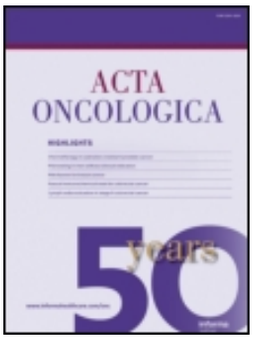

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**REVIEW ARTICLE**

# Screening for cancer-related distress: Summary of evidence from tools to programmes

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**Abstract**

*Introduction.* A number of studies have addressed the development and testing of tools for measuring cancer-related distress. Except for studies of diagnostic validity, knowledge on the effect of screening for psychological distress on psychological well-being is limited. We aimed to describe and critically discuss the findings of randomized trials of the effect of screening and to identify components necessary for future studies of the effectiveness of screening programmes. *Methods.* A search was made of the Embase/Medline and Web of Knowledge abstract databases from inception to September 2010. Our inclusion criterion was randomized controlled trials concerning the effect of screening for psychological distress on psychological outcomes. We compared the randomized trials on the following aspects: design and methods, setting and sample, screening and intervention, effects on psychological distress, staff utilization of screening results, possible confounding factors and other methodological limitations. *Results.* Of the seven identified randomized trials of the effect of screening for psychological distress, three showed an effect on psychological well-being, one showed an effect only among patients depressed at baseline, and three studies showed no effect. Several of the trials had methodological weaknesses and they were heterogeneous in design and content making direct comparisons difficult. *Discussion.* Future randomized trials are needed to examine comparative validity of different screening approaches and to evaluate the benefits of screening linked with associated treatment. Trials should include distress as a patient outcome, use appropriate samples, include a detailed, theory-based distress management plan, offer staff training and ideally track staff and patient use of subsequent interventions. Provisional work suggests that screening for psychological distress holds promise and is often clinically valuable, but it is too early to conclude definitively that psychological screening itself affects the psychological well-being of cancer patients.

Distress can be simply defined as the experience of significant emotional upset and arises from various psychological and psychiatric conditions [1,2]. It is a common but treatable complication of cancer, and it can present at any stage in the cancer pathway [3]. It may consist predominantly of depression, anxiety or anger or present as a mixed, broadly defined state [4]. In recent work, the point prevalence of distress was 30–50%, depending on the method of assessment [5]. Use of distress as the key emotional patient-reported outcome measure rather than depression has the advantage of lower perceived stigma and broad acceptability to patients; the disadvantage is that distress is poorly operationalized, and there is therefore a risk of categorizing patients who have short-lived, 'normal' emotional responses to cancer as ill [6]. The National Comprehensive Cancer Network has proposed one definition [7]. Other bodies prefer the term 'adjustment disorder' or a psychiatric disorder from the International Classification of Diseases, 10th Edition, or the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition. For the purposes of deciding when to offer professional help, it is useful to attempt to grade distress, for example into minimal, mild, moderate and severe, with no, slight, moderate or moderate to severe functional impairment, respectively (Table I). Accumulating evidence suggests that the presence of distress

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Table I. Proposed grades of psychosocial distress.

| Grade | DT Score | Functional Impairment |
|---|---|---|
| Minimal | 0–2 | None |
| Mild | 3–4 | Slight |
| Moderate | 5–6 | Moderate |
| Severe | 7–10 | Moderate-severe |

is associated with reduced health-related quality of life [8], poor satisfaction with medical care [9] and possibly reduced survival after cancer [10]. The finding in a large nationwide, population-based cohort study in Denmark that the risk for admission with an affective disorder was significantly increased up to ten years after a cancer diagnosis [11] illustrates the possible serious evolution of distress.

