

The distress thermometer: a promising tool to screen patients with chronic respiratory diseases for emotional distress

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Abstract

Patients with chronic respiratory diseases have variable degrees of emotional distress (ED). Chronic illness-related ED has been shown to be an independent factor for inefficient self-management as well as an essential factor for clinical deterioration and the quality of life in patients with chronic respiratory diseases. The distress thermometer (DT) comprises two distinct components: a visual analog scale, which resembles a thermometer, and a 39-problem list (PL) composed of 5 different categories: family, emotional, practical, spiritual/religious, and physical problems. DT has been approved as very effective in screening patients for ED in oncological and non-oncological settings. The COVID-19 pandemic has stimulated investigators to develop a modified DT (m-DT) that can be implemented for patients with COVID-19. This m-DT proved effective in screening adults, adolescents, and pregnant women with COVID-19 for ED. DT has been utilized in patients with chronic medical conditions in the non-oncological context, yet it was underutilized in those with chronic respiratory diseases. We believe that DT, with its advantages, represents a handy tool for screening patients with chronic respiratory diseases. The DT-associated PL is relatively comprehensive and covers almost all social, spiritual, financial, and emotional aspects of the screened individual's life. Screening of patients with cancer using DT has revealed encouraging results. Similar results among patients with chronic respiratory diseases are expected. DT can be utilized efficiently to deal with mental health issues routinely as a part of rehabilitation programs for chronic respiratory disorders. Further studies are warranted.

Key words: advanced lung disease, psychological distress, thermometer, screening, chronic.

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Introduction

Patients with different chronic respiratory diseases have variable degrees of emotional distress (ED), which negatively impacts the patient's clinical course and quality of life (QOL). The distress thermometer (DT) has been approved to screen patients for ED effectively in oncological and non-oncological settings. However, it is still needed to be utilized to manage chronic respiratory disease patients. Herein, we discuss the impacts of ED on patients with chronic respiratory diseases and the potential use of DT in the management of their associated ED.

Prevalence and impacts of emotional distress in patients with chronic respiratory diseases

Patients with different chronic respiratory diseases have variable degrees of ED. Almost all respiratory disorders (infectious, airway obstruction-related, parenchymal lung disease-related,

vascular, sleep disorder-related, and malignant) are associated with a considerable range of ED [1,2]. Chronic respiratory diseases could be closely related to ED, simply because these disorders could affect the patient's QOL on a momentary (every time breathing) basis.

Chronic illness-related ED has been shown to be a significant factor in inefficient self-control management and clinical outcomes [3]. For instance, chronic illness-related ED was correlated with poor control of serum blood glucose as well as poor self-management and control in type 2 diabetes mellitus (DM) [4]. In chronic respiratory disease, ED is reported to be especially present and high if people undergo a worsening of their chronic condition, which is manifested as a change in their typical symptoms and deterioration of their stable condition [5]. Moreover, clinical observations have shown that ED is related to specific events during the disease, e.g., at the time of initial diagnosis [e.g., lung cancer (LC)], treatment decisions, hospitalizations, and intensive care unit admissions [2,6].

The recent COVID-19 pandemic could have brought the "concept" of the impact of ED back into mind and paid attention to cli-



nicians to the importance of screening their patients for ED [7-10]. Before the COVID-19 pandemic, a literature review highlighted the impact of ED on the clinical course and QOL in patients with different respiratory diseases [11-13]. Herein, we present some of these observations.

One of the most frustrating chronic respiratory diseases is chronic obstructive pulmonary disease (COPD). Adding to the disabling disease itself, COPD often presents with comorbidities and concomitant chronic diseases, including metabolic syndrome, DM, cardiovascular problems, skeletal muscle disorders, LC, osteoporosis, psychiatric illness (*e.g.*, anxiety and depression), and cognitive dysfunction [14].

Recent research suggests that in patients with COPD, the rate of comorbid psychiatric disorders is high, which negatively impacts their clinical condition and worsens their prognosis [12,14].

In their cross-sectional clinic-based descriptive study, Rajpoot *et al.* observed that 58% and 60% of interstitial lung disease (ILD) and COPD patients experienced psychological distress upon undergoing psychological screening [13]. Moreover, 40% of all the ILD and COPD patients were diagnosed with a psychiatric disorder after being evaluated by a psychiatrist [13]. In an Australian study, adolescents with asthma have higher rates of psychological distress than adolescents who do not have asthma [11].

