

Psychological Impact of Lung Cancer on the Newly Diagnosed Patients

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Abstract: *The diagnosis and progression of cancer can be viewed as a traumatic event in the experiences of those who are affected and may cause fear of suffering, helplessness, disability and isolation. A substantial proportion of those who suffer from advanced lung cancer express distress in the form of depression and hopelessness and a few number with loss of will to live or desire for hastened death. However, this could in turn affect their quality of life. In addition, the later may arise with inadequate relief of pain or other physical symptoms such as depression, hopelessness, social isolation or reluctance to depend on others for support. Systematic review of both qualitative published research articles comprising of cross-sectional, prospective, longitudinal and observational studies. Ten studies investigated the psychological distresses experienced by lung cancer patients, while another ten studies examined the impact of psychological distress experienced by lung cancer patients on their quality of life. In all, a total of twenty research articles were reviewed. Findings indicate that lung cancer diagnosis causes psychological distresses such as anxiety and depression, hopelessness, feeling of guilt/ desire for hastened death which including other factors such as old age and lack of social support can lead to poor quality of life among lung cancer patients. Anxiety, depression and hopelessness were independent predictors of the desire for hastened death which mediated the effects of psychosocial and disease related variables on this outcome. The risk factor identified, support a holistic approach to palliative care in patients with lung cancer, which inclines to psychological, physical and spiritual factors to prevent and manage distress in patients with terminal illness.*

Keywords: Lung cancer, patients, psychological effect, symptoms,

1. Introduction

According to the world Health organisation (2013) a lung cancer is the most commonly diagnosed cancer in males as well as the leading cause of cancer death among males globally. Besides, lung cancer is the fourth most commonly diagnosed cancer and the second leading cause of cancer death among females (WHO, 2013). However, cancer of the lungs accounts for 16% (1.6 million) of the overall cases and 18% (1.4 million) deaths in 2012 (Farrelet *et al.*, 2009).

Furthermore, Brays and Weiderpass (2012) posited that smoking accounts for 80% of the worldwide lung cancer burden in males and at least 50% of the burden of in females. Exposure to several occupational and environmental carcinogens such as asbestos, arsenic, radon and polycyclic aromatic hydrocarbons are other risk factors for lung cancer according to Boer *et al.*, (2009). More so, Gould (2012) classified lung cancer into two: small cell lung cancer (SLC) and non-small cell lung cancer (NSCLC). However, there has been a rise in survival rates, with a 5-year survival rate being 12% and 15% in Europe and America respectively while the reverse is the case in Asia and Africa and with a statistically significant low rate in the United Kingdom (Sanderset *et al.*, 2009).

For the majority of lung cancer cases, according to Gritzet *et al.*, (2010) the average survival period from diagnosis is only 8 months. Besides, the most important prognostic indicator for survival is currently the stage of cancer (Rodin *et al.*, 2009). In addition, the majority of patients are diagnosed with their lung cancer at a relatively advanced stage, often involving a high symptom burden which was seen to be associated with the high mortality rate obtainable in lung cancer patients (Sanderset *et al.*, 2009).

2. Patient Symptomatology

The opinions of Fox and Lyon (2012) and Fan *et al.*, (2011) respectively was that patient with lung cancer often suffer from multiple symptoms which is simultaneously related to both from the primary disease itself and its treatment. Moreover, patients may often be made to undergo a range of invasive and/or toxic treatment during this period, which could potentially include surgery, radiotherapy and chemotherapy as well as supportive and palliative care (Parkin *et al.*, 2013). However, because of both the illness trajectory and the side effects of treatment, patients' health inevitably declines over the period of treatment (Sussaneet *et al.*, 2008).

Furthermore, in the opinion of Gould (2012) the distress associated with symptoms arising from lung cancer has been reported as the most intense, when compared to other types of cancer. The manifestations of lung cancer patients are major detriment to their quality of life (Rodin *et al.*, 2009). Sussaneet *et al.*, (2008) posited that respiratory symptoms such as cough, dyspnoea, and haemoptysis are significantly prevalent and cause profound distress such as anxiety and depression, hopelessness and desire for hastened death at the time of diagnosis and as the disease progresses. More so, poor sleep pattern among lung cancer patients according to Wang *et al.*, (2008) has been noted but poorly studied. Meanwhile between 63% and 88% of patients with lung cancer who receive palliative care services were affected by pain and dyspnoea, (Anne and Allison, 2008). However, the profound effect secondary to these symptoms are the disturbances in the emotional, social and spiritual well-being of the patients (Thompson *et al.*, 2007).

