Doctor–patient communication about existential, spiritual and religious needs in chronic pain

A systematic review

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Over the last decades physicians’ communication in health care has changed from a biomedical to a more patient-centred (Balint, 1969; Thompson, 2007) and recently a person-centred approach (Santana et al., 2018; Starfield, 2011), rooted in the biopsychosocial model (Engel, 1977). This change has an important impact on treatment for example in chronic pain diseases, which is nowadays sought treated from a multidimensional perspective (Gatchel, Peng, Peters, Fuchs, & Turk, 2007; Grandhe, Souzdalnitski, & Gritsenko, 2016). A large review of costs and consequences of chronic non-malignant pain found pain to have a significant negative impact on quality of life, ability to work, and activities of daily living (Moore, Derry, Taylor, Straube, & Phillips, 2014). A patient- or person-centred and multidimensional perspective, therefore, reflects the needs of many patients with chronic pain, because the chronicity of pain challenges their way of living and can have a severe impact on social life and activities that used to add meaning and identity (Siddall, Lovell, & MacLeod, 2015; Axon, Patel, Martin & Slack, 2018).

“Existential needs” cover the need for dealing with basic questions of the human existence such as meaning (Frankl, 1962) or fundamental conditions such as death, isolation, freedom, or meaninglessness (Yalom, 2002). In this paper, the broad term “existential needs” will be used as a pragmatic linguistic concept in line with spiritual and religious needs. “Spirituality” is defined as an experience of relatedness and ‘orientation towards an immaterial, cosmic power’ (la Cour, Ausker, & Hvidt, 2012, p. 79). “Religion” refers to beliefs, practices, or rituals related to any form of transcendence, whether God, Allah, Buddha, or a Higher Power, that have evolved within a community (Koenig et al., 2012).
“Secular meaning-making” is an approach to existential questions based on secular sources of meaning such as altruism or family values (la Cour & Hvidt, 2010). “Existential communication” includes both verbal and non-verbal communication about the questions and common conditions of human life and the diverse ways to make meaning in life, i.e. both secular, spiritual, and religious (Assing Hvidt et al., 2017; la Cour & Hvidt, 2010; Roessler & Lindemann, 2014; Ulland & DeMarinis, 2014).

The experience of meaning in life is found to be important in order to maintain high levels of wellbeing for people with chronic non-malignant pain (Dezutter et al., 2013). Indeed, some patients use spirituality or religion in their search for meaning, and in patients with chronic pain, prayer is seen as a positive coping mechanism to reduce pain and increase wellbeing (Wachholtz & Pearce, 2009). When spirituality and religiosity function as negative coping, e.g. as anger towards God, it is generally referred to as “spiritual struggles” (Exline, 2013; Exline, Krause and Broer, 2016). In a larger review investigating the relationship between spirituality, religiosity and pain intensity, they found an association between prayer and higher levels of pain (Koenig, King, & Carson, 2012). However, Koenig et al. conclude that spiritual and religious coping reduces pain over time, and another review also points to the association between positive spiritual coping and higher tolerance of pain (Siddall et al., 2015). A lot of these studies are conducted in the U.S. where religiosity is an important factor for many citizens (Puchalski & Larson, 1998). In more secular countries such as Germany, existential life orientations are said to focus predominantly on meaning, identity, isolation, and responsibility without reference to spiritual or religious worldviews (la Cour & Hvidt, 2010). A German study of 392 patients mainly from Berlin with chronic pain revealed that the patients’ spiritual needs related to inner peace, finding places of peace, beauty of nature, talking with others about fears and worries, or turning to someone in a loving attitude (Büssing, Janko, Baumann, Hvidt, & Kopf, 2013). The patients’ religious needs were in
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general of minor relevance for them compared to their spiritual needs. A small group of sceptic patients who stated that, ‘as a rational individual I do not need any belief in higher beings’ nevertheless expressed religious needs such as praying and attending religious services (Büssing et al., 2013, p. 1366). Moreover, integrating an existential perspective in cognitive-behavioural treatment for chronic pain patients at a German clinic turned out to be more effective in reducing self-perceived pain-related disability than the normal cognitive-behavioural treatment (Gebler & Maercker, 2014). These findings indicate that patients with chronic pain experience existential, spiritual, and religious needs that should be taken care of to enhance treatment outcomes, and they call for efforts towards meeting the psycho-social and existential, spiritual, and religious needs of people with chronic pain also in more secular countries (Moore et al., 2014).

Investigating the patients’ view on treatment, results from a study in a pain rehabilitation programme showed that patients wanted physicians to be involved in and listen to their personal process in general (Oosterhof, Dekker, Sloots, Bartels, & Dekker, 2014). Physicians’ attentiveness to patients’ needs was associated with positive treatment outcomes, such as shared understanding of their pain with their clinicians, and a more compliant attitude towards adopting new behaviours to improve their functioning, such as a new standing posture (Oosterhof et al., 2014). In a recent review by Best et al. (Best, Butow, & Olver, 2015), they included studies with patients with life-threatening, chronic, and acute diseases as well as ambulatory patients and members of the general public (Best et al., 2015). They found that patients prefer that the physician asks about spiritual or religious needs (Best et al., 2015). Exceptions from this preference were those who were not seriously ill and those who preferred family members for spiritual support (Best et al., 2015). These findings suggest that physicians should offer patients a dialogue about their existential, spiritual, and religious needs to identify those patients who welcome a deeper discussion about such needs or a
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referral to e.g. a chaplain. In general, it is recommended to ask patients about their existential, spiritual, and religious needs (Rafferty, Billig, & Mosack, 2015; Rippentrop, 2005; Stewart, Adams, Stewart, & Nelson, 2013), but studies are needed to explore the value of integrating existential, spiritual, and religious needs as a part of a multidimensional approach in chronic pain rehabilitation (Garschagen et al., 2015).

As argued above, in addition to the bio-psychosocial needs, the existential concerns are important to chronic non-malignant pain patients. Therefore, it would be relevant to investigate if and how physicians communicate with their patients about the existential, spiritual, and religious needs.

