

Body Image and Posttraumatic Growth

Overcoming Physical Changes in Brain Tumor Patients

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Abstract Our research goal is to gain more insight into the different experiences of brain tumor patients and investigate methods to help them overcome their physical changes. This study employed a qualitative analysis approach to understand the research questions addressed. After the Internal Review Board approved the research protocol, data was collected through individual Zoom interviews with one male and three female brain tumor patients. Participants' ages ranged from 45 to 70. The primary investigator conducted all the interviews, which lasted about an hour and contained 11 questions structured for participant-led exploration of their experience. Findings from the interviews revealed that body image was a concern for the sampled brain tumor patients due to changes resulting from cancer-related treatments. Healthcare professionals should consider these aspects while providing treatment for brain tumor patients to minimize the impact on their physical and mental health.

Keywords Brain Tumor, Body Image, Posttraumatic Growth, Cancer Survivorship

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Introduction

A relationship to one's body can indicate an individual's overall well-being. Patients with brain tumors may be subject to experiencing negative relationships with body image depending on the treatments they receive (Arkan et al., 2024). A brain tumor is a genetic disorder created by gene changes that cause cells to grow and spread uncontrollably (Newman et al., 2021). The treatments and side effects of brain cancer may vary based on the patient and their health, potentially creating a unique experience for those dealing with this condition. More specifically, some treatments are localized (e.g., surgery, radiation therapy), whereas others are systemic (e.g., drug treatments, chemotherapy), both of which have adverse side effects on the body (Macias et al., 2021). These treatment options may significantly impact the

patient's physical and mental health, contributing to patients engaging in coping strategies (e.g., wearing makeup and dietary changes) (Chen et al., 2020).

Brain tumor patients have a low survival rate, which depends on factors including age at diagnosis, tumor stage, anatomic location, and treatment (Siegel et al., 2019). Considering all factors that play a role in the diagnosis of a brain tumor is essential, as healthcare providers will be able to determine a more efficient treatment process by considering all factors. Keir et al. (2007) found that the diagnosis of a brain tumor correlates with various health-related issues such as mood problems, depression, anxiety, and low self-esteem due to changes in body image.

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However, the physical changes during the treatment process can diminish someone's self-concept, leading to other major mental health issues. Furthermore, the treatment process is usually long, causing the patient's lifestyle to completely change in terms of physical and mental health, which is why quality care for these patients is essential. (Mostoufi-Moab et al., 2014). Therefore, our research goal is to get more insight into the different experiences of brain tumor patients to investigate the methods to help them overcome their physical changes. Specifically, we are interested in understanding the body image experience of brain tumor patients and identifying ways to help them feel better about their physical changes.

This study holds substantial academic significance, particularly within healthcare, psychology, and oncology fields, due to its focus on understanding the personal and emotional experiences of brain tumor patients coping with physical changes post-treatment. By identifying how body image concerns affect brain tumor patients differently, the study emphasizes the importance of personalized care, informing healthcare providers about the need for more nuanced support that addresses mental health alongside physical treatment. Since the study uncovers positive and negative responses to body-related changes, it underscores the need for intervention strategies supporting psychological resilience. This can contribute to the development of counseling and support programs aimed at helping patients cope with self-image issues.

Literature Review

Body image has been defined in numerous ways across research but consistently encompasses a person's perceptions, attitudes, and feelings about their own body, including aspects of appearance, functionality, and social acceptance (Slade, 1994). Studies reveal that body image is a multidimensional concept shaped by internal beliefs and societal influences, where cultural ideals and social norms often set standards for attractiveness and body functionality (Slade, 1994; Taleporos & McCabe, 2002). Body image can be defined as the collection of both positive and negative

emotions directed at an individual's own physical attributes (Nayir et al., 2016).

