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A Review of the Clinical Utility of the Distress Thermometer

Sunita Bishnoi

Professor, Department of Chemistry, Vivekananda Global University, Jaipur

Correspondence should be addressed to Sunita Bishnoi; bishnoi.sunita@vgu.ac.in

ABSTRACT- The Discomfort Thermometer (DT) is a well-established screening tool that is both sensitive and specific to the concept of cancer distress. Its shortness makes it suitable for integrating into a distress management system. A literature study was conducted to determine how far this concept has progressed in practice and to assist future research. The following databases were systematically searched: Pubmed, CINAHL, PsycINFO, Ebsco, ASSIA, British Nurses Directory, AMED, CCTR, and HMIC are just a few of the databases available. In forty studies, the DT's function was explored alone, in conjunction using the issue list (PL), and/or other approved indicators. In order to demonstrate 'cosiness' in these groups and identify variables associated with distress, the bulk of research validated the DT against other strong measures of distress. Almost all of the studies suggested that their results be tested in clinical practice in the future. A tiny part of the literature looked at the DT's clinical usefulness as a consultation facilitator and found it to be promising in this respect. It is determined that there is sufficient validation evidence, and future study should concentrate on the usefulness of DT as part of a systematic distress treatment centre, as recommended by the majority among these investigations.

KEYWORDS- Distress, Cancer, Management, Oncology, Thermometer.

I. INTRODUCTION

Throughout the nursing, pharmacological, psychological, and social sciences literature, psychological discomfort is often addressed[1]. However, because it's widely used to describe a wide range of emotions, from emotions of vulnerability, grief, anxieties, and anxieties to melancholy, worry, terror, social alienation, existentialist, and spiritually crises, this concept is still unclear. The concept of psychological discomfort in psychiatric nosology is unclear and has been disputed for many years. On the one hand, it's classified as an emotion disturbance, and on the other, it's linked to mental diseases including severe melancholy, generalized worry, and comment traumatic stress[2]. Due to the strain concept, distress, is a transitory phenomenon and a normal emotional response to a stressful event that jeopardizes physical and mental health as well as the capacity to deal successfully with the stressor. Due to a lack of clarity in the definition of this notion, it may be difficult to determine which evaluation method is best for observing human reactions to bad occurrences. In this respect, it has been suggested that mental stress be defined as a "emotional condition characterized by worry and melancholy signs" [3].

- Depending on this concept, these researchers presented three physician outcomes measures to test for emotional discomfort:
- The General Health Questionnaire is the first step (GHQ) and second step is The Kessler grading scale.
- The Hopkins Symptom Checklist was used to create the scales.

Psychological discomfort has been widely researched in oncology, since up to 50% of patients undergoing cancer treatment may feel severe emotional anguish. Distress is frequently tested as the seventh vital indicator during the disease as a way to properly understanding people' responses to illness and its repercussions[4]. Patients are frequently unable to address their mental and psychologic concerns with doctors in ordinary clinical practice due to time restrictions and the shame connected with those conditions. The Nacional Colorectal Cancer Platform's (NCCN) Distress Treatment Panel developed the Distress Thermometer as a consequence of this (DT)[5]. This tool adheres to the NCCN's newly updated concept of emotional distress, which describes it as an uncomfortable emotional, social, religious, or physiological event that impairs an individual's capacity to deal successfully with the stressor. The DT was developed by Roth et al. (1998) and consists of 2 parts: a visual analogue scale that resembles a temperature gauge and includes a solitary item inquiry with 11 locations ranging from 0 (no anguish) to 10 (severe discomfort) and a list of 39 difficulties split into 5 classifications: practical, relatives, sentimental, spiritual/ christian, and physical problems. Individuals must focus on the preceding weeks in order to determine the causes of discomfort in the list of issues and to indicate the amount that better characterizes their level of anguish[6]. The DT may be provided by a healthcare practitioner or self-administered, according on the patients' desire, time, and linguistic knowledge [7].