Aims and Research Questions

To our knowledge, no systematic review has been performed with a focus on existential communication in relation to chronic non-malignant pain. The aim of the present review was, therefore, to explore whether and how physicians approach existential communication in the encounter with patients with chronic non-malignant pain. Further, we wanted to investigate the facilitators and challenges of the existential communication. By using the word challenge, we indicate an obstacle that has the possibility to be overcome.

The following research questions were posed:

- How do physicians approach existential, spiritual, and religious needs in patients with chronic non-malignant pain?
- What are the facilitators and challenges of this communication?

Methods

This review was registered in the International Prospective Register of Systematic Reviews (Prospero) on February 5th, 2018 (registration ID: CRD42018081765) and can be accessed at http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42018081765. The
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Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statements were used to assist the methods of the study (Moher, Liberati, Tetzlaff, Altman, & Prisma Group, 2009).

Searches and Selection

The search string behind the current review was built upon three blocks: Physician-patient, chronic non-malignant pain and existential / spiritual / religious issues. Four databases were searched: Embase, Medline, PsycINFO, and Scopus from the library of Southern University, Denmark. The search process was assisted by information specialists.

For every block, a search string from a Cochrane review covering some of the same keywords was found (Candy et al., 2012; Eccleston et al., 2017; O'Connell, Wand, Marston, Spencer, & Desouza, 2014; Rolfe, Cash-Gibson, Car, Sheikh, & McKinstry, 2014), adapted to our research questions, and used in our search string combined with the Boolean operators (AND and OR) and truncations. Every search word was searched as subject headings and included as free text as well as exploded. The search string for this study can be seen in Appendix 1.

We used three search strategies. First, we searched four databases with the following search machines: Embase via Ovid, Medline via Ovid, PsycINFO via Ovid, and Scopus, all from the University Library of Southern Denmark on the 24th and 25th of January 2018. This search was repeated the 10th of January 2019 and to distinguish the novel studies since January 2018, we used the filter year range from 2017-2019. We could not include any new papers from the updated search. The second search strategy comprised reference checking in each of the articles selected for full texts from the first search strategy, and in other articles close to the subject. The third strategy was a search in the four databases for publications of two authors from the field. We could not identify any new papers in search strategies two and
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three, so we assume our search is final. Furthermore, after inclusion of articles on the topic, we contacted the author from one of the studies to identify additional information.

**Inclusion criteria were as follows:**

- Articles reporting English, Scandinavian, or German language empirical quantitative and qualitative studies from peer-reviewed journals,
- including physicians’ communication,
- adult (> 18 years old) patients with chronic non-malignant pain,
- existential, spiritual, and/or religious themes,
- reported either by physicians or patients.

**Exclusion criteria were as follows:**

- Studies where communication about the existential, spiritual, or religious needs were only recommendations in the discussion section and not a part of the studied interventions.
- Studies with focus only on the patients’ existential, spiritual, and religious experiences and needs and not about the communication with the physician.
- Studies of headache disorders due to their episodic nature.

Literature reviews, systematic reviews, or opinion articles were excluded as well as grey literature. We did not use any limitations on years.

*Changes from protocol.*

To the fifth of the inclusion criteria was added, ‘and reported either by physicians or patients’ and in the second exclusion criterion, ‘and not about the communication with a physician’.

All references were imported to Endnote (X8 PC Version). Title and abstracts were screened in accordance to inclusion and exclusion criteria using the online tool of Covidence ([https://www.covidence.org](https://www.covidence.org)). Irrelevant articles were excluded by three reviewers independently (AHA, EAH, NCH), and disagreements were resolved by discussion. We retrieved full text versions of the remaining articles, and two reviewers independently made a list for inclusion (AHA, KKR). The two reviewers resolved disagreements by discussion before consensus on eligibility was reached.
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We did not place any restrictions on the methodology and design employed in the study. The possible inclusion of qualitative research in this review was done to enable answers about patients’ and physicians’ experiences and points of view that a quantitative study cannot provide (Thomas & Harden, 2008). To deal with the common critique of qualitative research for not being generalizable due to the specific context, time, and group of participants, we have described country, year, and population of the papers included, to allow the readers to judge for themselves whether or not the context of the study is generalizable to their own context (Thomas & Harden, 2008). After inclusion of the articles on the topic, we classified and separated the articles by study design to manage them differently (Saini & Shlonsky, 2012).

Quality Appraisal

Before making a synthesis, we wanted to critically appraise the identified papers. To do so, we used a questionnaire to judge the quality of descriptive / cross-sectional studies for the quantitative and mixed method studies (Guyatt, Sackett, Cook, & et al., 1994; Guyatt GH, 1993) (Appendix 2) and added questions 12 and 13. In question 7, we deleted the text: ‘and what is the main result?’ because we chose to present our results in Table 2. We used a slightly modified quality checklist for qualitative studies from ‘Critical Appraisal Skills Programme’ (CASP, 2018) (Appendix 3). We altered the statements in CASP to questions, and in questions 4 and 6, we added a measure to estimate the answer. In question 6, we rephrased the questions keeping the content and included the original a) and b) in our question c). In question 8, we excluded the second consideration due to irrelevance. We gave each ‘correct’ item 1 point and each ‘incorrect’ item 0 points. These points were added up to form a score to indicate the quality of the articles, later used to group the articles from ‘best’ to ‘less good’.
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**Data Extraction**

The following data were relevant for the research questions and therefore extracted from each study: Country of data selection (due to the different engagement in spiritual and religious practices among countries), study design, participants, diagnosis of the participants, data collection methods, and results (see Table 1 and 2). The first author of one of the original articles (Zander, Eriksson, Christensson, & Mullersdorf, 2015) was contacted by email and confirmed that the extracted data in Table 2 was valid for the group of physicians included in the study. The first author assessed the included studies for quality against the checklists, and these findings were then reviewed together with the last author (KKR) (see appendices 2 and 3).

The extracted information was discussed separately, and for the synthesis dealt with in a narrative fashion, regardless if the studies were of qualitative or quantitative type.