According to the National Comprehensive Cancer Network, distress should be recognized and monitored through screening and treated promptly at all stages of disease [12]. Distress in cancer patients is, however, often overlooked [3] and thus frequently untreated. Most physicians working with cancer patients do not use a screening instrument to identify those with mood disorders, including depression. For example, 90% of 226 health professionals working in cancer care in the UK reported that they did not use a validated instrument to identify mood disorders among their patients [13]. Screening instruments have been suggested to improve the detection of distress by health professionals and could thus be important for targeting support to those in need and ultimately lowering the experience of distress. The availability of a distress screening tool does not guarantee that it is accurate for screening or case-finding, and the validity of a tool does not guarantee that it is suitable for widespread use. The first step in evaluating a tool is to test its diagnostic validity against a standard in a selected sample (Table II) in order to determine its sensitivity and specificity; the accepted diagnostic standard should later be expanded to independent representative samples, ideally by independent groups (phase II). If this is successful, a randomized controlled trial can be performed, in which outcomes are measured in two similar groups with and without the tool, as in drug trials. With convincing knowledge from randomized controlled trials it will be reasonable to design and implement screening-based programs targeting psychological well-being in clinical practice.

In the wider medical community, the case for screening for psychological distress is still disputed, and the evidence for screening for depression in primary care remains controversial. Two narrative reviews of studies with cancer patients [2,14] and five in general clinical practice [15–19] addressed the evidence for an effect on patient-reported outcomes and found improvements in care and in staff–patient communication but limited effect on psychological well-being. In order to bridge the gap between the large number of studies evaluating the accuracy of screening tools for psychological distress (defined not only in terms of depression but also anxiety, anger and quality of life) and implementation of screening programmes, we critically examined the results of the available randomized trials on the effect on psychological well-being. Thereby we aimed at identifying characteristics important for designing effective screening based interventions.

## Methods

A search was made of the Embase/Medline and Web of Knowledge abstract databases from inception to September 2010 (see search terms in appendix A, can be found online at www.informahealthcare.com/10.3109/0284186X.2010.533192). Our inclusion criterion was randomized controlled trials of the effect of screening for psychological distress on psychological outcomes. We also searched previous reviews. We compared the studies with regard to: design and methods, setting and sample, screening and intervention, effect on psychological distress, staff utilization of screening results, possible confounding factors and other methodological limitations. No meta-analysis of effect sizes was conducted due to the heterogeneous design, intervention content and outcome measures applied in the studies identified.

## Results

A total of 488, 20 and 86 studies were retrieved from a total of three searches. Most measured quality of life in chemotherapy trials. We identified seven randomized trials of the effect of screening for psychological distress [20–26] (Table III). A study by Taenzer et al. [27] was not included, as changes in distress were not reported, and it was not randomized. Also a study by Strong et al. [28] was not included as it did not randomize to a screening vs. no screening condition. Two studies were in progress but without results at the time of publication [29,30].

### *Design and methods*

In all seven studies, screening was randomized, in that there was an intervention group that received a questionnaire on distress and the results were made available to the staff and a control group that received normal care [23] or screening results were not made available to the staff [20,22,24,26]. In two studies, there were three arms [21,25]. In one, patients were assigned to no feedback on screening, feedback on screening or feedback on screening and referral. In

Table II. Stages in evaluation of screening tools.

| Stage | Purpose | Description |
|---|---|---|
| Preclinical | Tool development | Aim is to develop a screening method that is likely to help in detection of an underlying disorder, in either a specific setting or all settings. The acceptability of the tool to both patients and staff must be considered. |
| Phase-I screen | Early diagnostic validity testing in a selected sample; refinement of tool | Aim is to evaluate early design of screening method against a known (ideally accurate) standard, the criterion reference. In early testing, the tool can be refined, by selecting most useful aspects and deleting redundant aspects, in order to make the tool as efficient (brief) as possible while retaining its value. |
| Phase-II screen | Diagnostic validity in a representative sample | Aim is to assess the refined tool against a criterion (gold standard) in a real sample, in which the comparison group may have several competing conditions that could complicate differential diagnosis. |
| Phase-III screen | Randomized controlled trial; clinicians using vs not using the screening tool | The tool is evaluated clinically in one group with access to the new method which is compared with a second group (ideally selected in a randomized fashion) who make assessments without the tool. The outcome of interest is the number of additional cases correctly diagnosed or ruled out over that with assessment as usual. |
| Phase-IV screen | Studies with real outcomes | The screening tool is introduced clinically but monitored to determine the effect on patient outcomes, such as identification of new patients, new cases treated and new cases entering remission and also how well the tool accepted by clinicians (uptake). |

Table originally presented in abstract format (Mitchell AJ, IPOS, 2008 [42]).

the other, patients were assigned to no screening, screening results available to staff or screening results available to staff and discussed in a structured interview.