Many patients continue to receive treatment even a year after diagnosis, indicating that fear of recurrence positively correlates with time (Keir et al., 2007). These conditions can cause long-term effects and can increase in severity over time, resulting in a lower life expectancy and, emphasizing the unique needs of brain tumor patients. For instance, patients with head and neck cancer display a variety of symptoms such as persistent throat pain, difficulty swallowing, change in voice, jaw pain, and bleeding in the mouth/throat, which can affect their mental health and daily activities (Jourabchi, 2024). Additionally, patients diagnosed with a mental health disorder before their cancer diagnosis identified a greater level of current depression (Baker et al., 2015). This shows that when a patient is diagnosed with a brain tumor, their mental health can significantly deteriorate regardless of their prior circumstances. In terms of the younger population, brain tumors are usually accompanied by other major bodily effects, such as negative effects on growth, body image and composition, sexual function, skeletal health, and quality of life (Mostoufi-Moab et al., 2014). Treatment will vary based on each patient's circumstances and needs. However, physical changes, such as losing hair during the treatment process, can diminish someone's self-concept, leading to other major mental health issues. Furthermore, the treatment process is usually long, causing the patient's lifestyle to change significantly in terms of physical and mental health, which is why quality care for these patients is essential.

For individuals with chronic illnesses or disabilities, body image takes on additional layers of complexity, as physical limitations or visible differences can lead to stigmatization. Research indicates that disabled individuals often experience body image concerns due to perceived "otherness" or social stigma, as conceptualized by Goffman (1963). This stigma theory posits that those with visible disabilities face marginalization that can affect self-esteem and social interactions, reinforcing negative body perceptions (Goffman, 1963; Taleporos & McCabe, 2002). Taleporos and McCabe's (2002) study on disabled adults found that internalized stigma, stemming from negative social attitudes,

could worsen body image issues. However, the study also highlighted that acceptance over time and supportive relationships often help individuals achieve a positive self-concept despite physical limitations.

Previous studies on body image in patients with chronic diseases reveal similar trends, with conditions such as cancer and multiple sclerosis often linked to body dissatisfaction due to treatment-induced changes (Thakur et al., 2022). For example, Thakur et al. (2022) found that body image disturbances in breast cancer survivors often stemmed from surgical interventions that altered appearance, such as mastectomies. Survivors who reported dedicated support systems or engaged in positive coping strategies were more likely to experience body image acceptance, aligning with findings in the disability literature.

Studies on body image among chronically ill populations also underscore the importance of social support in fostering body acceptance (Brederecke et al., 2021). Brederecke et al. (2021) emphasize that social reinforcement from family or friends may counteract negative body perceptions by validating the individual's self-worth and reducing reliance on physical appearance for self-esteem. This observation is supported by evidence that cancer patients with more substantial support networks report better mental health and body image outcomes post-treatment. Thus, body image research in disease contexts consistently highlights the role of interpersonal relationships, positive feedback, and self-care practices in helping individuals manage body dissatisfaction resulting from illness.

Conceptual Framework

Posttraumatic growth (PTG) is a positive psychological change often seen in cancer patients (Ryninks et al., 2022). Though it does not minimize the challenges and hardships faced by cancer patients, PTG provides them with a new perspective on life and helps them grow positively from the traumatic event. Cancer severely impacts patients' emotional well-being, requiring them to cope with a new lifestyle in terms of their diet, physical activity, sleeping habits, and personality changes (Chen et al., 2020). Such cancer-related

changes may alter patients' perception of life and compromise mental health outcomes, such as depression. However, overcoming the cancer treatment process has benefitted patients by allowing them to show an increased appreciation for life, form deeper relationships with others, progress religiously and spiritually, and gain a positive self-concept (Majda et al., 2022). After full recovery from cancer, it has been observed that survivors undergo positive transformations, especially in terms of greater self-esteem, depending on their firsthand experiences throughout the treatment process.

