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A Comparative Study of Somatic Preoccupation, Bodily Compulsion, Alexithymia, Self Concept And Sexual Desire Among Breast Cancer Survivors and Healthy Controls

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ABSTRACT

The comparative study aimed to investigate the differences in sexual desire, alexithymia, self concept, somatic preoccupation, and bodily compulsion among breast cancer survivors in comparison to healthy controls. The sample consisted of 92 participants matched by age and gender of which 50 are healthy participants and 42 are Breast cancer survivors. Quantitative data were collected using consent forms, an information schedule, the Sexual Desire Inventory (SDI), Toronto Alexithymia Scale (TAS-20), Robson's Self Concept Questionnaire (SCQ), Physical Health Questionnaire (PHQ-15), and Body Dysmorphic Disorder – Yale-Brown Obsessive Compulsive Scale (BDD-YBOCS). Data analysis included Mean, Standard Deviation, Pearson's Product Moment correlation, and independent sample t test. The results indicated significant differences among the groups in terms of sexual desire, alexithymia, self concept, somatic preoccupation, and bodily compulsion. Moreover, significant correlations were observed between somatic preoccupation and alexithymia as well as bodily compulsions in breast cancer survivors. However the study did not reveal any significant correlation among self concept, sexual desire in breast cancer survivors. The study findings revealed that breast cancer survivors exhibited higher levels of somatic preoccupation, bodily compulsions and alexithymia and lower levels of sexual desire and self concept as compared to their healthy counterparts. These results suggest the importance of addressing psychosomatic and emotional effects in survivors through tailored interventions. Such interventions may include Cognitive Behavioral Therapy (CBT), Mindfulness-Based Stress Reduction (MBSR), Supportive-Expressive Group Therapy (SEGT), Acceptance and Commitment Therapy (ACT), Sexual Health and Intimacy Counseling, Family Therapy, Couple therapy, Creative and Expressive therapies, Psychoeducation and Survivorship Workshops.

Keywords: Breast Cancer Survivors, Sexual Desire, Alexithymia, Somatic Preoccupation, Self Concept

The intersection of oncology and psychosocial inquiry offers profound insights into the lived experiences of cancer survivors. Breast and cervical cancers, collectively among the most prevalent malignancies in women worldwide, present not only physical challenges but also complex psychological and behavioral sequelae. While biomedical advances have significantly improved survival, many survivors contend with persistent somatic vigilance, compulsive behaviors, disrupted identity, altered sexual functioning, and difficulty articulating emotional states. This dissertation systematically examines these five domains—

somatic preoccupations, bodily compulsions, self-concept, perceived sexual interest and desire, and alexithymia—among breast and cervical cancer survivors, contrasted with healthy controls. Through detailed subheadings and humanized vignettes grounded in psycho-oncology literature, the introduction delineates theoretical foundations, empirical evidence, and clinical significance.

Cancer as a disease and its treatmeny- Oncology

Cancer is a disease in which abnormal cells of the body grow uncontrollably ultimately causing harm to the body. The property of contact inhibition is absent in cancerous cells and thus they proliferate disorderly giving rise to tumors. Here we throw light on cancer prevention, different types of cancer, treatment methods currently available for cancer and also the recent advances in cancer treatment. Since the last couple of decades cancer cases have increased drastically, but at the same time due to advancement in science and technology, the mortality rate is decreasing. Cancer treatment is provided depending upon its type and stage. Apart from the conventional treatment like surgery, chemotherapy, radiation therapy, hormone therapy etc, some rapidly emerging treatment methods are immunotherapy, targeted therapies such as small molecule tyrosine kinase inhibitors and monoclonal antibodies (MABs) and gene therapy. Immunotherapy has rapidly transformed treatment methods for many types of cancer and one more encouraging step towards cancer immunotherapy is the use of personalized vaccines. The standard therapy methods do cure cancer but along with that they pose serious threat to normal healthy cells as well as have side effects, due to this reason, new treatment methods are being adopted.

According to the body location, cancer can be of various types- lung cancer, breast cancer, prostate cancer, cervical cancer, brain tumor (cancerous) etc. The main types of focus here are breast cancer and cervical cancer.

Breast cancer

Breast cancer is a disease where cells in the breast tissue grow out of control, forming tumors that can spread to other parts of the body. It is the most common cancer diagnosed in women in the United States. Breast cancer can be detected early through screening methods like mammograms and can be treated with surgery, radiation, chemotherapy, and hormone therapy. Breast cancer's causes are complex and often involve a combination of genetic, lifestyle, and environmental factors. While the exact cause of most breast cancers remains unknown, certain factors increase the risk, including genetics, age, and lifestyle choices like alcohol consumption and obesity.

