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A Narrative Review of the Literature to Assess the State of Screening Instruments

for Psychological/Psychosocial Distress in Oncology Settings

A thesis submitted in partial fulfillment of the requirements for the degree of Master of

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MASTER OF SCIENCE

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Abstract

Psychosocial distress is reported as being quite prevalent, yet no standardized tool has been universally accepted to screen for distress. Many tools have been created and validated for use to detect various components of distress, such as anxiety, depression, coping, and others. The objective of this narrative literature review was to assess the state of screening for psychological/psychosocial distress in oncology and in the broader context of adult patient populations with medical diagnoses, compare the National Comprehensive Cancer Network Distress Thermometer Tool with two other common tools currently in use, and to elaborate on themes that were discovered in reviewing the literature. Literature reviews were performed to explore the state of psychosocial distress screening implementation within oncology, assess for psychometric tools that are being utilized in adult patient populations in other disciplines and to select two common tools to compare with the Distress Thermometer. A total of four literature searches were completed for this integrative review. The Hospital Anxiety and Depression Scale and the Patient Health Questionnaire were found to be common in the literature, and were selected for comparison. The three screening tools were found to be as effective in screening for distress, specifically anxiety and depression, though the Distress Thermometer was found to be inadequate to diagnose psychiatric disorders when present. Themes within the literature included: psychosocial factors bear influence on outcomes and should be assessed, lack of standardization in screening practices is evident, short tools, like those evaluated in this review, are best utilized as an initial assessment to guide referral, and that short assessments are well-tolerated by patients and effective for detecting distress.

Dedication

To Nonna, who instilled in me the value of education, hard work, integrity,

and the importance of simply being a decent human in general.

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I am thankful to the many individuals who provided encouragement, support and advice throughout the journey of completion of this work.

Mom, you have been a steadfast proponent and cheerleader for my education. All of the sacrifices you have made to make this possible are appreciated and will never be forgotten.

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CHAPTER 1

Introduction

In 1999, the National Comprehensive Cancer Network (NCCN), a network comprised of the world's top 27 institutions in cancer treatment, identified psychological stress as a crucial component needing to be addressed as part of the treatment plan. The NCCN defined distress as, "a multifactorial unpleasant emotional experience of a psychological (ie, cognitive, behavioral, emotional), social, and/or spiritual nature that may interfere with the ability to cope effectively with cancer, its physical symptoms, and its treatment. Distress extends along a continuum, ranging from common normal feelings of vulnerability, sadness, and fears to problems that can become disabling, such as depression, anxiety, panic, social isolation, and existential and spiritual crisis" (Holland et al., 2016, p. DIS-3). The term distress was chosen by the committee, as there is less association with more stigmatizing, connotations that words, like: emotional, psychologic, and stress tend to convey. Utilization of the term tends to mitigate any negative feelings or embarrassment that could otherwise be provoked from the patient's perspective by other terms. Another benefit is that it is assessable via direct report from the patient (Holland et al., 2016, p. DIS-1). It has been determined that reducing patient distress improves quality of life, promotes healing and may even lead to better patient outcomes (Pirl et al., 2014).

Assessment for distress/stress in the form of anxiety and depression screening, and as a component of assessing quality of life (QoL), is gaining momentum throughout the many disciplines of healthcare. The effects of psychosocial/psychologic stress have been shown to contribute to less than optimal outcomes from decreased medication

adherence (Crawshaw, et al., 2016), psychosomatic comorbidity (Loughman, et al., 2016), and increased mortality (Russ, et al., 2012); yet there is no clear universal standardized assessment tool. This has resulted in the creation of many psychometric assessment tools aimed at identifying and addressing various aspects of psychosocial distress. One systematic review identified 33 psychometric tools in a variety of contexts (Vodermaier, Linden, & Siu, 2009). Instruments such as the Hospital Anxiety and Depression Scale (HADS), Patient Health Questionnaire-9 (PHQ-9), Beck Depression Inventory (BDI), and others, are used to determine a specific aspect of psychosocial or psychologic distress and predict impact on QoL and illness burden. Often, the focus is directed toward specific domain(s) of psychosocial health, such as, anxiety, depression, or coping, effectively limiting the information gleaned from assessment by narrowing the definition of distress to a specific component.

Within the oncology setting, screening for psychosocial distress using a validated screening tool, specifically, the National Comprehensive Cancer Network Distress Thermometer (DT) and associated problem list, has been part of oncology treatment guidelines since 1999 (Holland, 1999). In spite of the availability of an oncology-specific tool, a variety of tools are still being utilized to screen for the various components of psychosocial well-being (Mitchell, Meader, & Symonds, 2010; Vodermaier & Millman, 2009; Nelson et al., 2016; Andersen et al., 2014).

Problem Statement

It is reported that greater than one-third of cancer patients experience significant levels of distress, and it is known that levels of distress increase with advancing illness (Holland & Bultz, 2007; Pirl, et al., 2013). A cancer diagnosis affects entire families and

can exert a tremendous burden on QoL. The American College of Surgeons Commission on Cancer (CoC) (2016) standards require that distress screening be part of the assessment process for every patient as one aspect of criteria for accreditation (Pirl et al., 2013). Though awareness of inadequate recognition of distress in cancer patients has been apparent since at least 2001, insufficient screening procedures continue to be identified as a barrier to provide adequate psychosocial care for patients who may need it, and implementation of screening programs is not standardized across treatment centers (Brown, 2014; Fallowfield, Ratcliffe, Jenkins, & Saul, 2001; Holland et al., 2013; Holland et al., 2016; Zucca et al., 2015). Routine screening and appropriate referral has been shown to improve QoL in groups known to experience high levels of distress (Bultz et al., 2013; Pirl, et al., 2013). Failure of the treatment team to adequately screen, assess, refer, and provide resources to mitigate the high levels of distress associated with cancer diagnosis and treatment impairs the ability of the patient to heal in the most effective and efficient manner (Bauwens, Baillon, Distelmans, & Theuns, 2014).

Purpose Statement

The purpose of this narrative literature review was to assess the state of screening for psychological/psychosocial distress in oncology settings and in the broader context of adult patient populations with medical diagnoses. The DT is qualitatively compared with two other common psychometric assessment tools identified in the literature review. Themes discovered in the use of these common tools are presented.   This review serves as a call for future and continued research to develop best practices regarding screening for psychosocial distress, and contributes to increased awareness of the need to include

psychosocial distress screening and management in the plan of care beyond outpatient oncology settings to include inpatient areas and disciplines beyond oncology as well.

In addition, this narrative literature review provides a summation of the state of distress screening in cancer care and a qualitative comparison between the DT and two common psychometric tools that are utilized both inside and outside the discipline of oncology. Finally, it is this author's hope that this review increases awareness of the importance of addressing the psychosocial needs, increases research efforts toward the development of best practices, and encourages implementation of distress screening in contexts that are underrepresented, such as inpatient oncology settings.

CHAPTER II

Review of the Literature

In order to meet the purpose of this narrative review, three separate literature reviews were conducted. The first assesses the state of screening for psychological/psychosocial distress in oncology settings. The second examines in the broader context of screening stress/distress in adult patient populations with medical diagnoses. Finally, the two most prevalent instruments in the literature will be identified for further comparison with the identified oncology distress screening tool.

Psychosocial Distress Screening in Oncology Settings

An initial review of the literature for distress within the oncology setting was performed using CINAHL and PubMed databases and searching for the following keywords: neoplasms, cancer, distress, screening, diagnosis, detection, early detection, mass screening, distress thermometer, and inpatient. Sixteen applicable articles were found according to the following inclusion criteria: the subjects were cancer patients, the setting was oncology, the DT was used or referenced, implementation of the DT was addressed and focused upon its effect on cancer patients and clinicians who administer the screening. Articles that focused on other areas of clinical practice or were not concentrated on the impact of implementation of screening were excluded. NCCN guidelines, ACS Standards, and CoC Standards were also consulted. Table 1 summarizes the articles included in the review.