PTG is deeply relevant to understanding how brain tumor patients cope with changes to body image and identity post-treatment. For patients experiencing visible physical changes due to cancer treatment, PTG offers a framework for developing a renewed sense of self-worth and resilience. When patients achieve PTG, they often develop a broader view of life, including a transformed perspective on self-image that incorporates, rather than rejects, the physical changes they have undergone. This growth can manifest as increased self-acceptance, new or strengthened personal relationships, and a commitment to physical and emotional health, which align with the body image concerns and lifestyle adaptations highlighted in this study (Chen et al., 2020; Ryninks et al., 2022).

Furthermore, PTG can help patients navigate the social and psychological challenges that accompany body image shifts by fostering adaptive coping strategies and self-compassion. For instance, patients may engage in lifestyle changes, such as improved diet or fitness routines, not only to manage physical health but also acts of self-care that reinforce a positive self-concept. Through PTG, they may also find added support networks or deepen existing relationships, reinforcing the study's finding that positive social support is crucial for body image recovery (Majda et al., 2022). By addressing PTG as a therapeutic goal, healthcare providers can support brain tumor patients in embracing body image changes, leading to improved mental health and quality of life. Additionally, PTG is central to the study's aim of gaining deeper insight into the diverse experiences of brain tumor patients and exploring ways to help them manage physical changes. By understanding PTG,

researchers and healthcare providers can recognize how some patients reinterpret and reframe their physical changes as part of a broader transformation rather than as purely negative alterations. PTG enables patients to adopt strategies that align with personal growth, such as accepting body image changes, building new routines, and redefining their self-concept, allowing them to view these changes as milestones in resilience rather than limitations. This perspective supports the study's goal of identifying effective methods to help patients navigate and overcome physical and psychological challenges, contributing to a more comprehensive approach to oncology care that values physical recovery and emotional empowerment (Chen et al., 2020; Ryninks et al., 2022). Understanding how patients are affected by PTG may offer more insight into how healthcare providers can provide adequate care as they can consider what the patient has been through and how it has affected them.

Methods

This study employed a qualitative analysis approach to understand the research questions addressed. After the Internal Review Board approved the research protocol, data was collected through individual Zoom interviews with one male (Participant A) and three female brain tumor patients (Participant B - D). Participants' ages ranged from 45–70. Using the convenient sampling methods, participants will be recruited through the Gray Matter Foundation, a non-profit support organization for patients with brain tumors. In qualitative research, the focus is on depth rather than breadth, so having a smaller sample allows a more detailed exploration of participants' experiences, perspectives, and insights. The following announcement will be made to members: The primary investigator conducted interviews with all the participants, which lasted about an hour and contained 11 questions structured for participant-led exploration of their experience. The semi-structured questionnaire was developed based on a previous study (Hopwood et al., 2001). This quantitative measurement described constructing a brief body image scale that can be used with other quality-of-life measures in clinical trials.

According to Hopwood et al. (2001), The initial development was carried out in a broad range of cancer patients, and the coverage proved acceptable to both male and female patients with a range of body image concerns.

Questions included how participants felt about changes to their bodies resulting from treatment, emotional changes, coping strategies, activities, shopping, and symptoms associated with the cancer treatment. A content analysis was conducted after the interview was transcribed. The data analysis began with identifying major concepts by underlining each detail of a response to an interview question. The line-by-line approach was used to extract thoughts, concepts, and ideas from the data (Braun & Clarke, 2006). Once the major themes were identified from participants' responses to each question, they were further analyzed by grouping similar answers into categories.

Results

The interviews revealed that the patients have contrasting views on dealing with their brain tumors, depending on their respective situations; hence, the physical changes resulting from cancer affect their lives in diverse ways. Findings from the interviews revealed that body image was a concern for the sampled brain tumor patients due to changes that resulted from cancer-related treatments. However, some patients had contrasting views on managing body-related changes, as they experienced positive impacts on various aspects of their lives.

