



Role of Resilience and Body Image Distress in North Indian Cancer Patients

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Abstract: Cancer continues to be one of the most evidently occurring diseases worldwide and is a major contributor of morbidity and mortality, with severe implications on the overall life of the person. Cancer leads to profound s in how individuals perceive themselves. Resilience is known to play an eminent role in how people cope with the disease and the associated distress. The study under consideration studied the interplay between Resilience and Body Image Distress in the cancer patients of the Indian subcontinent. A sample of 60 patients aged 18-60 years was evaluated using the Wagnild Resilience Scale and the Body Image Scale developed by Dr. Hopwood. Data was assessed using the Independent sample t- test, Pearson Correlation using the SPSS software. The analysis demonstrated a significant negative correlation among resilience and body image distress, wherein higher resilience was associated with lower distress levels. The independent sample t- test exhibited no statistically significant difference in the body image distress between male and female patients; however, males exhibited slightly higher levels of resilience scores. The research underscores the relevance of resilience-based frameworks in the field psycho- oncology; suggest psycho- oncological care and the inclusion of culturally appropriate psychological interventions in treating cancer.

Keywords: *Cancer, Resilience, Body Image Distress, Chronic Illness, Psycho-Oncology*

1. Introduction

Cancer is an enervating condition taking place in an individual's body cells wherein the cells engage in the unusual process of abnormal cell division destroying the normal functioning of the mutated genes due to mixing up of information in the DNA leading to uninhibited division and growth of cells forming tumors and proliferating to other tissues. The 19th century marked the initiation of 'The Cellular Theory' by Rudolf Virchow (Virchow, 1858). This theory argued that all diseases, including cancer occur due to alterations in the cell framework, leading to mutation in normal cells which in turn interferes with the processes responsible for growth and division. Further, they rapidly extend, forming lumps and in some cases, changeover to other parts of the body. His contributions laid the foundation of modern oncology and pathology, where now the research prioritizes on uncovering the cellular mutations, oncogenes and additional molecular transformations contributing to carcinogenesis (Riedel, 2005). The National Cancer Institute (NCI) currently defines cancer as a disease characterized by (a) Uncontrolled growth – by anomalous cells which divide and multiply swiftly; (b) Expansion - invasion of the adjoining tissues, fragmenting the normal boundaries.

This explanation overlooks the core issue that the cells of cancer itself mutate and evolve. To gain a better conceptual understanding of cancer, Brown et al. (2023) stated, "Cancer is a disease characterized by uncontrolled proliferation by transformed cells that undergo evolution by natural selection." The malignant tumors invade the surrounding tissues, form new blood vessels to support growth and metastasize to organs via bloodstream or the lymphatic system. This angle accentuates the role of genetic and epigenetic changes that accumulate within cancer cell populations, leading to their adaptability and progression. Cancer may arise due to internal mechanisms – germ line mutation, immunity conditions & hormones; along with ecological conditions like chemical carcinogens – industrial chemicals (asbestos, vinyl chloride), pesticides & extreme exposure to the UV rays and other radiation sources likewise X rays have increased the susceptibility of developing various types of cancer.

A report published in 2022 by The International Agency for Research on Cancer (2022) revealed that nearly 20 million new cancer cases and 9.7 million deaths due to cancer. The most prevalent form of cancers includes, lung cancer estimating 1.8 million new informed cases & 18.7% of the total reported cancer deaths, breast cancer account for 2.3 million new cases & 11.6 % reported deaths, succeeded by colorectal cancer having 1.9 newly discovered cases, 9.6% death rates, prostate cancer reported 1.5 million emerging cases and

7.3 % death rates and lastly 970000 cases of stomach cancer were enlisted with death rate accounting to 4.9%. Cancer drastically affects the driving factors such as resilience, self – esteem and body image. Among the poll of repercussions accompanying cancer, botheration with body image is one of the most acutely peculiar and everlasting challenge. Patients go through unsettling range of feelings like shame, intense sense of estrangement, decreased engagement from their own bodies. Although these experiences cause emotional toll, it has been seen and reported that many patients showcase noteworthy feelings of better and reasonable adaptation, endurance and vigor for personal growth in their journey of cancer. A clear knowledge of these eminent aspects is pivotal for comprehensive patient care.

