Assessment of anxiety in advanced cancer patients: a mixed methods study

Hanneke Veldhuisen, Danielle Zweers, Everlien de Graaf and Saskia Teunissen

Abstract

Background: Anxiety is a risk for reduced quality of life in advanced cancer patients. However, it is an overlooked symptom without routine use of instruments to assess anxiety. Aim: To gain insight into the use of instruments by nurses to assess anxiety in advanced cancer patients and the rationale behind it. Methods: Data with regard to nurses’ use of instruments were collected from medical records of 154 patients in three settings. Additionally, 12 nurses were interviewed. Findings: Four instruments were used to assess anxiety. The frequency of assessed anxiety differed among settings. The application of instruments guided patient care and improved communication. Lack of knowledge was the main reason not to use instruments. Conclusions: Application was influenced by patient and environmental factors, knowledge, attitudes and beliefs of nurses. Multifaceted strategies, leadership and education of nurses in the assessment and analysis of anxiety are needed to improve symptom management in advanced cancer patients.

Key words: Nurses ● Advanced cancer ● Palliative care ● Anxiety ● Symptom assessment ● Methods

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Anxiety is a common symptom in advanced cancer patients and data from 7270 patients showed a pooled prevalence of 30% (Teunissen et al, 2007). Carpenito-Moyet (2007) described anxiety as:

‘A state in which an individual experiences feelings of uneasiness and activation of the autonomic nervous system in response to a vague, nonspecific threat.’

Anxiety can fluctuate at critical time points in the illness trajectory and is often seen as an understandable reaction to the threat of cancer, treatment and progression of illness (Traeger et al, 2012). Moreover, anxiety may affect effective decision-making and could cause exacerbation of other symptoms, for example pain and dyspnoea (Bottomley, 1998; Traeger et al, 2012). Furthermore, anxiety is associated with impaired quality of life (Smith et al, 2003; Buzgova et al, 2015).

Symptom management, as a systematic approach to observe, monitor and treat symptoms and evaluate the effect of interventions, is a key component of palliative care (World Health Organization, 2014). Adequate symptom management should start with routine assessment using appropriate instruments to facilitate early identification of symptoms and monitor symptom intensity over time (Teunissen et al, 2007).

The studies of Rhondali et al (2012) and Mehle et al (2014) have demonstrated that anxiety is one of the most underrecognised symptoms without assessment with validated instruments. Research has shown that decisions based on clinical impression alone have the potential to be biased and have an overall low accuracy to detect patients’ distress (Rhondali et al, 2012). In addition, patients rarely express their feelings of anxiety directly during regular consultations (Söllner et al, 2001). Therefore, anxiety should be routinely assessed, which means daily, weekly or monthly depending on the situation of the patient, using appropriate instruments within a systematic approach (Bruea, 2008; Kirkova, 2009; Bainbridge et al, 2011; Traeger et al, 2012; Mehle et al, 2014). Routine assessment of anxiety in daily care for admitted patients is necessary to 1) Ameliorate early identification of anxiety, 2) Understand the underlying causes of anxiety and influencing factors, 3) Assess if anxiety is significantly impairing, and 4) Improve and facilitate interdisciplinary communication and...
**Patients rarely express their feelings of anxiety directly during regular consultations.**

Research consultations. During regular anxiety directly feel their expressions of anxiety were the assumptions that 1) Patients are not able to grade their symptom intensity, 2) Routine assessment is too time-consuming for patients, families as well as for professionals and 3) The standard consultation and the clinical observations of the bedside nurse are sufficient to recognise all symptoms (Bruera, 2008; Kirkova, 2009; Bergh et al, 2011). Particularly outside office hours, nurses are generally the first professionals to be confronted with patients who suffer from anxiety and are therefore in the best position to assess. Although some of the barriers for clinicians to use instruments have been identified, it remains unclear why nurses do not take advantage of instruments to assess anxiety in vulnerable advanced cancer patients.

To improve routine assessment of anxiety and consequently decrease the amount of unrecognised needs in advanced cancer patients, more insight into the use of instruments in nursing practice is needed. Therefore, this study aims to evaluate the nursing practice in using instruments to assess anxiety and gain insight into the rationale behind the choice of nurses whether or not to use instruments in the assessment of anxiety.