Body Image Concerns and Lifestyle Adaptions. The treatment process for this condition includes various side effects, especially regarding physical appearance. Therefore, body image was a concern for the sampled brain tumor patients. Some of the patients gave an increased amount of importance to their physical appearance, while others were not affected by it. Participant B mentioned her experience with shaving her entire head. She mentioned that her hair was shaved without her knowing before the treatment. She was obsessed with how she looked before the treatment, but she felt better about herself, although it was very weird.

Participant C discussed the change in her hair color,

which diminished her self-esteem, so she “just started coloring it” herself. This shows how much these patients would go to enhance their physical appearance and increase their self-confidence. Participant A said, “When I came out, I looked like my head was wrapped up in a big bandage, and so I was completely bald for a very long time.” Additionally, participant A stated that he “did not know how much [he] would care,” referring to his appearance. Initially, he claimed that he did not think much about how he looked; however, this changed after his treatment. Additionally, Participant D mentioned that she does “anything that just makes [her] feel better about [her] appearance,” and this statement applies to all participants as they all act in some way to feel better about their physical appearance. According to the patients, poor body image impacted other domains of life, such as engaging in physical activity and having romantic relationships.

Commitment to Physical and Emotional Health.

Exercise and diet are important in improving the patient’s physical and mental health, especially when undergoing cancer treatment. Participant B stated, “Even today, I am very cautious about my eating habits... [and] I have a fitness app that I use.” After her diagnosis, Participant B changed her eating habits to maintain a healthy body weight and appearance to improve her self-perception concerns with fitness. Participant A said, “I was physically fit, so I wanted to keep those muscles I lost most.” He mentioned that he gained about 30 lbs. from 140 to 170 pounds and felt terrible, although he survived. He said, “You know, I look in the mirror, and I feel like I am this big balloon.” So, he engaged in exercise and workouts. Additionally, Participant C took a different approach to maintaining her physical health as she revealed that she went “on a strict keto diet.” Additionally, Participant C mentioned that she changed her routine to “[walking] about five miles in the morning and five miles in the evening.” The new routine helped her reduce her body fat and was a comfortable and efficient way to maintain her weight. According to most of the participants’ experiences, it is evident that some take their weight more seriously than others, which can also positively impact their overall health. The participants maintained their body weight and controlled their diet to increase confidence and get positive health results.

Building and Strengthening Personal Relationships.

Participants who reported having a negative outcome in their relationship are the same individuals who expressed their lowered body image. Participant D, who felt better about the way her appearance changed after shaving her head due to the craniotomy, stated that her boyfriend “took care of [her] through all [her] operations and did everything that [she needed],” which indicated that she had an increased self-concept; hence, her relationship strengthened during treatment. She also mentioned that people stopped texting her or calling her. She developed the friendship with people she met after the surgery. However, negative effects were also observed, as seen in Participant A. Participant A mentioned he “got divorced during treatment.” At the same time, he lost his hair, and his condition was deteriorating, resulting in a negative outcome in his relationship. Others, such as participants B and C, did not mention anything about changes in relationships, which also shows that some relationships can be the same before and after diagnosis.

Increased Self-Acceptance. Cancer can significantly impact body image, making it essential for individuals to accept physical changes and work toward self-acceptance. Participant B emphasized the importance of being patient with these changes, stating, “Some changes, like hair loss from chemotherapy, are temporary.” Participant C shared her experience of feeling unattractive during her treatment, saying, “I felt hurt and unattractive, and that affected me. However, my family and friends treated it as normal, which greatly helped me.” She highlighted the importance of having a supportive network during difficult times. Participant D also noted the value of participating in a support group specifically for brain tumor patients and surrounding herself with people who make her feel good about herself. She stressed the need for patients to accept that hair loss is part of the process. While acknowledging the side effects of treatment, she mentioned that options are available to address hair loss. She pointed out that during treatment, patients often are not informed about the side effects related to their appearance; instead, the focus tends to be on survival and building resilience.