Resilience

The term resilience reflects one's potential to push through tough times or be able to attune to it, which is a directly measurable variable. "Resilience is the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands" (American Psychological Association, 2023, *APA Dictionary of Psychology*, Para. 1). Resilience is one factor that plays a significant role in one's ability to abate distress and attune to the challenging events likewise, being diagnosed with a life-threatening disease like cancer (Davydov et al., 2010). The existing literature highlights and provides a thorough evaluation of the mechanisms supporting resilience, majorly the role of positive affect in adaptive behaviour during stressful events. It reveals that resilience is not just the absence of emotional dysfunctionality rather the presence of cognitive resources which facilitate a person's ability to deal with and overcome challenges (Tugade et al., 2004). It has been found that resilience of a person is partially shaped by learned and trained experiences while some is influenced by genetic factors. A study on the BDNF gene supports the basis of resilience which has been thoroughly examined and it claims that individuals with the Val/Val version of this gene have been observed to be more resilient while the other focuses on the Met version as being more advantageous (Feder et al., 2019). In support of this, another study's results revealed that resilience could be instilled wherein fire-fighters who were enrolled in a 4-week mindfulness training program were seen to have noteworthy improvements in resilience compared to the other groups (Bostock et al., 2019). Empirical data validates that elevated levels of resilience in cancer patients show a relationship with finer emotional adjustment, reduced levels of anxiety and depression, minimised exhaustion and more fulfilling lifestyle (Zou et al., 2018; Lin et al., 2020). Resilience is associated with cognitive wellness; it is seen in strong correlation with the person having heightened sense of hope and

mindful emotional presence. Babic et al. (2020) offers a detailed understanding of resilience and mentions that, rather than being a fixed trait, it is understood as a dynamic and multifaceted processes and emphasized that resilience can be fostered through tailored interventions. This study offers insightful experience into the psychological construct of how resilience acts as a contributor to improved psychological outcomes affirming its role as a protective factor.

Body Image

A person's body image takes a big toll as cancer not only affects how an individual think, feels about their appearance but also the responses associated with it. A person's identity is an intricate construction that extends beyond their physical appearance. Empirical findings reveal that 75% of patients battle with wide range of issues involving self-acknowledgement and emotional discomfort about displeasing physical changes in body image, which additionally triggers distressing thoughts and reminds of body distortions (Rhoten et al., 2013).

Body image dissatisfaction is being increasingly acknowledged as a major psychosocial issue among individuals battling with cancer. Body image is influenced by one's perception about their appearance. "Body image is the multifaceted psychological experience of embodiment, especially but not exclusively one's physical appearance" (Cash & Smolak, 2011, p.7). It has often been regarded as a preconceived notion about one's outlook governed by one's view of oneself and that of others. Due to wide range of draconic oncological treatments the patient experiences certain changes which is not only pertains to the physical appearance (loss of hair, swelling, scarring) but also alterations in the senses (numbness) & functional impairment (impotence, dysphasia). The study by Brederbeck et al. (2021) examined body image disturbances across different forms of cancer. Those enduring this illness, specifically women, experience lower self- acceptance and increased body image concerns, specifically when changes in the body take place (e.g. - weight changes, surgical scars). Women undergoing treatment for breast or gynecologic cancers expressed somewhat better body image outcomes than those with visceral cancers, perhaps due to the handiness of dedicated psychosocial resources. A study affirmed that the individual's internalized perspective of body image is important while considering about their appearance disregarding the changes being noticeable to others or not (White, 2001).