The literature shows that patterns of evidence supporting the need for screening, method of screening, screening tool utilized, and implementation process for screening are found to be overwhelmingly consistent with NCCN Guidelines for Distress

management (Bellè, Muzzatti, Tomas, & Gherlinzoni, 2016; Donovan & Jacobsen, 2013; Holland et al., 2013; Pirl, et al., 2013; Jacobsen & Ransom, 2007; Wagner, Spiegel, & Pearman, 2013; Zebrack, Burg, & Vaitones, 2012). These studies also reference the ACS verbiage of screening patients during a pivotal medical visit, which is generally defined as a visit in which a diagnosis is communicated, a change in treatment occurs, or treatment is ended (Pirl et al., 2014; Wagner et al., 2013). NCCN member institutions reported an increase in routine screening from 53% in 2007 to 70% in 2013, though the majority of screening still occurs almost exclusively in the outpatient setting (Donovan & Jacobsen, 2013; Jacobsen & Ransom, 2007). In the outpatient setting as well, screening is done without discernible consistency. Zebrack et al. (2015) reported that in the two sites that were examined, only 43% to 73% of patients who met screening criteria were actually screened. Furthermore, appropriate referral was made and documented only 50% to 63% of the time.

The issue of optimal frequency of screening and screening in the inpatient settings is extremely limited in the literature. Only one study (Hess et al., 2015), was found to have researched optimal frequency for screening, and was focused on the outpatient setting. This study concluded that screening bimonthly led to a 90% identification rate of referable distress in oncology patients receiving radiation. Only three recent studies were found that addressed distress screening in an inpatient setting specifically. One experimental design study (Hermelink et al., 2014) (n = 125) reported an increase in the acceptance of psychosocial resources compared with similar studies done on outpatient subjects, indicating higher levels of distress among hospitalized patients. Bellè et al. (2016) (n = 105) described consistency in distress with NCCN reported values, and that

24.5% of all patients who were screened reported distress in all four problem area domains – practical, relational, emotional, and physical. The third study conducted by Wang et al. (2011) (n = 103) reported that the DT was a suitable assessment tool for anxiety and depression in hospitalized Taiwanese patients with cancer. The probable increase in distress in hospitalized cancer patients, as reported in these studies, should lend to increased interest in distress screening implementation in an understudied patient population. Interestingly, no correlation between increased distress and patient psychological adjustment to diagnosis was noted (Constantini et al., 2015). The literature also shows that barriers common to the implementation of routine screening are mostly attributed to clinician perception of inadequate resources, availability and efficiency of oncology social workers, amount of time screening protocols have been in place, lack of clarity and education in the implementation process, lack of privacy for screening, and failing to customize the screening program to the appropriate setting (Carolan & Campbell, 2015; Chiang, 2015; Hess et al., 2015; Lazenby, 2014; Zebrack 2015). However, one study reported that after screening measures had been implemented, facilitator and clinician perspectives were overwhelmingly positive, with nearly 70% reporting that the instrument was user-friendly, that their workload was not negatively impacted, and that screening should continue (Hammelef et al., 2014). A thematic overview of the literature follows.

Distress screening was proposed as an integral part of routine cancer care in 1999 via the introduction of it into the NCCN Clinical Practice Guidelines (Holland, 1999). Although several tools have been validated for use with cancer patients the NCCN guidelines recommend the use of the DT, which consists of a thermometer with a 1to 10

analogue scale and a problem list. The problem list consists of four main categories, or

domains, of distress; these are: practical problems, family problems, emotional problems,

and physical problems. A free text space to allow the patient to report spiritual or

religious concerns, or anything not otherwise listed, is also available (Holland et al.,

2016, p. DIS-A). Each domain lists common sources of distress that are utilized to assist

in making appropriate referrals (Tavernier, 2014). The guidelines also identify risk

factors and periods of increased vulnerability for high levels of distress (Holland et al.,

2016, p. DIS-B). The DT has been validated for use all over the world, in more than 18

languages (Donovan, Grassi, McGinty, Jacobsen, 2013). The DT and associated

guidelines provide a validated, objective tool for assessment of psychosocial distress in

cancer patients.

In addition to the NCCN, distress screening was endorsed and adopted into the

Program Standards by the Commission on Cancer (CoC) of the American College of

Surgeons (ACS), mandating that patients be screened a minimum of one time during a

"pivotal medical visit" (ACS, 2014; Brown, 2014; Pirl et al., 2014). The pivotal medical

visit has been traditionally interpreted to mean at diagnosis or at a point of significant

change in treatment (Brown, 2014). The 2016 edition of the CoC practice standards

define the pivotal medical visits more fully, broadening to multiple encounters and

defining them as, "times of greatest risk for distress, such as at time of diagnosis,

transitions during treatment (such as from chemotherapy to radiation therapy), or

transitions off treatment" (ACS, 2016, p 56). Examples of pivotal visits included in the

practice standard are, "postsurgical visits, first visit with a medical oncologist to discuss

chemotherapy, routine visit with a radiation oncologist, or a post chemotherapy follow-up

visit" (ACS, 2016, P 56). Though admission to the hospital is not mentioned in the above list, the criteria for what constitutes a pivotal visit as well as the periods of increased vulnerability presented by the NCCN guidelines are directly applicable to an acute care admission to the hospital. These include: change in treatment modality, significant treatment-related complications, discharge from hospital following treatment, treatment failure, progression/recurrence, etc., admission to an acute care environment is not mentioned by either committee (ACS, 2016; Holland et al., 2016, p. DIS-B). The idea of assessing for distress at a pivotal medical visit has resulted in inconsistent, and sometimes absent, screening practices that fail to adequately identify at risk patients through the full spectrum of the continuum of care (Pirl et al., 2013). Several authors recommend a much more systematic implementation of the distress management guidelines, at times, invoking distress screening as "the sixth vital sign" (Brown, 2014; Bultz, et al., 2013; Holland & Bultz, 2007; Lazenby et al., 2015; Pirl et al., 2014). Cancer centers are currently working to implement these new guidelines, yet, that effort remains focused almost entirely on outpatient care settings.

Review of the Literature: Psychosocial Screening Tools in Other Disciplines

A literature review for systematic reviews identifying psychometric assessment tools outside of the oncology context was performed using PubMed and CINAHL databases from September 2008 to July 2017. The search for full text reviews in English returned 3,087 initial sources. Titles were screened and eliminated based on the exclusion criteria as follows: duplicate, cancer-related, applicable to healthcare workers and not patients, applicable to school or education, population was pediatric, population was psychiatric and not medical, no medical diagnosis was associated with the screening,

or no assessment tool was identified. After exclusions by article title and duplication, 141 article abstracts were reviewed, and 61 were eliminated based upon the criteria above. The remaining 77 full text articles were reviewed. Of these, 35 articles presented psychometric screening tools. Upon further examination, it was determined by this author that QoL is a larger concept that often includes psychosocial and psychologic distress, but does not evaluate it. Articles focusing on QoL without specific referral to patient stress or distress were also eliminated, leaving 15 articles for review.

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Prevalence of Psychometric Tools

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Psychometric tools (see Table 2) were listed and cross-referenced with the systematic review of assessment instruments by Vodermaier, Linden, and Siu (2009), to determine if any novel tools have been reported in the literature since the researchers performed their review. No novel tools were found in that effort. The list of tools was reviewed to identify which tools appeared frequently. HADS, appearing in 8 of the 15 reviews, and PHQ-9 also appearing in 8 of the 15 reviews.

Hospital Anxiety and Depression Scale (HADS)

HADS was introduced in 1983 in order to fill a need for brief self-assessment of mood apart from the psychiatric setting, and also to provide more information as to the nature of the psychologic issue (Zigmond & Snaith, 1983). The authors chose the two most prevalent metrics affecting hospitalized patients: anxiety and depression. Since then, the HADS has been validated in many other contexts, including in psychosocial assessment of cancer patients, and is well-established as a valid measure for anxiety and depression (Vodermaier & Millmann, 2011; Vodermaier, Linden, & Siu, 2009; Bjelland, Dahl, Huang, & Neckelmann, 2002; Herrmann, 1997). It has been considered the most

widely researched and validated mood scale in medical settings, including oncology and palliative care (Mitchell, Meader, & Symonds, 2010).