### Method

#### Design

This study is a descriptive study using a sequential explanatory mixed methods design combining quantitative and qualitative data *(Figure 1)* (Creswell and Plano Clark, 2011). In this study, the quantitative data on instrument use was collected from medical records retrospectively. To explain the quantitative results, semi-structured interviews were performed to understand the rationale behind the choice of nurses whether or not to use instruments in the assessment of anxiety.

For the quantitative phase, consecutive sampling was used to select all discharged or deceased patients in the included settings during 5 months (October 2012—February 2013). Eligible patients had to be >18 years of age and diagnosed with advanced cancer before or during admission. If a patient was admitted before the start of the study, but was discharged or deceased during the research, data from the entire admission were analysed. Readmissions and transfers of patients among settings were analysed as ‘new encounters’ to get insight into the full range of possible assessments.

For the qualitative phase, registered nurses and nursing students working at one of the three settings were invited to participate. Nursing students were also invited to take part to evaluate the contribution of their education regarding instrument use to assess anxiety *(Box 1)*. The key individuals in the settings were asked to send an email with study information to all eligible nurses and nursing students. The nurses who agreed to take part sent an email to the researcher. Initially, three nurses per setting were interviewed. Sampling continued until saturation was reached.

#### Sample/participants

A convenience sample was drawn to select three settings in the Netherlands: 1) a university hospital (department of medical oncology), 2) a general hospital (department of respiratory lung diseases), and 3) a hospice.

#### Data collection

**Quantitative phase**

Data on the applied instruments were extracted from the medical records using a purpose-designed data collection sheet. Instruments used to assess anxiety were categorised as self-report, bedside report, or both. The instruments were classified as follows: 1) Self-report instruments, 2) Bedside report instruments, 3) Both self-report and bedside report instruments, or 4) No instrument used.

**Qualitative phase**

Semi-structured interviews were performed to understand the rationale behind the choice of nurses whether or not to use instruments in the assessment of anxiety.

*Box 1. Nursing students in the Netherlands*

In the Netherlands nursing students are involved in daily patient care in a supervision model together with (specialised) registered nurses (RNs). Each ward in each hospital in the Netherlands has a blended team structure with RNs, specialised RNs and nursing students. Depending on the level of complexity of nursing diagnoses or problems, nurses and nurse students will be involved in the care of the patient.
developed data collection tool (Gregory and Radovinsky, 2012). An overview of applied instruments to assess anxiety was collected by type and frequency of used instruments. Anxiety in the medical records was analysed by three items: 1) Presence or absence on admission, 2) Presence or absence during admission, 3) In case of prevalent anxiety, the frequency anxiety was mentioned in the medical record.

After a pilot test on face validity and feasibility of the data collection tool the intensity score of anxiety measured by the instruments was added.

The following demographics were collected: age, gender, primary cancer site, duration of admission in days, survival from the day of admission, and functional status assessed with the Karnofsky's Performance Scale (KPS) (Schag et al, 1984).

The KPS runs from 100 to 0 where a higher score indicates a better performance of daily activities. The KPS score was obtained from the nursing assessment in the first 24 hours after admission. If the KPS was not described, a researcher classified the KPS score based on the available information about physical functioning described in the medical record.

Qualitative phase
After the quantitative phase, the interview schedule was developed, directed by the quantitative results. The interview questions aimed to clarify how nurses discuss anxiety with the patient and if nurses use instruments to assess anxiety. Furthermore, why nurses use or do not use instruments, how the use of applicable instruments was integrated into daily care and the use of setting specific methods with regard to how, when and why instruments were used to assess anxiety. Finally, if nurses used instruments to assess anxiety, they were asked to describe a patient situation in which they had done so. Before the interview, demographics of the participating nurses were collected. One of the researchers interviewed all the nurses.

Ethical considerations
Ethical permission to conduct this study was obtained from the local research ethics committee (protocol number 13-006/C) based on Dutch regulations. Furthermore, the management of the facilities gave permission to perform this study within their setting and to use the patient information anonymously. Written informed consent was obtained from the nurses taking part in the interviews.

Data analysis
The quantitative data was analysed descriptively. To analyse group differences the Pearson’s Chi-square for categorical data was used. Continuous data were analysed using the Kruskall-Wallis test and if appropriate, the Mann-Whitney U test, to analyse differences between two settings (Portney and Watkins, 2009; Polit and Beck, 2012). All statistical analyses were performed using the Statistical Package for the Social Sciences (Version 22.0; IBM Corp, US), with a two-sided alpha of 0.05.