### *Samples*

Four studies were of patients with cancers at different sites [20,22,24,26] while three studies were targeted towards one or more specific cancer sites; one was only of breast cancer patients [23], one was of lung and breast cancer patients [21], and one was of patients with breast, lung or colorectal cancer [25]. These differences in study populations limited comparison of the studies.

### *Screening and interventions*

Six screening tools for measuring distress were used in the seven studies: the 'hospital anxiety and depression scale' [20,26], the distress thermometer [21], 'Beck depression inventory' [24], the European Organization for Research and Treatment of Cancer 'quality of life questionnaire core 30' [22,24,26], the 'general health questionnaire' [23] and the 'functional assessment of cancer therapy—general' [25]. The variety of instruments used and lack of information on the cut-off scores applied made comparisons difficult.

A distress management plan was used in four studies [20,21,23,24]: an individual plan based on predefined guidelines [24], contact by a social worker [23], suggestions for referral based on reported symptoms [20] and a detailed triage algorithm in which patients were referred and contacted by relevant staff [21]. Still, details of the content of this plan were not provided. In three studies, no plan was available for how the staff should act on the basis of the screening results [22,25,26].

In the studies we examined, limited staff training was given [20,21,23–25]. Detmar et al. gave a 30-min session [22], while in the study by Velikova help was given in the interpretation of results [26].

### *Effects on psychological distress*

The effect of screening for psychological distress on psychological well-being among cancer patients was limited. Three of the seven studies showed an effect [21,22,26], one showed an effect only among patients who were depressed at baseline [24], and three showed no effect [20,23,25].

The three studies showing an effect are described below:

In a cross-over design in a study of patients with cancers at various sites who were undergoing palliative chemotherapy, Detmar et al. [22] investigated the effect of assessment of quality of life on

Table III. Randomized controlled trials of the effect of screening for distress on psychological well-being.