The HADS consists of 14 questions that assess aspects of either anxiety or depression. Each answer is assigned a numeric value. Each subscale (anxiety or depression) has a possible range of 0 to 21. Once the assessment is completed, the totals for each question type are tallied. In general, a subscale score of 7 to 8 is considered a possible case, 10 to 11 is considered a probable case, and 14 to 15 is considered a severe case (Zigmond & Snaith, 1983). No official cutoff score was determined, until 2002, when an updated review performed a receiver operating characteristic (ROC) analysis to determine that ≥8 is the optimal cut-off for both subscales (Bjelland, et al. 2002). Despite some early concern about its length, the HADS is easy to complete, and is generally well-received by patients (Herrmann, 1997; Mitchell et al., 2010). The HADS is widely regarded and recommended as a tool for initial screening for presence of anxiety and depression, but is not validated for diagnosis of psychiatric disorders when compared with diagnostic clinical interviews (Mitchell et al., 2010; Schellekens et al., 2016)

The Patient Health Questionnaire (PHQ)

The Primary Care Evaluation of Mental Disorders (PRIME-MD) was developed by Spitzer, Kroenke and Williams in the mid-1990s gave rise to the development of the PHQ. Evaluation of the PRIME-MD determined that the instrument was too cumbersome due to the length (25 questions), the requirement of clinician administration, and time needed to complete the assessment – it was reported to take approximately 8.4 minutes to complete. Due to lack of use, the researchers developed and introduced in 1999 the PHQ (Spitzer, Kroenke & Williams, 1999). In the initial study of 3,000 adult

patients from eight different clinical sites, Spitzer et al. (1999) found not only did the PHQ perform as well as the PRIME-MD, but also assisted the provider in recognizing hundreds of patients who would not have been diagnosed correctly with a mood disorder. Eighty percent of providers reported finding value in this new tool, and 88% of patients reported comfort in completing the assessment. The PHQ was found to be able to detect depression at a diagnosable level in less than one minute in most cases.

Since that initial study of the PHQ, several versions (corresponding mostly to the number of questions) have been developed. The PHQ-9, a nine-question diagnostic assessment, is esteemed as "the most validated tool in mental health," as a gold standard assessment (Aims Center, 2017; Hegel et al., 2008). It has been validated in general practice settings all over the world, from China to Somalia to Haiti and beyond (Chen et al., 2010; Marc et al., 2014; Nallusamy, Afgarshe, & Shlosser, 2016). It is versatile; able to be administered in a variety of contexts and age groups (Aims Center, 2017). The nine questions on the PHQ-9 correspond to the nine symptoms of major depression as presented in the Diagnostic and Statistical Manual of Mental Disorders, namely: Depressed mood, diminished interest or perceived decreased pleasure, significant unintentional weight change of more than 5% of body weight in a month, insomnia or hypersomnia, physical slowness or being fidgety, fatigue, feelings of worthlessness or guilt, difficulty concentrating or making decisions, and suicidal ideation (Reynolds, & Kamphaus, 2013). PHQ has been validated in a few other versions. The PHQ-2, is an ultra-brief, two-question, depression screening tool that was introduced in 2005 (Löwe, Kroenke, & Gräfe, 2005). In this assessment, the first two questions of the PHQ-9 are given. If both questions are screened positive for depression, then the rest of the PHQ-9

is administered (Hegel et al., 2008). The PHQ-4, introduced in 2009, assesses for

depression and anxiety (Kroenke, Spitzer, Williams, & Löwe, 2009). Finally, the PHQ-8

is used in the general population as a valid diagnostic measure for current depression

severity and depressive disorders (Kroenke, et al., 2009).

CHAPTER III

Comparison of Assessment Tools

A narrative review is defined by Polit and Beck (2012) as a common form of a systematic review. It is a way to gather evidence on a specific topic for synthesis. The purpose of this narrative literature review was to assess the state of screening for psychological/psychosocial distress in oncology settings and in the broader context of adult patient populations with medical diagnoses. This information was detailed in Chapter II of this study. This narrative literature review provides a summation of the state of distress screening in cancer care and although several tools have been validated for use, the NCCN guidelines recommend the use of the Distress Thermometer (DT). In the methods section a qualitative comparison between the DT and two common psychometric tools (Hospital Anxiety and Depression Scale [HADS] and the nine item Patient Health Questionnaire [PHQ-9]) that are utilized both inside and outside the discipline of oncology is presented.

Comparison of the DT to HADS

An additional search of PubMed and CINAHL databases was conducted for Full text articles in English, in which the subjects were adults (age 19 and above) using search terms, "Hospital Anxiety and Depression Scale" and "Distress Thermometer." The search for a comparison between HADS and the DT yielded 103 results. After reviewing titles and removing duplicates, 65 articles remained. Abstracts and full texts were reviewed to include only articles that compared HADS and the DT. There were 7 articles found that met these criteria (see table 3).

HADS and the DT performed similarly to detect anxiety with an average sensitivity of 74.42% and a specificity of 71.98% (Bidstrup et al, 2012; Boyes et al., 2013; Lambert et al., 2014; Schellekens, 2016). Wang et al. (2011) found that the DT outperformed HADS (DT cut-off ≥4, sensitivity 98% and specificity 72% compared with HADS ≥9, sensitivity 84% and specificity 73%) in a sample of 103 hospitalized cancer patients. Though both HADS and the DT are suitable for screening for general distress, including anxiety and depression, neither tool was recommended for screening of psychiatric disorders specifically, provoking the recommendation that in the case of screening for psychiatric disorders, follow up diagnostic interviews are preferred (Schellekens et al, 2016). HADS was reported to identify psychiatric disorders slightly better than the DT, and was recommended as a follow-up assessment to the DT (Lambert et al., 2014). In another study Butow et al. (2012) reported that the DT showed better anatomical association to known areas of brain activity with regard to response to stress than HADS. Optimal cut-off scores for the DT were variable, depending upon the setting (Boyes et al., 2012).

Comparison of the DT to PHQ

An additional search of PubMed and CINAHL databases was conducted for full text articles in English, in which the subjects were adults (age 19 and above) using search terms, "PHQ" AND "Distress Thermometer." The search for the comparison between PHQ and the DT yielded 19 results. After reviewing titles and removing duplicates, 7 articles remained. Abstracts and full texts were reviewed to include only articles that compared PHQ and the DT. There were 4 articles found that met these criteria (see table 4).

There is some heterogeneity with regard to the literature comparing the DT and PHQ. The DT was found to detect depression and perception of need for resources or referral as well as PHQ in three of the four studies reviewed (Faller et al., 2016; Hegel et al., 2008; Lazenby, Dixon, Bai, & McCorkle, 2014). One study reported a large difference in sensitivity between the DT, 92%, and PHQ-2, 32%, in a study of 123 newly diagnosed cancer patients (Lazenby et al., 2014). These authors found consistency between the DT and PHQ-9, detecting 39 more cases of depression than PHQ-2. This result is contradicted in a larger study of 455 participants, which found the DT to be less accurate than PHQ, with a DT sensitivity of 80% and a specificity of 52%, compared with average PHQ specificities of 82.5% and 66% (Wagner et al., 2017). In a study of 321 patients newly diagnosed with breast cancer, the DT was found to be comparable with PHQ, though, like comparisons with HADS, the authors recommend that a positive screen may require follow-up with a more focused assessment (Hegel et al., 2008). The largest study, with 4,020 patients, found that the DT, PHQ-2 and PHQ-9 performed similarly on all measures (Faller et al., 2016).

Chapter IV

Results

The purpose of this narrative literature review was to assess the state of screening

for psychological/psychosocial distress in oncology settings and in the broader context of

adult patient populations with medical diagnoses. The Distress Thermometer (DT) was

qualitatively compared with the Hospital Anxiety and Depression Scale (HADS) and the

Patient Health Questionnaire (PHQ); common psychometric assessment tools identified

in the literature review. Themes discovered in the use of these common tools are

presented.

Multiple literature searches were conducted during this narrative inquiry. This

research identified three of the most common instruments (DT, HADS, and PHQ) used in

the assessment of stress, distress, and anxiety. Comparisons of those three were made.

Commonalities or themes were found throughout the literature review and designated by

this author to include: psychosocial factors bear influence on outcomes and should be

assessed, there is lack of standardization in how to screen and assess for psychosocial

factors across several chronic illness states, tools like the DT are best utilized as a brief

screen to gain a broad view of psychosocial factors leading to a determination regarding

which focused tool might be used to provide referral or treatment, and finally, that short

assessments are well-tolerated by patients and effective for detecting psychosocial

factors.