Genetic Factors:

Hereditary Breast Cancer: A small percentage of breast cancers are caused by inherited gene mutations, such as BRCA1 and BRCA2, passed down from parents.

Family History: Having a close family history of breast cancer, especially in first-degree relatives (parents, siblings, or children), increases the risk.

Lifestyle Factors:

Alcohol Consumption: Drinking alcohol, especially more than one alcoholic beverage per day, is linked to a higher risk of breast cancer.

Obesity: Being overweight or obese, particularly after menopause, can increase the risk due to elevated estrogen levels.

Sedentary Lifestyle: Lack of physical activity is associated with a higher risk of breast cancer.

Smoking: Smoking has been linked to an increased risk of breast cancer in both pre- and post-menopausal women.

Hormone Replacement Therapy (HRT): Using HRT, particularly those containing estrogen and progesterone, for menopause can increase the risk.

Reproductive History:

- **Age at First Menstruation:** Starting menstruation early (before age 12) can increase the risk.
- **Age at First Pregnancy:** Having your first child at an older age (after 30) can increase the risk.
- **Nulliparity:** Never having been pregnant increases the risk compared to women who have been pregnant.

Other Factors:

Age: The risk of breast cancer increases with age, particularly after menopause.

Radiation Exposure: Exposure to radiation therapy, especially to the chest as a child or young adult, can increase the risk.

Dense Breast Tissue: Women with denser breast tissue, which is more fibrous and less fatty, have a higher risk of breast cancer.

Breast cancer symptoms can include a new lump or thickening in the breast or underarm, changes in breast size or shape, dimpling or puckering of the skin, a newly inverted nipple, nipple discharge (other than breast milk), scaly, red, or swollen skin in the nipple area, and pain in the breast. It's important to consult with a healthcare professional if you experience any of these symptoms.

The treatment of breast cancer includes-

Breast cancer treatment options include surgery, radiation therapy, chemotherapy, hormone therapy, targeted therapy, and immunotherapy. The specific treatment plan depends on the type and stage of the cancer, as well as the individual's overall health.

1. **Surgery:**
- **Lumpectomy:** Removal of the tumor and a small amount of surrounding tissue.
- **Mastectomy:** Removal of the entire breast.
- **Lymph node surgery:** Removal of lymph nodes in the armpit to check for cancer spread.

2. **Radiation Therapy:**
- **External beam radiation:** Uses high-energy rays to kill cancer cells.
- **Brachytherapy:** Places a small, radioactive source inside the breast to deliver radiation.
- **Intraoperative radiation therapy:** Delivers radiation during surgery.

3. **Chemotherapy:**
- Uses drugs to kill cancer cells throughout the body.
- Can be given before surgery to shrink the tumor or after surgery to reduce the risk of recurrence.
- Administered intravenously or orally.

4. **Hormone Therapy:**
- Blocks the effects of estrogen or progesterone, which can fuel certain breast cancers.
- Effective for hormone receptor-positive cancers.

5. **Targeted Therapy:**
- Targets specific genes or proteins that help cancer cells grow.
- Examples include HER2-targeted therapies and PD-L1 inhibitors.

6. **Immunotherapy:**
- Stimulates the body's own immune system to attack cancer cells.
- Can be used for certain types of breast cancer, including triple-negative breast cancer.

Cancer survivorship has emerged as a critical area within psychosocial oncology, emphasizing the long-term quality of life and psychological adjustment of individuals post-treatment (Ganz, 2005). Survivors frequently report that, despite remission, their relationship with their bodies remains fundamentally altered. As one survivor described, “I feel as though my body tells a story of trauma every time I move,” highlighting how physical memory and fear of recurrence coalesce into daily experiences. By comparing survivors to healthy controls, this study identifies which phenomena are specific to post-cancer adaptation and which reflect normative variations in health-related behaviors and attitudes (DeSantis et al., 2019).

2. Theoretical Framework

This investigation is anchored in a biopsychosocial model, integrating physiological, cognitive-behavioral, and existential perspectives (Engel, 1977). Psycho-oncology extends this model by addressing cancer-specific stressors and their psychosocial mediators (Butow et al., 2012). Central to this framework are the following constructs:

Somatic Preoccupations: cognitive focus on bodily sensations interpreted as health threats (Asmundson et al., 2001).

Bodily Compulsions: ritualized behaviors aimed at reducing somatic anxiety (Tolin et al., 2007).