**TABLE 1: Descriptive data**

**Data Synthesis**

In the qualitative studies, the results were summarised in themes, whereas they were presented in tables and words for the quantitative studies. Due to the inclusion of qualitative studies in this review, the synthesis procedure was inspired by Thomas and Hardens (2008) thematic synthesis. The first author identified data relevant for the research questions in the results section of each article and placed them in a file. After reading the text several times, descriptive passages were identified and presented in a table in words close to the original text (Table 2). Afterwards, the data-driven descriptive themes were analysed considering the research questions. Here, the quantitative and the qualitative results were discussed separately, and the synthesis of the results was reported thematically and narratively. If
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studies differ significantly in quality, the results of those of the best quality carry weight in the synthesis.

Results

The first search identified 2337 articles, nevertheless, we ended up with only four articles by the end of the screening process. Further details can be seen in Figure 1.

Figure 1: PRISMA flowchart

Study Characteristics

We found one article with quantitative design (see Table 1) (Dezutter et al., 2016), one employing a mixed method design (Zander et al., 2015), and two using a qualitative approach (Bullington, Nordemar, Nordemar, & Sjostrom-Flanagan, 2003; Carson, Katz, & Alegría, 2016).

The quantitative study was from Belgium (Dezutter et al., 2016), analysing patients’ experiences of the doctor-patient communication and their satisfaction with the attention given to the impact of pain on their meaning in life by the treatment teams or medical doctors. Patients’ satisfaction with the attention was measured using a four-point Likert scale from 1 (very dissatisfied) to 4 (very satisfied) and further related to patient functioning indicated by e.g. depressive symptoms, pain intensity, and disability.

The mixed method study was from Sweden (Zander et al., 2015). They used self-reporting measurement questionnaires in three rounds to study what 35 healthcare professionals, including two physicians, perceived as important in cross-cultural treatment with women from the Middle East. In the first round of questionnaires, the professionals answered open questions, in the second and third round they answered questionnaires, based on the analysis of the statements of the first round, on a five-point Likert scale from 1 (totally agree) to 4 (totally disagree) and 5 (‘I don’t know’).
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The two qualitative studies were from USA (Carson et al., 2016) and Sweden (Bullington et al., 2003). One third of the clinicians in the American study were physicians. Besides suffering from chronic pain, characteristics of the patients were a comorbid diagnosis with a mental illness (Carson et al., 2016). The American study covered both patients’ and clinicians’ viewpoints about treatment, and the methods were video recordings of the consultations and interviews with both patients and clinicians. The qualitative study from Sweden (Bullington et al., 2003) included three healthcare providers, one of them a physician and the others a physiotherapist and occupational therapist, with a special interest in deepening the existential and psychosocial aspects of chronic pain. In focus group interviews, they reported upon own treatment in a specialized pain clinic.

Three of the four papers contained a mixed group of health professionals, and all of them included physicians (Bullington et al., 2003; Carson et al., 2016; Zander et al., 2015).

Quality Appraisal

The quality was appraised per study design (see Appendix 2 and 3). The quantitative and the mixed methods papers had a full score (13) and were, therefore, considered highly valuable. The qualitative studies received a score of 8 out of 10 possible, as they did not include considerations of ethical issues (except giving research information to participants), and a discussion of the researchers’ own role and potential bias in the whole process was missing. Overall, the quality of the four articles was assessed to be good, with two of the articles representing even a strong quality, wherefore we included all of them in our synthesis.

Research Questions

Results from the four articles are summarised in Table 2. As a way to answer the research question, we added the authors’ interpretations of the facilitators and challenges
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regarding physicians’ existential communication. The studies are ordered in terms of the appraised quality. In the answer to the first research question, the results of the articles will be discussed separately according to the different employed methods. A brief discussion of how they can complement each other will follow. In all three answers to the research questions, a synthesis of the results will be given.

TABLE 2: Results

How do physicians approach the existential, spiritual, and religious needs of chronic pain patients?

The quantitative article.

The medical doctors’ attention to existential functioning is reported as unsatisfying of 57% of the Belgian chronic pain patients. This was further significantly related to higher measures of depression, pain, and disability scores (Dezutter et al., 2016).

The mixed methods article.

The physicians in the Swedish study (Zander et al., 2015) were the only ones in the four studies in this review using religion as a theme. However, the authors conclude that the healthcare professionals did not mention neither religion nor spirituality (p. 1203) which partly contradicts their findings showing that religion, though not spirituality, was mentioned (Table 2). Still, religion was not included as a point in its own right in the questionnaires in the same way as, e.g. physical activity, but only as something to acknowledge following cultural background (Zander et al., 2015).

The qualitative articles.

When the American clinicians approached these issues, it was sometimes done secondarily, sometimes with a focus on empathy and strength-building as a reaction to the patients’ expressions of existential needs (Carson et al., 2016). The little group of clinicians
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from a Swedish specialized pain clinic with an interest in mind-body challenges focused on meeting their patients as persons and provided space for meaning when giving the diagnosis (Bullington et al., 2003). Throughout the treatment process, they intended to have an attitude of openness and provide room for the patients to be exactly as they were (Bullington et al., 2003).

The four articles represent different methodological approaches: A quantitative, a mixed method and a qualitative approach. The strength of the quantitative article as well as the mixed method article is that they reach a higher amount of people, which can indicate a general tendency, although their results as statements cannot be deepened. However, the qualitative studies are able to analyse the physicians’ communication and include more nuances, thereby complementing the quantitative studies with a deepening of the general statements.

**Synthesising the results.**

All papers addressed one of the existential, spiritual, and religious needs (see Table 2). Only the two physicians in the study of treatment of women from The Middle East explicitly mentioned religion as a subject to acknowledge in the meeting but only as a sub-point among culture and background (Zander et al., 2015). In the other three studies (Bullington et al., 2003; Carson et al., 2016; Dezutter et al., 2016), focus was on existential themes as loss of control, hopelessness, and meaning in life.