In the study by Rolkeet *et al.*, (2009), the levels of psychological distress was as high as 43% for clinical depression, 17% for clinical anxiety and 60% for overall emotional distress. In the opinion of Akechiet *et al.*, (2011) depression, severe grief reactions and demoralisation are common types of disorders experienced by patients in the palliative care settings. However, as pointed out by Wilson *et al.*, (2007) that while commonly recognized as separate diagnostic entities, these disorders share many symptoms, which makes their differentiation challenging. Moreover, due to its treatment implications accurate diagnosis is crucial (Sarnaet *et al.*, 2006).

In advanced cancer Patient's anxiety increases when symptom burden is high and the physical function is poor (Turner *et al.*, 2006). A recent prospective observational study by Buchanan *et al.*, (2012) on 170 lung cancer patients using an adapted palliative outcome scale questionnaire confirmed this and observed further that clinical variables of dyspnoea, cough, haemoptysis and decline in performance status were the after math of increased anxiety, hopelessness and depression. They therefore, perceived increased anxiety and depression within their own social network. In addition, Aggestrup *et al.*, (2012) opined that all the above stated symptoms are likely to affect the patients' ability to participate in their activities of daily living and the consequent delirious effects of unrelieved symptoms on the patients' functional status and quality of life (QOL) could dangerous.

Furthermore, Sander *et al.*, (2010) suggested from their study that lung cancer patients have significantly more unmet supportive and psychological care needs when compared to other patients suffering from other types of cancer. Besides, a statistically significant majority of lung cancer patients experience unmet psychological needs across multiple domains and having unmet psychological care needs is associated with dissatisfaction with the health care givers and disturbances in the mood, (Sander *et al.*, 2010). Moreover, Sander *et al.*, (2010) posited that improvement in the clinical assessment of psychological support and care could enhance patients' satisfaction with lung cancer and quality of life outcomes among the patients.

The purpose of this study is to clearly understand the psychological effects of lung cancer on patients and the possible interventions that could be used to manage them effectively. This is because the focus of the management and treatment of lung cancer seem to be more on the physical and curative aspect of life of patients, especially in the developing countries (Rodin *et al.*, 2009). The author deems it important for the healthcare team to tackle and address the psychological distresses normally encountered by the lung cancer patients, which greatly affect their sense of well-being as indicated in the Waller and Caroline's (2008) study.

However, Nurses are required to deliver quality care that is highly effective in promoting the health and well-being of the patients, (LoBiondo-Wood and Haber, 2006). MacCaughan and Parahoo (2007) posited that evidence based practice is the key strategy in the development of modern health services which is a necessity to the development and improvement of nursing practice. Wood *et*

al., (2009) support the evidence-based care suggested by Brink and Wood (2011) which is the conscientious use of evidences that are current and best in decision-making about the care of individual patients or healthcare delivery system.

3. Method

3.1 Search Strategy

The method chosen for this work was the review of qualitative research articles within this study area. Parahoo (2007) defined a systematic literature review as a summary of research that uses explicit approach in performing a literature search and by critically appraising the existing published body of knowledge to identify the valid evidence that is applicable to the study.

Electronic databases were searched in the course of this review. They include, PsyINFO, Medline, proQuest, Cinahl and the British Nursing index. To see if similar studies have been conducted the Cochrane Library was searched. The databases were searched from 2007 until date. Moreover, Medline is a medical and Nursing database but it is seen to be incomplete, (Hawker *et al.*, 2002).

However, a search on MEDLINE as demonstrated by (Tagney and Haines, 2009) is likely to reveal most of the appropriate papers because it publishes article from a wide source. Meanwhile, locally held journals and texts were used to find studies that were not available in full text form. However, Chalmers and Altman, (2005) in discussing the problems and importance of incomplete retrieval of papers, argue that trials that are difficult to locate tend to be smaller and are of lower methodological quality than trials that are easily accessible.

The following key words were used to search the databases, lung cancer, cancers, psychology, psychological, intervention, anxiety, anger, sadness, feelings of guilt or regret, and patients' feelings. The use of general terms such as lung cancer and psychology was made necessary by the nature of the study. The search initially uncovered a large number of papers that were unrelated to the study. This is because sensitivity rather than specificity was chosen in the selection process. Reading of the abstract online was adopted to screen the result of the search initially and the relevant ones were retrieved using the inclusion and exclusion criteria. The retrieved studies were again, screened to ensure that they fulfil all the criteria required for the review. In order to avoid biasness the study adopted the method outlined by Aveyard (2010).