Approximately one-third of all cancer patients experience distress that is

significant enough to require psychological and psychosocial support (Faller et al., 2016;

Hegel et al., 2008). Anxiety and/or depression as a component of distress is assumed or

directly stated throughout the literature, and is evidenced by the prevalent use of tools that target anxiety and depression to screen for distress (Boyes et al., 2013; Lazenby et al., 2014; Wang et al., 2011). It has been reported that as many as 24% of cancer patients may experience depression, and that depression has been associated with an increase in mortality compared with patients who experience less or no depression (Wagner et al, 2017). High rates of depression are also noted in other patient populations, such as HIV, chronic pain, cardiovascular disease, and other chronic illnesses (Dansie & Turk, 2013; Lai, Yew, Kennedy, & Schwartz, 2016; Van der Heijden et al., 2017). Distress in the form of anxiety and depression has also been associated with decreased overall quality of life, increased physical symptoms, increased reported pain and fatigue, treatment non-adherence, and suicide (Crawshaw et al., 2016; Croicu, Chwastiak, & Katon, 2014; Dansie & Turk, 2013; Feinstein et al., 2014; Van der Heijdan et al., 2017).

The sheer number of psychometric screening tools uncovered in this narrative literature review underline the lack of standardization of screening, in spite of overwhelming recommendations that such screening be performed as an integral part of the plan of care (see Table 2). Reasons offered for this are that clinicians often lack proper education to administer screening tools and psychometric assessments accurately, reported perceptions of lack of time, or appropriate level of privacy for assessment, and perceived inability to provide adequate follow-up and resources should psychosocial factors be detected (Butow et al., 2015; Ferro, Caerio, & Figeria, 2016; Kyong Suk, 2017). One recommendation was to establish an evidence-based guideline for routine psychosocial screening for anxiety and depression. This guideline recommends the development of clearly defined professional roles within the interdisciplinary team,

including a dedicated core of trained individuals who are able to recognize signs of anxiety and depression and are empowered to implement screening procedures as needed. Two-step screening, with the DT or a similar screening tool, and follow-up with HADS or another more focused tool is recommended. If screening yields a positive result, then referral for a more in-depth assessment should be made. Treatment will follow a stepwise approach of intervention intensity (Butow et al., 2015).

Focused screening tools, like HADS and PHQ-9, do not, and are not intended to, capture psychosocial distress outside of anxiety and depression. Due to this known limitation, the recommendation that initial screening with a broader tool, such as the DT and associated problem list and subsequent follow-up with a more specific tool or referral is often presented in the literature (Bellè et al., 2016; Butow et al., 2015; Lambert et al., 2014; Schellekens et al., 2016).

Finally, patients liked the DT and similar short assessments. None of the studies reviewed reported significant burden or participant refusal to complete assessments, or that a significant number of incomplete assessments were submitted, indicating that the short assessments, like the DT, HADS, and PHQ, are effective and generally well received.

Chapter V: Discussion

Limitations

Limitations of this narrative literature review include the complex, multivariable nature of the patient population and disciplines investigated, lack of standardization in screening across disciplines, large number of survey and screening tools that can be used, and differing definitions of stress or distress.

Implications for Nursing Practice

Nurses are a key component of the treatment team. As psychosocial distress assessment becomes more a standard of care, nurses will very likely be integral in the implementation of screening and making appropriate referrals in a variety of contexts. Psychosocial factors contribute to a wide array of psychiatric, somatic, and quality of life measures, but no one standardized tool universally addresses these completely. Anxiety and depression are overwhelmingly recognized as key factors that must be addressed regardless of discipline. The DT has been shown to be as effective at detecting anxiety and depression in cancer patients, and has begun to gain traction in other disciplines as well. The DT and associated problem list serves a good starting point to determine which psychosocial factors need to be addressed by the treatment team. More focused assessment tools, like the HADS, PHQ-9, and others, are useful as follow-up assessments that can guide the treatment of psychosocial factors and potential diagnosis of psychiatric disorders. Tools, like the DT, can be implemented by nurses at the bedside with minimal impact on workflow or workload for the purpose of addressing psychosocial factors in the continuum of care.

Conclusion and Recommendations

Implementation of screening procedures requires standardization. As seen in this literature review, when screening measures are implemented in oncology, tools intended to assess for anxiety and/or depression are common. These may not provide adequate referral to needed resources for cancer patients, as they are limited within the scope of the purpose of the assessment. The DT explores assessment through a broader lens that exceeds the limits of depression and anxiety, and is a valid tool when compared to gold standard scales, like HADS and PHQ. When depression and/or anxiety are present, the DT has demonstrated the ability to detect it with a high degree of specificity and sensitivity. Though the DT performs poorly as a diagnostic tool, it was never intended to be used as such. Therefore, use of the DT as an initial screening tool to be followed up with the more focused assessment tools, such as HADS, PHQ-9, makes logical sense in the progression of first, identifying the psychosocial element or elements causing distress to assessing the severity with more focused tools, and finally treating based on the assessment information. As the implementation of psychosocial assessment become more common, the DT could play an important role in expanding its use from outpatient oncology settings to include inpatient environments and to various disciplines outside of the confines of oncology.

Further research to determine the validity of screening for psychosocial factors in the inpatient setting is needed. Distress screening in the inpatient setting may have significant value for capturing the need for referral to resources and lowering overall distress levels among cancer patients and those with chronic medical illness, especially as the acute episode that warranted admission resolves. Further, inclusion of the inpatient

setting can contribute to the recommendation for more systematic approaches to distress screening in cancer care in general, providing for fluidity and continual assessment throughout the continuum of care.

This review serves as a call for future and continued research to develop best practices regarding screening for psychosocial distress, and contributes to increased awareness of the need to include psychosocial distress screening and management in the plan of care beyond outpatient oncology settings to include inpatient areas and disciplines beyond oncology as well.

Figure 1
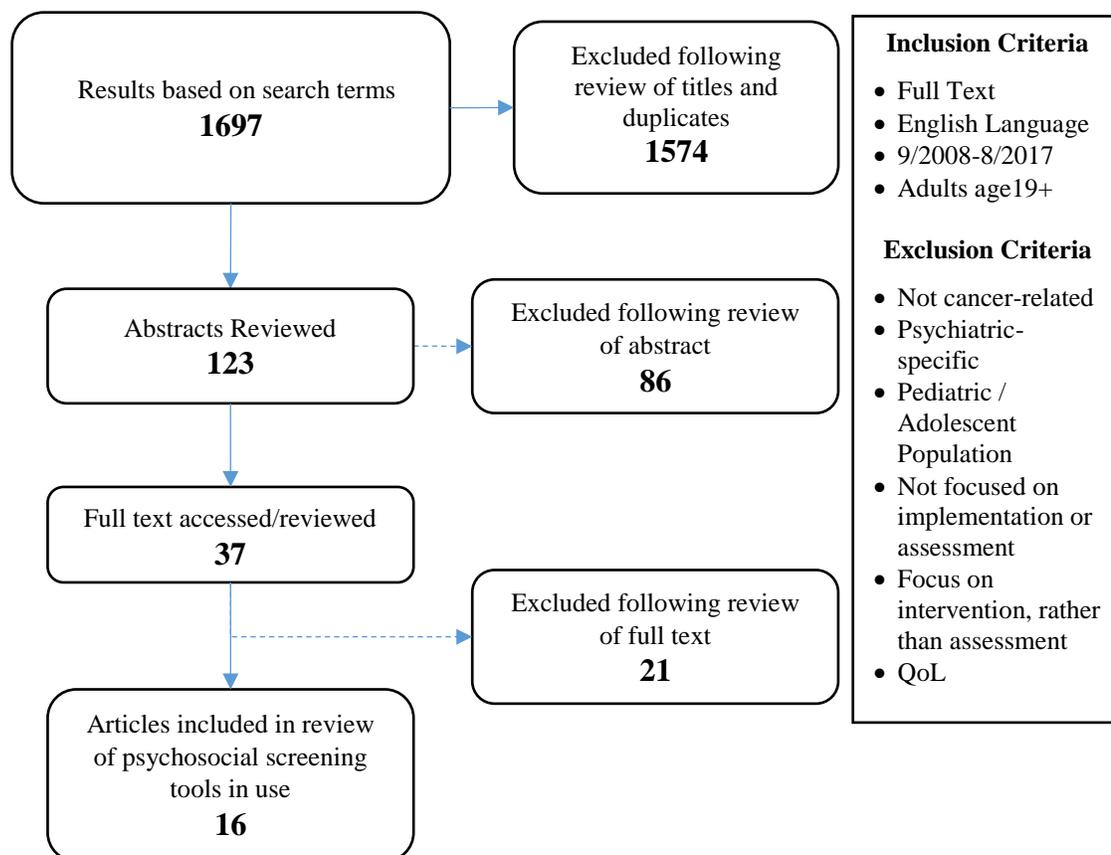*Diagram of DT Implementation Literature Review*