Gender and Relationships. Finally, we concluded that the participants’ basic demographics played a crucial role in

the impact the treatment process had on them. Participant C states that hair is one thing “that defines you as a woman, maybe more so for women than men.” This indicates that females endure more self-esteem issues compared to males; hence, gender highly correlates with low confidence. Moreover, Participant D discussed the changes in terms of religion and how her age and family helped her “with [her] spiritual life” as she “grew closer to God.” In her case, age played a factor in shaping her experience during the treatment process and changing her overall as a person. Participant A mentioned that he did not mind that he lost my hair. He said, “You know this thing about men not caring about how they look, I think, losing hair, at least from my case.” Demographics, especially the sex of the patients, can have a significant effect on patients during the treatment process as it can impact their self-confidence and relationships with others.

Discussion and Conclusion

This study highlights the significant role that body image plays in the recovery and quality of life of brain tumor patients. Physical side effects, lifestyle adaptation, commitment to physical and emotional health, strengthened personal relationships, and increased self-acceptance shape patients’ body image. By identifying these specific areas of impact, the study underscores the importance of holistic healthcare approaches that account for patients’ physical and psychological needs of patients.

We have concluded that the three main aspects that need to be focused on PTG to improve the quality of life for brain tumor patients are body image, physical activity, and relationships. We gained more insight into these aspects from the contrasting experiences of each participant, which led to the PTG of most participants in this study. Healthcare providers should consider each patient’s attitudes toward his or her physical changes while providing treatment, as this could profoundly impact their physical and mental health. For instance, if an individual experiences body image distress about their physical appearance, body image intervention should address exercise, weight management, diet, and

building positive social relationships. Therefore, it is recommended that patients attend counseling or participate in support groups to help them live with their altered appearance and lead a healthy and fulfilling lifestyle.

The results underscore three main post-treatment changes experienced by brain tumor patients: physical changes from treatment side effects, lifestyle adaptations, and a heightened awareness of physical appearance. These findings highlight the broad impact of cancer treatment on patients’ self-perception, consistent with previous literature identifying body image disturbances as central to the cancer recovery experience (Taleporos & McCabe, 2002). Addressing these changes in clinical settings—by acknowledging patients’ physical and lifestyle needs—may mitigate body image concerns, ultimately improving both physical and psychological outcomes.

Furthermore, the study illustrates the importance of supportive relationships in positively influencing body image during cancer treatment. Supportive family members and friends helped participants feel more confident in their appearance, as reflected in similar findings by Brederecke et al. (2021). For example, Participant D reported increased confidence due to a supportive partner, which aligns with research showing that positive social reinforcement can foster body acceptance. This emphasizes the need for healthcare professionals to encourage strong social support networks to promote positive body image during recovery.

The results revealed four main changes post-treatment experienced by patients: body image concern and lifestyle adaptations, commitment to their physical and emotional health, strengthened personal relationships, and increased self-acceptance in physical appearance. The side effects from cancer treatment are expected since host cells are often damaged while targeting cancer cells. For example, chemotherapy can cause iatrogenic injury of hair follicles since they divide rapidly like cancer cells. This can cause hair loss and changes in hair quality and color, affecting body image (Choi et al., 2014). In response to physical changes, patients often adapt to lifestyle changes. One participant in this study reported coloring her hair in response to changes in her hair. An explanation for this behavior could be improving his or her appearance to boost self-esteem. Additionally,

dying hair can be a coping mechanism that distracts them from other physical changes experienced by the patient.

Patients who take actions to modify aspects of their bodies may be doing so due to an increased emphasis placed on physical appearance post-treatment compared to before diagnosis. Previous studies have shown that cancer patients face body image issues following treatment (Thakur et al., 2022). However, an unexplored aspect of this dilemma is the possibility of cancer patients placing greater emphasis on body appearance than people not suffering from cancer. This heightened focus on appearance may contribute to the development of body image issues as patients become more concerned with how others perceive them.

Furthermore, participants in this study indicated that they made diet and exercise modifications to maintain a desired body weight for health and aesthetic reasons. Decreased body image due to physical changes can be addressed by targeting controllable aspects like weight and appearance. Focusing on health and appearance through exercise and diet may distract them from body image disturbances while improving their quality of life.