3.2 Inclusion and Exclusion Criteria

The study included primary research articles which aimed at exploring the psychological effects of lung cancer on patients. Primary research articles were used as they provide more valid and robust evidence (Hawker *et al.*, 2002). Articles published in English language only, although not limited to articles published in the United Kingdom but globally. Articles written in English language were preferred for better comprehension and inference (Tod *et al.*, 2004). Peer reviewed published literature only because

Published articles in academic journals are considered for their credibility because they are well scrutinised by experts in that subject area before being published (Hawker *et al.*, 2002). Articles using epidemiological studies (cohort studies, cross sectional and case control studies). Epidemiological studies are high in the hierarchy of evidence in providing evidence about the relationship, incidence or cause of a particular disease condition or state as opposed qualitative studies that shows evidence of practice or experiences (Dawes *et al.*, 2005).

However, the author excluded articles that were not directly related to the psychological effect of lung cancer on patients because they may not help in answering the research questions. Articles published in foreign languages as well as unpublished articles. These may be difficult to comprehend and unpublished articles do not convey valid results (Hawker *et al.*, 2002). Reviews, editorials, books and commentaries were equally excluded. Data extraction and methodological quality of the included studies. The results of both the multivariate and univariate analyses were presented and compared. Data was extracted from the multivariate analysis and noted the various impact of lung cancer diagnosis on patients. The methodological quality of the included studies were assessed by the author using separate criteria for qualitative (SC, SH) and quantitative (SH, DO) studies. However Daly *et al.* (2007) opined that the assessment of quality of qualitative studies is still evolving and that a novel of assessment form was developed based on criteria held in the literature which denote high quality.

The included criteria were whether: the sampling technique was described, justified or met; the study design framework, orientation and methodology disclosed; biasness of the interviewer addressed; the analysis method was described; inclusive of reliability and validity checks; and data were clearly presented. A tool was adapted from established tools for cohort and case-control studies to assess the quality of the design of quantitative studies that were included with emphasis on the representativeness of study sample, selection bias and participation rates. The results and characteristics of both the qualitative and quantitative studies were summarised in tables and re-checked by the author.

4. Results

The author found and used 20 studies that investigated the psychological effect of lung cancer on patients. The most common psychological distresses associated with lung cancer were anxiety and depression, hopelessness and desire for hastened death. Twelve studies met all methodological criteria.

5. Findings

Psychological distress- Three studies investigated the psychological distresses that are experienced by lung cancer patients (Akechiet *et al.*, 2011; Cataldo *et al.*, 2012; Rashid *et al.*, 2012). The first two studies found that the initial mood disturbance after the disclosure of a cancer diagnosis (shock and uncertainty), was the most significant predictor of subsequent psychological distress and early intervention that

begins immediately after a diagnosis is one way of preventing or reducing subsequent psychological distress in patients with lung cancer. While the later found that the major predictors of psychological distress such as anxiety and depression was lung cancer diagnosis and that those who suffer lung cancer were more psychologically distressed than those who suffer other types of cancer due to the short prognosis associated with it.

Depression and anxiety- Three studies examined the cause of anxiety and depression as the major psychological distress that follow lung cancer diagnosis (Turner *et al.*, 2006; Wilson *et al.*, 2007; Meirir *et al.*, 2012). The first study found that the patients had anxiety and depression. However, this was related to age as it was the majority of the young participants that were found to have anxiety and depression while lesser population of the adult patients were found to have anxiety and depression. The findings of the last two studies however were common: they found no direct association between lung cancer and anxiety and depression but concluded that anxiety and depression occur as a result of the treatment (side effects) of lung cancer. However, they identified good communication, information giving, psychological support and chemotherapy as the management of anxiety in cancer patients.

Hopelessness/guilt and the desire for hastened death- Four studies found hopelessness/guilt and the desire for hastened death as the major consequences of psychological distresses that are experienced by lung cancer patients, (Rodin *et al.*, 2009; Mystakidou *et al.*, 2008; Siminof *et al.*, 2010; Aggestrup *et al.*, 2012). They commonly found that anxiety and depression could lead to feeling of hopelessness, which was viewed to be the significant predictor of the desire for hastened death among lung cancer patients.