The findings in the four studies differed yet, the results shed light on each other producing a more nuanced picture. According to the Belgian chronic pain patients, physicians did not approach the existential needs in a satisfying way resulting in higher pain, depression, and disability scores (Dezutter et al., 2016). This finding indicates, that physicians withdraw from addressing existential, spiritual, and religious needs, which is confirmed in the study among the Swedish healthcare professionals who prioritized other concerns and only
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acknowledged religion as a sub-point (Zander et al., 2015). When the patients themselves addressed existential needs, the American clinicians focused on empathy and strength building (Carson et al., 2016). Opposed to the patients, addressing the existential concerns was secondary for the clinicians whose primary focus was on establishing a diagnosis, and when communicating about these needs, the physicians’ degree of willingness to engage in this communication influenced the patients’ expressions and openness (Carson et al., 2016). Only the specialised group of Swedish clinicians prioritized actively the existential needs, especially when giving the diagnosis, and sought to include these as part of an open and person-centred approach (Bullington et al., 2003).

A synthesis of the general clinicians’ approach in the four included studies is that they rarely gave attention to the existential needs and almost never to spiritual and religious needs as something important in its own right. The exception was when the healthcare professionals were interested in the existential and psychosocial aspects of chronic pain. This provided an open attitude and space for the patient to explore potential meaning-making.

What are the facilitators and challenges for approaching these needs?

Only the two qualitative studies (Bullington et al., 2003; Carson et al., 2016) addressed as a part of their research the question of facilitators and challenges for approaching these needs (Table 2, column two). They found that facilitators for approaching the existential issues were the clinicians’ willingness to engage and allow elaboration of the patients’ expressions of their suffering and meaning-making. Challenges had to do with the physicians’ higher priority of diagnosis-related themes than their priority of themes concerning existential needs. It also related to the fact that the physicians closed further elaboration of existential patient suffering when patients brought it up. This points to another challenge emerging indirectly from the studies:
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The patients should address these themes themselves, as the clinicians were only responding to and not actively exploring the patients’ possible existential needs.

As shown in Table 2, the clinicians with a special interest in the existential aspects of chronic pain experienced that not all their patients needed elaboration of existential issues. This is per definition not a challenge for approaching the existential needs, but a reason not to prioritize it.

**The authors’ interpretation of facilitators or challenges.**

In all four studies, the authors’ interpretations of the possible facilitators and challenges based on their research were identified, and they were on a par with the results from the two studies that addressed this issue directly in their research (Bullington et al., 2003; Carson et al., 2016). In two of the studies (Carson et al., 2016; Dezutter et al., 2016), the authors agreed that physicians’ challenges were time pressure and the prioritization of the physiological aspects. Moreover, addressing these needs were not standard tasks (Dezutter et al., 2016), and some of the physicians in our review tended not to recognise spirituality or religion as important as did their patients (Zander et al., 2015). The authors found that openness to listen to the existential concerns, what really matters for the patient, and to be moved by the other are facilitators of existential communication.

**Discussion**

Based on the high quality of the included studies and their shared findings, this review suggests that physicians’ attention to the existential, spiritual, and religious needs of their chronic pain patients tend not to be sufficiently dealt with and lacking a systematic approach. Reasons for a lack of a systematic approach seems to be that physicians prioritize physiological aspects. This priority is likely to be a result of time pressure and unfamiliarity with the existential communication, or with the patients’ existential needs and perspectives.
existsential Communication with Chronic Pain Patients

Despite a broad search for papers, only the transcultural study about the women from the Middle East mentioned religion as a possible, but low prioritized patient need. This contrasts patients’ perspectives on religion as an important issue and coping strategy (Zander et al., 2015; Zander, Mullersdorf, Christensson, & Eriksson, 2013). The other studies focused on existential themes without the spiritual and religious dimensions.

The priority of existential themes above spiritual and religious dimensions likely reflects a secular tendency, where spiritual and religious language is not a common part of health-related communication (Hvidt, Hvidtjørn, Christensen, Nielsen, & Øndergaard, 2017). The lack of physician priority to spiritual and religious needs might also mirror the clinicians’ focus on physiological issues and imply a hesitant attitude in general towards existential, spiritual, and religious concerns. Some physicians might find that these concerns are not part of their own area of expertise (Rippentrop, 2005) and would prefer to refer these patients to e.g. a chaplain. This will, however, require that the physicians ask the patients about their needs, to determine whether a referral is relevant. Others might be afraid of imposing their own meaning system on the patients and to be seen as proselytising (Mueller, Plevak, & Rummans, 2001; Rippentrop, 2005). Imposing own attitude is an ethical issue of high importance, as medical education stresses to neither prescribe nor judge patients’ existential, spiritual, and religious needs (Betancourt, 2003; Stone & Moskowitz, 2011).

Instead of imposing one’s own meaning-system, it is clinically important to listen to and try to understand patients’ needs in coping, also when coping with chronic pain (Mueller et al., 2001).

In synthesizing the results, we would like to highlight the patients’ responsibility. According to the authors’ descriptions and analysis in the studies, if physicians were supposed to include these themes in the treatment, it was the patients’ own responsibility to express their needs and concerns. For some patients, this could pose a challenge, due to the
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complex and vulnerable situation characterising many patients with chronic pain. Not all patients might have the resources to take such an initiative but are dependent upon the professionals’ openness and ability to regularly check the patients’ needs (Oosterhof et al., 2014). This could also explain why a group of patients is not satisfied with the physicians’ attention to their existential needs. Beyond patient satisfaction, another reason to recommend more attention to the existential needs of chronic pain patients is that dissatisfaction with the physician’s attention to existential needs was related to higher pain, depression, and disability score (Dezutter et al., 2016).