According to the NCCN's recommendations, To detect individuals who are in substantial distress, a cut-off value of 4 must be employed. When contrasted to the measures,

the DT is regarded a simple and quick instrument. Methods of ultra-short scanning, such as the DT, were found to be more reasonable by healthcare workers who administer these standardised metrics to patients in a systematic review (e.g. BSI)[8]. The scientific usefulness of the DT in oncology care has been reported in several studies. Per a comprehensive evaluation of 57 research, this measure has strong psychological properties across many nations and civilizations., confirming its international validity[9]. Other research has found it to be useful in pediatric oncologist, illness victims, and cancer sufferers' carers.

It has a high level of acceptance among patients and clinicians, owing to the fact that it is short and simple to complete. The DT is increasingly being used outside of the field of cancer care due to its benefits. However, there is still a lack of It has never been examined, and there is no information on its therapeutic value in other therapeutic and quasi groups. In many other situations and cultures, a lack of awareness of the DT features may hamper healthcare practitioners' choices regarding the device's efficacy and/or lead to its abuse. Because cancer is a disease that has its own set of causes of suffering that aren't seen in many other clinical diseases., as well as in non-clinical population numbers (e.g., caregivers or healthcare professionals), it is critical to broaden this understanding[10].

A. Conceptual framework

This research used Smart's multidimensional approach to enable a thorough assessment of the DT's clinical usefulness in non-oncology treatment. Smart's interpretation of clinical utility, which is a multidimensional construct, is based on the DT's value in clinical practice after balancing its benefits and drawbacks for the respondents who will complete it, as well as the patient information it offers for health professionals[11]. Accessibility, practicality, appropriateness, and acceptance are four factors to examine while evaluating the DT's therapeutic usefulness. These two notions are conceptually similar and are often used interchangeably in studies. This review, on the other hand, kept its distinctiveness. Appropriateness is defined in this context as the DT's perceived relevance and suitability for a certain demographic and/or situation. Its psychometric characteristics and efficacy in accomplishing some therapeutic or research goal may be used to evaluate it. Acceptability, on the other hand, is described as a person's assessment of a tool's suitability in a particular situation. As a result, the criteria is personal and should be assessed via a questionnaire or a semi-structured interview from the viewpoint of participants and health experts. Thompson's method has previously been used to guide the evaluation of a smartphone app for individuals with behavioural difficulties, as well as to evaluate the clinical usefulness the DELTA nursing assessment, a technique for evaluating clients' mental healthcare results [12].

Every year, about 298 000 individuals in the United Kingdom are diagnosed with cancer, with more than one in every three people getting cancer at some point in their lives. Many cancer patients are distressed, which is exacerbated by the side effects of severe therapies (NICE). Untreated distress has been linked to increased pain, decreased physical function, increased medical expenses, and longer hospital admissions, putting a strain on both the person and the healthcare system. But even though the data is mixed, psycho-educational treatments have been found to reduce discomfort in a variety of situations, including nausea and depression. As a result, the most effective way of reducing distress is to target treatments in a methodical manner. This method is strategically aligned with contemporary ideas of shared care, in which the intervention's emphasis is on the individual's issues as identified and expressed. Individualized assistance may therefore be used to reduce distress, resulting in a reduced The individual and the medical institution are both burdened [13].

However, individualized assistance is not always accessible. Even severe levels of distress have been found to be difficult to detect by health professionals in the past. Ad hoc assessment techniques are recognized to be less successful than systematic evaluation procedures[14]. Oncologists often leave it up to patients to express their concerns, and in certain cases, oncologists may actively discourage patients from doing so. Many clinicians are hesitant to bring up the subject of distress because they do not believe it is a necessary part of their job. There has been a lot of work done to address these issues, with the distress thermometer being a big part of it (DT). The DT was initially created in 1998 as a one-item self-report diagnostic measure for evaluating mental distress in tumor sufferers. It employs an 11-point visual analogue scale with numbers ranging from 0 to 10. A score of four is widely regarded as indicating severe distress[15]. A problem list is The DT is progressively being used in clinical settings (PL). The PL pinpoints more specific causes of distress. The ability of DT to understanding and meeting the construct of distress has been the focus of much of the DT literature. Some studies looked at the DT's function and validity on its own. Other research have looked at the usefulness of the associated PL or used the DT in conjunction with other brief screening measures to solve validity issues. Some people modify the original scale to fit their specific needs[16].