Table 1

Summary of NCCN-DT Implementation Literature

Study	Purpose	Method/Tool	Results	Notes
Bellè et al., 2016	Utilize and assess NCCN DT in hematologic inpatient population	Administered DT and problem list (n=102)	41.6% reported distress unrelated to diagnoses of sex. 12.9% reported sever distress. Top three mean reported sources of distress (from problem list) were: Physical (4.3), Emotional (2.3), and Relational (1.7).	Multiple domains assessed with one screening tool. One of three focused on distress screening for inpatients
Carolan & Campbell, 2015	Explore clinician perspective of psychosocial distress screening in cancer patients	A sample of 7 general practitioners (GPs) were interviewed regarding their experience and attitudes toward screening for psychosocial distress in cancer patients	assessing for distress was seen as a process of multiple hand-offs, much like a relay race, between GPs and the rest of the interdisciplinary treatment team. Themes identified were: • Relationship enhances assessment • GPs perceive they are good at screening • Assessment is challenged by barriers • Validated tools were not preferred	Barriers that were identified included: GP attitudes and beliefs, time, patient reaction, beliefs, and values, and family. Family was also noted to be helpful at times, but a barrier at others.
Constantini et al., 2015	Examine patient awareness of cancer and relationship with care in regard to distress and satisfaction	Visual analogue assessment scales for patient awareness; European tool (EORTC IN_PATSAT-32) to assess patient satisfaction; Mini-mental Adjustment to Cancer scale to assess coping; NCCN DT used to assess distress level for the previous week. Analysis was two-tailed ANOVA and Chi-square or Fisher's exact test	Cancer awareness and psychological maladjustment were not related to distress	Increased distress is not associated with knowledge of diagnosis, but more with the inference that information is being hidden from the patient.

Study	Purpose	Method/Tool	Results	Notes
Chiang et al., 2015	Improvement of screening processes and documentation	Cause-and-effect analysis to discover barriers Screening of 864 cancer patients via paper and RN documentation in an electronic medical record (EMR)	Barriers included: lack of time with patients, lack of resources, lack of privacy, and patients' uneasiness with the assessment. 62% of those assessed reported mild distress (DT 0-3), 18% moderate (DT 4-6), and 11% severe (Dt 7-10)	Over course of study, EMR documentation increased from 19.2% to 34% New patients had higher distress scores in general
Donovan & Jacobsen, 2013	Follow up on current implementation of distress management guidelines (7 years after original study – see Jacobsen & Ransom, 2007)	20/21 NCCN member institutions (91%) participated in a survey regarding implementation of screening procedure	70% report routine screening 25% report inpatient screening 60% report outpatient screening 50% screen all outpatients 50% screen certain groups 85% use a self-report tool 59% use NCCN DT & problem list Between 2005 and 2012: 7% increase in routine screening; 10 % increase in screening all patients	Distress screening implementation is increasing, but at a much lower rate in the inpatient setting
Hess, et al., 2015	Assess optimal frequency for distress screening in outpatient radiation oncology patients	Daily screening with NCCN DT, scores ≥4 were recorded. Prevalence data analyzed in interval periods along with clinical variables and trends	37% reported distress No interval showed significance for adequate prediction of distress. Screening every other week identified distressed patients almost 90%	Interval assessment may be more effective than risk assessment by variable

Study	Purpose	Method/Tool	Results	Notes
Hammelef et al., 2014	Conduct and evaluate a quality improvement initiative on the implementation of the NCCN distress management guidelines in an ambulatory oncology environment	238 visits were screened in the experiment group, and 248 records were reviewed in the control group. Data was analyzed with multilinear regression. Clinical staff involved in the implementation and administration of screening were subsequently surveyed.	Population mean was – DT 2.8 31% reported moderate distress (DT 4-7), and 7% reported severe distress (DT 8-10) 59% of patients with a positive distress score (DT ≥4) received referrals, and was noted to be significantly higher than the control group review Approximately 70% of staff responses were favorable, indicating tool was user-friendly, that the use of it did not negatively impact their workflow, and recommended screening should continue.	Patients acquiescence to complete screening decreased over time
Hermelink et al., 2014	Evaluation of brief distress screening in a breast and gynecologic cancer center	NCCN DT used to screen hospitalized patients	125 patients screened 54.4% referred for counseling; 49.6% accepted referral 4% self-referred 65.8% reported significant benefit from counseling 5.6% of non-counselled patients reported they may have benefitted from counselling	Inpatient setting. Majority of patients benefitted from screening and referral
Jacobsen & Ransom, 2007	Assess state of implementation of distress management guidelines in NCCN Member Institutions	83% of NCCN member institutions participated in a survey regarding implementation of screening procedure	8% report routine screening 27% pilot-testing strategies for screening 37.5% of facilities that screen, use interviews Amount of use of DT unclear	Implementation is elusive after 8 years of recommendation, even in NCCN member institutions

Study	Purpose	Method/Tool	Results	Notes
Lazenby, 2013	International exploration of concept of distress screening as a "sixth vital sign" and provide a pathway for implementation of routine screening	Synthesis of literature	Lack of validated screening tool results in lack of recognition of distressed patients. Implementation in three phases: (evidence integration triangle): Identify stakeholders, allow adaptation to fit current practices, and employ measures to provide feedback and reinforcement of progress of implementation Pivotal visit as related to initiation of treatment is inadequate Team-oriented support and education is needed Frequency must be agreed upon and based upon times of greatest risk for distress	Identifies need to increase frequency and scope of screening
Pirl et al., 2014	Provide guidance on the implementation of screening of psychosocial distress in order to meet the ACS CoC mandate for screening in the 2015 requirements for accreditation	Review of the requirements of the new accreditation standard along with recommendations for implementation	Recommendation is to screen at every encounter, using a tool that has been validated in cancer patients. Among the tools listed are DT, HADS, PHQ, GHQ, PDI, and BSI.	These authors place weight of meeting the standards with planning the actual screening processes.
Wagner, Spiegel, & Pearman, 2013	Evaluation of link of depression and outcomes in cancer patients, and influence of psychosocial care	Screening of 562 patients over a 10-month timeframe Referrals, based on positive screening, were messaged to social worker	37% referred to social work for: Help managing stress (13%) Support group information (8%) Information from medical librarian (23%) Messages effectively identified patients with unmet psychosocial needs	Authors expanded the screening asserting profound impact on cancer care

Study	Purpose	Method/Tool	Results	Notes
Wang et al., 2011	Validation of the DT in Taiwanese patients with cancer	DT and HADS tools were used to assess a sample of 103 patients over a 7-month period in 2004. Cut-offs were determined as ≥4 for DT and ≥ 8 for HADS subscales	DT outperformed HADS in sensitivity and specificity, though either tool is appropriate to assess the target patient population	One of the articles that focused on inpatients
Zebrack, Burg, & Vaitones, 2012	Provide information and assistance in the implementation of distress screening toward meeting CoC 2015 mandate	Systematic review	Authors recommend: Build a list of best practices that can be duplicated in various oncologic settings Develop standardized process for screening and referral Emphasize added value that patient receives to increase administrator buy-in.	Focus is on social worker role in assessment and referral
Zucca, Sanson-Fisher, Waller, Carey, Boyes, & Proietto, 2015	Determine if there is variation in screening across Australian treatment centers in medical oncology	Cross-section of outpatient medical oncology patients from six treatment centers; n = 716	Difference for screening for symptoms and emotional distress was insignificant distress – p=0.65 pain – p=0.21 fatigue – p=0.95 other – p=0.40 Infrequent screening resulted in significantly higher reported physical symptoms that emotional symptoms (p=0.001)	Regular screening has greater benefit than infrequent screening

Study	Purpose	Method/Tool	Results	Notes
Zebrack et al., 2015	Explores how well distress protocols have been implemented into practice in two cancer centers	Retrospective examination of medical records (n=194) over a period of one year.	43-73% of patients who should have met screening criteria received screening. Appropriate referral was made and documented 50-63 % of the time.	Author infers that insufficient resources for follow up may have accounted for lack of referral documentation (p 1168). Variability also attributed to length of time since the protocols had been introduced into the practice setting (only a few years in one of the centers) and availability of social worker.