Thematic analysis was performed by two researchers to reduce the transcribed interviews into themes using NVivo for Windows (Version 10; QRS international, US)

Validity and reliability
Several precautions were taken to ensure reliability and validity of the data. First, because data selection took place in the same setting, comparison of quantitative and qualitative data was realised.

Second, the development and testing of the data collection tool resulted in a systematic approach, which has improved the reliability, validity and reproducibility of the results (Gregory and Radovinsky, 2012).

Trustworthiness
To increase credibility, the researcher was trained in interviewing the participants. The interviews were digitally recorded and transcribed verbatim by one researcher. Dependability of the interviews was enhanced by the use of an interview schedule with standardised questions and by analysing data by two researchers working independently. Both researchers came to an agreement about the formulation of the themes. Furthermore, member checks were carried out, peer-debriefing discussions were organised and methodological memos were used to reflect on the interviewers’ role and to record methodological issues (Creswell, 2007). To establish the transferability of the data, thick description was performed. Furthermore, a native speaker translated the quotations.

Results
Quantitative phase
In total, 154 eligible patients were included in this study, 42% were male, the average age was 63 years (range 27–92). Demographics are presented in Table 1. At the moment of analysis, 69 patients were deceased with a median survival of 29 days after admission (range 1–173). Readmission took place in 32 patients at the
university hospital and in 73 patients at the general hospital. The main reason for readmission was chemotherapy treatment. Three patients were transferred from a hospital to the hospice.

Instruments to assess anxiety were used in 67% of the admissions at the university hospital and in 100% of the admissions at the hospice. In the general hospital, no instruments were used. In total, four different instruments to assess anxiety were found (Table 2):

- The Distress Thermometer (DT) (Roth et al, 1998)
- The Utrecht Symptom Diary (USD), a Dutch adapted translation of the Edmonton Symptom Assessment System where patients score their symptoms on a 10-point scale (Bruera et al, 1991)
- The Utrecht Symptom Diary Professional (USD–P), an adapted version of the USD where symptoms are scored by the professional on a 5-point categorical scale
- The Hospital Anxiety and Depression Scale (HADS) (Aylard et al, 1987).

The mean application of the USD was higher for patients admitted to the hospice (11.1) as compared to patients admitted to the university hospital (1.8).

As indicated in Table 3, anxiety was explicitly mentioned thirteen times at admission in the medical records of the university hospital patients, three times in the general hospital patients and for eight patients in the hospice population. The prevalence of anxiety in the medical records was 33 (33%) at the university hospital, 15 (11%) at the general hospital and 16 (62%) at the hospice.

As shown in Table 4, the intensity of anxiety scored on the USD was significantly higher ($p=0.019$) in patients admitted to the university hospital as compared to those admitted to the hospice.

**Qualitative phase**

From April to May 2013, eleven registered nurses and one nursing student in the final year of her bachelor study took part in the interviews. Of this group, three were not experienced and nine were experienced in the use of instruments to assess anxiety. The mean age was 41 (range: 23–61) and most nurses had 11–15 years of work experience (Table 5). Saturation was reached after interviewing three to five nurses per setting. Member checks were performed whereas in two transcripts minor adjustments were made: one sentence was nuanced and a spelling mistake was corrected.

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**Table 1. Demographics of patients ($n=154$) in the period October 2012 to February 2013**

