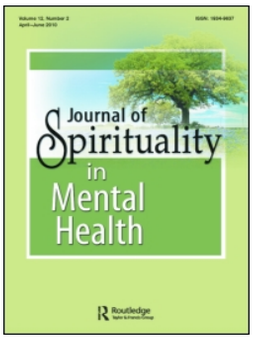

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The outcomes of healthcare chaplaincy on hospitalized patients. A quasi-experimental study in Belgium

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ABSTRACT

Research on the effects of chaplaincy care is scarce and hampered by methodological limitations. Our quasi-experimental study (n = 256 at baseline) aimed to gain insight into the immediate and intermediate impact of chaplaincy care on inpatients' existential anxiety, peace, anxiety and depressive symptoms. Multilevel modeling was used to analyze the data. After controlling for age, gender, education, (non)religion/(non)belief and religiosity, participants receiving chaplaincy care demonstrated greater immediate improvement in peace compared to the control group at posttest. This was not found for anxiety, depressive symptoms or existential anxiety, nor for any of the outcomes at the three-week follow-up assessment.

KEYWORDS

Chaplaincy; healthcare; spiritual care; outcome

Introduction

Illness and hospital admissions are challenging situations. One is not only confronted with physical pain and limitations but also with dependence, uncertainty and/or powerlessness. A discrepancy can come up between the life view one has constructed before and the reality of being ill (Vos, 2016). In these challenging situations, chaplains can play a supportive role by means of (mostly individual) counseling by conversation or by offering texts and rituals. Chaplains focus on the quest for meaning, the mourning about lost securities, the existential questions patients may have and possibly the relation of the patient to the transcendent which can both be supportive as well as leading to confusion (Dillen, Vanderheijden, & Vandenhoeck, 2018; Handzo et al., 2008).

Case studies as well as satisfaction studies show that patients are mostly satisfied when receiving chaplaincy care in hospital (Jankowski, Handzo, & Flannelly, 2011). They feel acknowledged and listened to (Lobb, Schmidt, Jerzmanowska, Swing, & Thristiawati, 2018; Lublewski-Zienau, Kittel, & Karoff, 2015). But this positive experience does not automatically imply the efficacy of chaplaincy care for patient wellbeing. Nevertheless research about outcomes of healthcare chaplaincy is called for by chaplaincy organizations

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because of the pressure to proof the value of chaplaincy (Kelly & Vandenhoeck, 2017). Furthermore, outcome-research gives the possibility to develop the best possible care for patients and their relatives (Fitchett, 2020; Handzo, Cobb, Holmes, Kelly, & Sinclair, 2014).

Evidence is scarce on the effects of care provided by (certified) chaplains and research is often hampered by methodological limitations. In contemporary research, randomized controlled trials (RCT) are seen as the golden standard to evaluate the effect of an intervention (Veerman, 2014). Within chaplaincy research, only three RCT's have been performed. The small ($n = 49$) RCT of Iler, Obenshain, and Camac (2001) revealed that patients with chronic obstructive pulmonary disease receiving on average four visits by hospital chaplains in the United States showed significantly less anxiety compared to the control group at discharge. Bay and colleagues (2008) found that, after six months, patients who received chaplaincy visits scored significantly higher on the "positive religious coping" scale and significantly lower on "negative religious coping" compared to patients who did not receive any chaplaincy visits. However, the results need to be interpreted with caution as the group-time interaction effect between control and intervention group failed to reach statistical significance. The RCT of Kruizinga and colleagues (2019) specifically evaluated the role of a structured reflection on life events in advanced cancer patients by a spiritual counselor. No differences between groups in quality of life or spiritual wellbeing were detected two and four months after baseline.

Pre-post studies without a control group have also been carried out, two of them in primary care settings. The study of Kevern and Hill (2015) found wellbeing to improve after one or more chaplaincy interventions. Snowden and colleagues (2022) found improvements in the Scottish PROM, which includes one-item measures on peace, control, positive outlook, honesty about your own feelings toward yourself, and anxiety (reversed). Some smaller studies were conducted as well (n ranging between 25 and 31): they found that anxiety was reduced by using a picture guide in the ICU (Berning et al., 2016), spiritual wellbeing, spiritual coping, quality of life, peacefulness and positive religious coping improved over time by a spiritual life review (Piderman et al., 2017) and for example positive religious coping increased for palliative outpatients in the study of Kestenbaum et al. (2017). This type of research can offer meaningful empirical indications of the effectiveness of chaplaincy interventions (Veerman, 2014). Still, we need to take into account the small sample sizes and the fact that without a control group, the growth or decline of patient outcome variables cannot be compared to an otherwise "natural" patient evolution. As such, changes cannot be attributed solely to the intervention of the chaplain as sometimes seems to be claimed.

Other research does not focus on chaplains specifically but on "spiritual care" by other healthcare professionals or by interdisciplinary teams (Damen, Schuhmann, Leget, & Fitchett, 2019; Jankowski et al., 2011). Nevertheless, it

can still provide insight into possible outcomes of chaplaincy care. A systematic review of 12 studies (Kruizinga et al., 2016) on the effects of spiritual interventions targeting cancer patients performed by a multidisciplinary group showed a moderate effect of spiritual interventions on patients' quality of life both immediately and two weeks after the intervention.

With our research, we aim to provide insight in the effects of chaplaincy care based on a methodological strong design. This type of knowledge is scarce in the field but highly needed to improve our knowledge of the efficacy of chaplaincy practices. RCT's with a pre-described intervention opt for high degree of certainty that a causal relationship between the chosen outcome and chaplaincy care exists (known as high internal validity). Other studies choose for high generalizability to real life settings where chaplaincy care is offered (high external, more specifically ecological validity) to the detriment of internal validity. By choosing a quasi-experimental study without standardized interventions, we aimed to strike a balance between both types of validity. We opt with our research to give insight into chaplaincy care as it normally is conducted in hospitals whereby chaplains do not exactly know beforehand what the themes in the conversation will be. As such, chaplains can easily feel represented by this study. Moreover, our target group are patients that normally also would be offered chaplaincy care. At the same time we add a control group to improve our internal validity by comparing groups and as such being able to attribute the potential chaplaincy care impact to the chaplain as much as possible and not to other circumstances.