In patients with pulmonary vascular disorders, the mental problems were explored through qualitative interviews. Loss of abilities, energy imbalance, feeling misunderstood, and handling of emotions and worries were reported as imminent problems among those patients [15]. For obstructive sleep apnea (OSA), it was observed that patients with clinical disease often suffer from depression and/or other mental disorders, such as anxiety [16].

Patients with LC have been studied extensively for the impact of ED [17]. This could be, in part, due to the “general” interest in evaluating the relationship between ED and cancer (*i.e.*, all types of cancer).

ED is usually manifested in patients with chronic respiratory failure, those receiving long-term oxygen therapy, and those receiving prolonged mechanical ventilation [18]. Moreover, ED may be related to the use and compliance with specific “long-term” therapeutic modalities (like long-term oxygen therapy, inhalers, and nebulizers), which represent a stressful condition for those patients.

The distress thermometer and the modified distress thermometer

Before the DT was adopted, even though there were fewer patients with chronic medical conditions than other patients, other tools were used to screen patients with chronic respiratory diseases for ED. For instance, Rajpoot *et al.* used different psychological scales, including the DT, General Health Questionnaire-12, Coping Strategy Checklist, Depression Anxiety Stress Scale, and WHOQOL-Brief-26 (WHOQOL-Bref-26), to assess the ED among 50 patients with ILD, 30 patients with COPD patients and 30 healthy controls [13].

Then, the presence of significant distress in certain groups of patients, *e.g.*, cancer patients, motivated many scientific societies and international regulatory organizations to recommend routine screening and management of ED as an essential part of global cancer care in the same way that healthcare staff monitor and

respond to other vital signs, considering distress as the sixth vital sign [19,20].

In a simple form, the DT comprises two distinct components: i) a visual analog scale that is similar to a thermometer with a single-item question with 11 points assessing the degree of stress that ranges from 0 to 10 and interpreted as no distress and extreme distress, respectively; ii) a 39-problem list divided into five different closely related categories (emotional-family- practical-spiritual/religious, and physical problems) [19,21]. The cutoff score for further screening was 4 [19,20,22].

In a prospective cross-sectional study, 91 patients with juvenile and adult-onset recurrent respiratory papillomatosis were screened to detect ED using DT. Since DT is a newer tool, the Hospital Anxiety and Depression Scale was used as the gold standard [23]. As per the cutoff value of the DT, 31% of patients had significant ED. Moreover, a substantial number of patients had a referral wish [23].

The COVID-19 pandemic has stimulated investigators to develop a “modified DT, m-DT” that can be implemented for patients with COVID-19 (Figure 1) [7].

It has been observed that m-DT proved effective in screening adults, adolescents, and pregnant women with COVID-19 for ED [7-10]. With cutoff values of ≥ 4 , 60%, 48%, and 68% of adults, adolescents, and pregnant women experienced significant Distress, respectively [7-9].

The potential of the distress thermometer/modified distress thermometer as screening tools for patients with chronic respiratory diseases

Compared to older “classical” tools for psychological screening, like the Depression Anxiety Stress Scale and the WHOQOL-Bref-26, DT is simpler and easier to use. It covers most problems that might be challenged by any study population (*i.e.*, populations with different racial and financial aspects) and globally. So, unsurprisingly, DT has been successfully translated from English into several languages [24]. Despite those advantages above, DT has been utilized in patients with chronic medical conditions in the non-oncological context (*e.g.*, inflammatory bowel disease, end-stage renal disease, HIV). Yet, it was underutilized in those with chronic respiratory diseases [25,26]. In the era of the COVID-19 pandemic, it was an exception where the m-DT was utilized to screen COVID-19 patients for ED [7-10].

In developing countries and among those societies with limited healthcare resources, there is a need to effectively identify and support patients with chronic respiratory diseases with their unmet psychosocial needs and enhance the integration of psychosocial care into their care. Hence, the DT is a valuable tool to achieve these goals promptly [26]. We think that DT, with its mentioned advantages, represents a very useful tool for screening patients with chronic respiratory diseases. In the COVID-19 setting, the National Comprehensive Cancer Network (NCCN)-adopted DT was modified to be more suitable for patients with COVID-19 [7]. Similarly, we suggest further studies on the utility of DT in patients with chronic respiratory diseases. If indicated, the DT can be modified again to be more fitting for patients with chronic respiratory diseases. Meanwhile, the currently available m-DT can be used in acute exacerbations and acute presentations of chronic pulmonary diseases [7-9].