<table>
<thead>
<tr>
<th></th>
<th>University hospital</th>
<th>General hospital</th>
<th>Hospice</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patients n (%)</strong></td>
<td>69 (45%)</td>
<td>59 (38%)</td>
<td>26 (17%)</td>
<td>154 (100%)</td>
</tr>
<tr>
<td><strong>Gender:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male n (%)</td>
<td>28 (40%)</td>
<td>26 (44%)</td>
<td>11 (42%)</td>
<td>65 (42%)</td>
</tr>
<tr>
<td><strong>Age in years:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (range)</td>
<td>58 (27–81)</td>
<td>66.7 (40–87)</td>
<td>70.2 (33–92)</td>
<td>63.4 (27–92)</td>
</tr>
<tr>
<td><strong>Primary cancer site n (%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>7 (10%)</td>
<td>1 (1%)</td>
<td>4 (15%)</td>
<td>12 (8%)</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>28 (41%)</td>
<td>0 (0%)</td>
<td>3 (12%)</td>
<td>31 (20%)</td>
</tr>
<tr>
<td>Respiratory tract</td>
<td>3 (4%)</td>
<td>56 (95%)</td>
<td>9 (35%)</td>
<td>68 (44%)</td>
</tr>
<tr>
<td>Genitourinary tract</td>
<td>23 (33%)</td>
<td>1 (1%)</td>
<td>6 (23%)</td>
<td>30 (19%)</td>
</tr>
<tr>
<td>Other or unknown</td>
<td>9 (13%)</td>
<td>1 (1%)</td>
<td>4 (15%)</td>
<td>14 (9%)</td>
</tr>
<tr>
<td><strong>Mean days of admission (range)</strong></td>
<td>6.2 (1–20)</td>
<td>5.6 (1–48)</td>
<td>31.3 (2–173)</td>
<td>8.44 (1–173)</td>
</tr>
<tr>
<td><strong>Number of admissions</strong></td>
<td>101</td>
<td>132</td>
<td>26</td>
<td>259</td>
</tr>
<tr>
<td><strong>Readmissions n (%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2–3 periods</td>
<td>25 (25%)</td>
<td>46 (35%)</td>
<td>0 (0%)</td>
<td>71 (27%)</td>
</tr>
<tr>
<td>&gt;3 periods</td>
<td>7 (7%)</td>
<td>27 (21%)</td>
<td>0 (0%)</td>
<td>34 (13%)</td>
</tr>
<tr>
<td><strong>Karnofsky's Performance Scale per admission</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10–20</td>
<td>2 (2%)</td>
<td>2 (2%)</td>
<td>8 (31%)</td>
<td>12 (5%)</td>
</tr>
<tr>
<td>30–40</td>
<td>8 (8%)</td>
<td>5 (4%)</td>
<td>13 (50%)</td>
<td>26 (10%)</td>
</tr>
<tr>
<td>50–60</td>
<td>16 (16%)</td>
<td>19 (14%)</td>
<td>2 (8%)</td>
<td>37 (14%)</td>
</tr>
<tr>
<td>70–80</td>
<td>50 (50%)</td>
<td>71 (54%)</td>
<td>2 (8%)</td>
<td>123 (48%)</td>
</tr>
<tr>
<td>90–100</td>
<td>6 (6%)</td>
<td>10 (8%)</td>
<td>1 (4%)</td>
<td>17 (7%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>19 (19%)</td>
<td>25 (19%)</td>
<td>0 (0%)</td>
<td>44 (17%)</td>
</tr>
</tbody>
</table>
In all three settings, different methods were used to assess anxiety with one or more instruments (Figure 2). In both hospitals the DT was used to identify symptoms, as well as anxiety. The nurses in the university hospital used the DT at admission whereas specialised cancer nurses at the general hospital used the DT at admission as well as before the first and third dose of palliative chemotherapy. In the university hospital the USD was applied after the first identification with the DT to monitor the intensity of anxiety over time and to evaluate the effect of interventions. During the study no instruments at all were applied in the general hospital and further assessment of anxiety was not carried out. At the university hospital and at the hospice the HADS was used if the USD anxiety score was >3, to determine if a patient might meet the criteria for an anxiety disorder. In the hospice, application of the HADS was reserved for highly experienced nurses.

In the university hospital and the hospice the assessment of anxiety was integrated in the multidisciplinary approach of care and in the routine of daily practice.

The findings were summarised by two themes (Figure 3): nurses with experience using instruments to assess anxiety and their reasons to use or not to use instruments, versus nurses without experience in using instruments and their reasons not to.

### Table 2. Mean anxiety in medical record and mean application of instrument per setting

<table>
<thead>
<tr>
<th></th>
<th>University hospital</th>
<th>General hospital</th>
<th>Hospice</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application of one or more instruments per admission n (%)</td>
<td>6 (67%)</td>
<td>0 (0%)</td>
<td>26 (100%)</td>
<td>93 (36%)</td>
</tr>
<tr>
<td>Frequency of used instruments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distress thermometer (median)</td>
<td>2 (1)</td>
<td>0 (-)</td>
<td>0 (-)</td>
<td>2</td>
</tr>
<tr>
<td>USD (median)</td>
<td>179 (2)</td>
<td>0 (-)</td>
<td>246 (2)</td>
<td>425</td>
</tr>
<tr>
<td>USD–P (median)</td>
<td>5 (1)</td>
<td>0 (-)</td>
<td>521 (12)</td>
<td>521</td>
</tr>
<tr>
<td>Mean application per admission:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USD (range)</td>
<td>1.8 (0–9)</td>
<td>- (-)</td>
<td>11.1 (0–94)</td>
<td>3.4</td>
</tr>
<tr>
<td>USD–P (range)</td>
<td>- (-)</td>
<td>- (-)</td>
<td>19.6 (1–125)</td>
<td>-</td>
</tr>
</tbody>
</table>

USD=Utrecht Symptom Diary; USD–P=Utrecht Symptom Diary Professional; HADS=Hospital Anxiety and Depression Scale.