Potential outcomes of chaplaincy

In choosing potential outcome-variables, we both wanted to replicate and build further on earlier insights. In the search for possible outcomes we chose not to include quality of life because the construct seemed too stable to change within a short timespan or too hard to be able to catch the small changes that may occur after one moment of chaplaincy care (Kruizinga et al., 2019). We also chose to exclude "spiritual wellbeing" or related concepts as they, although insightful in chaplaincy practice, are conceptually rather vague and function often as an umbrella term resulting in findings which are hard to interpret (Visser, Garssen, & Vingerhoets, 2017). The concept of "peace" on the other hand was found to be a good potential outcome of chaplaincy care (Piderman et al., 2017; Snowden et al., 2022) and it's conceptually more clearly delineated . We also wanted to acknowledge the focus of chaplains of existential themes, (death) anxiety and meaning in life (Massey et al., 2012). Therefore, the construct of existential anxiety was chosen as a new potential outcome (van Bruggen, Vos, Westerhof, Bohlmeijer, & Glas, 2015). Next to "peace" and "existential anxiety," earlier chaplaincy care research often focus on psychological distress (Iler et al., 2001; Snowden et al., 2012) since a hospital intake has often a negative impacts

on patient's mental health. Anxiety has sometimes been found to be a potential outcome of chaplaincy (cf. *supra*). As depressive symptoms often co-occur with anxiety and physical illness (Scott et al., 2007), we wanted to have an added focus on that outcome as well.

To summarize, we focused on four potential outcomes of chaplaincy care[1] that are sensitive to change and relevant for inpatients with a variety of illnesses: anxiety and depressive symptoms, existential anxiety and peace. The next sections describe the constructs as well as the reasons why they may be possible outcomes of chaplaincy in more detail.

Existential anxiety

Existential anxiety reaches beyond concrete life threats and refers to concerns that are provoked by core threats to human existence (Yalom, 2008). Being ill and unsure about the future may give rise to existential suffering (Kissane, 2012) and fears about meaninglessness, death and fundamental loneliness can come to the front. Existential anxiety involves the expression of these ultimate concerns about life and the confrontation with the possibility of nonbeing (Weems, Costa, Dehon, & Berman, 2016).

Chaplains report paying attention to existential themes such as death anxiety (Van Edom, 2014), meaning(lessness), social isolation (Massey et al., 2012), the search for identity (Ganzevoort & Visser, 2007) and guilt. As a result of this professional focus, chaplaincy activities may result in reduced levels of existential anxiety in comparison to a control group.

Peace

"Peace," "being at peace," "coming to peace" and "inner peace and harmony" are mentioned in research about palliative care and existential concerns and are often regarded as an aspect of spiritual wellbeing. Qualitative research makes clear that patients associate being at peace with both religious (being at peace with God) and secular notions. The latter refers to "a sense of tranquility," "emotional adjustment," "reconciliation with one's circumstances" and/or "a kind of acceptance but not fatalism" (Austin and MacLeod, 2017; Steinhauser, Voils, Bosworth, & Christakis, 2006; Whitford & Olver, 2012). Peace itself seems to be associated with mental but not physical health (Canada, Murphy, Fitchett, Peterman, & Schover, 2008). Park (2016) on the other hand found peace to be related to a lower mortality risk for congestive heart failure patients.

Chaplains describe "promoting a sense of peace" as one of their intended effects (Massey et al., 2012). As such, "a sense of peace" is also used as single-item outcome in the Patient Reported Outcome Measure designed to measure the outcomes of chaplaincy in an easy and accessible way (Snowden et al., 2012). Indeed, qualitative research has shown that patients themselves also describe finding peace as an important outcome of their contact with a chaplain (Snowden, Telfer, Kelly, Bunniss, & Mowat, 1994). The study of

Piderman et al. (2017) suggests that patients' peacefulness increased through participating in a chaplain-led spiritual legacy intervention. Although insightful, this study did not include a control group, leaving the results to be interpreted tentatively. In a quasi-experimental study, patients who had undergone an interdisciplinary palliative care intervention (with a chaplain involved), scored significantly higher on meaning/peace (Sun et al., 2015). These findings inform our hypothesis that a chaplain intervention may increase the experience of peace in patients.

Anxiety and depression

Illness-related events (physical disability, terminal diagnosis, poor pain and symptom control) and existential concerns are associated with feelings of anxiety and depression (Noorani & Montagnini, 2007). Depression in its turn is a risk factor for noncompliance and consequently a negative effect on medical treatment outcomes (DiMatteo, Lepper, & Croghan, 2000). Adequate intervention for patients with these internalizing symptoms thus seems essential for the patient's mental and physical wellbeing. Research has shown that hospital staff often refer patients who experience symptoms of anxiety and/or depression to the chaplain (Galek, Flannelly, Koenig, & Fogg, 2007; Vanderwerker et al., 2008).

So far, intervention outcome studies have reported mixed results regarding levels of anxiety/depression in patients after a chaplaincy visit. As mentioned above, one small-scale RCT study found a significant reduction in anxiety levels in patients who received a chaplain visit compared to the control group (Iler et al., 2001) while another RCT study found no significant differences in levels of anxiety or depression (Bay et al., 2008). In the prospective study of Baker (2001) where community care residents from the intervention group were matched to those from the control group, the intervention group showed decreased depression scores after six months of weekly visits of a chaplain. However, three months after, no significant differences between the intervention and control group remained. Related research in the field of psycho-oncology is more elaborate regarding psychotherapeutic intervention effects on anxiety and depression. Meta-analyses and systematic reviews show a moderate effect size of 0.36 for anxiety and 0.19–0.21 for depression in favor of the interventions (Sanjida et al., 2018; Sheard & Maguire, 1999).

As chaplains aim to reduce patient anxiety and their depressed moods (Massey et al., 2012; Van Edom, 2014) and because some research does find effects of (chaplaincy) interventions, we hypothesize that we will find differences in the level of depression and anxiety when comparing our intervention and control groups.

Aim

To conclude, we hypothesize on theoretical grounds and based on the existing research that chaplains can have impact on patients' existential anxiety, peace,

anxiety and depressive symptoms. We hypothesize these effects can be seen immediately after the intervention and possibly after a few weeks as well (intermediate outcome). Questions about how long the potential impact of chaplaincy care will last, remain largely explorative as research designs and the time periods used in existing studies differ.