| References | Primary outcome | Secondary outcome | Study design | Management plan/ staff training | Sample | Measures | Results | Conclusion | Comments |
|---|---|---|---|---|---|---|---|---|---|
| Boyes et al. 2006 [20] | Level of depression, anxiety, physical symptoms | Desire for help | Intervention ($n$=42)/ control ($n$=38). Screening in both groups; results available to oncologist in intervention group only. All patients had four screenings | Plan included suggestions for referral based on reported symptoms. No staff training | Patients ($n$=80); oncologists ($n$=4). Eligibility (58%): mixed cancer sites, ≥ 18 years, first consultation at outpatient clinic, in treatment, read English, emotionally and physically capable of participating. Response rate: 75%. Baseline distress: mean HADS anxiety, 6.48; HADS depression, 4.41 | Screening tool: Physical symptoms: 12 items related to chemo-therapy, HADS, SCNS | Mood changes: mean HADS anxiety 6.83–4.80 in intervention group, 6.13–5.17 in control group. Mean HADS depression 4.98–4.20 in intervention group and 3.84–3.91 in control group. No significant difference in anxiety ($p$=0.09), depression ($p$=0.20) between intervention and control group | No effect on psycho-logical well-being | Small sample, large attrition. Patients functioned well at baseline. Only 3 patients in intervention group reported that oncologist discussed screening results. Half of oncologists reported discussing results. No protection against contamination |
| Carlson et al. 2010 [21] | Level of distress | Level of anxiety and depression. Effect of referral to resources on distress, anxiety and depression | Minimal screening: not available to physician or patients ($n$=365)/ full screening: available to physician and patient ($n$=391)/ triage: full screening plus optional phone triage with referral ($n$=378). All groups had one screening and one follow-up after 3 months | Detailed triage algorithm used, including optional appointment with psychosocial staff. Patients wanting referral were contacted by staff. No staff training | Patients ($n$=1134): lung ($n$=549), breast ($n$=585). Eligibility (97%): ≥ 18 years, patients at outpatient clinic newly diagnosed or new to clinic or oncologist. Response rate, 89%. Baseline distress: mean DT score, 4.86 for lung and 3.79 for breast cancer | DT, PCL, PSSCAN, medical charts. Screening tool: DT, PCL, PSSCAN | Overall: Marginally significant difference between triage and minimal screening groups ($F$=2.47, $p < 0.10$). Distress: mean DT 4.26–3.16 in triage and 4.33–3.72 with minimal screening Lung: triage, 20% fewer patients with continued high | Effect on psycho-logical well-being | No protection against contamination. Accepting referral was predictor of decreased anxiety and depression in full screening and triage. Treatment as usual not well described in any arm |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | distress. Breast: triage and full screening, significantly less distress than minimal screening at follow-up. No significant group differences for anxiety and depression | | |
| Detmar et al. 2002 [22] | Discussion of QoL issues | Oncologists' awareness of QoL, management activities, patient and physician satisfaction, level of QoL | Cross-over: Intervention ($n$=100)/control ($n$=114). Both groups screened; only intervention group had three screenings with results available to physician and patient<br>Cross-over: randomization of physicians who switched condition midway through. All patients had baseline questionnaire at first and follow-up at fourth visit | No plan. 30 min training of staff | Patients ($n$=214)/ oncologists ($n$=10). Eligibility (%?): mixed cancer group, in palliative chemotherapy, after two cycles of chemotherapy, ≥ 18 years, proficient in Dutch. Response rate: physicians (80%), patients (71%). Baseline distress: mean QLQ-C30 mental health, 73 | QLQ-C30, SF-36, COOP, WONCA, Patient Satisfaction Questionnaire C, audio-taped consultation and review of medical records. Screening tool: QLQ-C30 | No significant difference in QoL in intervention vs. control group at fourth visit (SF 36 mental health ($p$=0.41), but significantly more persons in intervention group improved over time in mental health (43% vs. 30%, $p$=0.04) and role functioning (22% vs 11%, $p$=0.05) | Effect on psycho-logical well-being | Multiple statistical testing, potential carry-over effect from cross-over design |
| Maunsell et al. (1996) [23] | Distress | QoL including previous and current depression and anxiety, physical health, return to usual activities, employment, marital satisfaction | Intervention ($n$=123)/control ($n$=127). No screening in control group. Only intervention group had 12 monthly telephone screenings: patients with high distress contacted by social worker within 2 weeks. All patients had brief | Plan: highly distressed patients contacted by social worker. No report of staff training | Patients ($n$=250). Eligibility (93%): women newly diagnosed with first primary breast cancer, no distant disease, not participating in competing studies, access to telephone, no hearing or severe health problems. Response rate: 89%. Baseline | PSI, GHQ, LES, LWMAT, DIS, SSQ, employment. Screening tool: GHQ. | No significant difference in distress between intervention vs. control group ($p$=0.65). Distress changes: mean PSI, 20.4–13.5 in intervention group, 20.7–14.6 in control group. Distress level in | No effect on psycho-logical well-being | Minimal psychosocial intervention provided to all patients may have made it difficult to show effect of intervention |

*(Continued)*

Table III. *(Continued)*.

