

The Mental Effects of Cancer Among Cancer Survivors

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Introduction

Ranked just after heart disease, cancer is the second leading cause of death in the United States of America (American Cancer Society, 2022). Cancer's morbidity rate is 9.8% of American adults, and in 2022, research shows the number of predicted deaths due to cancer is a staggering 1,670 a day (American Cancer Society, 2022; CDC, 2019). However, the American Cancer Society has reported a decrease in the U.S. cancer mortality rate (American Cancer Society, 2022). Since 1991, the U.S. cancer mortality rate has fallen 32% (American Cancer Society, 2022). This drop can be attributed to early diagnoses and screenings, the combination of treatment methods, and the use of chemotherapy after completed surgeries for colon and breast cancer (American Cancer Society, 2022). With the number of cancer survivors rapidly increasing, there is a need for data focused on the quality-of-life of cancer patients (Healthy People 2030). Healthy People 2030 objective C-R01, increasing cancer survivors' quality of life, is a "high priority public health issue" (Healthy People 2030). It is known that cancer is physically taxing because of the weakness and stress that accompanies treatment, but mental health is subjective and not quantifiable making any data on it critical.

Cancer survivors are especially susceptible to poor mental health and mental health disorders (Dugan et al., 2021; Pangetsu and Rencz, 2022; Thompson et al., 2022). Research shows instances of cancer survivors developing disorders such as anxiety, depression, post-traumatic stress disorder, bipolar disorder, and adjustment disorder. (Pangetsu and Rencz, 2022; Ahmad et al. 2022; Hu et. al 2021; Caviness-Ashe et al., 2022). Additional examples include psychotic disorders, delirium dementia, and disorders related to substance abuse (Hu et. al 2021). Hu et al. 2021 states that among survivors of ovarian breast cancer, the risk of depression nearly tripled within the initial 2 years of their cancer diagnosis.

Cancer survivors that are part of a minority, and immigrants with low income are also at a greater risk of adverse mental health issues (Blinder et al., 2022). Minority cancer survivors may have less access to quality care and a higher likelihood of facing unemployment during cancer treatment, which can lead to heightened psychological stress and a lower mental quality-of-life (Burse et al., 2022; Blinder et al., 2022). Cancer survivors dealing with financial burdens are also more likely to test positive for anxiety and depressive disorders than survivors with little or no financial burden (Jones et al., 2023). According to the aforementioned research

and literature, it can be assumed cancer can have palpable negative effects on the mental health of cancer survivors.

Theory

When it comes to observing the decisions and thought processes of the human mind, the use of theory is critical (Heydarian 2016). Theory is a powerful tool with many variations and can be used to explain and analyze human behavior (Heydarian 2016). As such, many researchers and healthcare professionals utilize the many different theories as a basis for studies and research (Blinder et al., 2022). In the case of this particular topic, a majority of the literature mentioned incorporates theory in two different ways: one, using theory to observe reappearing patterns in data, or two, to innovate a way to improve the mental health of cancer patients or survivors using theory (Thompson et al., 2022; Loecher et al., 2023; Leske et al., 2023)

Grounded Theory

When observing data, much of the literature in this review employs the *grounded theory*. *Grounded theory* was created in 1967 by Glaser and Strauss, and stems from qualitative analysis (Heydarian 2016). It is often used with thematic analysis (observing data patterns) (Heydarian 2016). Thematic analysis can be done manually or mechanically (Thompson et al., 2022; Loecher et al., 2023). In a study that created an online program to improve the general health of cancer survivors, thematic analysis was performed using code (Loecher et al., 2023). Researchers utilized a software named *NVivo 12* to analyze audio feedback recordings from focus groups, which then chose which parts of the program most needed improvement (Loecher et al., 2023). The authors then incorporated the feedback to improve the program; media such as diagrams and videos were added to improve accessibility (Loecher et al., 2023).

Manual thematic analysis of studies including cancer survivors and health often feature mental health as a recurring theme. One study that examined African American breast cancer survivors' perception of how their marriage was affected by cancer concludes that the survivors should seek additional support from social workers (Thompson et al., 2022). Another study that analyzed the roles of parents in managing their child's health post-cancer treatment found multiple relevant themes centering around cancer and mental health using a modified thematic analysis called reflexive thematic analysis (Loecher et al., 2023).