Further, when combining the papers in our review, we also saw some interesting differences. When comparing the group of clinicians interested in mind-body challenges (Bullington et al., 2003) with the practitioners from the other involved studies (Carson et al., 2016; Dezutter et al., 2016; Zander et al., 2015), we found a remarkable difference in their approach. This difference is due to special interest, knowledge, and practice in a more multidimensional and person-centred way. Moreover, the theoretical approach of the included studies is different. Dezutter et al. (2016) and Bullington et al.s (2003) studies are based on a biopsychosocial-existential model of care, whereas the other two studies (Carson et al., 2016; Zander et al., 2015) have broader perspectives asking more generally about doctor-patient relationship. Therefore, the theoretical foundation of the two first mentioned studies helps to sharpen the focus in the articles. However, the strength in the last two mentioned articles with the broader approaches is that the themes emerged without the researchers asking specifically. Although these differences between the studies exist regarding the physicians’ approach, the comprehensive results from all four articles recommend the physicians to engage in existential communication in an open way and to listen to what really matters to the patient.
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Based on the reviewed articles, existential communication is possible in practice when the physician meets the patient as a person and listens to the sufferings with empathy. This approach is intended to give the patient space to potentially create new meaning in life. In addition, such an approach can make an impact that potentially moves the physician as a human being, because it requires empathy, sensitivity, and ability to listen actively.

Knowledge about own feelings and existential concerns is essential to be able to differentiate between own feelings and themes in life, and the patient’s life story and concerns (Jørgensen, 2018).

Our findings emphasize the importance of education and supervision to be able to listen to patient sufferings with empathy also because it may potentially move the health professional personally. In addition, there is a call for training to enhance the physicians’ attention to and communication about their patients’ existential needs. This is on a par with what the pioneers of patient-centred medicine emphasize, namely that health professionals need supervision and training at research seminars and continued learning (Balint, 1969). In general practice and hospital settings in modern health care, it has also been shown that courses and training in existential communication proved helpful to increase the practitioners’ awareness of patients in need for existential communication and their confidence in taking professional care of existential needs (Assing Hvidt et al., 2018; Roessler & Lindemann, 2014). It is possible, that these experiences could be transferred to the area of chronic pain treatment.

The studies in this review indicate that physicians rarely engage the existential needs of their chronic non-malignant pain patients through existential communication. The number of publications available concerning existential communication is remarkable. Considering that chronic pain rehabilitation is an area with a person-centred and multidimensional approach, one could expect more studies about how the patients’ existential, spiritual, and
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religious needs are addressed. Therefore, to assist physicians and enhance treatment outcomes, more research is needed to study existential communication in chronic pain treatment, and rehabilitation and to explore how best to reduce physicians’ challenges of approaching their patients’ existential, spiritual, and religious needs. Furthermore, we recommend future studies to evaluate tools and training courses focused on this specific area in chronicity and non-malignant pain.

Methodological Considerations

A strength of this review is the inclusion of both qualitative and quantitative studies. The qualitative studies deepen and complement the quantitative findings, hereby reflecting the principle of triangulation, and increasing the validity of the present review (Frederiksen, 2015). The use of self-report data in two of the articles contains a possible limitation of selection-bias, and given that the study participants were convenience sampled, they may represent a biased group. Bullington et al. (2003) chose a biased sample, given that the inclusion criteria were a special interest in holistic care. It could have affected the results that the participants knew about the researcher’s special interest before they discussed own treatment approaches. On the other hand, this study also reported cases that contradicted the main findings. In their study, Zander et al. (2015) used open questions and in total three rounds of questionnaires to confirm statements, so the finding of low prioritising of religion, without mentioning existential or spiritual needs, seems to be a valid reflection of the population. As mentioned in the Results section, it would have heightened the general quality of two of the studies, if the authors had discussed own role and potential bias in the research process (Howitt, 2013). Nevertheless, due to their transparent approach, the impact hereof on the analysis might be low.

In our review a possible limitation is the mixed group of healthcare professionals, including both medical doctors and other professionals. This may limit the strength of
targeted recommendations to one professional group. However, chronic pain centres are often interdisciplinary, which enhances the applicability of our results in chronic pain treatment and rehabilitation. Because of the mixed group of clinicians in the articles and due to our research questions, we ensured that physicians were a part of the participants in each of the studies and conveyed it transparently.

In this review, we used previously validated checklists with few alterations to make them relevant for the review. The clear separation between the original data-driven descriptive themes and the research question-driven analytical themes is done to allow for transparency (Thomas & Harden, 2008). Three of the studies are from Western European countries increasing the transferability to similar countries and contexts. The small number of papers eligible for this review is a clear limitation in relation to making firm conclusions. Nevertheless, the ones included represent variability in settings (transcultural, mental health, a specialized pain clinic and members of a national pain-patient organization) indicating a similar trend across diverse settings.

Conclusions

Although chronic pain treatment has a multidimensional approach and patients with chronic pain have existential, spiritual, and religious needs, there are very few studies on how physicians address these needs in practice. The general picture from our study was that physicians paid less attention to existential, spiritual, and religious needs than patients wished for, and only one study mentioned religiosity, thus indicating a gap between patient needs and physician competencies in chronic pain rehabilitation. With few exceptions, the physicians did not meet the patient as a whole person with psychological, social, and existential needs in an individual combination. The different ways patients with chronic diseases make meaning in life, and how their meaning-making interacts with other disease-related needs, are subjects for further studies. Such studies could contribute with valuable knowledge as a foundation for
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physicians’ existential communication. Based on this review, further research is encouraged among physicians in chronic pain care to explore the challenges in existential communication and possible opportunities to enhance the attention to these issues for the benefit of the patients. This will further allow for designing and evaluating applicable tools and training courses, to ensure that physicians are well equipped.