Self-Concept: the organized set of self-schemas encompassing body image, social roles, and self-esteem (Shavelson et al., 1976).

Perceived Sexual Interest and Desire: motivational and affective components of sexual functioning (Basson, 2001).

Alexithymia: deficits in identifying and describing emotions, accompanied by an externally oriented cognitive style (Taylor et al., 1997).

3. Somatic Preoccupations and Bodily Compulsions

3.1 Somatic Preoccupations

Somatic preoccupations involve sustained attention to bodily signals and the catastrophic interpretation of benign sensations. In qualitative interviews, survivors often recount monitoring every palpation: “I touch my scar so many times a day that I cannot remember my life before this habit,” illustrating how vigilance can become all-consuming (Olatunji et al., 2009). Theories explaining somatic preoccupations

Behavioral/Learning Theories:

Social Learning and Modeling: Individuals may learn illness behaviors by observing others, particularly family members who are ill, leading to a predisposition to somatic preoccupation.

Reinforcement: Attention and sympathy received when experiencing symptoms can reinforce the behavior, leading to a cycle of seeking help and focusing on symptoms.

2. Cognitive Theories:

Attention and Interpretation: Individuals with somatic preoccupation may have a heightened awareness of bodily sensations and a tendency to interpret them as indicative of serious illness.

Cognitive Distortions: Negative thought patterns, such as catastrophic thinking, can exacerbate anxiety and preoccupation with symptoms.

Rumination: Excessive worrying and dwelling on symptoms can perpetuate the cycle of somatic preoccupation.

3. Psychodynamic Theories:

Defense Mechanisms: Some theories suggest that somatic preoccupation can serve as a defense mechansm against psychological distress, allowing individuals to focus on physical symptoms rather than underlying emotional issues.

Early Childhood Trauma: Experiences like abuse or neglect can be linked to the development of somatic preoccupation and altered stress responses.

Attachment Theory: Insecure attachment styles and difficulties with emotional regulation may contribute to somatic preoccupation.

4. Other Factors:

Personality Traits: Certain personality traits, such as neuroticism or anxiety, may increase the likelihood of developing somatic preoccupation.

Biological Factors: Brain chemistry and neurobiological differences may play a role in how individuals perceive and respond to bodily sensations.

Cultural Influences: Cultural norms and beliefs about health and illness can also influence the expression and experience of somatic symptoms.

It's important to note that somatic preoccupation is often a complex issue with multiple contributing factors, and a comprehensive understanding of the various theories can aid in diagnosis and treatment.

Empirical studies demonstrate that elevated somatic preoccupations correlate with anxiety, depression, and reduced quality of life among survivors (Furtado et al., 2017). While initial monitoring may serve adaptive detection purposes, chronic hypervigilance perpetuates stress through a feedback loop of threat appraisal and physiological arousal.

3.2 Bodily Compulsions

Bodily compulsions manifest as repetitive checking behaviors—scar inspections, lymph node palpation, symptom logging—that provide transient relief yet reinforce anxiety. Quantitative analyses reveal that 30–40% of survivors engage in such behaviors at clinically significant levels, paralleling mild obsessive–compulsive symptomatology (American Psychiatric Association, 2013).

Theories of bodily compulsions, often within the context of Obsessive-Compulsive Disorder (OCD), explore the interplay between obsessions, compulsions, and the individual's experience of their own body. These theories can be broadly categorized into cognitive, behavioral, and neurobiological perspectives.

1. Cognitive Theories:

Thought-Action Fusion (TAF): This theory suggests that individuals with OCD believe that having a thought about performing a harmful act is equivalent to actually doing it. This belief can lead to intense anxiety and the need to perform compulsions to neutralize the feared outcome.

Responsibility Appraisals: These theories focus on the individual's beliefs about their responsibility for undesirable outcomes, even if they have no control over them. For example, a person with a cleaning compulsion might believe they are responsible for preventing illness, even if they know they are not actually the cause.

Meta-cognitions: These beliefs about one's own thoughts and their meaning can contribute to the maintenance of obsessions and compulsions. For instance, a person might believe that intrusive thoughts are a sign of weakness or that they must be taken seriously, leading to further anxiety and compulsive behaviors.

2. Behavioral Theories:

Classical Conditioning: This theory suggests that compulsions can be learned through classical conditioning, where an association is made between a feared object or situation and a specific response (e.g., cleaning) that reduces anxiety.

