fact, correlation analyses confirmed that *Religious Needs* are strongly associated with patients' *Search* for support/access to spirituality/religiosity and with their *Trust* in a higher being, which supports them. These two (religious) variables were the strongest predictors of *Religious Needs*, but the disease perception "Call for Help" and living with a partner were also significant predictors. One could suggest that patients' trust in God (or other transcendent beings) leads to a call for help (i.e., praying). The finding that living with a partner (either married or not) was also a significant predictor could be interpreted as patients' need for relationship.

Similarly, *Existential Needs* can be predicted best by "Call for Help" but also by (religious) *Trust*. These positive predictors underline a dialogical dimension of human pain, a call for someone to listen. The disease interpretation "Challenge" has a significant negative influence on

Existential Needs. Having trust in a higher power and calling for help are both indicators that patients have a need for powerful, transcendent sources of help. For this reason, patients with these characteristics may not necessarily see their illness as a personal challenge to actively change their attitudes and behavior. Yet this remains to be investigated in future studies.

Patients' need for *Inner Peace* and the disease perception "Threat" demonstrate a weak trend. This rather fatalistic, negative interpretation that disease is an "enemy," as stated by Lipowski [37], would mean that patients are in search of ways to get rid of this harmful affliction and return to a more peaceful state of life. The addressed needs for *Inner Peace* include external facilitators of intrinsically peaceful states (places of peace and tranquility; beauty of nature) and internal facilitators (finding inner peace; talking with others about fears and worries to overcome them; turning to someone with a loving attitude) to attenuate the perceived "Threat" of illness.

Patients' needs for active *Giving/Generativity* correlated moderately with a spiritual *Search* attitude and *Reflection*, yet these variables were not among the significant predictors in the regression model. One may assume that other variables which are not included in the model may have contributed. These highly valued needs for *Giving/Generativity* address patients' intention to solace someone, to pass their own life experiences on to others, and to be assured that their life was meaningful and valuable. In reference to Erikson's psychosocial stage of development called "generativity," this could be interpreted as a type of growth [40]. This "generativity" stage refers to the ability to care for others, guide the next generation, and to believe that one's own life was meaningful to others.

In line with our findings that patients' spiritual needs were not significantly related to patients' symptom score or pain disability, Rippentrop et al. [41] also found that spirituality/religiosity was unrelated to pain intensity or an interruption of life due to pain. Although the level of pain may not influence spiritual needs, findings from other studies confirm that the level of pain tolerance seems to be higher in those who have access to spiritual resources (reviewed by [2–4]). Accordingly, these patients may "continue functioning with their daily activities despite elevated pain levels" [42].

The findings of this current study reveal that there are still specific spiritual needs which are not being met in conventional health care. In their 2009 review, Wachholtz et al. [42] noted, "Spirituality helps to inform our unique view of the world. This worldview plays an important role in determining how we understand negative events, including illness, and how we choose to cope with them." This is in congruence with our findings that specific attitudes and convictions are the best predictors of spiritual needs. Thus, it is meaningful to assess whether or not religiosity (in terms of faith) or spirituality (in terms of an individual search for meaning beyond institutional religiosity) is a relevant resource for patients. Moreover, it is

necessary to investigate how they might benefit from this resource and whether or not patients have unmet spiritual needs that could be better supported. Thuné-Boyle et al. found that up to 53% of breast cancer patients from the United Kingdom experienced "some form of religious/spiritual struggle" which could be "a barrier to illness adjustment" [43], and suggested that patients could benefit when their spiritual needs are addressed [44]. According to the model of Wachholtz et al. [42], spiritual beliefs and spiritual support may have a direct, indirect, and/or mediating influence on pain perception, which may consequently influence patients' spiritual practices and "meaning-making."

A limitation of this study was the cross-sectional design, which does not allow for causal interpretations. Longitudinal studies are needed to substantiate the findings of this study. Assessment of pain could also be improved in future studies; for this analysis, we used the pain disability index (PDI), which was not completed by all patients, and a symptom score (VAS), which was completed by most patients. A further limitation is that we have no data about the patients who were not willing to participate and thus cannot assess whether the enrolled patients are representative for the respective clinics.

In conclusion, with respect to Alderfer's ERG model [24], patients with chronic pain diseases predominantly express safety needs (inner peace) and generative relatedness on a personal level and thus also "meaning-making"—albeit not in terms of a life-reflecting process (existential needs). Transcendent relatedness was of minor relevance, a finding which is in line with the relatively low proportion of religious individuals in the sample. Interestingly, however, even religious "skeptics" expressed specific religious needs, i.e., praying and attending a religious service. Although the need to forgive and be forgiven might not necessarily be seen in a religious context, this also points to the "skeptics" longing to resolve and clarify open aspects of their lives. To address these needs, multiprofessional teams (i.e., psychologists, chaplains, nurses, and medical doctors) should be created to care for the multifaceted needs of their patients/clients. Research indicates that health care professionals can play an important role in enhancing patients' psycho-spiritual well-being, i.e., self-awareness, coping and adjusting effectively to stress, relationships, sense of faith, sense of empowerment and confidence, and living with meaning and hope [45].

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