Acknowledgements

Declaration of conflicting interests
References


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doi:10.1080/08873267.2013.865188
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Guyatt, G. H., Sackett, D. L., Cook, D. J., & et al. (1994). Users’ guides to the medical literature: II. How to use an article about therapy or prevention B. What were the results and will they help me in caring for my patients? *Jama, 271*(1), 59-63. doi:10.1001/jama.1994.03510250075039


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**TABLE 1: Descriptive data**

<table>
<thead>
<tr>
<th>1st Author Year</th>
<th>Country</th>
<th>Study design</th>
<th>Participants</th>
<th>Diagnosis / characteristics of the patients</th>
<th>Data collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dezutter 2016</td>
<td>Belgium</td>
<td>Quantitative</td>
<td>163 patients from a national pain-patient organization</td>
<td>Chronic pain patients (≥three months after curative treatment)</td>
<td>Questionnaires, among others about patients’ satisfaction with the medical doctors’ attention to their meaning in life</td>
</tr>
<tr>
<td>Zander 2015</td>
<td>Sweden</td>
<td>Mixed method mainly with a quantitative design</td>
<td>35 health care professionals (including two physicians) from health centres and rehabilitation clinics in areas with high proportion of Iraqis</td>
<td>Middle Eastern women with chronic pain</td>
<td>Delphi method with three rounds: Open questions about themes in treatment, statements to evaluate, and adjusted statements to see if consensus was achieved</td>
</tr>
<tr>
<td>Carson 2016</td>
<td>USA</td>
<td>Qualitative</td>
<td>30 patients and clinicians from community mental health settings</td>
<td>≥3 physical problems “most of the time” e.g. arthritis, chronic physical pain, severe headaches</td>
<td>- 60 minutes’ anamneses, video recordings - questionnaires (sociodemographic information and perceived physical health)</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Setting</td>
<td>Sample</td>
<td>Pain Characteristics</td>
<td>Method</td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
<td>---------</td>
<td>--------</td>
<td>----------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Bullington 2003</td>
<td>Sweden</td>
<td>Qualitative</td>
<td>3 clinicians from a specialised pain clinic</td>
<td>Complex chronic pain (≥6 months non-malignant pain)</td>
<td>Focus group interview, monthly 90 minutes over 6 months</td>
</tr>
</tbody>
</table>

**TABLE 2: Results**

<table>
<thead>
<tr>
<th>Research questions</th>
<th>Study</th>
<th>How do the physicians approach existential/ spiritual/ religious issues?</th>
<th>What are the facilitators or challenges?</th>
<th>Studies’ interpretation of challenges or complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study</td>
<td>Dezutter (2016)</td>
<td>57% of the patients were dissatisfied with their doctor’s attention to existential needs related to higher pain, depression, and disability scores.</td>
<td>Not applied</td>
<td>Existential topics are not standard task. Time pressure and physiological focus can challenge the physicians’ attention to patients’ existential needs. They need not solve these issues, but to be open towards listening to existential concerns.</td>
</tr>
<tr>
<td>Study</td>
<td>Zander (2015)</td>
<td>The two physicians did not mention religion per se but as something to acknowledge as a part of the information on the woman’s background, culture, and situation in life.</td>
<td>Not applied</td>
<td>Contrary to the patients (that were interviewed in a previous study) the physicians do not express religion or spirituality as important. This dilemma impacts coping behaviour and pain management and</td>
</tr>
<tr>
<td>Carson (2016)</td>
<td>Focus on empathy and strength building, when patients express existential hopelessness.</td>
<td>Patients’ expression of existential themes and meaning making were influenced by the clinician’s willingness to engage.</td>
<td>Due to different treatment priorities and competing demands in a limited timeframe, clinicians may not probe the depth of meaning or listen to what really matters to the patients. This may disrupt healing opportunities for meaning-making and an improved engagement in treatment.</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>In contrast to the patient, shift from focus on strict diagnosis to broader issues of meaning occurred secondarily for the clinician.</td>
<td>Weighed against other priorities such as establishing a diagnosis with a causal explanation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullington (2003)</td>
<td>Giving a medical diagnosis provides the patient with a socially acceptable label, a sense of control, and meaning. They meet the patient as a person, provided by openness and an attitude of <em>letting-the-other-be.</em></td>
<td>The open attitude provides a space for new meaning where patients can rediscover agency. Some patients only need a respectful relationship together with biological interventions to heal.</td>
<td>The clinician must be willing and able to listen, not withdrawing to an “objectifying” stance, and let her-/himself be moved by the other.</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1: PRISMA flowchart

**Appendix 1. Search strategies**

Scopus, 10.01.19 resulted in: 438 hits (25 new hits since the last search 25.01.18 with 413 hits)

(TITLE-ABS-KEY (existenti* OR spirit* OR religious OR religion* OR soul OR religiosity OR meditat* OR (pray* OR prey*)) OR ((pastoral W/3 care) OR (pastoral W/3 caring)) OR anoint* OR "laying on of hands" OR (((belief* OR believe*) AND (relig* OR spiritual))) OR (deity OR divinity OR divine) OR faith* OR ("psychic healing" OR "inner peace") OR (church* OR cleric OR clergy* OR priest* OR preacher* OR vicar* OR (minister* W/10 religi*) OR (minister W/10 church)) OR (shamanism OR mystic* OR transcend*or AND esoteric) OR (existential OR salutogenesis) OR (buddhism OR buddhist* OR christian* OR catholic* OR "eastern orthodoxy" OR "Jehovah* witness*" OR protestant* OR hindu* OR islam* OR judaism OR dao* OR sikh* OR rastafari*) OR (confucianism OR mystic* OR "eastern philosophy") OR (god OR "supreme being" OR "higher being") AND (TITLE-ABS-KEY ((arthriti* OR osteoarthriti*) OR ((chronic* OR back OR musculoskel*) OR intractabi* OR neuropath* OR "phantom limb" OR "fantom limb" OR neck OR myofasc* OR "temporomandib* joint*" OR "temperomandib* joint*" OR central OR post*stroke OR complex OR regional OR "spinal cord") W/4 pain*) OR (sciatica OR back-ache OR back*ache OR lumbago OR fibromyalg* OR (trigemin* W/2 neuralg*) OR (herp* W/2 neuralg*) OR (diabet* W/2 neuropath*) OR (reflex W/4 dystroph*) OR (sudeck* W/2 atroph*) OR causalg* OR (whip-lash OR (whip*lash OR polymyalg* OR (failed AND back W/4 surg*) OR (failed AND back W/4 syndrome*)) AND (TITLE-ABS-KEY (((physician W/2 patient*) OR (doctor W/2 patient*) OR ("medical doctor" W/2 patient*) OR (practitioner W/2 patient*)) OR consult* OR encount* OR (hospitalist* OR clinician*) OR (medical OR (practi* OR staff OR personnel OR profession* OR organisation*))) OR (((therapeutic* OR working) W/2 alliance) OR therapeutic AND relation*) OR (therapeutic* W/2 (relationship* OR alliance*))) AND AND ORIG-LOAD-DATE AFT 20180125)