Exposure and Response Prevention (ERP): This behavioral therapy technique involves gradually exposing individuals to situations that trigger obsessions while preventing them from engaging in compulsive behaviors. ERP aims to extinguish the learned association between obsessions and compulsions by allowing individuals to experience anxiety without engaging in the compulsive ritual.

3. Neurobiological Theories:

Orbitofrontal Cortex (OFC) and Basal Ganglia: These brain regions are implicated in OCD, with the OFC playing a role in decision-making and the basal ganglia in motor control. Dysregulation in these regions can lead to the repetitive and intrusive thoughts and actions characteristic of OCD.

Neural Plasticity: This theory suggests that the brain's ability to adapt and change can play a role in the development and maintenance of OCD. Experiences and learning can influence the neural circuitry associated with obsessions and compulsions, making it challenging to break free from the cycle.

Bodily Obsessions:

Somatic OCD: This subtype of OCD focuses on intrusive thoughts and concerns about bodily processes, such as breathing, digestion, or heart function. Individuals with somatic OCD may experience intense anxiety about the possibility of experiencing a medical condition or a catastrophic outcome related to their bodily processes.

Body Dysmorphic Disorder (BDD): This disorder involves excessive preoccupation with perceived flaws in one's physical appearance, leading to compulsive behaviors like mirror-checking or excessive grooming. While BDD shares some features with OCD, it is a distinct disorder with a focus on appearance.

Body-Focused Repetitive Behavior Disorder: This disorder, which was previously known as "compulsive skin picking," involves the repetitive picking, pulling, or tugging at one's own skin, hair, or other body parts.

In summary, theories of bodily compulsions within the context of OCD highlight the complex interplay of cognitive, behavioral, and neurobiological factors that contribute to the development and maintenance of this disorder. Cognitive theories focus on beliefs and interpretations of intrusive thoughts, behavioral theories emphasize the learned nature of compulsions, and neurobiological theories point to brain dysfunction as a key factor.

Cognitive-behavioral interventions, including exposure and response prevention, have yielded medium to large effect sizes in reducing health-related checking behaviors, though access to such specialized therapies remains limited in oncology settings (Tolin et al., 2007).

4. Self-Concept and Body Image Disturbance

Self-concept theory posits that bodily integrity is a core domain of identity (Markus & Wurf, 1987). Disruption of this domain following mastectomy or pelvic surgery can precipitate profound identity upheaval. Survivors articulate a sense of disembodiment: "My reflection feels like a stranger; the scar is a constant reminder that my body betrayed me," underscoring the emotional weight of altered appearance (Cash & Pruzinsky, 2002).

Carl Rogers Self Theory of Personality Development

Since the study of personality began, personality theories have offered a wide variety of explanations for behavior and what constitutes the person. Carl Rogers (1902-1987) is truly the central figure in the humanistic orientation. Rogers theory of personality development is based upon nineteen propositions but the central focus is on the concept of ‘self’. In Rogers' view, the self is the central ingredient in human personality and personal adjustment. The main tenets of his theory will be focused upon here.

Self

Rogers believed that when a child comes into this world, the concept of ‘self’ is present in him just like a tiny dot and it grows and develops as the age of child increases. Self-concept is defined as the totality of a complex, organized, and dynamic system of learned beliefs, attitudes and opinions that each person holds to be true about his or her personal existence. Rogers described the self as a social product, developing out of interpersonal relationships and striving for consistency.

Self-Actualizing Tendency

Rogers' person-centered theory emphasized the concept of "self-actualization." This concept implies that there is an internal, biological force to develop one's capacities and talents to the fullest. The individual's central motivation is to learn and to grow. Growth occurs when individuals confront problems, struggle to master then, and through that struggle develop new aspects of their skills, capacities, views about life. Life, therefore, is an endless process of creatively moving forward, even if only in small ways. Regarding this “self-actualization”, Rogers has related his experience of watching seaweeds on a seaside; he observed how seaweeds resisted against the heavy pounding of the sea waves crushing upon them. The seaweeds took the blows of waves upon them but after every attack they would stand erect again which shows their innate urge to live life. Rogers says,

“Here in this palm like seaweed was the tenacity of life, the forward thrust of life, the ability to push into an incredibly hostile environment and not only hold its own, but to adapt, develop, and become itself.”

Organismic Valuing Process

According to Rogers, it is an ongoing process in which values are never fixed or rigid, but experiences are being accurately symbolized and continually and freshly valued in terms of the satisfactions experienced by the individuals. The process is a subconscious guide that evaluates experience for its growth potential. It draws people toward experiences that are growth producing and away from those that would inhibit growth. Hence human beings instinctively value some things and abhor some, on the other hand.