Physical changes known to be linked with cancer are seen to trigger negative responses, majorly seen in individuals who are highly body image conscious and a noticeable gap between their present appearance and ideal body image can be seen. Findings highlight

that a major proportion of HNC (head & neck cancer) patients struggle with body image apprehensions, particularly the young population who underwent extensive surgery or experienced delay in wound healing (Melissant et al., 2021). Sudden transformations in one's appearance might result into social appearance anxiety in individual's battling with cancer. "Social appearance anxiety is the fear that one will be negatively evaluated because of one's appearance" (Hart et al., 2008, p.48). This fear becomes fierce in cases of cancer patients who experience a shift in self-image due to appearance, which either makes them emerge clearly in the social settings or eradicate their sense of ordinariness. Cervical cancer is listed as the fourth most frequently diagnosed cancer in women. Estimates suggest that nearly 570,000 women were diagnosed with cervical cancer in 2019, which makes to 6.6% of all women suffering from cancer. Rejeki et al. (2022) documented findings identified that the deceased cervical cancer women felt moderate or severe pain (84%), vaginal discharge (66%), vaginal bleeding (61%) & loss of faith (31%). Researches highlight that perceptual body dissatisfaction in cancer patients is not limited to internal perception but shaped by interactions with others and perceived stigma. This research project strives to uncover meaningful insights into the body image concerns felt by cancer patients, facilitating a clearer understanding of their psychological needs.

Cancer not only affects the body- it demolishes as well as reconstructs one's sense of self, both inside and out. Many individuals battle with alterations in their appearance, which leaves deep scars and traces on their sense of identity and self-worth. Alongside this, some people manage obstacles with courage and adaptability. This study, evaluates the mechanism of resilience- the inner ability to cope and recover- corresponds with body image in people living with cancer. Existing studies have laid emphasis on examining body related issues or psychological resilience separately; very few have studied the positive linkage between the two concepts, specifically in the Indian context. The existing literature is garnered from the West, where the perspective on illness, emotional expression and self-image is quite varied. This study stands out from others as it tries to give a look of the Cancer Patients of North India from a different lens altogether; as on them there is an intense pressure to repress any feelings of discomfort or restraint from taking any kind of emotional assistance due to the sociocultural stigma associated with it. Moreover, by including resilience this study becomes more pragmatic and highlights the adaptability of the patients. Incorporation of distinct age range enhances the applicability of findings across the age spectrum.

1.1 Objectives

- To assess the level of resilience among cancer patients.

- To analyze the degree of body image distress endured by cancer patients.
- To evaluate the link between resilience and body image in cancer patients.
- To assess the gender differences in resilience and body image scores among cancer patients.

1.2 Hypothesis

- It is expected that cancer patients will show diverse levels of resilience.
- Cancer patients will depict significant body image distress.
- It is hypothesized that there will be significant positive\ negative correlation between resilience and body image.
- It is expected that significant difference in resilience and body image scores between male and female patients.

2. Methodology

2.1 Design

The current study intends to probe into the relationship between resilience and body image among cancer patients by utilizing a cross-sectional and correlational research design. The design is consistent and aligns with the aim to identify the paradigm and association between variables in their original state without consciously reshaping or controlling them. To fulfill the intent of the study, 60 patients aged between 18 to 60 yrs. in total, were approached at the Indira Gandhi Medical College & Hospital, Shimla, Himachal Pradesh – Oncology department. Patients were approached keeping in mind the inclusion criteria. A non-probability purposive sampling was employed to select participants, individuals who were clinically verified and diagnosed cancer patients and exhibited sufficient ability to comprehend and respond to the self-report questionnaires. Instructions were clearly imparted and written consent was taken from each patient.

Inclusion Criteria

- Clinically diagnosed cancer patients
- Age- 18-60 years
- Consented to be a part of this study

Exclusion Criteria

- Patients with psychiatric illness were not included
- Patients below the age of 18yrs. and above 60yrs. were excluded

2.2 Tests & Tools:

The Resilience Scale- RS (Wagnild & Young, 1993)

The Resilience Scale developed by Wagnild and Young (1993) was employed to measure the patient's competence to adjust and accommodate in stressful situations. The responses are evaluated on a 7- point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), wherein the total score ranges from 25 to 175. Higher the score higher would be the psychological resilience of the patients. The scale measures two key dimensions- Personal Competence (includes- self-reliance, determination & perseverance) Acceptance of life & self (balance, sense of peace & reflecting adaptability). The Resilience Scale showcases strong internal consistency of 0.91 in the preliminary validation of the measure. Subsequent researches have confirmed its reliability and the values range from 0.85 to 0.94, demonstrating strong internal consistency. Furthermore, the scale has exhibited strong test-retest reliability reporting coefficient values spanning from 0.67 to 0.84 over a time period of 2 week intervals, supporting consistency over time (Wagnild, 2009). When considering the validity of The Resilience Scale, it portrays well established & strong construct validity and signifies positive relationship with psychological well- being, life satisfaction, and self-esteem and negative relationship with stress, anxiety and depression. All this meets the criteria for both convergent and discriminant validity. The RS-25 has been adapted and psychometrically validated across cultures, which also includes the participants diagnosed with cancer, thus making it culturally relevant with strong psychometric properties.