PsychInfo 10.01.19: 478 hits

1. exp Physicians/ or exp Health Personnel Attitudes/ or exp Professional Consultation/ or exp Treatment/ or exp Intervention/ or medical personnel/ or clinicians/ or exp therapeutic processes/ or therapeutic alliance/
2. (physician patient* or patient physician* or doctor patient* or medical doctor patient* or patient medical doctor* or practitioner patient* or patient practitioner* or consult* or encount*).mp. or (hospitalist* or clinician*).ti,ab,id. or (medical adj (practi* or staff or personnel or profession* or organisation*)).ti,ab,id. or (((therapeutic* or working) adj alliance) or therapeutic relation*).ti,ab,id. or (therapeutic* adj (relationship* or alliance*)).tw. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
3. 1 or 2
4. (arthriti* or osteoarthriti*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
5. exp Chronic Pain/ or Fibromyalgia/, or exp Arthritis/
6. ((chronic* or back or musculoskel* or intractabi* or neuropath* or phantom limb or fantom limb or neck or myofasc* or "temporomandib* joint*" or "temperomandib* joint*" or "tempromandib* joint*" or central or post*stroke or complex or regional or spinal cord) adj4 pain*).tw.
7. (sciatica or back-ache or back*ache or lumbago or fibromyalg* or (trigemin* adj2 neuralg*) or (herp* adj2 neuralg*) or (diabet* adj2 neuropath*) or (reflex adj4 dystroph*) or (sudeck* adj2 atroph*) or causalg* or (whip-lash OR (whip*lash OR polymyalg* OR (failed back adj4 surg*) OR (failed back adj4 syndrome*)).tw.
8. 4 or 5 or 6 or 7
9. exp Existentialism/ or exp Meaning/ or exp Spirituality/ or exp RELIGION/ or spiritual therapies.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
10. (existenti* or spirit* or religious or religion* or soul or religiosity or meditat* or (pray* or prey*)) or ((pastoral adj3 care) or (pastoral adj3 caring)) or anoint* or "laying on of hands" or ((belief* OR believe*) and (relig* OR spiritual)) or (Deity or divinity or divine) or (excultic* OR ("psychic healing" OR "inner peace") OR (pastoral W/3 caring)) or anoint* or "laying on of hands" or ((belief* OR believe*) and (relig* OR spiritual)) or (Deity or divinity or divine) or (excultic* OR ("psychic healing" OR "inner peace") OR (pastoral W/3 caring))
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healing or "inner peace") or [church* or cleric or clergy* or priest* or preacher* or (minister* adj10 religi*) or (minister adj10 church)] or (shamanism or mystic* or transcend*or esoteric) or (existential or salutogenesis) or (Buddhism or Buddhist* or Christian* or catholic* or "eastern orthodoxy" or "Jehovah* witness*" or protestant* or Hindu* or Islam* or Judaism or Tao* or Sikh* or Rastafari*) or (confucianism or mystic* or "eastern philosophy") or (God or "supreme being" or "higher being").mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
11. 9 or 10
12. 3 and 6 and 11

Medline 10.01.19: 562 hits

1. exp Patient Satisfaction/ or exp Physician-Patient Relations/ or exp Physicians/ or exp Patient Care Team/ or exp Clinical Competence/ or exp medical staff/ or faculty, medical/ or physician's role/ or physician's practice patterns/ or Physician incentive plans/ or exp Health Personnel/ or exp Patient Care Management/ or exp Attitude to health/ or exp Consumer Satisfaction/
2. (physician patient* or patient physician* or doctor patient* or patient doctor* or medical doctor patient* or patient medical doctor* or praktiner patient* or patient practitioner* or consult* or enount*).mp. or (hospitalist* or clinician*).tw. or (medical adj (pract* or staff or personnel or profession* or organization*)).tw. or (((therapeutic* or working) adj alliance) or therapeutic relation*).tw. or (therapeutic adj (relationship* or alliance*)).tw. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
3. 1 or 2
4. exp Pain, Intractable/ or exp Chronic Pain/ or Fibromyalgia/ or exp Arthritis/
5. (arthriti* or osteoarthriti*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
6. (chronic* or back or musculoskel* or intractabl* or neuropath* or phantom limb or fantom limb or neck or myofasc* or "temporomandib* joint*" or "temporomandib* joint*" or "temporomandib* joint*" or central or post*stroke or complex or regional or spinal cord) adj4 pain*).tw.
7. (sciatica or back-ache or back*ache or lumbago or fibromyalg* or (trigemin* adj2 neuralg*) or (herp* adj2 neuralg*) or (diabet* adj2 neuropath*) or (reflect adj4 dystroph*) or (sudeck* adj2 atroph*) or causalg* or whip-lash or whip*lash or polymyalg* or (failed back adj4 surg*) or (failed back adj4 syndrome*)).tw.
8. 4 or 5 or 6 or 7
9. ((existenti* or spirit* or religious or religion* or soul or religiousity or meditat* or (pray* or prey*) or ((pastoral adj3 care) or (pastoral adj3 caring)) or anoint* or "laying on of hands" or (belief* or believe*) and (relig* or spiritual)) or (Deity or divinity or divine) or faith*) or (psychic healing or "inner peace") or (church* or cleric* or clergy* or priest* or preacher* or vicar* or (minister* adj10 religi*) or (minister adj10 church)) or (shamanism or mystic* or transcend*or esoteric) or (existential or salutogenesis) or (Buddhism or Buddhist* or Christian* or catholic* or "eastern orthodoxy" or "Jehovah* witness*" or protestant* or Hindu* or Islam* or Judaism or Tao* or Sikh* or Rastafari*) or (confucianism or mystic* or "eastern philosophy") or (God or "supreme being" or "higher being").mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
10. exp "Religion and Medicine"/ or exp Spiritual Therapies/ or exp Religion/
11. 9 or 10
12. 3 and 6 and 11