Figure 2
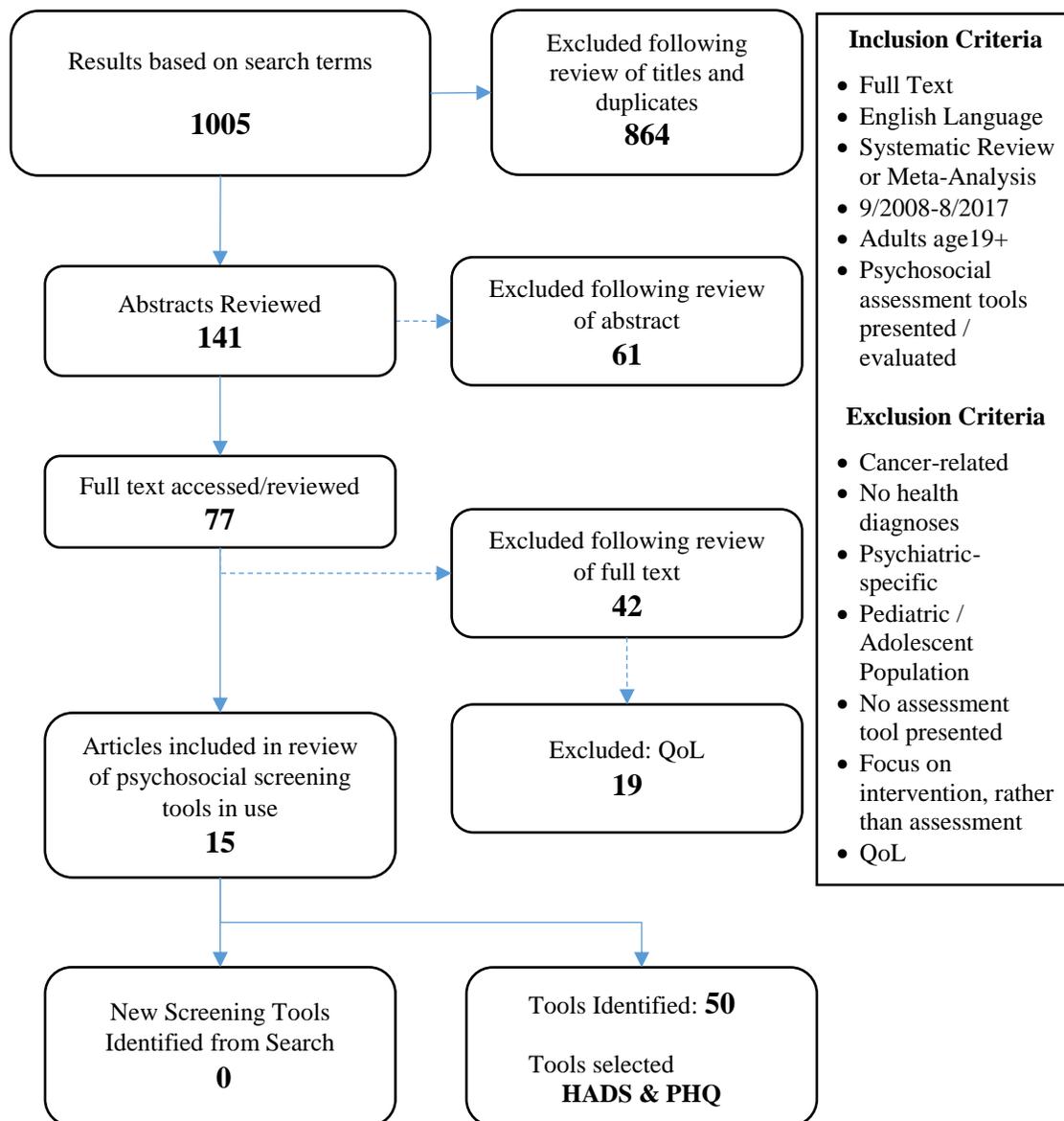*Diagram of Literature Review for Psychometric Tools*

Table 2

Summary of Reviews of Psychometric Screening Tools Beyond Oncology

Study	Pertinent Tools Presented	Population Assessed – Domain Measured	Results
Björn et al., 2014	BAI, CES-D, HADS, HrQOL, NIH-CPSI, PHQ-9, SF-12, SF-36, PSS	Chronic Prostatitis/Chronic Pelvic Pain Syndrome – psychiatric comorbidity and social factors	An association between both depression and anxiety and increased report of chronic pain was appreciated in the literature. Only 5 of 69 articles reviewed measured the effect of stress as a psychosocial factor specifically - Ahn et al. (2012), Anderson et al. (2009). Anderson et al. (2008), Aubin et al. (2008), and Ulrich et al. (2005). PHQ-9 was not used in any of those articles. HADS was used in one article (Ahn, 2012).
Cagle et al., 2017	GAD-7, KCCQ, MLHF. PHQ-9, POMS	Heart Failure – anxiety and depression; quality of life (QoL)	Patients with HF have increased emotional needs related to feeling heightened spiritual distress, dissonance regarding perspective of meaning of life, and abandonment. The authors encourage increased palliative care models and intervention, similar to those in oncology, to reduce distress and increase QoL in the HF population
Crawshaw et al., 2016	BDI, BMQ-specific, SCL-90-R, HADS, PHQ-9	Acute Coronary Syndrome and Medication Adherence – anxiety and depression; psychosocial predictors	An association between psychosocial variables and medication adherence was appreciated. Depression and Type D personality were found to have significant effect on adherence. The authors recommend routine screening for these patients. Other pertinent factors included patient perspective of treatments and cognition.
Croicu et al., 2014	BATHE, DSM-5, GAD-7, PHQ-9	Patients with multiple somatic complaints – anxiety and depression; psychologic factors	Anxiety and depression contribute to somatic symptoms. Screening should be done and followed-up upon. No specific tool is endorsed for screening
Dansie & Turk, 2013	ACT-UP, CSQ, BDI, POMS, SCL-90R, PCS	Chronic Pain	The biomedical, psychosocial and behavioral domains must be assessed in order to provide proper treatment leading to favorable outcomes

Study	Pertinent Tools Presented	Population Assessed – Domain Measured	Results
Duerinckx et al., 2014	ACSA, ALL, ASI, BDI, BMQ, COPE, DAST, FKV, GAD-7, GBB, HSCL, MAST, MMPI, MOS, MSE, NI, PAS, PHQ, PSQ, SCL-90-R, SF-36, TERS, WAIS, WHOWOL "Self-rating Anxiety Scale" TX Center 22 (unpublished)	Living kidney and liver donor candidates – psychosocial screening for suitability to donate	No standardized definition of "psychosocial" or methodology for screening exists in this population. Uniform practices with standardized terminology and assessment tool are needed. Call for cohort studies to identify predictable risk factors toward the development of evidence-based guidelines is warranted.
Feinstein et al., 2014	BDI-II, DSM-5, HADS Beck Fast Screen for Medically Ill Patients Yale Single Question Screen for Depression	Multiple Sclerosis - Depression	Higher rates of depression are associated with Multiple Sclerosis. Though BDI was endorsed by the American Academy of Neurology, HADS and Beck Fast Screen are valid alternatives. HADS is able to detect anxiety as well as depression, which occurs in approximately 50% of patients with MS and contributes to increased morbidity. Patient reported chronic pain is also strongly associated with depression. Interventions focused on the source of stress and coping are more beneficial than those that target emotion and avoidance.
Ferro, Caeiro, & Figeira, 2016	BDI, DSM-V(GAD), HADS, HDRS, IES, MADRS, Clinical Diagnostic Interviews	Stroke Patients – neuropsychiatric disorders, anxiety	Among stroke survivors, one-third to one-half will be affected by a neuropsychiatric disorder. Early detection and treatment is beneficial. Use of multiple scales has clouded the ability to effectively evaluate and distinguish minor disturbances from true psychiatric disorders. Region of the brain affected by stroke was not definitively associated with psychiatric sequelae on a consistent basis. Tests on cerebrospinal fluid composition have, as yet, been inconclusive toward predicting psychiatric disorders following stroke.
Kyong Suk, 2017	PHQ-2, PHQ-9	HF - Depression	Patients positive depression scores on PHQ-2 and PHQ-9 had 53% and 60% greater risk, respectively, for all-cause death than patients with negative depression scores