Body Image Scale (BIS) – Hopwood et al. (2001)

Distress related to the body image was evaluated using the Body Image Scale devised by Hopwood et al. (2001). It is a 10- item scale explicitly intended for cancer patients. All the items are rated on a 4- point Likert scale (0= not at all to 3= very much). High scores are indicative of greater body image suffering and uneasiness. BIS exhibits eminent internal consistency, wherein the original study's Cronbach alpha value was 0.93 (Hopwood et al., 2001). Later studies on cancer patients have documented alpha coefficients which are on a range of 0.85 to 0.94, which is indicative of consistent reliability across different situations. Test-retest reliability shows the value of index of correlation as 0.95 over a timeframe of 2 weeks which shows strong stability over time in the clinical population.

2.3 Statistical Analysis

The data gathered for the study from the targeted population was analyzed by following a two-step approach, first- descriptive analysis (including mean and standard deviation) to showcase the characteristics of the sample, followed by inferential analysis

(correlation) to investigate the interconnectedness among the psychological variables. To evaluate the association between the variables (resilience and body image), Pearson's correlation coefficient was utilized. All the statistical tools were carried out at a significance level of $p < .05$.

3. Results

This chapter puts forward the statistical findings analyzed from the data collected to evaluate the relationship between resilience and body image among cancer patients. The analysis is driven by 4 objectives: (1) To assess the level of resilience among cancer patients; (2) To analyze the degree of body image distress endured by cancer patients; (3) To investigate the influence of resilience on body image distress; and (4) To evaluate the link between resilience and body image among cancer patients. Data was procured from a sample of 60 cancer patients aged 18-60 years, from the Oncology department of IGMCM Shimla. Standardized psychological tools were employed to collect data likewise- The Resilience Scale by Wagnild and the Body Image Scale by Hopwood. SPSS Software was utilized to analyze the data. The chapter consists of 2 sections – firstly descriptive statistics, providing an insight into the distribution and central tendencies of resilience and body image scores; and inferential statistics, which provide the evaluation of relationship and the predictive influence among the two variables with regard to the objectives of the study.

Table 1: Demographic Characteristics of the Participants (N=60)

Variable	Category	Frequency	Percentage %
Gender	Male	20	33.3%
	Female	40	66.6%
Age (in years)	Mean (SD)	--	42.96 (9.61)

Note: Age is presented as Mean (Standard Deviation). All other variables are presented as frequency and percentage.

The above table 1 depicts the descriptive statistics pertaining to age and gender of the participants. The average age of the participants was approximately 43 years ($M = 42.96$, $SD = 9.61$), suggesting that the sample predominantly consisted of individuals in middle adulthood. The age variance was 92.42, indicating moderate diversity in participant ages.