The reflexive thematic analysis used was Braun and Clarke's reflexive thematic analysis, which allowed the authors to integrate the semantics and emotional emphasis parents used in interviews conducted by the authors (Loecher et al., 2023). Loecher et al. 2023 also utilized *NVivo 12* to code transcripts for data analysis. Results of the study detailed three main themes present among parents, but most importantly, that cancer survivorship offers continued health challenges, both physical and mental, after completing cancer treatment (Loecher et al., 2023).

Social Cognitive Theory

Another theory used within the literature cited is the Social Cognitive Theory. It is well known because of its complex nature and many constructs. In a broad sense, Social Cognitive Theory exists to evaluate social influences and their effect on an individual's behavior (Blinder et al., 2022). One of the large constructs within the Social Cognitive Theory is self-efficacy (Blinder et al., 2022). Self-efficacy is an individual's perceived ability to complete a task or change a behavior. Leske et al. 2022 utilized Social Cognitive Theory in their online health program in creating learning modules to support the health of cancer survivors. These modules increased self-efficacy by employing goal-setting and self-rewarding (Leske et al., 2022). A qualitative study that offered recommendations for care delivery for partners of breast cancer survivors mentioned in its results that electronic and mobile health improved self-efficacy connected to receiving breast cancer treatment and care (Leske et al., 2022).

Another construct from the Social Cognitive Theory that was employed in the literature was outcome expectancy; what a person expects as the outcome of their behavior. This was demonstrated by using learning modules, as was social support (Leske et al., 2022). In a journal article that detailed mental health for cancer survivors during COVID-19, authors Zhang et al. 2022 recommended healthcare providers promote social support among cancer patients to reduce mental health disparities. Literature from Acquati et al. 2023 also attributed increased stress levels to a lack of social networks. Ahmad et al. 2022 mentions that both the social and psychological health of relatives and cancer patients and their behaviors are affected by the stress of home cancer care. Furthermore, in a study that observed the effectiveness of patient-centered communication in mediating mental health and social support, a significant positive correlation between mental health and social support was found (Caviness-Ashe et al., 2022).

Optimal Matching Theory

Optimal Matching Theory is a simple theory that infers that consequences of social support are amplified if the need for said social support is present and specific to the person's needs (Merluzzi et al., 2015). This theory was employed to identify themes and analyze data in a survey that observed employed breast cancer survivors' perception of support in clinical settings (Dugan et al., 2021). Dugan et al. 2021 stated that the optimal matching theory improved the psychosocial regulation of cancer survivors. Merluzzi et al. 2015 performed a study in which the received social support matched the social support cancer survivors needed. Merluzzi et al. 2015 found that their results confirmed the optimal matching theory, as survivors benefited from the matching of emotional support.

Intrapersonal and Interpersonal

The concept of intrapersonal and interpersonal thoughts and behaviors is one deeply interwoven into mental health, especially that of cancer survivors (Thompson et al., 2022). Quite often, literature in this review depends on intrapersonal and interpersonal (Burse et al., 2023; Thompson et al., 2022; Leske et al., 2022). Interpersonal, the communication between two parties, and intrapersonal, the communication within oneself, are connected both conceptually and homophonically (Loecher et al., 2023). These two forms of communication constantly interact with one another (Loecher et al., 2023). The behaviors and thought processes of cancer survivors can affect their interactions with relatives, support groups, and healthcare professionals, which in turn may alter their mental health negatively or positively (Burse et al., 2023; Thompson et al., 2022; Leske et al., 2022). On the other hand, those who interact with cancer survivors have the potential to change interpersonal thoughts and behaviors, which greatly affect mental health (Loecher et al., 2023).

Intrapersonal

An intrapersonal concept cancer survivors may struggle with is body issues. For example, one journal article exists as a collection and reflexive thematic analysis of a multitude of interviews (Loecher et al., 2023). These interviews were conducted to ask parents of young cancer survivors what they thought about their "roles in monitoring their child's health and symptoms" (Loecher et al., 2023). Loecher et al. states symptom monitoring can be seen as intrapersonal because of the way cancer patients and survivors survey and gauge their pain. In another study about breast cancer and its effect on African American marriages, a little more than half of its participants mentioned poor body image (Thompson et al., 2022). Body image

issues are mentioned in multiple studies, even appearing alongside body dissatisfaction due to therapy for cancer (Burse et al., 2023)