### Table 3. Assessment of anxiety per admission/per setting (n=259 admissions)

<table>
<thead>
<tr>
<th></th>
<th>University hospital</th>
<th>General hospital</th>
<th>Hospice</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of anxiety on admission (%)</td>
<td>13 (13%)</td>
<td>3 (2%)</td>
<td>8 (31%)</td>
<td>24 (9%)</td>
</tr>
<tr>
<td>Prevalence of anxiety during admission (%)</td>
<td>33 (33%)</td>
<td>15 (11%)</td>
<td>16 (62%)</td>
<td>64 (25%)</td>
</tr>
<tr>
<td>Application of one or more instruments per admission (%)</td>
<td>68 (67%)</td>
<td>0 (0%)</td>
<td>26 (100%)</td>
<td>93 (36%)</td>
</tr>
</tbody>
</table>

1Pearson’s chi-square test.

### Table 4. Anxiety scores on instruments (n=259 admissions/n=154 patients)

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>University hospital</th>
<th>General hospital</th>
<th>Hospice</th>
<th>Total</th>
<th>p-value (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distress thermometer*</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Mean score USD anxiety (SD) [range]</td>
<td>425</td>
<td>1.8 (2.4) [0–10]</td>
<td>-</td>
<td>1.1 (1.8) [0–10]</td>
<td>14.2 (2.1)</td>
<td>p=0.019*</td>
</tr>
<tr>
<td>Scores &gt;1 on USD anxiety n (%)</td>
<td>425</td>
<td>97 (54%)</td>
<td>-</td>
<td>135 (55%)</td>
<td>232 (55%)</td>
<td>-</td>
</tr>
<tr>
<td>Mean score USD–P anxiety (SD) [range]</td>
<td>521</td>
<td>-</td>
<td>-</td>
<td>0.3 (0.7) [0–4]</td>
<td>0.3 (0.7)</td>
<td>-</td>
</tr>
<tr>
<td>Scores &gt;1 on USD–P anxiety n (%)</td>
<td>521</td>
<td>-</td>
<td>-</td>
<td>117 (23%)</td>
<td>117 (23%)</td>
<td>-</td>
</tr>
<tr>
<td>Mean score HADS–A (SD) [range]</td>
<td>5</td>
<td>10.3 (4) [7–16]</td>
<td>-</td>
<td>-</td>
<td>10.3 (4)</td>
<td>-</td>
</tr>
</tbody>
</table>

CI=confidence interval; *Anxiety present on distress thermometer; USD=Utrecht Symptom Diary; USD–P=Utrecht Symptom Diary–Professional; HADS–A=total score on Hospital Anxiety and Depression Scale–Anxiety subscale; SD=standard deviation; †Mann–Whitney U test.
Table 5. Demographics of interviewed nurses (n=12)

<table>
<thead>
<tr>
<th></th>
<th>University hospital</th>
<th>General hospital</th>
<th>Hospice</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Mean age (range)</td>
<td>39.8 (23–53)</td>
<td>42.6 (25–61)</td>
<td>40 (30–52)</td>
<td>41 (23–61)</td>
</tr>
<tr>
<td>Work experience in years</td>
<td>0–4</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>5–10</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>11–15</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Average work week in days</td>
<td>3.6</td>
<td>3.2</td>
<td>2.7</td>
<td>3.2</td>
</tr>
<tr>
<td>Education</td>
<td>Vocational</td>
<td>-</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Bachelor</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Master</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Bachelor nurse student</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Advanced education</td>
<td>None</td>
<td>-</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Pulmonology</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Oncology</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Palliative care</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Geriatric</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mean duration of interview in minutes (range)</td>
<td>26.8 (24–32)</td>
<td>20.6 (14–27)</td>
<td>37 (31–44)</td>
<td>26 (14–44)</td>
</tr>
</tbody>
</table>

Nurses without experience using instruments to assess anxiety
A lack of knowledge of appropriate instruments to assess anxiety was the main reason why nurses in the general hospital did not use instruments. Nurses in the general hospital indicated that they were not aware of the availability and unfamiliar with instruments to assess anxiety. Furthermore, some nurses at the general hospital noted that the assessment of anxiety was not required. In the general hospital only specialised cancer nurses were responsible for the assessment of anxiety. One of the nurses expressed an awareness of probable insufficient attention to anxiety.