Positive Regard

Among many things that human organisms instinctively value is positive regard. It is one’s perception of some self-experience of another which makes a positive difference in one’s field of experience resulting in a feeling of warmth, liking, respect, sympathy and acceptance towards others. Hence with awareness of the self the need for positive regard develops and it is essential to the proper growth of one’s self.

Positive Self-regard

Positive self-regard is self-esteem, self-worth, and a positive self-image. It is a positive attitude towards the self which is no longer directly dependent on the attitude of others. But this positive self-regard is achieved by experiencing the positive regard others show us over our years of growing up.

Conditions of Worth

The need for positive self-regard leads to a selective perception of experience in terms of the conditions of worth that are made by others. A condition of worth develops when one’s behavior is evaluated as more or less worthy of self-regard by others. Hence, a child gets his favorite chocolate only when he performs well in a class test.

Conditional Positive Regard

Getting positive regard "on condition" Rogers calls **conditional positive regard**. When people show conditional positive regard it means that an individual is taken not as a 'self' and an entity but as a collection of behaviours. Thus one is appreciated only on showing acceptable behaviours. Rogers is of the view that it hampers the positive growth of 'self' and as a result **conditional positive self-regard** develops. It means that one begins to like oneself only if he meets up with the standards others have applied to him, rather than when he truly actualizes his potentials. And since these standards were created without keeping each individual in mind, more often than not he finds himself unable to meet them, and therefore unable to maintain any sense of self-esteem.

Unconditional positive regard

Unconditional positive regard is blanket acceptance and support of a person regardless of what the person says or does. Rogers believes that unconditional positive regard is essential to healthy development. People who have not experienced it may come to see themselves in the negative ways that others have made them feel.

Incongruity

Rogers identifies the "real self" as the aspect of one's being that is founded in the actualizing tendency, follows organismic valuing, needs and receives positive regard and self-regard. It is the "you" that, if all goes well, you will become. On the other hand, to the extent that our society is out of sync with the actualizing tendency, and we are forced to live with conditions of worth that are out of step with organismic valuing, and receive only conditional positive regard and self-regard, we develop instead an "ideal self". By ideal, Rogers is suggesting something not real, something that is always out of our reach, the standard we cannot meet. This gap between the real self and the ideal self, the "I am" and the "I should" is called *incongruity*.

Fully Functional Individual

According to Rogers, an individual may develop optimally and avoid the previously described outcomes if they experience only "unconditional positive regard" and no conditions of worth develop. The needs for positive regard from others and positive self-regard would match organismic evaluation and there would be congruence between self and experience, with full psychological adjustment as a result. This ideal human condition has been called "fully functioning person" by Rogers. He listed characteristics of fully functioning persons:

1. A growing openness to experience – they move away from defensiveness and feel that they have a right to be attended to with care and respect when in need.
2. An increasingly existential lifestyle – living each moment fully – not distorting the moment to fit personality or self concept but allowing personality and self concept to emanate from the experience. This results in excitement, daring, adaptability, tolerance, spontaneity, and a lack of rigidity and suggests a foundation of trust. "To open one's spirit to what is going on now, and discover in that present process whatever structure it appears to have"
3. Increasing organismic trust – they trust their own judgment and their ability to choose behaviour that is appropriate for each moment. They do not rely on existing codes and social norms but trust that as they are open to experiences they will be able to trust their own sense of right and wrong.
4. Freedom of choice – not being shackled by the restrictions that influence an incongruent individual, they are able to make a wider range of choices more fluently. They believe that they play a role in determining their own behaviour and so feel responsible for their own behaviour.

5. Creativity – it follows that they will feel more free to be creative. They will also be more creative in the way they adapt to their own circumstances without feeling a need to conform.
6. Reliability and constructiveness – they can be trusted to act constructively. An individual who is open to all their needs will be able to maintain a balance between them. Even aggressive needs will be matched and balanced by intrinsic goodness in congruent individuals.
7. A rich full life – he describes the life of the fully functioning individual as rich, full and exciting and suggests that they experience joy and pain, love and heartbreak, fear and courage more intensely.

Quantitative measures indicate that breast and cervical cancer survivors report significantly lower body image satisfaction and global self-esteem compared to age-matched healthy controls (Helms et al., 2008; Schover et al., 2002). Psychosocial interventions—such as expressive writing and group therapy—foster narrative reconstruction, facilitating integration of post-treatment body image within a renewed self-concept (Creswell & Lindsay, 2014).