| Reference | Primary outcome | Secondary outcome | Study design | Management plan/ staff training | Sample | Measures | Results | Conclusion | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | psychosocial intervention from social worker at initial treatment. All patients had telephone follow-up at baseline and 3 and 12 months | | distress: mean PSI of 20.5 | | both groups decreased over time ($p$=0.0001) | | |
| McLachlan et al. (2001) [24] | Level of QoL, needs and satisfaction | Level of depression | Intervention ($n$=296)/control ($n$=154). Both groups screened; results for intervention group only available to oncologist. All patients had one screening. A nurse formulated an individual plan including referrals. Follow-ups at 2 and 6 months | Individual plan based on predefined guideline. No staff training | Patients ($n$=450). Eligibility (22%): mixed cancer group at outpatient clinic, > 1 visit, follow-up scheduled at clinic, English proficiency, ≥ 18 years, Eastern Cooperative Oncology Group Performance status ≤ 2 completion of ≥ 90% of pre-study questionnaire. Response rate, 59%. Baseline distress: mean not reported | Screening tool: CNQ, QLQ-C30, BDI | No overall difference in QoL between intervention and control group after 2 months (1.6, $p$=0.45). Significant difference in depression decrease (mean, 5.1) in intervention group at 6 months in subgroup of patients who were depressed at baseline ($p$=0.001) | Possible effect on psycho-logical well-being | Eligibility criteria may have resulted in well-functioning patients. 41% of eligible patients were not randomized. No protection against contamination |
| Rosenbloom et al. (2007) [25] | Level of QoL and satisfaction | | Control: Usual care ($n$=71)/screening ($n$=73)/screening and interview ($n$=69). Only intervention group was screened. All patients had baseline and 6-month follow-up. 'Screening' and 'screening + interview' also | No plan. No staff training | Patients ($n$=213). Eligibility (?): Advanced breast, lung and colorectal cancer, in chemotherapy, 18–75 years, life expectancy ≥ 6 months, English proficiency, no brain metastases or major CNS complication, no | FACT-G, FLIC, POMS-17, PSQ-III. Screening tool: FACT-G and structured interview | No significant differences in QoL (measured by FLIC) among the three groups. Distress changes: mean POMS of 9.1–8.3 in control group, 6.3–8.1 in screening | No effect on psycho-logical well-being | Screening results not provided to treating nurse directly, but through a research nurse to protect against contamination, but this may have decreased an effect. No information on response rate |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | assessed after 1, 2 and 3 months. In 'screening + interview', research nurse interviewed patients about symptoms and reported them to treating nurse | | psychosis or mania/depression with psychotic symptoms. Response rate: ? Baseline distress: mean POMS of 7.3 | | group, 6.3–8.1 in screening + interview group | | |
| Velikova et al. (2004) [26] | Level of and management of QoL | Level of depression | Screening results: available to oncologist ($n$=144)/ not available to oncologist ($n$=70)/ no screening ($n$=72). Two groups screened and one not. All patients had outcome questionnaires at home at baseline, 2, 4 and 6 months. Screenings performed at all visits to clinic | No plan. Staff received training in interpretation of screening results | Patients ($n$=286); oncologists ($n$=28). Eligibility (95%): mixed cancer group at oncology clinic starting treatment, expected to attend ≥ 3 times, proficiency in English, not taking part in other QoL studies, not exhibiting overt psychopathology. Response rate: 68%. Baseline distress: mean of 71.7 on FACT-G | QLQ-C30, HADS, FACT-G, audio-taped consultations. Primary outcome: Issues on QLQ-C30 identified as discussed in audio-taped sessions. Screening tool: QLQ-C30, HADS | Both screening groups had significantly different FACT-G scores from no-screening group ($p$=0.006 and $p$=0.01). Significant difference in proportion of patients experiencing improved QoL in group with results available to oncologist than in other groups | Effect on psycho-logical well-being | No protection against contamination. Oncologist explicitly used screening results in only 64% of third sessions |

BDI, Beck Depression Inventory short form; CNQ, Cancer Needs Questionnaire, short form; CNS, central nervous system; COOP, Dartmouth Primary Care Cooperative Information Functional Health Assessment; DIS, Diagnostic Interview Schedule; DT, Distress Thermometer; FACT-G, Functional Assessment of Cancer Therapy – General; FLIC, Functional Living Index, Cancer; GHQ, General Health Questionnaire; HADS, Hospital Anxiety and Depression Scale; LES, Life Experiences Survey; LWMAT, Locke-Wallace Marital Adjustment Test; PCL, Problem Check List; POMS-17, Profile of Mood States -brief; PSI, Psychiatric Symptom Index; PSQ-III, Medical Outcomes Study patient Satisfaction Questionnaire – III; PSSCAN, Psychological Screen for Cancer, part c; QLQ-C30, European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30; QoL, quality of life; SF-36, Medical Outcomes Study 36-Item Short-Form Health Survey; SCNS, Supportive Care Needs Survey; SSQ, Social Support Questionnaire; WONCA, World Organization of National Colleges and Academics.

staff–patient discussions of related issues and as a second outcome on quality of life. Patients were randomized to a control group with normal care or to an intervention group in which they were screened and the result was made available to the staff. No distress management plan was described. There was no significant difference in quality of life in the intervention compared to the control group, but significantly more patients in the intervention group improved on quality of life with respect to mental health and role functioning over time.