In other cases, the DT was put to the test to determine how effective it was as a screening tool for further referral. In other studies, the DT played a key role as a communication facilitator, assisting in the identification and management of distress throughout the consultation process. A qualitative synthesis was undertaken to examine the type and range of findings and suggestions found in the DT literature in order to bring these disparate objectives together. Synthesis of qualitative data. The use of qualitative synthesis is becoming increasingly widespread. In a nutshell, the goal is to integrate the results of "many distinct investigations into a broader interpretative viewpoint that will lead to continuing theory and practice growth." The methods used in each synthesis differ, but they all include a thorough and rigorous comparison of results from primary research. The search criteria, quality control, and analytical framework should all be stated clearly.

These are included in the list below. Criteria for the search the following databases were searched: Pubmed, CINAHL, PsycINFO, Embase, ASSIA, BNI, AMED,

CCTR, and HMIC are just a few of the databases available. Duplicates were thrown out. Articles that were not accessible in English, discussed individuals under the age of 18, or did not explicitly address cancer distress management were eliminated. Articles that did not satisfy the quality requirements were discarded[17]. Only primary data-based research papers were considered. A total of 37 articles were read in their entirety. Following up on interesting citations that were missed during the first search resulted in the selection of 40 publications for examination. Controlling the quality for finding the cost of quantitative research, hierarchies exist. Although they have their detractors, evaluation basis for evaluating the relative worth of qualitative research are even more contentious[18]. For illustration, what yet another article considers to be a sign of rigor may be philosophically incompatible with another's theory of knowledge.

4499 magazines proposal standards for assessing and classifying severe qualitative investigation in an attempt to reach a consensus. They discovered seven criterion for evaluation:

- Conducting ethical research
- The significance of the research
- The study report's clarity and cohesion
- Usage rigorous and suitable techniques
- The significance of reflexivity, or paying attention to researcher bias
- The significance of ensuring authenticity and trustworthiness
- The significance of verification and dependability. The importance of each of the final three points varies between paradigms, making them particularly problematic.

The first four criteria, on the other hand, are widely agreed upon. Subjective study would be moral and significant, well defined, and use suitable, rigorous techniques, according to the findings. These quality standards, according to the writers of this paper, should be extended to all research. To justify inclusion in the first place, Irrespective of paradigm, same quality standards was used to the research search phase [19].

The DT barometer was found to be In studies that employed solely the DT barometer, it was shown to be relevant and useful in assessing for discomfort in a range of clinical and non-clinical groups, including people, kids, and parents with health issues, as well as unofficial and official carers. The barometer was able to distinguish among individuals with psychological or physical diseases and healthy volunteers, as well as between genders, different levels of distress. This instrument was also useful for determining the effectiveness of psychological and pharmaceutical treatments, as well as the necessity for individuals to be referred to psychosocial interventions[20]. The diagnostic accuracy of the DT using just the barometer to identify internalising diseases was shown to be modest in studies, especially for depression. The barometer was used in research as a confounding factor, a predictor in regression models, and a variable in correlational studies examining the relationship between distress levels and other factors (for example, parental distress and the child's health-related quality of life). The DT list of issues was used in studies, and it was shown to be useful to differentiate between various causes of discomfort. The DT, according to one research, is suitable for screening for distress and its causes in units with a large number of patients since it is a quick and simple instrument. Other sources agreed with this viewpoint. Furthermore, two investigations found that the DT list of issues was ineffective in assessing the unique obstacles of diseases including inflammatory bowel disease and haemophilia[21].