Issues dealing with the perception of symptoms and pain are associated with mental health (Loecher et al., 2023). Loecher et al. 2023 details that parents become sensitive to what are usually normal occurrences. Something minor like a headache or a cough may cause them to worry about cancer reoccurring, which in turn causes the child to fear signs of sickness they may experience (Loecher et al., 2023). In terms of body image, many women found that affirmations and social support improved or changed their self image, improving the quality of their marital relationships. (Thompson et al., 2022)

Another intrapersonal concept that may improve the health of cancer survivors is the use of self-regulation. Cancer survivors in a study that created an online informational program demonstrated self-regulation by tailoring their program to their strengths and weaknesses (Leske et al., 2022). These survivors were able to account for their own fatigue and learning methods by pacing their learning modules and selecting the digital format they learned through (video, diagram, and audio recordings) (Leske et al., 2022). Self-regulation can also negatively impact mental health, especially when it comes to children (Loecher et al., 2023). A parent in an aforementioned interview journal article understood that asking their child about their symptoms carried the risk of a negative effect on the emotional state of the child (Loecher et al., 2023) They did, however, explain that they perceived it as essential in preparing their child for eventual self-management of symptoms (Loecher et al., 2023)

Interpersonal

Interpersonal communication is used in the journal mentioned earlier, as it states that interpersonal factors contribute to symptom gauging and management (Loecher et al., 2023). Another interpersonal aspect is social support. Social support is critical for preserving the mental health of cancer survivors (Dugan et al., 2021). Many places of employment provide referrals to support groups (Dugan et al., 2021). Studies also show that increased social support from clinicians improves mental health (Dugan et al., 2021; Caviness-Ashe et al., 2022). 71% of participants in an interview stated they received support from their oncologist, and even mentioned advice they received on topics such as medical leave and employment (Dugan et al., 2021). Patient-centered communication also benefits cancer survivors, especially the elderly that may struggle with long-term survivorship (Caviness-Ashe et al., 2022).

Lastly, an important interpersonal impact is that of a cancer survivor's partner. Partners have the potential to both help and hurt the mental health of survivors (Thompson et al., 2022; Acquati et al., 2023; Ahmad et al., 2022). In a study that observes the effect of a breast cancer diagnosis in African American marriages, many participants praised their partner's emotional support, the decision to be a primary caregiver, and role in reaffirming the participant's body image. In one case cancer was referred to as a "we-disease", and most couples were dependent on one another for emotional support, even going as far as to receive counseling together (Acquati et al., 2023). Conversely, partners may wound mental health if they are unprepared to be informal caregivers (Ahmad et al., 2022). Dealing with the stress of caring for a sick spouse could worsen the mental health of the spouse, and in turn, the cancer survivor's mental health may suffer (Ahmad et al., 2022)

Organizational, Community, Environment, and Policy Factors

Organizations, communities, environments, and policies are all factors that can worsen or improve the mental health of cancer survivors (Blinder et al., 2022; Guo et al., 2021; Caviness-Ashe et al., 2022) The interaction between cancer survivors and these factors are essential to understanding why and how cancer can affect its victims' mental wellbeing (Pangetsu and Rencz., 2022). Many cancer survivors and patients cite treatment, symptoms of treatment, or follow-ups as reasons for job loss (Blinder et al., 2022).

Organizational

Organizations such as workplaces have the potential to alter the prospects of whether cancer survivors end up bankrupt or in debt (Blinder et al., 2022). This is due mostly to out-of-pocket costs or financial losses due to treatment (Thaduri et al., 2021). Having poor financial stability leads to patients seeking out healthcare facilities with low quality of care, (Thaduri et al., 2021) which in turn can lower their quality of life. A lower quality of life has a direct hand in causing mental problems (Pangetsu and Rencz., 2022).