‘The only thing I am vaguely aware of is a measure of wellbeing for cancer patients, but even for that, I do not really know how to use the instrument.’ (Nurse 3: general hospital)

Figure 2. Multidisciplinary methods to assess anxiety with instruments per setting
Nurses with experience using instruments to assess anxiety

For nurses with experience in the application of instruments (DT, USD) to assess anxiety, the main motivation for use was to start a dialogue about anxiety with patients and family caregivers (Figure 3). Through a close dialogue nurses were able to obtain insight into the underlying causes of anxiety that otherwise had not emerged. They felt that most patients appreciated the opportunity to share their feelings. Furthermore, nurses indicated that daily use of instruments can assure a routine focus on anxiety, objectify anxiety and prevent patients becoming overwhelmed.

‘It is also a good starting point to initiate a dialogue. Then you don’t have to ask difficult questions out of the blue, so you are less likely to overwhelm them.’ (Nurse 4: university hospital)

To interpret the burden for the patient, nurses discussed the results measured by the applied instrument in a dialogue with the patient. The results of this discussion were used in the multidisciplinary team to support the decision-making process with regard to the individual patient care. For example, during interdisciplinary consultation the appropriateness of the HADS to assess if anxiety is significantly impairing or if the patient might meet the Diagnostic and Statistical Manual of Mental Disorder’s criteria was discussed.

‘I have noticed over the last year that it really does work, especially if you have a dedicated weekly meeting with other professionals. Then a standard way to measure things is extremely useful to gain more insight into patient’s problems.’ (Nurse 3: hospice)

‘Now we really should do something about that, then I will make it a point of discussion in the team to see if it’s something that we should discuss with someone external, with whom we can think it through.’ (Nurse 4: university hospital)

The results of patient USD were also used to monitor anxiety in the course of time and to evaluate the effect of interventions.

The rationale behind the use of instruments among nurses can be categorised into patient-related and environmental-related factors. Patient-related factors were 1) patients were too ill, which made it difficult for nurses to burden them, 2) there were too many activities for patients because of medical examinations in the hospital or visits from family and friends, 3) it

Reasons of nurses to use or not to use instruments to assess anxiety

Nurses without experience using instruments to assess anxiety

Reasons not to use instruments:
• Lack of knowledge
• Nurses are unfamiliar with instruments
• Nurses are not aware of the availability
• Some nurses consider it not their task to assess anxiety
• Some nurses are aware of their insufficient attention to anxiety

Nurses with experience using instruments to assess anxiety

Reasons to use instruments:
• To start a dialogue with the patient
• To prevent patients becoming overwhelmed with difficult questions
• Objectify anxiety
• To provide insight into the underlying causes of anxiety
• To routinely check the patient’s anxiety level
• To improve inter-and multidisciplinary communication
• To guide patient care
• To support the decision if and when interventions are needed
• To monitor anxiety over time
• To evaluate the effect of the interventions

Impeding factors:
• Patient-related factors:
  • The patient is too ill
  • The patient have a busy/eventful day
  • The patient have difficulties to assign numbers in relation to symptoms
  • Language barriers
  • Not a clear reason
• Environment-related factors:
  • Nurse workload
  • Inadequate follow-up
  • Insufficient privacy to discuss the findings of the instrument

*Anxiety is felt as a difficult symptom to address in advanced cancer patients.*
A finding was that nurses were seldom aware of the underlying objective of the used instrument in relation to other instruments.

was difficult for patients to assign numbers in relation to their feelings of anxiety, 4) patients had difficulties with understanding the Dutch language, 5) patients preferred not to complete the instrument without a clear reason to do so.

Nurses respected the choice of patients not to fill out an instrument for all reasons. In some cases nurses made adjustments based on the individual needs of the patient. The information was filled in biweekly instead of twice a week.