We hope this and future work can increase generalizability of findings in this field and more accurately trace common trends in order to support the practice of the chaplaincy profession to benefit patients.

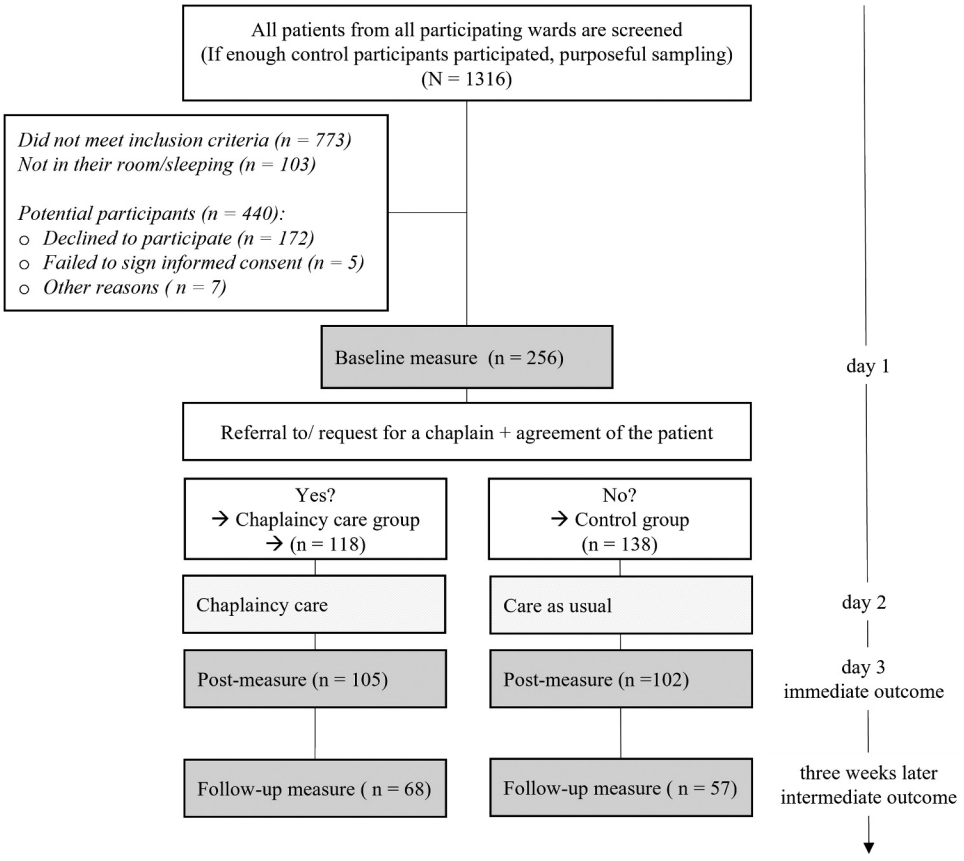
Method

Procedure

To achieve this aim, a pre-, post-, and follow-up intervention design with non-equivalent preexisting intervention and control group was performed in a university hospital in Flanders, Belgium. This design is also called quasi-experimental as participants are not randomly assigned to the intervention (Heppner, Wampold, & Kivlighan, 2008). The procedure of the study was approved by the Ethics Committee Research UZ/KU Leuven (S61891) and pre-registered at the Open Science Framework (https://osf.io/5shjy/).

Thirty wards with a focus on acute care were able to participate in our research. Wards with a non-acute care focus (e.g., rehabilitation, maternity, outpatient care) or a patient population with particular ethical and/or communication challenges (e.g., geriatrics, intensive care, terminal care, emergency, pediatrics) were excluded.

The flow of our sampling is visualized in the diagram in Figure 1, which shows a combination of cluster and purposeful sampling being used. Cluster sampling started by agreeing upon a week with as few time constraints as possible for both the chaplain and each participating ward. All patients from the participating wards were screened by the nurses for exclusion criteria. Eligible participants were visited in their rooms by the first author or a chaplaincy trainee who fully disclosed the purpose of the study, explained the procedure, handed out the validated self-report questionnaires and an informed consent form. A power analysis indicated that at least 120 participants per group (non-randomized control group and intervention group) were needed to be able to detect medium effect sizes (G*power, $\alpha = 0.05$, effect size $d = 0.5$) (Faul, Erdfelder, Lang, & Buchner, 2007). Therefore, as soon as our control group consisted of 120 patients, we made use of purposeful sampling: all patients of the UZ Leuven at the participating wards who were referred to or requested a chaplaincy intervention were contacted for participation if they met the inclusion criteria



Note. Drop-out between pre- and post: left the hospital (n = 23), no longer interested (n= 6), too ill (n= 3), ongoing operation (n = 2), felt too upset after bad news (n = 2), did not specify a reason (n= 13).
Drop-out between post and follow-up: most patients were home already and were asked to send the completed questionnaire back to the researchers, which may have been too much effort for some to complete the task.

Figure 1. Flow chart of sampling method.

Study sample

Data were collected from August 2019 to January 2020 among hospitalized patients from 30 different acute care wards at a university hospital in the Dutch speaking part of Belgium (Flanders). Exclusion criteria were severe cognitive impairment, the inability to fill out a questionnaire oneself, insufficient command of the Dutch language, less than 18 years of age, anticipated discharge from hospital before the posttest would be able to take place, terminal illness and known current severe psychiatric issues.

In total, the first author and a chaplaincy trainee together visited 440 potential participants. During the first measurement moment (baseline), 256 patients participated (46.1% female, mean age = 58.47, *SD* = 17.01, range 19–91). Some participants (10.2%) had received only a primary education, 44.9% had had a lower secondary education, 36.8% a higher education, while we

lacked information on education for 8.2% of participants. 37.1% of patients described themselves as Catholic, 12.9% as Christian, 0.8% as Muslim, 8.6% as believers without connection to a religious institution, 25.4% described themselves as non-religious, 7% as humanist and 2% as "other." An additional 6.3% did not self-report about their (non)religion/(non)belief (Lee, 2012). This sample is more or less representative of the Belgian population whereby 55% declares itself Catholic or Christian and 38% is religiously unaffiliated (atheist, agnostic or having no particular religion) (Pew Research Center, 2018). Only Muslims, Jews and other religious affiliated persons were clearly underrepresented in our sample, since 7% of Belgium's inhabitants adhere a non-Christian religion while only 0.8% of our sample was Muslim.