DT and m-DT are simple and rapid tests that can be used by



medical and/or paramedical personnel. In a well-dedicated workflow, the use of DT and m-DT will help manage psychological disorders among those patients promptly, which is of paramount significance in the course of such respiratory disorders [7-10]. The DT-associated PL is comprehensive and covers almost all aspects of patients' lives. Screening of cancer patients using DT has revealed encouraging results [19,20]. We expect similar results among patients with chronic respiratory diseases.

On the other hand, dealing with mental health issues and ED should routinely be a part of rehabilitation programs for chronic respiratory disorders [19,22].

Recently, Schmid-Moher *et al.* proposed a new conceptual model describing the regulation and self-management processes in chronic respiratory disease [3]. Identified sources of respiratory illness-related ED were new and/or increased symptoms, additional therapy, new restrictions in daily life performance, and increased unpredictability. The authors concluded that this conceptual model could be necessary for nursing practice to develop appropriate interventions, especially in supporting people's decision-making [3].

It should be highlighted that barriers to screening for distress still exist. Patient barriers to screening include language and cultural differences as well as literacy [27]. Reports have shown that patients scoring high on the DT may not want help. Conversely, other studies have shown that when patients were screened and did

not receive any referrals or assistance, their levels of distress increased. Furthermore, institutional barriers identified include a lack of privacy for screening, insufficient time and training, poor results documentation, discomfort discussing results, and a lack of resources for patient referrals [7,22,27].

Finally, we expect that the use of DT and m-DT for screening and follow-up of patients with chronic respiratory diseases will be implemented shortly. It is hoped that using DT/m-DT is as common as asking for pain scores and is seen as a sixth vital sign to monitor [10,28]. Further research is warranted.

Conclusions

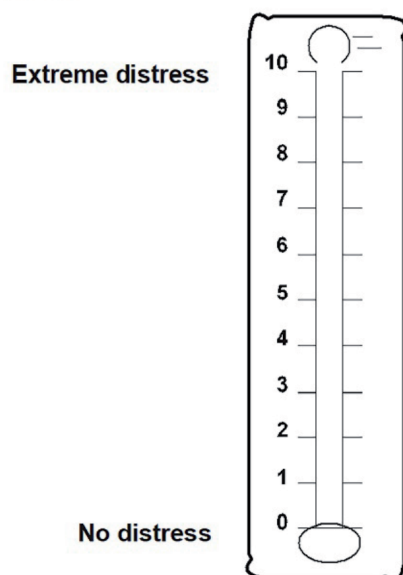
ED hurts the clinical course as well as the QOL of patients with chronic medical illnesses, including those with chronic respiratory diseases. The DT effectively screened patients with chronic medical conditions for ED in the oncological and non-oncological contexts. The m-DT also proved effective in patients with COVID-19. We think that DT represents a very useful tool for screening patients with chronic respiratory diseases. If indicated, the DT can be modified to be more fitting for those patients. Meanwhile, the currently available m-DT can be used in acute exacerbations and/or acute presentations of chronic pulmonary diseases. Further research is warranted.

Modified Distress Thermometer and Problem List for COVID-19 Patients

DISTRESS THERMOMETER

Distress is an unpleasant experience of a mental, physical, social, or spiritual nature. It can affect the way you think, feel, or act. Distress may make it harder to cope with having COVID-19 and/or its symptoms

Instructions: Please circle the number (0–10) that best describes how much distress you have been experiencing in the past 3 days including today.



PROBLEM LIST

Please indicate if any of the following has been a problem for you in the past 3 days including today. Be sure to check YES or NO for each.

YES NO Emotional Problems

- Depression
- Fears
- Nervousness
- Sadness
- Worry
- Loss of interest in usual activities

YES NO Physical Problems

- Cough
- Shortness of breath
- Sore throat
- Headache
- Chest pain
- Anosmia
- Myalgia
- Diarrhea
- Eating/Anorexia
- Fatigue
- Fever
- Memory/concentration
- Nausea/vomiting
- Nose dry/congested
- Pain/Body aches
- Sleep

Figure 1. The modified distress thermometer in COVID-19 patients. Reproduced with permission from Mohamed *et al.* (2021) [7].



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