Negative psychological aspects and Lung cancer survival- Five studies investigated the negative aspects of lung cancer survival on patients (Faller and Bulzebruck, 2012; Nakaya *et al.*, 2012; Ali *et al.*, 2012; Wolfbanget *et al.*, 2012; Du-Quinton *et al.*, 2009). Furthermore, all the five studies found that depressive coping was a predictor of shorter survival while active coping was a predictor of longer survival. However, neuron-endocrine immune pathways might indicate the relationship between coping and survival as well as compliance with medical treatment. Besides, a psychological variable merely could be a marker affecting only the patients' physical states.

Therefore, they concluded that the interpretation possible for the increased mortality observed in cancer patients with negative psychological aspects is that negative psychological aspects might be the reflection of a poor clinical state, which by itself would be related to an increased mortality in cancer patients.

The effect of psychological distress on quality of life- Five studies examined the effects of psychological distress on the quality of life of lung cancer patients (Esbenzen *et al.*, 2007; Rolkeet *et al.*, 2008; Bertero *et al.*, 2008; Mohan *et al.*, 2006; Akin *et al.*, 2010).

The findings all of the first four studies reviewed in this section indicated that psychological distress such as anxiety, depression, hopelessness, feeling of shame and guilt have a pronounced effect on the quality of life of lung cancer patients. The last study had a similar finding but did not support the hypothesis that the most difficult emotion facing patients with lung cancer is the knowledge that they may have encouraged the development of the illness by smoking and drinking.

6. Discussion and Implications

The diagnosis and progression of cancer can be viewed as a traumatic event in the experiences of those who are affected and may cause fear of suffering, helplessness, disability and isolation (Rodin *et al.*, 2009). Breitbart *et al.*, (2006) posited that a substantial proportion of those who suffer from advanced lung cancer express distress in the form of depression and hopelessness and a few number with loss of will to live or desire for hastened death. However, Ganzini *et al.*, (2010) states that the later may arise with inadequate relief of pain or other physical symptoms such as depression, hopelessness, social isolation or reluctance to depend on others for support. However, converging evidence shows that multiple factors affect adaptation to trauma and burden, which includes those associated with lung cancer (Schroever *et al.*, 2003).

Depression which is defined by Peveler *et al.*, (2006) as an emotional disturbance characterised by persistent pervasive low mood and the loss of interest or pleasure in normal activities as the cardinal symptoms was also seen as one of the psychological manifestations of patients who are diagnosed with lung cancer. However, people who suffer from Lung cancer and other various serious illnesses are at increased risk for persistent depressive symptoms (Nordin *et al.*, 2011).

More so, hopelessness is seen as the psychological construct which is defined by Beck *et al.*, (2008) as a system of cognitive schemas whose common denominator is negative expectations about the future. On the other hand, Rodin *et al.*, (2009) considers it a core feature of depression, which is seen to be independently related to suicidal tendency, the desire for hastened death and the willingness to consider assisted suicide. Besides, hopelessness is even a stronger predictor of suicide than depression in the opinion of Brown *et al.*, (2006).

Furthermore, the desire for hastened death is what Breitbart *et al.*, (2006) see as the extent to which a more rapid death than would naturally occur is desired. Assessment of the desire for hastened death may have wider application in examining the desire for hastened death in the terminally or chronically ill patient than the direct evaluation of the suicidal tendencies, since the former is likely to pose a reduced threshold and to be less hindered by social and legal constraints (Rodin *et al.*, 2009).

The desire for hastened death is what Rodin *et al.*, (2009) considers to be associated with physical distress, depression, hopelessness, low or lack social support and altered spiritual well-being in patients suffering from metastatic lung cancer

but has been found to be more obtainable in palliative care setting according to Rosenfeld *et al.*, (2007). Moreover, hopelessness and depression according to Jones *et al.*, (2004) has been found to mediate the effect of illness-related factor such as number of physical symptoms or the desire for hastened death.

The relationship between depression, hopelessness and the desire for hastened death has been viewed with persistent controversy. Johnson *et al.*, (2009) suggested that hopelessness may lead to depression and may be a subtype of depression as well or both will contribute to simple syndrome with suicidal tendency. In addition, Farrel *et al.*, (2009) posited that the experience of lung cancer is not linked to the sufferers alone but rather has a wide-ranging effect on families' physical and emotional well-being.

However, such effects can be variable and is not related to patients' health statuses and quality of health consistently as opined by Sarna (2004). An individual who suffer serious health problem may have diminished quality of life and may be less likely to provide the needed physical care and emotional support to family member coping with the diagnosis of cancer (Given and Sherwood, 2006).