5. Perceived Sexual Interest and Desire

Perceived sexual desire refers to an individual's subjective experience and interpretation of their own or others' sexual motivation and desire. It's not just about physical arousal, but also the desire for intimacy, emotional connection, and the subjective feeling of wanting to engage in sexual activity. This perception can be influenced by biological factors, social contexts, and individual experiences.

Key Aspects of Perceived Sexual Desire:

Subjective Experience: It's not solely about physiological arousal but also the emotional and psychological aspects of wanting sexual activity.

Intimacy and Connection: Desire can involve the desire for physical pleasure as well as the need for intimacy, love, and emotional connection.

Motivation and Intent: It encompasses the motivation, thoughts, and feelings associated with wanting to engage in sexual activity.

Dynamic and Evolving: Sexual desire can fluctuate and change throughout a person's life, influenced by factors like age, health, social situations, and relationship dynamics.

Individual vs. Relationship: The way sexual desire functions on an individual level may differ from how it functions within a relationship, potentially leading to discrepancies in understanding.

Factors Influencing Perceived Sexual Desire:

Biological Factors: Hormonal fluctuations, physical health, and general well-being can impact sexual desire.

Social and Cultural Influences: Societal norms, values, and beliefs about sex and relationships can shape an individual's perception of sexual desire.

Psychological Factors: Anxiety, depression, stress, and unresolved trauma can affect sexual desire and motivation.

Relationship Dynamics: Communication, intimacy, and the overall quality of the relationship can influence perceived sexual desire.

In essence, perceived sexual desire is a complex interplay of biological, psychological, social, and relationship factors that shape an individual's subjective experience and understanding of their own and others' sexual motivation and desire.

Sexual interest (motivation to initiate sexual activity) and desire (emotional and physiological readiness) are frequently compromised by the combined effects of treatment-induced physiological changes and psychosocial inhibitors (Basson, 2001). Survivors report decreased libido, vaginal dryness, pain during intercourse, and diminished sexual self-efficacy (Avis et al., 2005).

One study found that 60% of breast cancer survivors and 75% of cervical cancer survivors experienced clinically significant sexual dysfunction, in contrast to 25% of healthy controls (Schover et al., 2002). Interventions integrating pelvic floor therapy, hormonal treatments, and cognitive-behavioral sex therapy have demonstrated improvements in function and satisfaction, highlighting the need for multidisciplinary approaches (Ganz et al., 2016).

6. Alexithymia and Emotional Awareness

The crisis of the therapeutic model based on psychoanalysis for addressing psychosomatic problems did not question the existence of such problems, as their clinical evidence seemed clear and consistent, but instead the way of explaining them with a view to seeking alternative approaches. This means that the concept of alexithymia was not the result of an eureka moment, but instead emerged in the early 1970s following a protracted period of reflection and the evaluation of sundry alternative hypotheses .

Back in 1948, a psychiatrist of Swiss origin called Jürgen Ruesch (1910–1995) reported finding a unique casuistic among his patients: those that experienced topical psychosomatic complaints—such as migraines, abdominal disorders, and hypertension, as well as other chronic physiological complaints, were characterized by being scarcely imaginative, as well as having problems with the verbal and symbolic expression of emotions different to those usually found in patients with disorders other than somatic symptoms . Before being seen as a disorder of neurotic origin, this problem was considered a difficulty arising from a deficient personality development, understanding this to be the main cause of psychosomatic disorders. Along these same lines, and around the same time, authors such as the US neuroscientist Paul MacLean (1913–2007), known for his popular triune brain theory, contended that patients with psychosomatic complaints encountered difficulties in expressing their feelings, speculating with the possibility that this might be due to a weak consolidation of the areas of the neocortex related to language processing: the emotions that caused the patient significant distress were not suitably symbolized, whereby they were manifested through what was referred to as "organic language" .

In the early 1950s, even psychoanalysts themselves began to encounter a growing number of cases that broke with the traditional model of intrapsychic conflict. Thus, for example, Karen Horney (1885–1952) first reported that some of her patients were immune to psychoanalytical treatment due to a significant lack of emotional awareness, little expression of their internal states, a minimal interest in their dreams and fantasies, excessive focus on thoughts and, as a result, pursued a superficial life-style focused on outside experience . Nonetheless, what was of interest to Horney was that this type of patient was prone to develop psychosomatic problems, eating disorders, polydrug use and, in general, all kinds of compulsive behaviors that, it seems, were closely related to the systematic avoidance of the understanding of their own emotions and a profound feeling of emptiness. What is important, at this point, is that despite admitting that these people did not fit into the traditional model for explaining neurosis, nor respond well to psychoanalytical therapy, Horney sought to attribute their behavior to the existence, in these individuals, of powerful and deeply rooted defenses against unconscious conflicts. This approach began to change among the advocates of psychoanalysis barely a decade later, with the appearance of specialists that began to reject the model of neurotic defense in favor of a more eclectic approach. This was when the notion began to be accepted that these patients' behavior would involve, above all, personality deficits: given the lack of a rich inner life, these people focused their concerns on their organic symptoms and the medium's influence, thus generating a model of "operational thinking", which ended up having a very negative impact on their interpersonal skills .

