



Death anxiety in patients with cancer: A systematic review and meta-analysis

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ABSTRACT

Purpose: The present study was designed to estimate the rate of death anxiety and the factors influencing its occurrence in cancer patients using a systematic review and meta-analysis approach.

Method: Five academic databases, including Scopus, PubMed, Science Direct, Embase, and ProQuest, were searched systematically from inception until the end of January 2020. Observational studies that reported mean score of death anxiety in cancer patients, regardless of language restriction, were eligible to be included. The Newcastle-Ottawa Scale was used to assess the methodological quality of included studies. A meta-analysis was performed using a random effect model with the DerSimonian and Laird weighted method. Publication bias was assessed using the funnel plot and Begg's and Egger's tests.

Results: The estimated pooled mean for death anxiety among cancer patients was 6.84 (CI_{95%} = [5.98, 7.69]). Publication bias and small study effects were not detected. Subgroup analysis and a meta-regression showed that the estimated pooled mean was higher in Asian studies (M = 7.57) compared to European (M = 6.47) and North American studies (M = 5.57); in breast cancer patients (M = 9.68) compared to studies examining different types of cancers; in female only participants (M = 7.37) compared to studies with both genders (M = 6.60); and in married participants compared to non-married participants.

Conclusions: The findings suggest that death anxiety in patients with cancer is moderate and is influenced by socio-demographic factors such as region, type of cancer, sex, and marital status.

1. Introduction

Death is an inevitable reality for all human beings (Naderi and Shokoohi, 2009; Taghizadeh Karati et al., 2011), yet, death can be a source of anxiety because of its ambiguous nature (Becker, 1997). Patients who have been diagnosed with an incurable disease face death directly (Emanuel et al., 2004; Soleimani et al., 2017). The diagnosis of a terminal illness, such as cancer, can cause anxiety and stress (Abdollahi et al., 2019; Solomon et al., 2000). According to the World Health Organization, cancer was the second leading cause of death world-wide in 2018 (WHO, 2020). Cancer has affected millions of people globally; researchers expect that by 2020, it will affect approximately 11.4 million people. It is estimated that one in three people will develop cancer in their lifetime (Ferlay et al., 2015).

Patients who receive a cancer diagnosis without appropriate psychological support and resources may be at the most risk, as the

treatment process and subsequent follow-up often threatens the mental and physical health of these patients (Yang et al., 2017). The negative consequences of the disease include stress and anxiety (Roth and Massie, 2007), depression (Linden et al., 2012), feelings of social isolation (Tan and Karabulutlu, 2005), frustration (Pedram et al., 2010), and fear of death (Bahrami et al., 2013). In morphological studies, perceptions of death have been studied across three core dimensions: death depression, death anxiety, and death obsession (Mohammadzadeh and Ashouri, 2017).

Death anxiety research first emerged from psychological studies on death and gained significant growth in the 1980's (Ghorbani et al., 2013). When Templer began research on the concept of death anxiety, death was considered a taboo topic among behavioral scientists and professionals (Neimeyer, 2015). According to Templer's comprehensive model, death anxiety begins when one's death or the death of a close person, becomes salient or when the sudden death of another person is

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