Velikova et al. [26] examined the effect of routine measurements on level of quality of life and management of quality of life in patients randomized to: not screened, screened but with the results not available to the oncologist, or screened with the results available to the oncologist. No distress management plan was described. Both screened groups had significantly improved quality of life when compared with the unscreened group.

Carlson et al. [21] examined the effect of screening on the level of psychological distress in lung and breast cancer patients randomized to minimal screening (results not available to patient or physician), full screening (results available to patient and physician) or full screening with optional triage and referral based on distress management plan. In the last group, 20% fewer patients had continued high distress. Accepting a referral was the best predictor of improvement in this group.

### *Staff utilization of screening results*

Staff application of screening results for the intervention group was described in only three studies [20,23,26], and two of these studies showed poor use [20,26]. Boyes and colleagues found only three patients in the intervention group who reported that oncologists had discussed their results with them [20], and Velikova et al. found that oncologists used the screening results in only 64% of third sessions [26]. Only Maunsell et al. [23] reported positive use, in the form of a social worker who contacted patients screened as distressed and who visited 91% of the patients before the next screening.

### *Possible confounding factors and other methodological limitations*

A potential bias in studies of interventions in which hospital staff change behavior is that the staff change their behavior not only for the intervention group but also for the control group. This is known as a 'carry-over' effect and may dilute any effect of the intervention. This possibility was addressed in two studies, one with a cross-over design [22] and one in which the screening results were given to a research nurse and then to the treating nurse [25]. A further limitation in one of the studies was use of only 80 participants, which might have hidden a true effect [20]. In five of the studies, level of distress was the primary outcome [20,21,23–25], and in two it was a secondary outcome [22,26], implying that the latter studies might not have had the appropriate design.

## Discussion

In our analysis, only three of the seven randomized trials of the effect of screening for psychological distress showed an effect on psychological well-being; however, some of the studies suffer from a number of methodological problems, as noted above. Also, a potential limitation in the randomized trials is a clearly defined aim of the screening procedure in relation to the intervention. This aim is essential and includes consideration of especially three questions prior to implementation of a screening programme.

1) Should screening focus on groups predefined as being at high risk (targeted screening)? Targeted screening is more efficient than systematic screening because the prevalence of the condition under study is higher and hence fewer screens are needed for each identified case. In addition, psychosocial treatment is more successful when the baseline severity is high [31]. Targeted screening can, however, miss a surprising number of people who were thought to be at low risk; therefore, the first step in identifying who is at high risk must have a high negative predictive value.
2) How often should screening be done? The frequency of screening depends on the burden of the programme to staff and patients. A simple, low-burden screening tool could be applied multiple times with little risk of burnout, whereas a complex tool might be applied only at key times, such as on first contact and at hospital admission. The frequency might be flexible, for example with use by cancer staff when they consider it clinically appropriate.
3) Which screening tool should be used? A clearly defined aim of the screening procedure in relation to the intervention also influences the choice of a screening tool. The six screening tools for measuring distress used in the seven trials were quite different measuring, symptoms of distress, depression, and general health. Screening for depression, although important, cannot cover all the emotional complications that patients experience. Only six short screening instruments for distress have been tested against semi-structured