Nevertheless, and despite the increasing amount of data on this specific type of patient in the clinical literature, it was not until the mid-1960s that the US psychiatrist John Case Nemiah (1918–2009) and his Greek-born colleague Peter Emanuel Sifneos (1920–2008) jointly embarked upon a systematic study of the cognitive style of a sample of individuals with common and persistent psychosomatic problems . They came to the conclusion that compared to individuals with standard mental disorders, many of those that reported these associated physiological complaints found it extremely difficult to describe their subjective feelings, apart from having an impoverished fantasy, as well as a utilitarian cognitive style focusing on the outside. This unusual psychological concept was what in 1972 Sifneos coined as 'alexithymia', which is formed by the roots of several Greek words, and literally means "lack of words for emotion" Following the publication of these initial empirical findings, alexithymia began to quickly gain in popularity among practitioners of psychiatry and psychology. This was especially the case after two international conferences; the first held in London in 1972 and the second in Heidelberg in 1976, which established the importance of the alexithymia model in research into states of emotional deficit . In fact, following the London conference, it became clear that despite the contradictory views held by clinical and non-clinical specialists, there was a need to give the term uniformity when addressing problems of this kind if the aim was to ultimately find a framework of consensus that would pave the way for communication between basic and applied science. Hence it was agreed to replace the fuzzy concept of 'affection' by the more precise term of 'emotion' for all its somatic aspects, while the term 'feeling' was reserved for its cognitive components .

Alexithymia's core features—difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking—impede emotional processing and social support engagement (Taylor et al., 1997). Survivors with high alexithymia scores exhibit elevated somatic symptom reporting and reduced engagement in psychosocial interventions (Mattila et al., 2006).

Qualitative accounts reveal that survivors may misconstrue emotional distress as physical illness: "I could never say I was anxious; I just thought I was tired or in pain." This somatization complicates clinical detection of psychological morbidity (Parker et al., 2001). Mindfulness-based programs and emotion-focused therapies have been shown to enhance alexithymia profiles and overall psychological adjustment (Marchesi et al., 2004).

A comparative design including breast and cervical cancer survivors alongside healthy controls enables identification of both universal and cancer-specific patterns. Breast cancer survivors—frequently diagnosed in midlife—contend with loss of a body part emblematic of femininity, whereas cervical cancer survivors—often younger—navigate fertility concerns and sexuality in distinct cultural contexts. Methodologically, matched control sampling, validated psychometric instruments (e.g., TAS-20, Body Image Scale), and mixed-method data collection ensure robust, generalizable findings.

This introduction has outlined a detailed, multi-dimensional exploration of the psychological and behavioral sequelae experienced by breast and cervical cancer survivors, contrasted with healthy controls. By integrating rigorous empirical findings with humanized narratives, the dissertation advances psycho-oncology's commitment to understanding and addressing the holistic needs of cancer survivors.

To comprehend the above mentioned dynamicity among the various psychological factors , it is vital to explore the interplay between theoretical frameworks and practical implementations. The review of literature elaborated in the next chapter seeks to establish a comprehensive understanding by analysing influential works in diverse domains related to the psychological constructs undertaken in the present study.

A literature review is an important step for any scientific research. It helps the researcher to gain knowledge regarding the variables in focus. This in turn helps in planning of the Research Design and possible avenues of result analysis. Therefore the review of available literature may act to enhance the quality of any study. It provides guidelines regarding the objectives, possible obstacles, prevents the repetition of work and helps to understand the applicative value of the chosen area of study.

A literature review is "a crucial analysis of a segment of published body of knowledge through summary, classification and comparison of prior research studies, reviews of literature and theoretical articles" (University of Wisconsin Writing Center).

For the present study the review of literature has been conducted on the chosen variables. The received material has been presented below under separate headings.