In the opinions of Barche and Kelly (2008) Lung cancer is one of the commonest deadly cancer diseases for the both sexes and its incidence increases with age in the majority of patients diagnosed with the disease at the age of 70 or older. Thus, such patients are likely to be older and more likely to experience health problems that could affect their quality of life if their spouses are present. Meanwhile, the profound effect of Lung cancer on the quality of life has been reported widely by the literature (Earle, 2004). The majority of persons diagnosed with Lung cancer are faced with limited survival length and severe symptomatology and as a result may experience more disruptions in quality of life when compared with other patients with cancer (Given & Sherwood, 2006).

Furthermore, the implication of this study is an in-depth exploration of the categories that were noted in the review and try to apply them in order to revise the existing guidelines that promotes social network and models of activating and supporting the family. By fostering improvement in the current used methods, healthcare givers could be better positioned to meeting the needs of lung cancer patients by rendering help and supports as well as enabling them discover their potential support network. Moreover social support makes them accept help when required and to enable them understand that they might not be able control their situation in future. A situation where patients will be able to recognize their situation and that the people around them care about them could be achieved by giving adequate support to lung cancer patients, (Rolke *et al.* 2008).

Limitations in the research with regard to study design, sampling frames and low participation rates were noted. However, these limitations may be related to a number of factors. The fact that people who suffer lung cancer are often unwell at the point of diagnosis, or become unwell soon after may impose challenges in the recruitment, assessment,

and study retention which remains an on-going challenge for researchers in this area of study (Schofield *et al.*, 2008). In addition, the identified studies failed to use a theoretical framework that is consistent. Besides, the consequent variations in assessment approaches make it difficult to draw conclusion that is strong from the available evidence.

One approach that is potentially useful would be the incorporation of stigma into a broader model of adjustment to lung cancer, which is the transactional model of psychological distress and coping proposed by Smith in 1991. A previously suggested framework for explaining stigma related identity threat has been linked to this approach and this takes into account social representations (stigma), situational cues (anti-smoking advertisement), and personal features (disease stage, optimism, social support) as precursors that can impose influence to threat appraisal from which peoples' responses and outcomes evolve (Major & O'Brien, 2005). A guide to future descriptive research in this area as well as the design of psychological interventions was noted as the efficacy of this framework.

More so, the literature could not specify the determinants of spiritual well-being. There is need for further research to enable the identification of spiritual/religious struggles and coping strategies that can lead to reduced levels of spiritual well-being and in turn, lead to hopelessness and desire for hastened death. A better understanding of the spiritual and religious cognitions that can promote adaptation to cancer would also be helpful to the development of a more efficacious spiritual and psychological intervention and support mechanism.

7. Conclusion

Lung cancer diagnosis has widespread ramifications that can affect an individual's emotional, physical, social and spiritual well-being (Fan *et al.*, 2007). The associated changes in functional status due to the biologically related symptoms of lung cancer and the side effects of treatment has been consistently shown in the literature to affect the quality of life (QOL) of patients (Brown *et al.*, 2006). Simultaneously, lung cancer patients experience multiple symptoms as was highlighted in the literature. Accordingly, Rodin *et al.*, (2009) posited that the distress associated with lung cancer has been reported as the most intense compared to other types of cancer.

Furthermore, recent emphasis regarding the symptom experience has been on symptom clusters rather than focusing on symptoms in isolation, as a clear understanding of these clusters can lead to improvement in the management of the on-going and unrelieved symptoms (Brown *et al.*, 2006). However, Nakaya *et al.*, (2012) concluded that the aspects of patients' symptom experiences and its relationships could be complex while the mechanisms that underpin this association are not well understood now and the gaps in methodology are serious barriers to producing results that could be comparable, although efforts have been made in recent times to address these.

More so, family members supporting people with lung cancer experience burden which appears to be well described. However, there has been focus on the experiences of primary care providers by the majority of studies, most often the partner and impact caring has on their life condition and health (Mystakidou *et al.*, 2008). Significant others are seen to experience a transition process because of the changes brought about by the diagnosis of lung cancer and an effort to endure and defeat distress and adversary as suggested by research.

Finally, available evidence suggests that carers working with lung cancer patients and their significant others who strive to achieve and maintain the best quality of life (QOL), should put up an intervention/strategy enhance their quality of life from diagnosis, during the period of illness and bereavement (Wisnet *et al.* 2007). Besides, there is need to put into consideration the fact that if the carers should be better supported, it then becomes a necessity that appropriate interventions that can acknowledge the difficulties involved are developed.

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