Study	Pertinent Tools Presented	Population Assessed – Domain Measured	Results
Lai et al., 2016	"Psychometric Tests" BDI, CED-D, DSM IV, ES-Q, GHQ-12, GHQ, HADS, HDRS, MADRS	Vitiligo - Depression	Prevalence of depression in patients with vitiligo was significant and was dependent on tool used to screen or possibly location. These patients should be screened and provided follow-up should depression be detected. No scale, in particular, was recommended above any other for the detection or subsequent diagnosis for depression in this population.
Loughman, Bendrups, & Souza, 2016	CAE, GAD-7, SDS, STAI, HADS	Genetic Generalized Epilepsy – Psychologic and Psychosocial Comorbidities	Psychologic and psychosocial comorbidities tend to decrease over time, but result is not conclusive secondary to the variability in assessment techniques and tools.
Nanni et al., 2015	BDI, CES-D. K10, PHQ-9	HIV - Depression	Depression affects as much as 42% of patients with HIV, as much as four-fold increase compared individuals who are not infected. Incorporation of screening and managing depression are necessary. Validated screening tools, such as PHQ and CES-D are all suitable to use with this population.
Pogosova et al.,2014	CIDI, ESSSI, HADS, PHQ-9, STAI Hollingshead two-factor index of social position	Cardiac Rehab – Psychosocial factors	Psychosocial risk factors, used synonymously with psychological stress, include social environment, characteristics of personality, and negative affect. Depression and anxiety, in particular, have the highest impact of psychosocial risk factors on cardiac rehabilitation, contributing to an approximate two-fold risk (1.6-2.2) increase for negative cardiac outcomes and higher program dropout rates. HADS and PHQ are the most widely used screening tools used to detect depression.
Van der Heijden, Abrahams, & Sinclair (2017)	BDI, CES-D. HADS, IES, POMS, PSS, STAI	HIV – Psychological Well-being	In patients with HIV, group-based therapies based on cognitive behavioral therapy (CBT) *may* have a small effect on depression for a little over one year (15 months), but those based on mindfulness had not demonstrable effect. Neither intervention showed much effect on anxiety, coping, or stress.

Study	Pertinent Tools Presented	Population Assessed – Domain Measured	Results
Younge, et al. (2014)	CES-D, GWB, HADS, MLHFQ, SF-36, STAI, WHOQOL	Cardiac Disease – Stress management	In the studies reviewed, Mind-body practices showed small to moderate significance on QoL, Depression, Anxiety, and Blood Pressure. Depression was rated with CES-D and HADS; Anxiety was rated with CES-D, HADS, GWB, and STAI.

List of Psychometric Tools Abbreviations

ACSA - Anamnestic Comparison Self-Assessment Scale
ACT-UP - Activity, Coping, Think, Upset, People's responses Interview Method
ALL – Altagsfragebogen,
ASI – Addiction Severity Index
BAI - Beck Anxiety Inventory
BDI - Beck Depression Inventory
BSI - Brief Symptom inventory
BMQ – Berlin Mood Questionnaire
CES-D - Center for Epidemiological Studies Depression Scale
CIDI – Composite International Diagnostic Interview
COPE - Coping Orientation to Problems Experienced Inventory
CSQ – College Sleep Questionnaire
DRS – Decision Regret Scale
DAST – Drug Abuse Screening Tool
ESSSI - ENRICHD Social Support Inventory
ES-Q – Experience of Service Questionnaire
FKV - Frieburg Illness-Coping Questionnaire
HADS - Hospital Anxiety and Depression Scale
HDRS – Hamilton Depression Rating Scale
GAD-7 - Generalized Anxiety Disorder-7
GBB – Giessen Complaint Questionnaire
GHQ - General Health Questionnaire
GWB – General Well Being, HSCL
Hopkins Symptom Checklist, SCL-90-R- Global Distress Subscale
IES – Impact of Events Scale
KCCQ - KC Cardiomyopathy Questionnaire

K10 – Kessler Psychological Distress Scale
MADRS – Montgomery and Åsberg Depression Rating Scale
MAST, Michigan Alcohol Screen Tool
MLHFQ – Minnesota Living with Health Failure
MMPI – Minnesota Multiphasic Personality Inventory
MOS – Medical Outcomes Survey Social Support Survey
MSE – Brief Mental Status Exam
NI – Narcissism Inventory
NIH-CPSI – National Institutes of Health Chronic Prostatitis Symptom Index
PAS – Perceived Available Support
PCS – Pain Catastrophizing Scale
PHQ-9 - Patient Health Questionnaire
POMS - Profile of Mood States
PSQ – Perceived Stress Questionnaire
PSS - Perceived Stress Scale
SCL-90-R – Symptom Checklist 90 Revised
SDS - Self-Rated Depressive Scale
SF-36 - 36-Item Short Form Health Survey
SRQ-20 – Self Reported Questionnaire
STAI - State-Trait Anxiety Inventory
SWOP – Self-Efficacy Optimism and Pessimism Questionnaire (Selbstwirksamkeit Optimismus, Pessimismus)
TERS, Transplant Evaluation Rating Scale
WAIS – Wechsler Adult Intelligence Scale
WHOQOL - World Health Organization Quality of Life

Figure 3

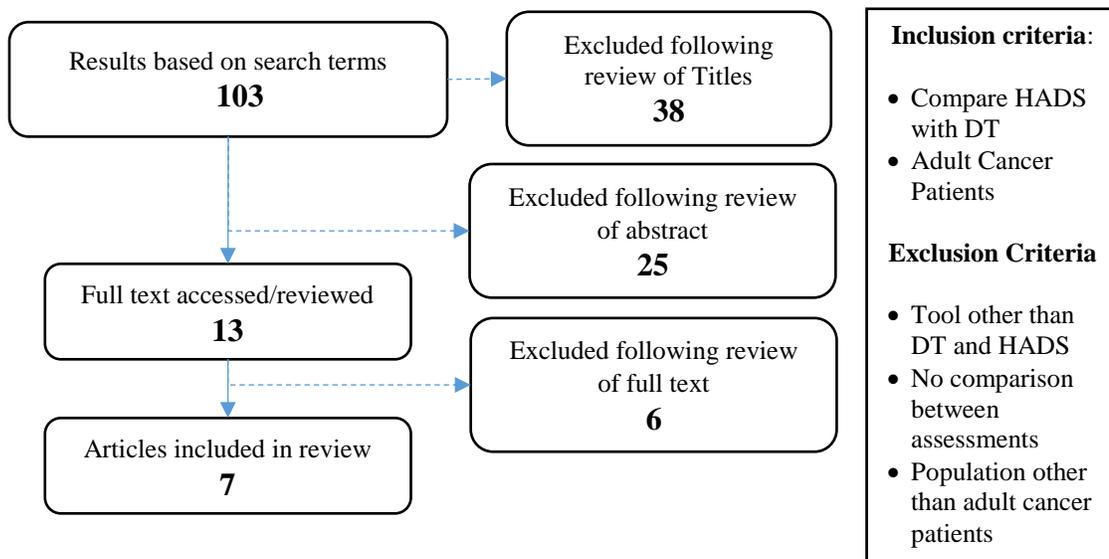*Diagram of Literature Review comparing HADS with DT*