Chaplaincy care characteristics

The care practice was defined as a chaplain's individual contact with a patient for a conversation (and not merely administering Holy Communion, for example). The chaplains themselves had to be trained and had to have at least two years of experience as a hospital chaplain to be able to participate. The eight chaplains participating at the study were all lay people[2] and all with masters' degrees except one. They had on average 14.5 years of experience (range 3–30 years), were on average 45.5 years old (range 30–60 years) and seven out of eight were female.

Chaplaincy care encompasses a wide range of interventions and is individually adapted to the patient's personal needs, beliefs, convictions, and self- and world-view for religious, non-religious, or spiritually oriented patients alike (Lobb et al., 2018; Snowden & Telfer, 2017). The length and nature of each chaplaincy care contact was tailored to the patient's needs and was not supposed to differ from practice outside the research-context. Family or relatives could attend if they wished.

Chaplains reported about their interventions (n = 117) by use of multiple-choice questionnaires. Most chaplaincy interventions were requested by caretakers like nurses, doctors and paramedical staff (n = 47). Follow-up conversations with previously visited patients were also common (n = 42), as were interventions on the initiative of the chaplain him- or herself (n = 25). Interventions were rarely requested by patients themselves (n = 7) and even less often by family/friends (n = 1).[3] In 65.5% of the cases, chaplains did not know the patient beforehand. Conversations with the chaplain lasted fifteen to twenty minutes for 35.7% of the cases, up to half an hour for 28.7%, up to 45 minutes for 27%, and 8.7% of the interventions were longer than 45 minutes. Most interventions were only between chaplain and patient but in some cases (15.5%) relatives or friends were present as well. A list of possible chaplaincy interventions was created, based on the "The Discipline for Pastoral Care Giving" (Vandecreek & Arthur, 2001), the taxonomy of

Massey (2012) and clinical practice. Figure 2 depicts how often a certain kind of intervention was used. It's not surprising that the interventions focused on acknowledging, active listening and sharing the patient's story are used more by chaplains. They are needed to build a trustful relationship between chaplain and patient, a cornerstone to be able to discuss deep and personal matters like guilt, values and faith (Doehring, 2015).

Within the design of the study, we planned to control for patients having one or more interventions with social workers, psychologists, psychiatrist or other paramedical workers. We also wanted to control for patients maybe having one or more contacts with the chaplain between post and follow-up. Unfortunately, during data collection it became clear that we could not rely on the self-report of patients about their contacts with professionals as they sometimes mixed up the different professions and could not always recall with whom they had talked.

Measures

Existential anxiety

We used the recently developed Existential Concerns Questionnaire (van Bruggen et al., 2017), which is a Dutch, expanded version of the more well-

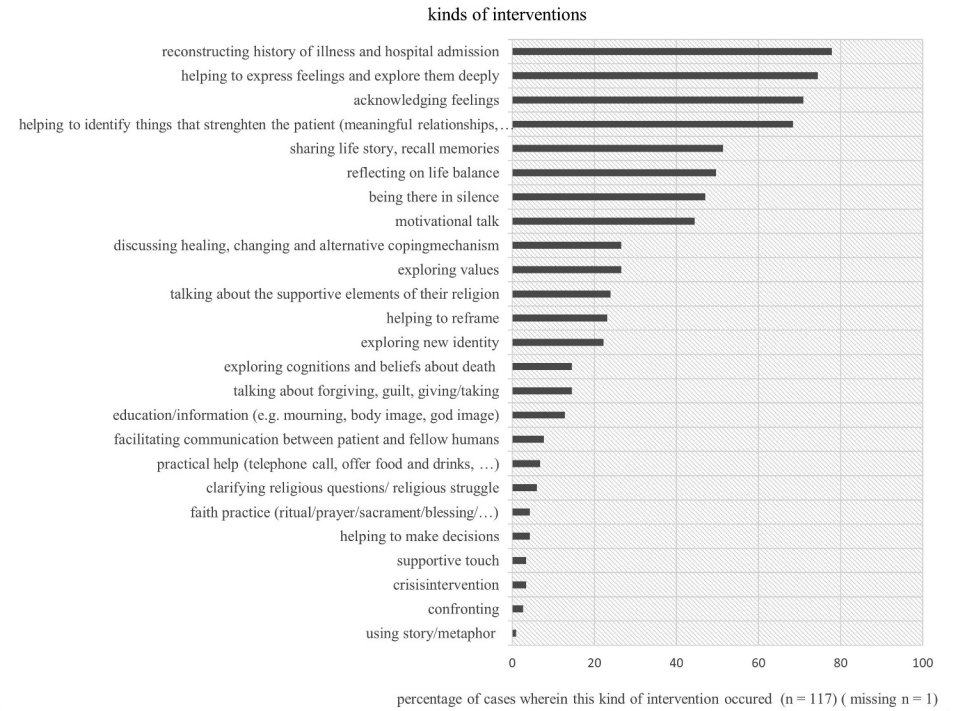


Figure 2. Kinds of interventions within the offered chaplaincy care. Several interventions can be combined so percentages are not cumulative.

known Existential Anxiety Questionnaire (Weems et al., 2016). As recommended by Van Bruggen (2017) the version with 22 items was used. Van Bruggen and colleagues (2015, 2017) mention five existential concerns: death (reflecting on our finitude and the world as "an unsafe place in which, at any moment, something life-threatening can happen"; van Bruggen et al., 2017, p. 2); meaninglessness (the experience that in the search for meaning no predefined meaning is present and people must find their own answers); guilt (fear that given all of life's possibilities, one is unable to live up to one's full potential); social isolation (the feeling of not being able to fully know someone else, including the longing for connectedness); identity ("not having full knowledge of oneself along with the inconsistencies in the experience of oneself and the world"; van Bruggen et al., 2017, p. 2).Answers were provided on a 5-point Likert scale ranging from "never" to "always" for questions like "The question of whether life has meaning makes me anxious" or "I try to avoid the question of who I really am." The reliability coefficient omega was 0.910 at T1, 0.937 at T2 and 0.948 at T3 (McNeish, 2018).