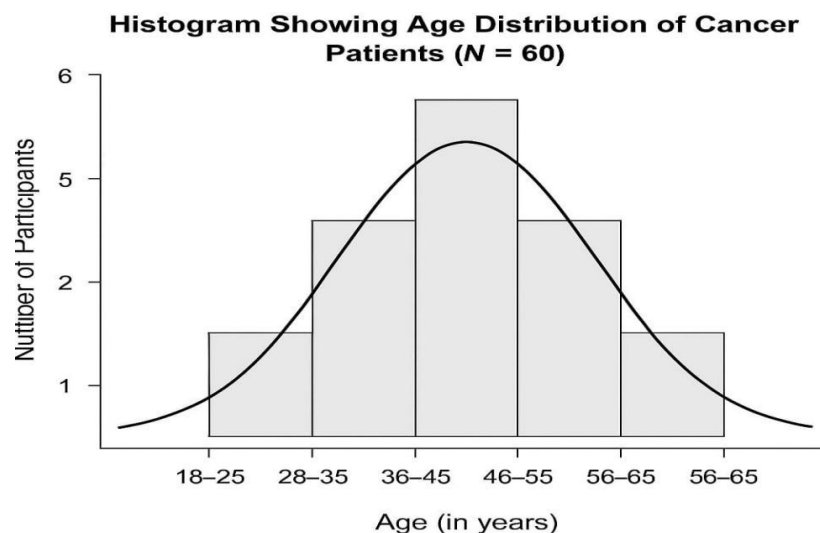


Figure 1: Distribution of the Sample

The above figure 1 highlights the distribution of the ages of the obtained sample which was analyzed and distribution revealed that it was nearly normal, with a slight negative skew ($\gamma_1 = -0.17$), meaning there were slightly younger individuals than older ones. The kurtosis value ($\beta_2 = 3.75$) suggested a somewhat peaked distribution, indicating that a majority of participants had ages close to the mean, with only a few outliers.

Table 2: Descriptive Statistical Analysis and Correlations

Variable	Mean	SD	1	2
Resilience	136.33	17.11	1	-.290*
Body Image	8.23	7.04	-.290*	1

*Correlation is significant at the 0.05 level (2-tailed)

A Pearson correlation was done to evaluate the relationship between resilience and body image among cancer patients. The findings revealed a **significant negative correlation** between resilience and body image disturbance, $r(58) = -.29, p < .05$. This indicates that participants who reported higher levels of resilience were more likely to experience fewer concerns related to their body image. On average, participants scored **136.33** ($SD = 17.11$) on the resilience scale, reflecting generally high levels of resilience within the group. The **mean score for body image disturbance** was **8.23** ($SD = 7.04$), suggesting a relatively low to moderate level of body image concerns among the sample.

Table 3: Gender-Wise Comparison of Key Study Variables (N=60)

Variable	Gender	N	Mean (M)	SD	t	p
Resilience	Female	40	135.48	17.140	-.546	.628
	Male	20	138.05	17.377		
Body image	Female	40	9.10	7.59	1.357	.092
	Male	20	6.50	5.57		

Note: *M= mean; SD= standard deviation. Independent t- tests for the sample were conducted to examine the gender difference, if any. p values are two tailed also p value < .05 indicates statistical significance.*

An independent samples t-test was conducted to explore any differences in resilience and body image between male and female participants. For resilience, no significant difference was found between males and females, $t(58) = -0.546$, $p = .628$, suggesting that gender did not have a notable effect on resilience in this sample. For body image, a marginal difference was observed between males and females, $t(58) = 1.357$, $p = .092$, pointing to a potential trend where gender could slightly influence body image. However, this difference did not reach the conventional threshold for statistical significance ($p < .05$). When considering both resilience and body image together, no significant difference was found between male and female participants. This indicates that gender did not have a meaningful impact on either resilience or body image in the study sample.

4. Discussion

The contemporary study set out to gain a deeper knowledge about how cancer patients experience resilience and body image distress. Majorly, it focused on how resilient cancer patients tend to be, the level of body image dissatisfaction and preoccupation they face every now and then and does resilience play a role in how they perceive and cope with changes in their bodies. The evaluations offer significant understandings into the patients' inner strengths like resilience can help buffer the affective and mental toll of cancer, specifically when it comes to body image. This section discusses these evaluations in relation to the previously done researches and psychological theories, focusing on the importance of these findings in the real- life contexts.

The initial key finding of the study aimed at how resilient the participants were and the results were in line with it. Supporting Hypothesis 1, cancer patients exhibited varying levels of resilience, with many showcasing notably high scores. The average resilience score

was 136.33 (SD= 17.11), which points out that despite the psychological and physiological strain due to the illness, most patients were seen having a strong innate strength to manage distress. The result aligns with a previous study explaining that multifariousness can be seen in the levels of resilience among cancer patients, the diverse nature being due to illness, social and individual- related factors (Seiler & Jenewein, 2019; Zhang et al., 2021).