II. DISCUSSION

A DT cut-off of 4 is widely agreed to be a helpful differentiation in screen for stress. Following that, there is widespread agreement that implementing research are required to determine what identifying discomfort in practice entails. It must be acknowledged that research suggestions may not get the same level of scrutiny as the rest of the study. Nonetheless, the advice presented here are all consistent. Information on administration are important, as are criticisms of the effectiveness of psychological therapies in oncology patients, and the majority of the research evaluated does not address these concerns. A organized methodology to stress mitigation has not yet been compared to therapy as usual in a randomised control experiment, as Hansen points out (RCT).

The research is nearly totally devoid of subjective information. Although the fact that the DT has been shown to be useful in arranging consultations, there have been no research on how individuals feel about utilizing the DT to organize consultations or the clinical effects of doing so. The DT has been used in non-oncological settings for a variety of applications because to its accessibility. According to this scoping review, it has been the tool of choice for a number of health practitioners and/or researchers looking to assess for sadness in people who have suffered adversity in their lives, such as physical sickness or job stresses. It also implies that the DT is appropriate and useful for evaluating the effectiveness of psychiatric and pharmaceutical therapies, as well as predicting the requirement for referrals to a physician. In this respect, the NCCN recommendations recommend that all clients, independent of their DT barometer score, be asked whether they want to be referred again in the future. As a result, the health practitioners who deliver the tool should look for the completers' difficulties in the DT's list of problems, which will indicate whether or not they should be sent to an expert In terms of research, the DT findings have been frequently employed in predictive modeling and correlational investigations, demonstrating its applicability and use in better understanding the link among stress and other psychological and physiological factors.

III. CONCLUSIONS

The DT is intended to be used as a stress assessment tool. People may use the issue list to indicate concerns that are of special relevance to them. Clinical therapists, on the other hand, are responsible for assisting individuals in managing their discomfort, which goes above screenings.

Even when the findings of the testing are communicated back to physicians, screening makes no effect. Distress may even escalate if nothing occurs as a result of screening. Appropriate assistance is definitely required after accurate distress identification with the DT, but there is no indication that this help is available or organised in any meaningful manner. Such disparate results must be reconciled by integrating the DT's ability to identify distress with the workforce's capability to adequately address distressing indicators, as recommended by the bulk of the research examined. An assessment of stress counselling in NHS Argyll and Arran has been sponsored by Macmillan Cancer Support. The patient will complete the DT and PL before to consultation in order to manage their distress in this research. The session will then concentrate on the patient's discomfort in attempt to focus conversation and provide organized assistance. A mixed–methods approach will be used in the assessment. An RCT will track consultation time in order to offer objective data to compare to standard care. Patient interviews will be analyzed qualitatively to determine the procedure of stress reduction from their viewpoint and to identify elements that contribute to its effectiveness or failure. This information should presumably aid in the transition of the DT from a diagnostic tool to an active promoter of collaborative caring.

REFERENCES

[1] M. Rath, I. Müller, P. Kropf, E. I. Closs, and M. Munder, “Metabolism via arginase or nitric oxide synthase: Two competing arginine pathways in macrophages,” Frontiers in Immunology. 2014, doi: 10.3389/fimmu.2014.00532.

[2] P. Pattanayak, P. Behera, D. Das, and S. Panda, “Ocimum sanctum Linn. A reservoir plant for therapeutic applications: An overview,” Pharmacognosy Reviews. 2010, doi: 10.4103/0973-7847.65323.

[3] A. Snowden, C. A. White, Z. Christie, E. Murray, C. McGowan, and R. Scott, “The clinical utility of the distress thermometer: A review,” British Journal of Nursing. 2011, doi: 10.12968/bjon.2011.20.4.220.

[4] S. Misra, “Human gene therapy: a brief overview of the genetic revolution.,” The Journal of the Association of Physicians of India. 2013.

[5] T. Saswat et al., “High rates of co-infection of Dengue and Chikungunya virus in Odisha and Maharashtra, India during 2013,” Infect. Genet. Evol., 2015, doi: 10.1016/j.meegid.2015.08.006.