'The only difficult thing for me is when patients are unwilling or unable to fill in an instrument. Then you have to find another way to discuss symptoms with them.' (Nurse 3: hospice)

'Thinking in terms of numbers is only suitable for a certain type of person. For some patients it is very hard to give feelings a number.' (Nurse 2: university hospital)

According to the interviewed nurses, the main environmental factor was workload. The most time-consuming instrument to use was the HADS. Other environmental factors were a lack of privacy and inadequate follow-up, especially in the general hospital.

'For example, that you have had a busy shift, with lots of patients to care for and then, I see it happen to colleagues regularly, there is no time to fill in the USD. There was just no time to go and sit with the patients.' (Nurse 1: hospice)

'We do worry a bit that you can fill it all in nicely, but that you cannot really do a lot with it after that.' (Nurse 2: general hospital)

**Discussion**

Anxiety is felt as a difficult symptom to address in advanced cancer patients. The aim of this explanatory mixed methods study was to understand the current nursing practice in the use of instruments to assess anxiety in advanced cancer patients and to provide insight into the rationale behind the use of instruments by nurses. To the best of the authors' knowledge this is the first study about the application of instruments to assess anxiety by nurses in cancer care in different settings.

Quantitative and qualitative data together suggest that assessment of anxiety with instruments in daily nursing practice is influenced by different assessment methods within the setting, patient-related factors and nurse-related factors.

**Reflection on used instruments**

Nurses in this study used only four different instruments. A non-systematic exploration of the literature shows an availability of at least eleven different instruments to assess anxiety. The authors hypothesise that the selection of the used instruments came up in relation to the Dutch national guidelines for palliative care (Vos et al, 2010). However, the authors' results show that the DT and the HADS were rarely used by nurses. This is especially interesting because the DT and HADS are internationally validated measurement instruments, whereas the USD is only validated in the Netherlands (validation study submitted for publication).

**Methods to assess anxiety**

This study showed differences between the settings regarding the used instruments and the specific application. This seemed to be more a management decision than an individual decision of the nurses. This remained underexposed in this study. The differences between both hospitals may also be explained by the specialisation of the departments and the academic nature of the university hospital, which encourages the use of instruments. A finding was that nurses were seldom aware of the underlying objective of the used instrument in relation to other instruments. Adherence in using instruments increased when clear methods were implemented on how to interpret the results of the instrument and how to integrate these findings in daily care. This is in line with the findings of Bruera’s (2008) study, which showed that nurses found it demoralising to assess anxiety if there was no treatment plan.

**Patient-related and environmental factors**

The use of instruments could be affected by patient-related factors. Nevertheless, the mean application of the USD in the hospice was higher compared to the university hospital. This result supports the findings of the Graaf et al (2014), a study that demonstrated that most patients were able to self-assess their symptoms.

Only the oldest and very ill patients were less able to assess their symptoms. Most patients admitted to the hospice had reduced KPS scores, but were nevertheless able to self-assess their symptoms. Other influencing factors such as differences in length of admission and readmissions could possibly have affected the mean application of instruments, which were not analysed. According to the interviewed nurses and confirmed by the study of Bergh et al (2011), some patients are unwilling or unable to fill in an instrument.

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Only the oldest and very ill patients were less able to assess their symptoms. Most patients admitted to the hospice had reduced KPS scores, but were nevertheless able to self-assess their symptoms. Other influencing factors such as differences in length of admission and readmissions could possibly have affected the mean application of instruments, which were not analysed. According to the interviewed nurses and confirmed by the study of Bergh et al (2011), some patients are unwilling or unable to fill in an instrument.
experienced anxiety. This can cause doubt regarding the accuracy of the results of the use of instruments. Therefore, the dialogue with the patient and family caregivers is essential to give meaning to the results of the instruments for that individual patient. The lack of a clear explanation by nurses for the patient as to why instruments were used and how patients should fill out the instrument could be a cause of the patient-related barriers as well. Still, as mentioned earlier, not all patients are able to fill out an instrument.

However, we can learn from the hospice setting. Hospice care nurses used the USD-P to assess the patient's symptom burden and evaluate the effect of interventions if the patients were not able or not willing to self-assess their symptom intensity. Although professionals appear to underestimate anxiety (Rhondali et al, 2012), the use of professional-rated instruments is a strategy to maintain routine awareness to anxiety and support professionals in starting a dialogue with the patient and their family caregivers. This study also emphasises that the environmental factors should be addressed as a precondition to use instruments. Although some of those factors are management issues, nurses should be educated on how they can implement the use of instruments in the daily care efficiently.