Wagnild and Young (1993) first ideated resilience as a dynamic psychological attribute helping in times of adversity, which has been widely been studied and observed in the context of psycho-oncology. Enormous studies have validated that numerous patients develop or strengthen resilience during the course of illness on the other hand, some struggle due to poor coping style, improper diagnosis and lack of emotional reassurance (Liu et al., 2018; Huang & Jiang, 2020). Qualitative researches strongly indicate and support on how an individual's personality, life history and the social context in which one is placed, carves the way one endures resilience at the face of such illness (Aranda & Milne, 2000). In a nutshell, the above finding reveals that resilience acts as a meaningful psychological resource among the cancer population.

In accordance with the second hypothesis, the findings revealed that cancer patients in the above study underwent significant levels of body image distress, with a mean score of $M=8.23$ (SD = 7.04). Despite the fact, the average scores demonstrate low to moderate degree of distress, the vast SD dwells on the substantial differences in the patients while experiencing concerns. This finding is beneficial to acknowledge the psychological repercussion of cancer and its draconic treatments on one's perception about self and body. This study is in line with the original work by Hopwood et al. (2001), who formed the Body Image Scale, found that numerous cancer patients specifically those receiving intense treatments, disclosed moderate to high level of body image distress. This finding correlates with the previous studies which highlight that cancer – related modifications in the body often contribute to emotional burden and either diminished or altered self-identity (Fingeret et al., 2014).

Similarly, Fang et al. (2014) threw light on the fact that body image distress has been frequently reported by breast cancer patients impacting their psychological well- being. Additionally, (Rhoten ,2016) determined that body image issues are not cancer- specific but can originate after being diagnosed or at any stage of cancer, often escalating in the process or after treatment. These findings across studies keep up with the contention that body image distress is a notable concern among cancer patients.

Furthermore, the results supported the third hypothesis, revealing a significant negative correlation between resilience and body image distress among cancer patients. The

results disclosed a statistically negative correlation between the two variables, $r(58) = -.29$, $p < .05$. This points out the fact that higher resilience levels were associated with lower body image distress among cancer patients. This finding is consistent with the existing literature, for example, Li et al. (2019) discovered that women suffering from breast cancer and high on resilience exhibited positive body image perceptions and diminished emotional helplessness.

By the same token, Stewart et al. (2019) postulated that resilience not only served the purpose of emotional balancing but also build up compliance with bodily transformations in the pubescent population suffering from chronic illness. In the wider context, Wagnild (2009), whose scale has been utilised in the present study, accentuated that individuals who scored high on the resilience scale maintained high self-worth and fortitude when significant transfigurations in their body was taking place due to the illness. Auxiliary support comes from a study by Yi & Zebrack (2010), who disclosed that young adult cancer survivors with greater resilience disclosed less body image discontent and better life quality. For the most part, previous literatures and the above study serve as a psychological buffer, shielding individuals from identity disruption which may lead to changes in physical appearance during the course of illness.

An independent *t*-test was conducted to examine the gender difference in the levels of resilience and body image among cancer patients. The test revealed that the male candidates reported slightly high scores in resilience than their female counterpart but this variation was not statistically significant. Correspondingly, the scores for body image distress were seen higher in females in comparison to males but again the result was not statistically significant. The results did not support the anticipated hypothesis, but it revealed that the patients in the sample, both male and female experienced comparable levels of resilience and body image related distress. Charney (2004) put forward a study suggesting that resilience may work more as an individual specific trait than a gender characteristic and to add onto the emotional and body image responses to illness might be formulated more by the person and the situation than the gender alone. Previous literature, such as studies by Fingeret et al. (2010) and Helms et al. (2008), highlights the increased tendency of women to face heightened body image concerns due to societal norms, cultural biasness, taboos and stigma around their appearance and illness. There are increased possibilities that the absence of gender differences in this sample might be influenced by contextual factors like, disease stage, type of cancer or limited sample size.