This study revealed the importance of positive relationships during cancer treatment. A strong support system enables patients to develop a better body image (Brederecke et al., 2021). In this study, a patient reported a stronger relationship with her partner due to his support, resulting in increased confidence. Thus, positive relationships during this sensitive time may improve body image and strengthen the relationship.

The findings underscore the need for interventions that directly address body image concerns and promote supportive relationships during recovery. Positive social interactions and a strong support network can help patients feel more accepted and confident, reducing the potential negative impact of appearance changes and enhancing their sense of self-worth (Brederecke et al., 2021). In addition, tailored resources like counseling and support groups can provide patients with coping mechanisms to manage body image challenges.

The results of this study contribute to a deeper understanding of the intersection between physical health and mental well-being for brain tumor patients, underscoring the

need for treatments that extend beyond medical care alone. By addressing the nuanced body image experiences and providing psychological support, healthcare providers can significantly enhance patients' recovery journeys, promoting a more positive outlook and improving long-term quality of life.

Based on the participants' perspectives, we learned that although they had similar conditions, they all had vastly different experiences with treatment and coping with their respective conditions. There are many types of physical changes brain tumor patients go through and changes in their mental states during the treatment process. While some participants had a challenging and negative experience, some also expressed that they learned valuable insights about themselves through their difficult recovery journey. Furthermore, we briefly discussed PTG as some of the participants experienced this due to their changed perspective and positive attitude in life following their cancer treatment. Though PTG is common in many cancer patients, not all of them will experience it as the rest of our participants were either impacted negatively or not affected at all. Our data set varied as everyone had different thoughts and encountered different situations. However, we used certain techniques to understand how the patients felt about their physical changes and grouped similar answers to develop a commonality between all participants.

The participants experienced the most changes in these aspects of their lives as their self-esteem was affected, their food habits changed, and their relationships flourished or diminished. We found that demographics played a significant role in self-confidence and how the participants perceived themselves. The participants had their ways of dealing with these changes, as some decided to use products to improve their appearance, while others decided to change their exercise and food habits. The number of changes and adjustments these participants have faced can strongly impact their mental health and well-being. Healthcare professionals should consider these factors while providing treatment for brain tumor patients to minimize its impact on their physical and mental health. More specifically, support and interventions should be extremely specific to the patient. This would require more time and effort dedicated to interviewing,

assessing, and monitoring patients' feelings toward their body image, mental health, and those around them. This study emphasizes the need for personalized medical care in medical practice, specifically with cancer patients. This study also contributes to the psychological field of oncology as it examines the physical and mental experiences of brain tumor patients. Regarding PTG, this study finds that there is a need for further research in this area, as not all participants experienced PTG. It would be beneficial to understand more about what specific aspects impact PTG. We suggest that individuals seek counseling and informational sessions following their diagnoses to understand the potential outcomes of a qualified mental health expert who can guarantee that they fully grasp it and support them in fostering a positive perspective.

Limitation

While this study contributes to understanding body image concerns among brain tumor patients, it has several limitations. The interviews were conducted locally with a small, non-diverse sample of only four participants. This limited sample size restricts the generalizability of the findings, as the experiences of these individuals may not reflect those of the broader population of brain tumor patients. To enhance reliability, future studies should aim to gather similar data from a more diverse group, including participants from various urban and rural settings, as well as a range of ages, marital statuses, and backgrounds. Furthermore, conducting interviews via Zoom may have affected participants' comfort levels and willingness to discuss sensitive topics such as body image and mental health. Future research should consider capturing the perceptions of body image concerns among brain tumor patients concurrently with their treatment. While this presents challenges due to the critical nature of treatment for tumor removal, addressing the limitations identified in this study—such as increasing the sample size and diversifying the demographics—could lead to more comprehensive and generalizable insights.

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