Peace

Peace was measured via a subscale of the Dutch version of the validated Functional Assessment of Chronic Illness Therapy – Spiritual Well-being scale, a questionnaire frequently used in healthcare (Peterman, Fitchett, Brady, Hernandez, & Cella, 2002; https://www.facit.org, 2002). Items like "I feel peaceful" could be scored from "not at all" (0) to "very much" (4). Due to a technical error, one item (item 7) was eliminated by error from the subscale. Recent research (Damen et al., 2021) showed that item 6 and 7 of the peace subscale were highly correlated, indicating potential redundancy. Because of this potential redundancy, our reduced subscale seems not to be a problem for interpreting our results. Nevertheless, we still have to be careful as the omega coefficient of the peace subscale was acceptable but not very high: omega was 0.768 at T1, 0.803 at T2 and 0.671 at T3.

Anxiety

Anxiety was measured by the Hospital Anxiety and Depression Scale (HADS), a present-state instrument sensitive to change and especially composed for hospital settings (Antony, Orsillo, & Roemer, 2002; Snaith & Zigmond, 1994). The scale consists of seven items answered on a 4-point Likert scale with the wording of answers differing slightly depending on the specific item. For example, "I feel tense or wound up" can be answered as "most of the time," "a lot of the time', "from time to time, occasionally" or "not at all." A Flemish translation from the official distributor was obtained. Omega was 0.847 at T1, 0.864 at T2 and 0.885 at T3.

Depression

Depressive symptoms were also measured by the HADS, using the subscale that measures depressive symptoms (Antony et al., 2002; Snaith & Zigmond, 1994). Items were scored on a scale from zero to three; the item "I still enjoy the things I used to enjoy" can for example be scored zero (definitely as much), one (not quite so much), two (only a little) or three (hardly at all). Omega was 0.814 at T1, 0.813 at T2 and 0.813 at T3.

Demographic and background variables

Single-item questions were used to assess age, gender; highest education, reason for admission and (non)religion/(non)belief. Likert-type questions (ranging from 1 to 4 or 5) assessed the importance of spirituality/religion to the patients (ranging from not important to very important), the frequency of the personal practice of prayer/meditation (ranging from never to daily) and the frequency of attendance in religious activities like going to church or mosque (ranging from never to weekly). The variable "importance/practice/frequency" was constructed as a combination of the three single-item questions assessing the importance of religion/spirituality, the individual practice and the frequency of attendance at religious activities (cf. *supra*) as these three variables were highly correlated among each other ($r = .566$ or more, $p < .001$). The variable was constructed by transforming every question to a four-level scale and subsequently calculating the mean.

Statistical analysis

To examine these longitudinal data, the MIXED procedure of SPSS 27 was used to fit a multilevel model. Multilevel modeling (MLM) accounts for the dependency between multiple responses of one patient. Furthermore, MLM with Maximum Likelihood Estimation uses the full dataset including incomplete cases, instead of the sub-optimal listwise deletion of an entire subject when the patient has missing data for a single time point (which gives biased parameter estimates and standard errors). As data response rate typically drops throughout time in longitudinal research, this is a key advantage of MLM (Heck, Thomas, & Tabata, 2014; Peugh, 2010). Prior to the multilevel analysis, subscale means were calculated when at least 75% of the items were answered by the patient (Graham, 2009).

Because the measurements are not only nested within patients but these patients on their turn are also nested within chaplains, we explored whether we also needed to account for potential clustering of data within chaplains. To this end, we calculated the intraclass correlation (ICC) for each of the four outcome variables by means of a null model (i.e., intercept-only model without predictors) with a random chaplain factor. These models showed that the variance that could be attributed to differences between chaplains was very

small (ICC between 0 and 0.06; close to 0 for each outcome when a random participant factor was also included). This indicates it would be redundant to model a random chaplain factor in our multilevel models, so we therefore only included a random participant factor.

Four separate multilevel models were constructed with existential anxiety, peace, anxiety and depression as dependent variables. In each model, we added a random intercept for participants to account for the clustering of measurements within individuals. Because there were only three measurement points with strongly different intervals, time was treated as a categorical variable rather than assuming a certain growth curve over the entire time period. Group, time, and group-by-time interaction were added as predictors. The demographic variables of age, gender, education, (non)religion/(non)belief and importance/practice/frequency were added as control predictors. The continuous predictor "age" was centered prior to the analysis.

For models with a significant group-by-time interaction effect, exploratory analyses were conducted to test three-way interactions with patient characteristics (age, gender, education, (non)religion/(non)belief, "importance/practice/frequency").

Results

Preliminary analyses

Differences between the intervention and control group in the main outcome variables at baseline and in demographic variables were explored. Descriptive statistics for the main outcome variables are displayed in Table 1. Independent sample t-tests did not show significant differences between the control and chaplaincy care groups at baseline with regard to the researched variables of existential anxiety ($t(235.217) = 0.246$, $p = .805$), peace ($t(231.258) = 0.915$, $p = .361$), anxiety ($t(239.811) = 1.060$, $p = .290$) and depression ($t(231.592) = -.673$, $p = .502$).

No differences between groups were detected regarding gender ($X^2(1) = 0.008$, $p = .928$), education ($X^2(3) = 3.430$, $p = .330$) or (non)religion/(non)belief ($X^2(6) = 10.191$, $p = .117$).

Groups did differ in terms of age ($t(214.301) = -3.237$, $p < .01$): patients from the chaplaincy care group were significantly older (mean = 62.55, SE = 1.43) than

Table 1. Baseline means for both groups for all outcome variables.