interviews and of these, only the 'hospital anxiety and depression scale' and the 'distress thermometer' have been evaluated in randomized studies [32]. Successful implementation of a screening procedure depends strongly on the acceptability of the procedure to patients and clinicians as well as the clinicians' perception of the added value. For example in studies with the Edmonton symptom assessment system, completion rates varied with age, opioid dose and the presence of confusion [33–35]. For widespread use in clinical practice, tools that take less than two minutes to apply are preferred, especially when trained mental health specialists are not available [36,37]. Currently, the most popular short tools for screening for distress are visual-analogue scales, which include the 'distress thermometer', the 'impact thermometer' and the 'emotion thermometer'. The distress thermometer appears to be reasonably accurate in comparison with interview-defined distress [5,7,38] and can easily be supplemented with additional domains with no undue increase in complexity [39,40]. Visual-analogue scales are usually highly acceptable, but the completion rates may be lower than with verbal or categorical scales [41]. Certain patient groups may struggle with completing self-reports, particularly those with visual problems, severe fatigue or cognitive impairment; language and cultural barriers must also be considered. A brief alternative to visual-analogue methods is simple verbal query, although surprisingly no studies have been conducted to validate it against distress in cancer patients. In diagnosing depression, one question is probably insufficient; positive answers to at least two questions improve sensitivity and specificity [42].

A further limitation was that the randomized trials generally included inadequate documentation of the interventions that followed the screening, so that any lack of effect might have been due either to failure of screening or to lack of an effect of a subsequent psychosocial intervention. Documentation about appropriate handling of distress could cover a distress management plan, staff training, monitoring of and feedback on staff use and the content and theoretical framework of the psychosocial intervention.

A distress management plan is important to ensure that staff systematically acts on screening results; it also implies that the health-care system has resources for handling distress. Lack of training might mean that staff do not know how to follow up screening results and therefore, as shown in two studies, did not always use them [20,26]. A survey of 226 health professionals working in cancer care in the UK showed that the main barriers to successful screening, besides lack of time, were insufficient training and low confidence [13]. In order to obtain a broad overview of effect, authors should ideally measure staff use and patient uptake (service use) after screening. The measurement of staff use could also be implemented in the intervention where feedback could be provided to the individual staff member in order to increase staff motivation. The content and theoretical foundation of the intervention, which follows a screening procedure requires more study. Surprisingly, none of the seven trials reported of the theoretical foundation of the intervention. The study by Calson et al. [21], e.g. report on a comprehensive triage intervention group where patients are referred to a psychosocial team, but the details of actions taken by the team and the hypotheses behind these actions remain undescribed. Most interventions for psychological well-being in cancer patients have been based on cognitive behavioural therapy, and the results are promising but not conclusive [43]. Depending on the needs identified for specific populations, the actions that follow screening could involve for example a stepped approach, ranging from group-based psycho-education for people with mild–moderate distress to structured individual therapy for those with high distress.

Finally, few studies have evaluated unmet needs, clarification of a desire for help and the acceptability of the treatment offered. These may be essential steps in determining the effectiveness of screening. Not all patients identified as being distressed are interested in professional support [44,45]: Carlson et al. [21] reported that less than one third of patients found to be distressed on screening accepted referral for psychological support.

Due to the heterogeneous design, intervention content and outcome measures applied in the studies identified, our ability to draw definite conclusions is limited. Based on the studies discussed we find that it is still too early to conclude whether psychological screening improves the psychological well-being of cancer patients. Carlson and colleagues [21] attempted to address several of the methodological problems of the other studies by including an appropriate sample size and a distress management plan. Although the study indicated the relevance of integrating screening for psychological distress in cancer treatment, no null-screening condition was included. Our review of the seven randomized trials suggests that future studies should include distress as a patient outcome, use appropriate samples, include a detailed, theory-based distress management plan, offer staff training and track staff and patient use of subsequent interventions. New trials addressing some of these methodological issues are currently underway [29,30].

Successful distress screening tools could be incorporated into screening programmes that also contain elements for measuring unmet needs, desire for help, clinical responses and longitudinal outcomes. As distress is often related to physical complications of cancer and its treatment, the approach should integrate psychological and physical well-being. Thus, a distress assessment tool would become part of a package of clinical care, monitoring and rehabilitation of cancer patients.

***Declaration of interest:*** All authors declare that they have no conflict of interest.

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