[6] D. Mishra, G. Ghosh, P. Sudhir Kumar, and P. K. Panda, “An experimental study of analgesic activity of selective COX-2 inhibitor with conventional NSAIDs,” Asian J. Pharm. Clin. Res., 2011.

[7] P. Patterson et al., “Validation of the distress thermometer for use among adolescents and young adults with cancer in Australia: a multicenter study protocol,” Clin. Oncol. Adolesc. Young Adults, 2015, doi: 10.2147/coaya.s83811.

[8] S. K. Sarin et al., “Acute-on-chronic liver failure: consensus recommendations of the Asian Pacific association for the study of the liver (APASL): an update,” Hepatol. Int., 2019, doi: 10.1007/s12072-019-09946-3.

[9] S. K. Satapathy, S. Dehuri, and A. K. Jagadev, “EEG signal classification using PSO trained RBF neural network for epilepsy identification,” Informatics Med. Unlocked, 2017, doi: 10.1016/j.imu.2016.12.001.

[10] L. Haverman et al., “Development and validation of the distress thermometer for parents of a chronically ill child,” J. Pediatr., 2013, doi: 10.1016/j.jpeds.2013.06.011.

[11] M. C. Sahu, D. Dubey, S. Rath, N. K. Debata, and R. N. Padhy, “Multidrug resistance of Pseudomonas aeruginosa as known from surveillance of nosocomial and community infections in an Indian teaching hospital,” J. Public Heal., 2012, doi: 10.1007/s10389-011-0479-2.

[12] A. Cutillo, E. O’hea, S. Person, D. Lessard, T. Harralson, and E. Boudreaux, “NCCN Distress Thermometer: Cut off Points and Clinical Utility HHS Public Access,” J Oncol Nurs Forum, 2017.

[13] J. T. Limonero et al., “Evaluación de las propiedades psicométricas del cuestionario de Detección de Malestar Emocional (DME) en pacientes oncológicos,” Gac. Sanit., 2012, doi: 10.1016/j.gaceta.2011.07.016.

[14] S. Rath, D. Dubey, M. C. Sahu, N. K. Debata, and R. N. Padhy, “Surveillance of ESBL producing multidrug resistant Escherichia coli in a teaching hospital in India,” Asian Pacific J. Trop. Dis., 2014, doi: 10.1016/S2222-1808(14)60331-5.

[15] N. Verma, A. P. Singh, G. Amresh, P. K. Sahu, and C. V. Rao, “Protective effect of ethyl acetate fraction of Rhododendron arboreum flowers against carbon tetrachloride-induced hepatotoxicity in experimental models,” Indian J. Pharmacol., 2011, doi: 10.4103/0253-7613.81518.

[16] M. Bellè, B. Muzzatti, M. Tomas, and F. Gherlinzoni, “Psychological screening of onco-hematologic inpatients: Distress Thermometer administration,” Tumori, 2016, doi: 10.5301/tj.5000440.

[17] M. Rights, “ePrints Soton Hydrography,” Valid. Distress Thermom. among Stroke Surviv., 2015.

[18] D. Dubey, S. Rath, M. C. Sahu, N. K. Debata, and R. N. Padhy, “Antimicrobials of plant origin against TB and other infections and economics of plant drugs -Introspection,” Indian J. Tradit. Knowl., 2012.

[19] K. A. Clover, C. Oldmeadow, L. Nelson, K. Rogers, A. J. Mitchell, and G. Carter, “Which items on the distress thermometer problem list are the most distressing?,” Support. Care Cancer, 2016, doi: 10.1007/s00520-016-3294-z.

[20] J. T. Limonero et al., “Assessment of the psychometric properties of the Detection of Emotional Distress Scale in cancer patients,” Gac. Sanit., 2012, doi: 10.1016/j.gaceta.2011.07.016.

[21] P. Arnaboldi, S. Oliveri, V. Vadilonga, L. Santoro, A. Maggioni, and G. Pravettoni, “Perceived utility of an integrated psychological intervention for gynaecological cancer patients admitted for surgery:

Preliminary data," Ecancermedicalscience, 2017, doi: 10.3332/ecancer.2017.722.