In recent years many studies have detailed an association between low health-related quality of life and higher financial toxicity (Pangetsu and Rencz., 2022). Financial toxicity is used in oncology to depict the financially adverse effects of treatment (Pangetsu and Rencz., 2022). It can be split into two categories; objective financial toxicity and subjective financial toxicity (Pangetsu and Rencz., 2022). Objective financial toxicity is quantifiable and refers to tangible costs, such as the aforementioned out-of-pocket costs or any other healthcare-related

expenses. (Pangetsu and Rencz., 2022) Subjective financial toxicity is akin to the patient or survivors perception of said tangible costs (Pangetsu and Rencz., 2022). Because both objective and subjective financial toxicity are intertwined, improving poor income could in turn negate its effects on stress-related damage to mental health (Pangetsu and Rencz., 2022) Pangetsu and Rencz 2022 state a possible solution to poor job retention among cancer survivors and patient's may include workplaces establishing employee reintegration or income protection programs. Workplaces can also benefit the mental health of cancer survivors with programs (Dugan et al., 2021). Dugan et al. 2021 states that workplace referrals to psychosocial services like psychotherapy and social work were well appreciated by employed survivors. These services are important because poor mental health carries the risk of interfering with a cancer survivor's return to work after treatment or employment in general. (Dugan et al., 2021).

Community

Another factor that affects the mental health of cancer survivors is their communities, most notably, community-based meetings and activities (Guo et al., 2021). In a study done by Guo et al. about depressive rates in older African American cancer survivors, community activities such as local events and recreational activities were found to decrease depressive symptoms. In particular, participation in religious meetings played an important role in preventing depression entirely in African Americans that were cancer survivors (Guo et al., 2021). Not only did religious activities combat depressive symptoms, but they also allowed these cancer survivors to strengthen their social networks, while deepening community attachment (Guo et al., 2021). Close religious ties may also offer cancer survivors tools to deal with stress (Guo et al., 2021).

Environmental

An environment also has a strong influence on cancer's toll on mental health. Living environments, working environments, and even healthcare environments have the potential to hurt or help cancer survivors. A study performed by Ahmad et al. 2022 suggests that home environments are heavily affected by ICs, or informal caregivers. Typically cancer survivors have relatives such as spouses, guardians, or children that are important for administering home care and treatment (Ahmad et al., 2022). Ahmad et al. 2022 details that relatives of the cancer patient or survivor are usually ill-equipped for giving care to relatives that are cancer patients or survivors. Most ICs do not expect the onslaught of duties and can suffer adverse health effects

because of the sudden changes (Ahmad et al., 2022). Their mental health may be at risk and many ICs develop anxiety, depression, and even post-traumatic stress (Ahmad et al., 2022). A home environment containing 1 or more stressed, psychologically or physically burdened ICs could create a poor living environment (Ahmad et al., 2022). Lonely, vulnerable cancer patients or survivors should be evaluated to monitor both their physical and mental health status (Ahmad et al., 2022)

Work accommodations determine job loss and financial toxicity, both of which can aggravate cancer's effect on mental health (Blinder et al., 2022). In a study about promoting job retention in adult women undergoing breast cancer, Blinder et al. 2022 found that 93% of higher-income women had the same job before and after cancer treatment, whereas only about 57% of lower-income kept the same job. This is mostly because of work accommodations (Blinder et al., 2022). Women with low incomes aren't as likely to have access to work accommodations, like sick leave, that can support the schedule of cancer treatment (Blinder et al., 2022). Proof of accommodations from an employer is one of the biggest signs that a cancer patient or survivor will resume work (Blinder et al., 2022). Binder et al. 2022 suggests that providing cancer patients or survivors with information and strategies on how to effectively negotiate work accommodations could help improve the job retention rates among women diagnosed with breast cancer.

Healthcare facilities are a critical environmental factor in the manner cancer changes mental health. Findings from Gao et al. 2021 conveyed that hospitalization was associated with higher odds of being depressed in older African American cancer survivors. Zhang et al. 2022 states that cancer patients during the COVID-19 pandemic may have experienced a lack of access to high-quality care, which has the potential to increase vulnerability to both stress and poor mental health.