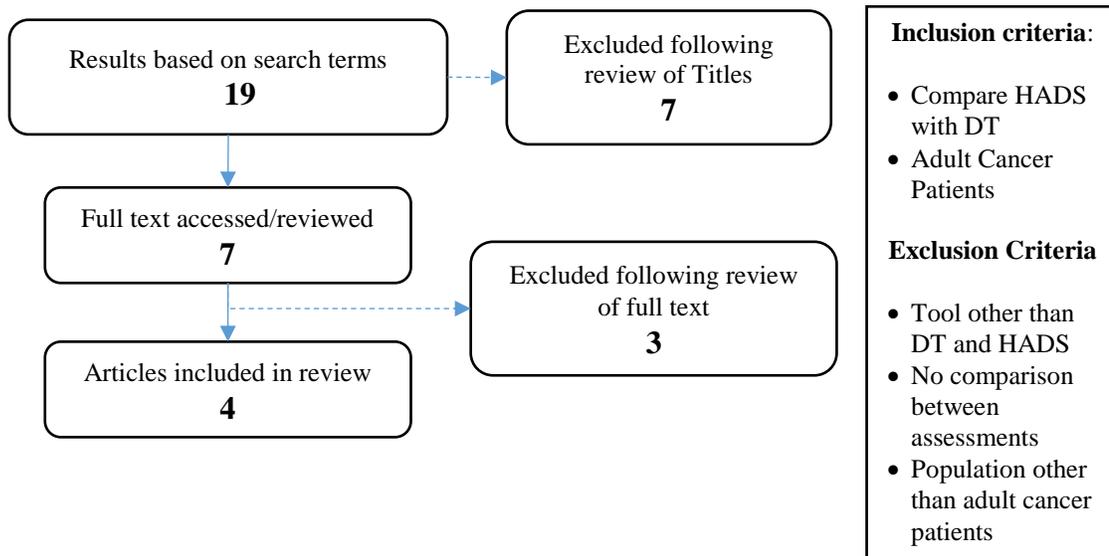Figure 4

Diagram of Literature Review comparing PHQ with DT

Table 3

Literature Comparing HADS and DT

Study	Purpose	Method	Results	Theme
Boyes et al., , 2013	Comparison of DT to HADS in detecting psychological morbidity in cancer survivors?	Cross-sectional survey of adult cancer survivors (n = 1,323) were assessed with HADS and DT at 6 months after diagnosis	DT was able to distinguish between HADS determinant cases and non-cases (AUC 0.84-0.87). DT Cut-off determined at >2 for clinical setting and >4 in research setting; comparable to HADS ≥ 8	DT is comparable to HADS and PHQ
Bidstrup et al., 2012	Test the accuracy of the Dutch version of the DT by comparing to HADS	A sample of 357 breast cancer patients were assessed with DT and HADS over a one-year period	DT performance was comparable to HADS Cut-off of 2-3 was optimal, with rating of 6 and 7 indicating moderate to severe distress, respectively.	DT is comparable to HADS and PHQ
Butow et al., 2015	Establish an evidence-based plan for screening for anxiety and depression in adult cancer patients in Australia	Literature review for existing guidelines and systematic reviews and meta-analyses. There was also an advisory board and formalized process for stakeholder collaboration with 87 stakeholders.	Professional roles were defined for clinicians Two-step screening – with DT or similar, and followed-up with HADS. Clinical staff should be aware of signs of anxiety and depression. If screening yields a positive result, then referral for a more in-depth assessment should be made	Lack of Standardization – this article addressed that
Castelli et al., 2015	determine if the stress response in the brain is consistent with DT and HADS screening results	DT and HADS assessment along with PET brain glucose metabolism was analyzed in a sample of 21cancer patients.	DT scores showed correlation with expected areas of the brain's response to stress, while HADS was more diffuse, including the limbic system and cortex. Increased hypothalamus metabolism was the strongest predictor of distress.	Psychosocial factors influence outcomes

Study	Purpose	Method	Results	Theme
Lambert et al., 2014	Validate cut-off scores between HADS and DT	Use HADS scores to detect DT cut-off score using Rasch analysis (n = 340)	Distinction between standard correlation of HADS ≥ 8 and DT ≥ 4 if DT is used as a solitary screening tool. These authors recommend a cut-off of DT 6 or seven if used as a sole screening method. DT ≥ 4 is appropriate if follow-up screening is implemented	DT is comparable to HADS and PHQ Lack of standardization – psychometric scales often require adjustment in culture and contexts
Patel et al., 2011	Evaluate sensitivity, specificity, and optimal cut-off scores for screening with HADS and DT when compared clinical interviews.	A sample of 99 patients with colorectal cancer completed screening with HADS and DT. ROC analysis was performed on the screening scores and then compared with the sample of 17 patients that had been referred for clinical diagnostic interviews	Neither HADS nor DT outperformed the diagnostic clinical interview for diagnosing …	DT is comparable to HADS and PHQ Neither HADS nor DT showed good ability to identify anxiety disorders in this study
Schellekens et al., 2016	Explore the suitability of HADS, DT, Beck Depression Inventory (BDI-II), and State subscale of State Trait Anxiety Inventory (STAI-S) to screen for psychiatric disorders in patients with lung cancer and also their partners	A sample of 144 patients were assessed with the screening tools, and then participated in the Structured Clinical Interview DSM-IV SCID-I	DT is suitable for screening of general distress, and not for screening of psychiatric disorders. HADS total score performed better than DT for screening of psychiatric disorders, but as a first-step tool only.	DT is comparable to HADS and PHQ (exception – diagnosis of psychiatric disorders) DT captures broader scope of psychological stressors Lack of standardization
Wang et al., 2011	Validation of the DT and HADS in Taiwanese patients with cancer	DT and HADS tools were used to assess a sample of 103 patients over a 7-month period in 2004.	DT outperformed HADS in sensitivity and specificity, though either tool is appropriate to assess the target patient population. Cut-offs were determined as ≥4 for DT and ≥ 8 for HADS subscales.	DT is comparable to HADS and PHQ

Table 4

Literature Comparing PHQ and DT

Study	Purpose	Method	Results	Theme
Faller et al., 2016	Evaluate cancer patients' perception of need and relate need for psychosocial support with clinical diagnostic interviews and self-report assessments	Cross-Sectional (n = 4,020) Patients completed DT and PHQ, then a subset (n = 2,141) were evaluated with the Composite International Diagnostic Interview (CIDI)	Half of those with higher scores on DT and PHQ similarly perceived need for psychosocial support. Authors infer that patients' expectation of a certain level of distress may have influenced perception of need. About one-quarter of those with lower scores on DT and PHQ still perceived need for psychosocial support. All measures performed similarly. Both DT and PHQ independently and collectively significantly predicted perception of need.	DT is Comparable to PHQ and HADS Patients like DT: Fewer patients declined to complete DT and PHQ than those who refused CIDI
Hegel et al., 2008	Assess the validity of DT compared with PHQ in assessing for depression	Over a period of 30 months, a sample of 321 newly diagnosed breast cancer patients (stages I-III) completed the DT and then PHQ assessments. These were analyzed with ROC	DT achieved AUC for specificity of 0.85 with a cut-off of 7	DT is Comparable to PHQ and HADS A positive screen for DT may need follow-up with a more focused measure.
Lazenby et al, 2014	Determine if DT is able to assess for depression accurately in a population of patients with advanced cancer	A cross-sectional sample of 123 patients within 30 days of diagnosis were assessed using the DT and the PHQ-2. ROC analysis was performed	DT cut-off score of ≥2 was more sensitive for detecting depression PHQ-2 (≥2). Sensitivity was 0.92 for DT, and 0.32 for the PHQ-2. DT ≥2 agreed with PHQ-9 ≥5, detecting 39 more cases of depression than the PHQ-2. Agreement with problems 1-4 in the Emotional Domain can be used for triage for referral.	DT is Comparable to PHQ and HADS DT captures broader scope than HADS or PHQ
Wagner et al., 2017	Evaluate brief tools for screening for depression in cancer patients in an outpatient setting	A sample of 455 cancer patients were assessed with PHQ-2, PHQ-9, DT, and HSCL-25. Scores exceeding cut-offs were referred to clinical interview via telephone	DT specificity was 0.52, and sensitivity of 0.80 PHQ-9 specificity was 0.69, and sensitivity of 0.79 PHQ-2 specificity was 0.63, and sensitivity of 0.86 PHQ-9 was accurate to detect cases (AUC 0.85) PHQ-2 was also accurate (AUC 0.83) The HSCL-25 performed fairly (AUC 0.80) DT was poor to detect mood disorders (AUC 0.59)	DT is Comparable to PHQ and HADS Does not perform well to detect mood disorders

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