5. Conclusion

The study above accentuates the major psychological dimensions of cancer, particularly how the internal resource like resilience impacting body image distress, wherein resilience emerged as a significant predictor. This brings out the potential of resilience serving as a protective factor which facilitates the patients to be able to cope with the debilitating and dire changes brought up by cancer and its associated treatment. The study investigated the relationship between resilience and body image among cancer patients in Himachal Pradesh. It was found that the variables had a significant negative correlation between the two variables, denoting that higher levels of resilience were associated with reduced levels of body image concerns. To add onto, resilience was found to be a significant predictor of body image, emphasizing the protective role played by resilience in coping with physical and emotional effect of cancer. An independent t-test was conducted which revealed a minor difference between the male and female patients, where males showcased slightly higher resilience levels than females, despite the fact that the difference was not substantial. Findings point out that while resilience may be serving as a factor in body image adjustment, the impact across the gender groups appears to be limited. The study is unique as it focuses on the rural population of Himachal Pradesh, an underrepresented group in the field of psychosocial oncology. It provides a new insight into how psychological resilience can curb emotional challenges related to cancer treatment and most importantly it acts as a springboard for more detailed studies that inspects how age, gender and socio- cultural factors affect relationship between resilience and body image distress.

References

- American Psychological Association. (2023). *Resilience*. In *APA Dictionary of Psychology*. Retrieved March 21, 2025, from <https://dictionary.apa.org/resilience>
- Babić, R., Babić, M., Rastović, P., Čurlin, M., Šimić, J., Mandić, K., & Pavlović, K. (2020). Resilience in health and illness. *Psychiatria Danubina*, 32(Suppl 2), 226–232. <https://pubmed.ncbi.nlm.nih.gov/32970640/>
- Bostock, S., Crosswell, A. D., Prather, A. A., & Steptoe, A. (2018). Mindfulness on-the-go: Effects of a mindfulness meditation app on work stress and well-being. *Journal of Occupational Health Psychology*, 24(1), 127–138. <https://doi.org/10.1037/ocp0000118>

- Brederecke, J., Heise, A., & Zimmermann, T. (2021). Body image in patients with different types of cancer. *PLoS ONE*, 16(11), e0260602. <https://doi.org/10.1371/journal.pone.0260602>
- Brown, J. S., Amend, S. R., Austin, R. H., Gatenby, R. A., Hammarlund, E. U., & Pienta, K. J. (2023). Updating the definition of cancer. *Molecular Cancer Research*, 21(11), 1142–1147. <https://doi.org/10.1158/1541-7786.mcr-23-0411>
- Cash, T. F., & Smolak, L. (Eds.). (2011). *Body image: A handbook of science, practice, and prevention (2nd ed.)*. Guilford Press
- Fang, S. Y., Shu, B. C., & Chang, Y. J. (2014). The effect of breast reconstruction surgery on body image among women after mastectomy: A meta-analysis. *Breast Cancer Research and Treatment*, 137(1), 13–21. <https://doi.org/10.1007/s10549-012-2350-1>.
- Feder, A., Fred-Torres, S., Southwick, S. M., & Charney, D. S. (2019). The biology of human resilience: Opportunities for enhancing resilience across the lifespan. *Biological Psychiatry*, 86(6), 443–453. <https://doi.org/10.1016/j.biopsych.2019.04.011>.
- Fingeret, M. C., Nipomnick, S., Crosby, M. A., & Reece, G. P. (2014). Body image and functional well-being in patients undergoing treatment for oral cancer. *Supportive Care in Cancer*, 22(3), 781–789. <https://doi.org/10.1007/s00520-013-2028-8>.
- Hart, T. A., Flora, D. B., Palyo, S. A., Fresco, D. M., Holle, C., & Heimberg, R. G. (2008). Development and examination of the Social Appearance Anxiety Scale. *Assessment*, 15(1), 48–59. <https://doi.org/10.1177/1073191107306673>
- Helgeson, V. S., Snyder, P., & Seltman, H. (2004). Psychological and physical adjustment to breast cancer over 4 years: Identifying distinct trajectories of change. *Health Psychology*, 23(1), 3–15. <https://doi.org/10.1037/0278-6133.23.1.3>.
- Hopwood, P., Fletcher, I., Lee, A., & Al Ghazal, S. (2001). A body image scale for use with cancer patients. *European Journal of Cancer*, 37(2), 189–197. [https://doi.org/10.1016/S0959-8049\(00\)00353-1](https://doi.org/10.1016/S0959-8049(00)00353-1). <https://doi.org/10.1111/j.1467-6494.2004.00294>.
- International Agency for Research on Cancer. (2018). *Latest global cancer data: Cancer burden rises to 18.1 million new cases and 9.6 million cancer deaths in 2018* (Press Release No. 263). https://www.iarc.who.int/wp-content/uploads/2018/09/pr263_E.pdf
- Izydoreczek, B., Kwapniewska, A., Lizinczyk, S., & Sitnik-Warchulska, K. (2018). Psychological Resilience as a Protective Factor for the Body Image in Post-Mastectomy Women with Breast Cancer. *International journal of environmental research and public health*, 15(6), 1181. <https://doi.org/10.3390/ijerph15061181>.