**Nurse-related factors**

Besides patient- and environmental-related factors, this study also highlights the attitudes and beliefs of nurses. The decision whether or not to use instruments to assess anxiety is associated with the need to provide insight into the patient's anxiety versus the burden for the patient and the workload of the nurse. However, most nurses emphasised the importance of using instruments to initiate a dialogue, to give meaning to the intensity score and get insight into the symptom burden of the patient.

Nurses without experience lacked knowledge in the assessment of anxiety and on how and when to use the instruments. Furthermore, some nurses explained that using instruments was not their responsibility. Apparently, nurses did not always take the responsibility to assess anxiety and to routinely ensure awareness. These findings emphasise the importance of the required knowledge and competencies on how to use instruments and nursing leadership to implement the integration of the results in daily care. Standard consultations covering symptom assessment and time investment, were not mentioned by nurses in this study, which is in contrast with the findings of Bruera et al (2008).

**Limitations**

This explanatory mixed methods study resulted in a rich and unique explanation of nursing practice in the application of instruments to assess anxiety in advanced cancer patients. The strength of this study is the inclusion of three settings, including early palliative care patients as well as end-of-life care patients. Furthermore, saturation was reached in interviews in a population of nurses with a variety in age, experience and education.

However, there are some limitations. First, the findings may not be generalisable to a homogeneous population because the population consisted of a heterogeneous cancer population in three settings in the Netherlands. Second, retrospective findings using medical records can be limited due to incomplete documentation of anxiety. Third, selection bias may have occurred because the authors only selected nurses who were interested to take part. Fourth, the influence of the management within the settings was not included in this study. Fifth, eligible nursing students were scarce, which resulted in the inclusion of only one student. Sixth, the attitudes and beliefs of the student did not differ from registered nurses and was therefore not highlighted in this study. Finally, during the interviews the researcher worked in the general hospital, which could have influenced the results with nurses from the same workplace.

**Recommendations**

The authors propose that more attention needs to be paid to the different objectives of the instruments. They suggest an integrated approach of instrument use along the different objectives of instruments: early identification, monitoring, screening or diagnosing. This approach with an increasing level of a narrowing scope supports nurses to use appropriate instruments to assess anxiety in line with the patients' needs and use instruments as a way to provide essential information and initiate a dialogue rather than an aim on its own. In addition, competency levels of nurses should be integrated in this approach. For example, instruments for early identification of anxiety could be used by nurses with a basic competency level, whereas using instruments to judge if anxiety is significantly impairing, requires a more advanced level. Nursing leadership, multifaceted strategies and education is needed to stimulate nurses to use instruments and address patient- and environmental-related barriers. Further research should focus on patient-related barriers. In the meantime, nurses should clearly explain to the patient why and how instruments are used. For patients who are not able to self-assess their symptoms, professional-rated

*Some patients have difficulties in ranking the intensity of their experienced anxiety.*
Instruments like the USD-P can be used to maintain structural awareness. The results of observer rate instruments in relation to patient-rated instruments should be further analysed.

Considering daily patient care, development of an algorithm should be a next step in anxiety management to translate the scores and interpretation into a standard for selection of interventions based on the underlying causes of anxiety.

Conclusion

Nursing practice to assess anxiety through the use of instruments differs among inpatient settings. The used instruments were a selection of four out of at least 11 instruments, according to the literature. The use of instruments was influenced by the methods to assess anxiety within the setting, patient- and environmental-related factors and most important, by the knowledge, competencies, attitudes and beliefs of the individual nurse. All settings had different methods on how and when to use instruments to assess anxiety despite available national guidelines. Most nurses emphasised the importance of using instruments to assess anxiety to initiate a dialogue, to give meaning to the intensity score and the burden of the patient. A lack of knowledge and competencies in using instruments in the assessment of anxiety was the main reason for nurses in this study not to use instruments. The authors assume these findings will be similar in other European countries. Therefore, more clarity about the objectives of the instruments is needed for the application of instruments to assess anxiety in the nursing domain. Moreover, ongoing passionate leadership along with multifaceted strategies is needed to improve nurses’ knowledge and competencies. If nurses are supported by the management and equipped with the right education and tools on how and when to use appropriate instruments, routine assessment will presumably increase, which is essential to decrease the unmet needs regarding anxiety in advanced cancer patients.

Conflicts of interest

The authors have no conflicts of interest to declare.