Variabel	Group	Baseline Mean	SD	RANGE (POTENTIAL RANGE)
Existential anxiety	Control (n = 136)	2.16	0.607	1–4.10 (1–5)
	Chaplaincy care (n = 117)	2.14	0.677	
Peace	Control (n = 130)	2.46	0.718	0.33–4 (0–4)
	Chaplaincy care (n = 110)	2.38	0.720	
Anxiety	Control (n = 134)	1.20	0.604	0–2.86 (0–3)
	Chaplaincy care (n = 113)	1.12	0.589	
Depressive symptoms	Control (n = 134)	0.948	0.948	0–2.86 (0–3)
	Chaplaincy care (n = 112)	0.999	0.998	

the control group (mean = 55.17, SD = 1.69). Groups also differed on the single items regarding religion/spirituality: patients from the chaplaincy care group found spirituality/religion more important (mean = 2.27, SD = 0.95) than those of the control group (mean = 1.98, SD = 1.00) (t (223.942) = −2.274, p <.05). Patients from the chaplaincy care group prayed or meditated more frequently (mean = 2.71, SD = 1.51) than the control group (mean = 2.21, SD = 1.29) (t (215.715) = −2.712, p < .01). Lastly, the chaplaincy care group attended significantly more organized religious activities (mean = 2.48, SD = 1.39) than the control group (mean = 1.91, SD = 1.00) (t (194.181) = −3.608, p < .001).

Multilevel model analyses

No significant main effects of group were found for existential anxiety (F (1, 202.811) = 1.673, p = .197), peace (F (1, 199.742) = 0.231, p = .631), anxiety (F (1, 203.490) = 0.056, p = .813) or depressive symptoms (F (1, 199.641) = 0.081, p = .777). Main effects of time were not found for depression and existential anxiety. But there was a main effect of time for anxiety and peace: across groups, anxiety decreased over time (F (2, 258.438) = 6.603, p < .01) and peace increased over time (F (2, 266.295) = 6.165, p < .01).

There was no significant group-by-time-interaction effect for existential anxiety (F (2, 260.755) = 1.164, p = .314), anxiety (F (2, 258.716) = 0.027, p = .974) and depressive symptoms (F (2, 257.600) = 1.267, p = .283). This means that our data do not show evidence that the chaplain had an effect on existential anxiety, anxiety or depressive symptoms after at least one chaplaincy care intervention. However, for peace, there was a significant interaction effect between group and time (F (2, 266.595) = 4.47, p < .05). Estimated marginal means are reported in Table 2 along with their standard errors.

When looking at the specific model parameters for the post-measure and follow-up measure for peace, the chaplaincy care group scored significantly higher than the control group on the post-measure, taking into account their scores on the baseline and controlling for all described background variables (b = 0.280, t (263.665) = 2.922, p < .01). No significant difference between groups was found at follow-up (b = 0.198, t (272.641) = 1.716, p = .087). For peace, estimated marginal means are graphed in Figure 3.

With regard to the demographic variables in the multilevel model for peace, education, religion/worldview and age were no significant predictors, but gender was a significant predictor for peace (F(1, 191.596) = 11.44, p < .001), with females scoring significantly lower than males, as averaged across measurement moments and groups (b = – 0.319, t (191.596) = −3.382, p < .001). In addition, "importance/practice/frequency" significantly predicted peace (F (1, 186.021) = 4.509, p < .05) with patients scoring higher on these variables, also scoring higher on peace (b = 0.143, t (186.021) = 2.123, p < .05).

Table 2. Estimated marginal means and their standard error for all outcome variables.

		Estimated marginal mean ± SE		
VARIABLE	GROUP	BASELINE	POST	FOLLOW-UP
Existential anxiety	Control	2.025 ± 0.108	2.044 ± 0.111	2.038 ± 0.115
	Chaplaincy care	1.938 ± 0.118	1.871 ± 0.119	1.938 ± 0.122
Peace	Control	2.664 ± 0.136	2.680 ± 0.141	2.707 ± 0.148
	Chaplaincy care	2.458 ± 0.145	2,755 ± 0.147	2,699 ± 0.153
Anxiety	Control	1.024 ± 0.098	0.935 ± 0.101	0.917 ± 0.105
	Chaplaincy care	1.012 ± 0.106	0.910 ± 0.107	0.895 ± 0.111
Depressive symptoms	Control	0.911 ± 0.093	0.928 ± 0.097	0.973 ± 0.101
	Chaplaincy care	0.952 ± 0.101	0.891 ± 0.102	0.902 ± 0.107

In order to explore whether the group-by-time (two-way) interaction for peace was affected by patient variables such as age, gender, education, (non) religion/(non)belief and "importance/practice/frequency," we included three-way interactions between group, time and each of these variables. We saw no evidence of three-way interactions (p-value ranging between .449 and .994). This means that we do not have evidence that the potential effect of the chaplaincy intervention would depend on the patient's (non)religion/(non) belief nor gender, age, education nor how important patients rated spirituality/ religion, how frequently they prayed/meditated or how frequently they practiced. Therefore, we did not pursue these models any further and are interpreting and displaying only the model with two-way interactions. A summary of the multilevel models can be found in Table 3.

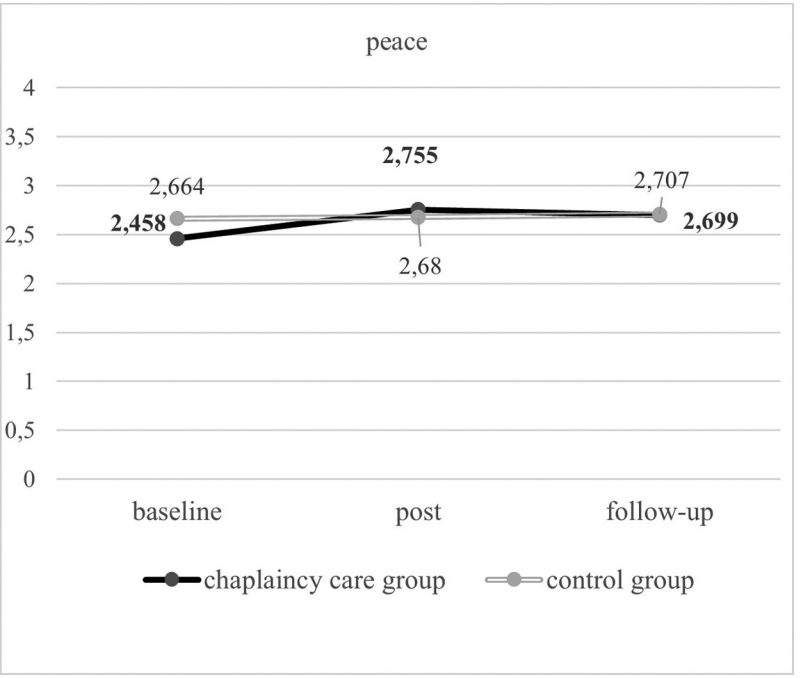


Figure 3. Estimated marginal means for peace at baseline, post and follow-up for the chaplaincy care group and control group, adjusted for background variables age, gender, education, (non) religion/(non)belief and "importance/practice/frequency"

Table 3. Summary of multilevel models.