- Li, J., Lambert, C. E., & Petrini, M. A. (2019). The relationship of body image, self-esteem, and resilience in adolescents and young adults with cancer. *Journal of Pediatric Oncology Nursing*, 36(2), 123–131. <https://doi.org/10.1177/1043454218814865>.
- Lin, W., Wang, M., Zhang, R., & Liu, Y. (2020). The effect of attention and interpretation therapy on psychological resilience, cancer-related fatigue, and negative emotions of patients after colon cancer surgery. *Annals of Palliative Medicine*, 9(5), 3261–3270. <https://doi.org/10.21037/apm-20-1370>.
- Melissant HC, Jansen F, Eerenstein S, Cuijpers P, Laan E, Lissenberg-Witte BI, et al. Body image distress in head and neck cancer patients: what are we looking at? *Support Care Cancer*. 2021;29:2161–9. <https://doi.org/10.1007/s00520-020-05725-1>.
- Rejeki, S., Agustyaningrum, E., Macmudah, Khayati, N., Hartiti, T., Safitri, D. N. R. P., & Ben Olina, Y. (2022). Body image and the level of stress in cervical cancer patients. *Bali Medical Journal*, 11(3), 1739–1743. <https://doi.org/10.15562/bmj.v11i3.3769>
- Rhoten, B. A. (2016). Body image in patients with head and neck cancer: A review of the literature. *Oral Oncology*, 62, 112–120. <https://doi.org/10.1016/j.oraloncology.2016.10.001>
- Stewart, H., Mishel, M. H., Lynn, M. R., & Bailey, D. E. (2019). Resilience in adolescents and young adults with cancer: A systematic review. *Journal of Adolescence and Young Adult Oncology*, 8(5), 558–571. <https://doi.org/10.1089/jayao.2019.0006>.
- Tugade, M. M., Fredrickson, B. L., & Barrett, L. F. (2004). Psychological resilience and positive emotional granularity: Examining the benefits of positive emotions on coping and health. *Journal of Personality*, 72(6), 1161–1190.
- Wagnild, G. (2009). A review of the Resilience Scale. *Journal of Nursing Measurement*, 17(2), 105–113. <https://doi.org/10.1891/1061-3749.17.2.105>.
- Windle, G., Bennett, K. M., & Noyes, J. (2011). A methodological review of resilience measurement scales. *Health and Quality of Life Outcomes*, 9, Article 8. <https://doi.org/10.1186/1477-7525-9-8>
- World Health Organization. (2018). *Cancer*. <https://www.who.int/news-room/fact-sheets/detail/cancer>
- World Health Organization. (2024, February 1). *Global cancer burden growing, amidst mounting need for services*. World Health Organization. <https://www.who.int/news/item/01-02-2024-global-cancer-burden-growing--amidst-mounting-need-for-services>

- Yi, J., & Zebrack, B. (2010). Self-perceived resilience and quality of life in adolescent and young adult cancer survivors. *Journal of Psychosocial Oncology*, 28(3), 291–307.
<https://doi.org/10.1080/07347331003678321>.
- Zou, G., Li, Y., Mei, J., Hu, Y., & Chen, W. (2018). Resilience and positive affect contribute to lower cancer-related fatigue among Chinese patients with gastric cancer. *Journal of Clinical Nursing*, 27(7-8), e1412–e1418.
<https://doi.org/10.1111/jocn.14252>.