Just as the healthcare system can negatively affect mental health outcomes, it can improve them as well. The United States Healthcare system is committing to providing the general population with patient-centered care (Caviness-Ashe et al., 2022). This care would utilize the United States healthcare system to employ customized care that blends physiological, socioeconomic, emotional, and cultural competence to supply each patient and their family with a rich care experience. (Caviness-Ashe et al., 2022) Caviness-Ashe et al. 2022 proposes the use of PCC in a study that examines the poor mental health status of non-Hodgkin's lymphoma

survivors (Caviness-Ashe et al., 2022). Non-Hodgkin's lymphoma survivors report mental health issues such as neurocognitive decline, anxiety, cognitive fatigue, and symptoms of post-traumatic stress (Caviness-Ashe et al., 2022). PCC is simply communication between patients and healthcare providers (Caviness-Ashe et al., 2022). This study finds that regular communication between patients and their healthcare providers may ease PTSD symptoms along with calming anxiety, and improving overall emotional well-being (Caviness-Ashe et al., 2022). Furthermore, a connection between social support and better mental health was established in non-Hodgkin's lymphoma survivors and patients (Caviness-Ashe et al., 2022). Older patients were shown to have positive reactions to forming strong relationships with their healthcare providers because it decreased depressive symptoms that occur in the later stages of survivorship (Caviness-Ashe et al., 2022). Caviness-Ashe et al. 2022 urges further research to be done to measure the effectiveness of quality-of-life training on clinicians.

Policy

Creating and implementing public health policies is a complex and time-consuming process. When factoring in the efforts of medical lobbyists and political agendas, the best interests of our patients are usually lost along the way. Unfortunately, not many policies exist to protect the mental health of cancer survivors, but recent studies have presented various policies that can aid survivors in preserving their mental health. Dugan et al. 2021 states that cancer survivors benefit from policies that protect them from discrimination both inside and outside of the workplace. Another helpful policy requires employers to offer cancer survivors work accommodations (Dugan et al., 2021). Burse et al. 2023 recommended that their work on health-related quality of life be used in future public health policies. Lastly, a study that discusses the effects of financial worry on mental health expresses the need for policies that broaden insurance coverage and lower treatment costs (Jones et al., 2023).

Suggestions for Intervention

Educational Interventions

Two studies suggested educational interventions (Dugan et al., 2021; Blinder et al., 2022). Dugan et al. 2021 studied how breast cancer survivors perceived support from clinicians. This literature proposed that educating clinicians may increase their ability to effectively provide support to employed cancer survivors (Dugan et al., 2021). Education would not just provide them with the tools they needed to help the patients, but it would also improve the clinicians'

empathy and confidence when providing cancer survivors with emotional and mental support (Dugan et al., 2021). In another study that examines job retention in women undergoing chemotherapy, Blinder et al. 2022 suggests the use of observational learning and skills training to improve the confidence of cancer survivors in their communication involving employers and clinicians (Blinder et al. 2022).

Psychosocial Interventions

A study that incorporated a telephone program to improve post-treatment health for cancer survivors advocated for psychosocial health via healthy living goals (Leske et al., 2022). Leske et al. 2022 found that proper nutrition and physical activity could decrease psychological distress. Buro et al. 2023 studied the association between diet, mental health, and physical activity. The authors found that future interventions may benefit from a “mind-body” or stress management component (Buro et al., 2023). In a Europe-based study, it was determined that to improve psychosocial care for cancer survivors, healthcare providers need to offer psychosocial support to older cancer survivors (Bazilainsky et al., 2023). Also, the authors recommended that future oncology care plans come with built-in psychosocial care regimens (Bazilainsky et al., 2023). A lack of psychosocial care may put cancer survivors at an increased risk for depression, lower quality of life, and loneliness. (Bazilainsky et al., 2023).

Social Interventions

Guo et al. 2021 suggests utilizing social support to improve the mental health of cancer survivors. In their study about older African-American cancer survivors, they found that social interactions among family, religious groups, and friends greatly decreased depressive symptoms (Guo et al., 2021) Another study recommended a community-based exercise intervention, and suggested that future studies investigate the correlation between social support and quality of life (Burse et al., 2022) Lastly, Merluzzi et al. 2015 based interventions for their study on the support being provided versus the support a cancer survivor needs. The authors propose support could benefit from increased communication between the support receiver and giver (Merluzzi et al. 2015).

Behavioral Intervention

Finally, a behavior-based intervention was seen in the interview study of Thompson et al. 2022; the authors recommended a cognitive behavioral intervention. In their study, many couples had similar experiences but drastically differing reactions (Thompson et al., 2022). Focusing on

an intervention that promotes positive thoughts and behaviors could equal better relationship outcomes among the couples (Thompson et al., 2022). Stable, healthy relationships have been shown to dispel distress and improve mental and physical health in couples where a spouse has been diagnosed with a chronic disease (Thompson et al., 2022).

Resources

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