	Existential anxiety			Peace			Anxiety			Depression		
	B	S.E.	p	B	S.E.	p	B	S.E.	p	B	S.E.	p
Intercept	1.623***	.402	<.001	2.277***	.421	<.001	.783*	.361	.031	.865*	.341	.012
Age	−.005	.003	.079	.002	.003	.587	−.004	.003	.102	.004	.002	.099
Sex												
Women	0.309***	.090	<.001	−.319***	.094	<.001	.224**	.080	.006	.202**	.076	.008
Men[a]	-	-	-	-	-	-	-	-	-	-	-	-
Education												
Primary education	−.004	.336	.989	.350	.350	.319	−.091	.300	.761	−.201	.284	.480
Lower secondary education	.126	.305	.680	.318	.318	.625	−.029	.272	.915	−.255	.258	.323
Bachelor	−.117	.314	.709	.328	.328	.402	−.161	.281	.567	−.421	.265	.114
Master	−.078	.312	.803	.324	.324	.261	−.252	.279	.367	−.457	.263	.084
PhD[a]	-	-	-	-	-	-	-	-	-	-	-	-
(Non)belief/(non)religion[b]												
Catholic	.354	.330	.284	−.147	3.44	.670	.397	.295	.180	.637*	.279	.024
Christian	.310	.340	.363	−.208	.354	.557	.462	.305	.131	.758**	.288	.009
Muslim	−.211	.571	.713	.545	.783	.487	−.265	.515	.607	.407	.490	.408
Believers w/ connect. to rel. institution[c]	.001	.360	.998	.271	.377	.473	.113	.322	.726	.406	.304	.184
Non-religious	.226	.330	.493	−.233	.344	.499	.323	.295	.275	.448	.279	.110
Humanist	.158	.345	.648	−.076	.359	.832	.392	.309	.206	.506	.292	.085
Other[a]	-	-	-	-	-	-	-	-	-	-	-	-
Importance/practice/frequency	.067	.064	.301	.143*	.067	.035	.014	.058	.805	−.114*	.054	.037
Group												
Intervention	−.086	.096	.367	−.206	.105	.051	−.011	.087	.894	.041	.083	.620
Control[a]	-	-	-	-	-	-	-	-	-	-	-	-
Time												
Follow-up	.013	.051	.799	.043	.082	.599	−.106*	.053	.046	.062	.056	.266
Post	.019	.041	.648	.016	.067	.807	−.088*	.044	.046	.016	.046	.722
Baseline[a]	-	-	-	-	-	-	-	-	-	-	-	-
Interaction [d]												
Intervention*follow-up	−.013	.071	.852	.198	.115	.087	−.010	.074	.890	−.112	.078	.151
Intervention*post	−.086	.059	.144	.280**	.095	.004	−.014	.061	.822	−.078	.065	.234
Intervention*baseline[a]	-	-	-	-	-	-	-	-	-	-	-	-

[a]Reference category. [b] Protestant and Jewish are not included as no participants identified themselves that way [c] Believers without connection to religious institution, [d] Control*follow-up, control*post and control*baseline are redundant. *** $p < .001$; ** $p < .01$; * $p < .05$.

Discussion

We performed a multilevel analysis to examine the effect of chaplaincy care intervention on anxiety, depression, peace and existential anxiety. We found, as hypothesized, that participants who received an intervention from the chaplain demonstrated significantly greater improvement in terms of peace at the time of a post-intervention test than the control group. Although the quasi-experimental design does not allow us to make strong statements about causal relations, the careful consideration and inclusion of plausible confounding factors like religiosity in the analysis, allows us to infer that the difference between the chaplaincy care group and the control group is likely to be at least partially attributable to the contribution of the chaplain. We considered the chance of finding an inter-mediate intervention-effect at follow-up smaller but not impossible, however, no indication for such an effect was found. In the three-week follow-up assessment, the improvement in the chaplaincy care group compared to the pretest was no longer significantly greater than that of the control group.

We did not find evidence that the potential intervention effect on peace was different for males versus females, for different ages, educational backgrounds, according to (non)religion/(non)belief, for how important patients rated spirituality/religion, how frequently they prayed/meditated or how frequently they had a religious practice. Our finding could potentially support the claim of (Flemish) chaplains to be available and valuable for all patients alike (Glasner, Schuhmann, & Kruizinga, 2022). However, caution is called for when interpreting these three-way interactions since they are difficult to interpret and lack of evidence for an effect does not equal evidence for lack of an effect. Therefore, more research is needed to specifically look into the factors that influence the effects of chaplaincy care.

In line with the hypotheses about peace, we expected to find a significant difference between patient improvement in the chaplaincy care versus the control group for anxiety, depression and/or existential anxiety as well but no immediate nor inter-mediate group-by-time interaction effects were found. Different reasons can be put forward for why we found an effect for peace but not for the other outcome measures as hypothesized. It may be the case that chaplaincy care, as executed in this study, really did not impact anxiety, depressive symptoms and/or existential anxiety. Nevertheless, other possibilities can be considered.

A first explanation for the lack of evidence of a chaplaincy intervention effect is the small number of chaplaincy visits. We only looked into one or a couple of moment(s) of chaplaincy care. Research within psycho-oncology and psychotherapy in general suggest that longer interventions lead to more sustained and better outcomes (Faller et al., 2013; Luyten, Blatt, & Mayes, 2012). Hospital chaplains often only have the chance to come by once or twice

during a patient's admission as the latter are becoming very short due to "budgetary pressures to keep costs down and changes in practices and technology" (Eurostat, n.d.). On the other hand, chaplaincy is often provided in a patient's second admission and gradually shifts to outpatient care and at-home chaplaincy care (Glasner et al., 2022). Further research could take this into account by looking into a series of chaplaincy visits and gather more research on the necessary number and desired length of chaplaincy visits (Bay et al., 2008).