EMBASE 10.01.19: 1604 hits

1. exp Pain, Intractable/ or exp Chronic Pain/ or Fibromyalgia/ or exp Arthritis/
2. (arthriti* or osteoarthriti* or (chronic* or back or musculoskel* or intractabl* or neuropath* or phantom limb or fantom limb or neck or myofasc* or "temporomandib* joint*" or "temporomandib* joint*" or "temporomandib* joint*" or central or post*stroke or complex or regional or spinal cord) adj4 pain*) or (sciatica or back-ache or back*ache or lumbago or fibromyalg* or (trigemin* adj2 neuralg*) or (herp* adj2 neuralg*) or (diabet* adj2 neuropath*) or (reflect adj4 dystroph*) or (sudeck* adj2 atroph*) or causalg* or whip-lash or whip*lash or polymyalg* or (failed back adj4 surg*) or (failed back adj4 syndrome*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]
3. 1 or 2
4. exp physician/ or patient care/ or exp doctor patient relation/ or exp physician attitude/ or exp medical practice/ or exp consultation/ or exp medical personnel/
5. (physician patient* or patient physician* or doctor patient* or patient doctor* or medical doctor patient* or patient medical doctor* or praktiner patient* or patient practitioner* or consult* or enount*).mp. or (hospitalist* or clinician*).tw. or (medical adj (pract* or staff or personnel or profession* or organization*)).tw. or (((therapeutic* or working) adj alliance) or therapeutic relation*).tw. or (therapeutic adj (relationship* or alliance*)).mp.
6. 4 or 5
7. ((existenti* or spirit* or religious or religion* or soul or religiousity or meditat* or (pray* or prey*) or ((pastoral adj3 care) or (pastoral adj3 caring)) or anoint* or "laying on of hands" or (belief* or believe*) and (relig* or spiritual)) or (Deity or divinity or divine) or faith*) or (psychic healing or "inner peace") or (church* or cleric* or clergy* or priest* or preacher* or vicar* or (minister* adj10 religi*) or (minister adj10 church)) or (shamanism or mystic* or transcend*or esoteric) or (existential or salutogenesis) or (Buddhism or Buddhist* or Christian* or catholic* or "eastern orthodoxy" or "Jehovah* witness*" or protestant* or Hindu* or Islam* or Judaism or Tao* or Sikh* or Rastafari*) or (confucianism or mystic* or "eastern philosophy") or (God or "supreme being" or "higher being").mp. [mp=title, abstract, heading word, tests & measures]
### Appendix 2. Quality checklist of descriptive / cross sectional studies

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (Y) Can’t tell (C) No (N)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Did the study address a clearly focused issue?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>2. Did the authors use an appropriate method to answer their question?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>3. Were the subjects recruited in an acceptable way?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>4. Were the measures accurately measured to reduce bias?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>5. Were the data collected in a way that addressed the research issue?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>6. Did the study have enough participants to minimize the play of chance?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>7. How are the results presented?</td>
<td>In tables and in words</td>
<td>In a table with themes, statements and percentage of consensus</td>
</tr>
<tr>
<td>8. Was the data analysis sufficiently rigorous?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>9. Is there a clear statement of findings?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>10. Can the results be applied to the local population?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>11. How valuable is the research?</td>
<td>Highly valuable as a study of European population</td>
<td>Highly valuable in the cross-cultural treatment of women with chronic pain</td>
</tr>
<tr>
<td>12. Are ethical considerations and informed consent taking care of?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>13. Were patients’ diagnosis reported were possible?</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

### Appendix 3. Quality checklist of qualitative studies

<table>
<thead>
<tr>
<th>Quality Criterion</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bullington et al. 2003</td>
</tr>
<tr>
<td></td>
<td>Carson et al. 2016</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Was there a clear statement of the aims of the research? (goal and relevance)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>2. Does a qualitative method appear appropriate regarding the research question?</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>3. Was the research design appropriate to address the aims of the research? (has the researcher justified the research design?)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>4. Was the recruitment strategy described and justified? (&gt;/-2+ =yes) Selection procedure, choice of participants Justification of the selected participants Discussions around recruitment</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Was the data collected in a way that addressed the research issue? Is the data collection setting justified? Is it clear how data were collected? Is there a justification of the methods chosen? Are the methods made explicit? If methods are modified, has the researcher explained how and why? Is the form of data clear? Is there a discussion of saturation of data?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>6. Has the researcher critically examined / discussed and if relevant considered (0/3=No, 1or/3= partially, 3/3 = yes) a) their own role b) potential bias and c) potentially influence on the whole process? d) own responses to events during the study and implications of changes in the research design</td>
<td>No</td>
<td>No (only mentioning training and supervision to research assistant)</td>
</tr>
<tr>
<td>7. Have ethical issues been taken into consideration? Are there details of how the research was explained to participants? Has the researcher discussed issues raised by the study (e.g. confidentiality)? Has approval been sought and obtained from the ethics committee?</td>
<td>No</td>
<td>Not clear (Institutional review board approval)</td>
</tr>
<tr>
<td>8. Was the data analysis sufficiently rigorous? Is there a relatively in-depth description of the analysis process? Did the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process? Is sufficient data presented to support the findings?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
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Are contradictory data considered?
Did the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation?  
-  
+  

9. Is there a clear statement of findings?
Are they explicit?
Is there a discussion of the evidence?
Has the researcher discussed the credibility of their findings?
Are the findings discussed in relation to the original research question?
Yes  
+  
+  
-  
+  

Discussion 10. How valuable is the research?
Does the researcher discuss the contribution the study makes to existing knowledge or understanding?
+  
+  

Do they identify new areas for research?
Have they discussed whether and how findings can be transferred or used?
+  
+  

Total  
8/10  
8/10