A second possible reason why we found no evidence that the chaplaincy care had an influence on anxiety, depressive symptoms and existential anxiety could be these variables' lower sensitivity to change. While anxiety and depressive symptoms, as conceptualized in the Hospital Anxiety and Depression questionnaire, are said to be sensitive to change (Julian, 2011), they nevertheless might be more stable than feelings of peace. The construct of existential anxiety (van Bruggen et al., 2017), in its turn, might be too focused on the big, overarching existential questions *of* life: (e.g. who am I and can I fully know myself?, what is the meaning of life?). Focusing on the more variable and changeable situational existential questions *in* life may have been more accurate in this study with a single intervention (e.g., who am I when I'm ill? Do I still experience meaning in my life?). Future research could replicate this study but consider outcomes that are more sensitive to change in a short period of time, since only a one or two chaplaincy care moments are studied.

Thirdly, a heterogeneity of interventions was used in the chaplaincy care offered. Within this study, chaplains did not specifically target patients' anxiety, depressive symptoms or existential anxiety but rather tailored their inputs to what they perceived as most needed (cf. *supra*). On the one hand, this increases variability within the chaplaincy care group, resulting in more error variance in the data and making it more difficult to identify an effect (Heppner et al., 2008). On the other hand, this allows patients to set the agenda rather than be forced to discuss a certain topic that may not be relevant, and therefore having more impact (Bay et al., 2008). In that regard, the heterogeneity of interventions can both support and undermine the ability to find an impact of chaplaincy care.

Limitations and indications for further research

Notwithstanding these interesting findings that ask for further research, the potential limitations of our study should be acknowledged.

First, this study was designed as quasi-experimental so as to capture the true nature of chaplaincy care with high ecological validity. However, this design has its drawbacks: no randomization of the intervention and control group took place, resulting in a lower internal validity (Heppner et al., 2008). This means that patients included in the study could differ regarding variables that we did not measure, meaning we cannot claim that the differences found post-

intervention and at the point of follow-up can *solely* be attributed to the intervention. By using a randomized controlled trial with a standardized intervention versus an active, alternative treatment, the degree of certainty of a causal relationship between intervention and effect would be higher (internal validity). However, a randomized control group is difficult to obtain in the real world of healthcare chaplaincy. It would require the unethical assembling of a group of patients that are (temporarily) denied chaplaincy intervention in an acute care context. Moreover, chaplains often have objections to using predefined interventions in their daily practice (Damen et al., 2019). Although no randomization was used, this study is nevertheless one of the first that uses three measurement moments, a control group and multiple chaplains combined with high ecological validity. Therefore, we add to the growth of evidence-based chaplaincy care. We recommend that future research also carefully consider the many different research designs to create "a rich account of the value of chaplaincy" (Damen et al., 2019) whereby attention is paid to the search for balance between internal and external validity.

Second, although efforts were made to reduce bias in our selection and sampling, not all bias can be ruled out. It is likely that some self selection bias occurred insofar as the patients most interested in existential, spiritual or religious themes may have been keenest to participate. We sought to counteract this possibility by explaining the study design in person and assuring the need for a variety of thoughts and experiences. In addition, a sampling bias could have occurred insofar as Jews, Muslims or other religions were under-represented when compared to the whole Belgian society, probably due to language barriers. Added to this sampling bias, our selection of patients was determined by those able to complete a questionnaire on their own. Because of that criterium, patients too ill to participate were excluded (e.g., terminal patients, patients with dementia etc.). Face-to-face interviews could have alleviated this bias, but a social desirability bias may have arisen and affected the responses. Moreover, helping patients to fill in the questionnaire would have been difficult to organize in a hospital setting where privacy is lacking and time constraints apply. Future studies could use specialized sampling efforts and data collection that is suitable for fragile patients from all wards as well. Next to that, complementary research designs like qualitative studies and mixed-methods designs are necessary to account for the multiformity of the reality in hospitals and in-depth knowledge about processes of patients and their relatives (Beerse, 2018; Raad voor volksgezondheid en samenleving, 2017).

Third, we focused in this research on the impact of chaplaincy care whereby we collected information on the interventions of chaplaincy care and some basic information of the patient like age, gender and (non)belief/(non)religion. Obviously, the multiple components of a chaplaincy intervention and the patient characteristics are not the only factors that may influence the outcomes that chaplaincy may or may not have (McLeod, Islam, & Wheat, 2013; Peery,

2011). The strength and quality of the relationship between patient and chaplain, as well as the willingness of the patient to engage in the relationship and/or the extent to which they actually want change, probably will facilitate or obstruct the chance that chaplaincy care may have a measurable impact. Not only relational factors or patient factors but also chaplain factors may play their role. Although in our research, no indication was found that interventions of a specific chaplain were more efficient than those of someone else, future research could try to take the competence and/or personality of a specific chaplain into consideration.

Conclusion

This study is important for both the fields of chaplaincy research and chaplaincy practice. It can give an extra impetus to this small but growing field of research. Our findings and reflections ask for replication and can help further studies to make well-founded choices about their study design and the outcomes they choose (not) to investigate.

Our study can also be important for chaplains and policy makers. First, our results may strengthen professional, research-informed chaplaincy practice. This study gives food for thought regarding what outcomes chaplains seek for patients in hospital and stimulates reflection on which specific interventions might enhance their peace or other outcomes. Second, evidence of the effects of chaplaincy, especially in relation to peace, may increase awareness of chaplains' contributions to the healthcare team – for whom this is not always clear – and can promote and strengthen interdisciplinary relations.

Notes

1. Within the same study, we also asked patients about their hope, positive and negative religious coping and positive re-appraisal and acceptance. As we considered those variables, at least theoretically, to be processes within chaplaincy care rather than outcomes, we will focus on these variables in another paper.
2. All chaplains in the participating hospital have a Catholic background. If necessary and/or requested by the patient, a Muslim or Jewish (sometimes an imam or rabbi) or a humanist chaplain can be called. Such interventions were not included in this study since the hospital has no fitting trained employees.
3. These numbers are not cumulative because sometimes several reasons applied to a single patient.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, [EB], upon reasonable request.

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