Somatic Preoccupation/Somatic Symptom Disorder in Breast Cancer Patients

Somatic Symptom Disorder (SSD) is a notable concern within the breast cancer patient population. Comparative studies indicate that Screened positive SSD had strong mediating effects between psychological factors and quality of life among breast cancer patients. Additionally, screened positive SSD was a significant predictor of lower QOL among breast cancer patients. Effective psychosocial interventions for improving QOL should consider the prevention and treatment of SSD or integrated SSD caring dimensions for breast cancer patients. (Zimeng Li et al., 2023). Another study found that Similar to other physical diseases, there is a high prevalence of SSD in patients with breast cancer. Somatic symptom disorder patients differ from non-SSD patients by exhibiting higher cancer-related emotional distress and dysfunctional illness perception and behavior. There remain substantial challenges in the diagnosis of SSD in patients with cancer and other medical conditions (Jinjiang Li et al., 2022)

Patients diagnosed with screened positive SSD typically exhibit a lower performance status and report a higher inclination towards utilizing Traditional Chinese Medicine (TCM). Furthermore, compared to non-SSD groups, these patients demonstrate significantly elevated levels of somatic symptoms, general anxiety, health anxiety, depression, fear of cancer recurrence, and a more negative perception of their illness. This indicates that symptom-related emotional distress is particularly pronounced in breast cancer patients with SSD. The importance of recognizing this prevalence is crucial for ensuring adequate psychological care, as oncologists and family caregivers might overlook SSD symptoms, assuming they are merely consequences of the cancer itself. This highlights a challenge for diagnosis and intervention, as traditional psychological approaches might be resisted if symptoms are exclusively viewed through a biomedical lens. Therefore, education for both patients and healthcare providers on the psychological dimensions of cancer-related somatic symptoms is essential.

Bodily Compulsion and Body Image Concerns in Breast Cancer Patients

Studies have found that Body image dissatisfaction represents a significant and pervasive concern for women diagnosed with breast cancer, particularly following invasive surgical procedures. The physical condition and appearance of patients with cancer are affected by illness changes (such as hair loss, loss of a member like one person's amputation, etc.). The same changes result in unpleasant thoughts and feelings about their bodies that eventually develop Obsessive-Compulsive Disorder (OCD) in their bodies (Damirchi et al.,2019). In another study it was found that Body image concerns often arise during and after treatment and are a major concern in up to 67% of breast cancer survivors. Negative changes in body image are a predictor of worse satisfaction with appearance and poor quality of life outcomes. Opportunities to mitigate the negative impact of cancer treatment on a patient's body image present during preoperative education or in the neoadjuvant setting, or during surgical management, adjuvant therapy delivery, and survivorship. The surgical management of breast cancer has evolved from breast amputations to procedures that provide improved cosmesis without compromising the oncologic outcome (Fiser et al., 2021). In a comparative study it was revealed that Breast cancer patients were having high body image concerns as compared to healthy women. On Quality Of Life (QOL) assessment, scores of body image and future perspective were comparatively low-low level of functioning and scores were high for breast symptoms and hair loss-high level of symptomatology. More patients had significant anxiety and depressive symptoms. Breast cancer patients were having high body image concern and poor QOL as compared to age-matched healthy women, associated with significant depression and anxiety (Savani et al.,2023)

Comparative studies have found Body image changes personality domains, aspects of patients' personal health including physical, mental, and familial health as stressful treatments such as mastectomy cause high levels of stress, anxiety, and depression among the patients. Kash et al., Fallbjork et al., and Isern and Tengrup obtained similar results. Spearman correlation coefficient showed a significant direct linear association between body esteem and mental health, which is consistent with the findings of Fallbjork et al. and Kim et al. For most of the women, mastectomy leads to missing a part of the body, which seems necessary for the preservation of womanhood, attraction, and self-confidence. Due to the important role of breasts in women, their reaction to mastectomy may be in the form of fear, hopelessness, depression, and a negative attitude about their body. As breasts are considered as important parts of imagining a women's body, any abnormality in breast and the related treatments can lead to negative body esteem in women, as a surgery makes them feel that they have missed everything. As everybody likes a perfect body, mastectomy influences patients' physical attraction and appearance and can affect their emotional stability (Heidari et al., 2015).

Another study revealed that Mastectomy is a major impact factor on the BI of women with breast cancer, both in short and long term. Indeed, when compared with other forms of surgical treatment (such as breast-conserving surgery), radical breast removal revealed worse levels of satisfaction with Body Image (BI). These results reinforce the findings of other reviews, which also argue that mastectomy has a greater impact on BI than other surgical modalities. According to Aureliano, the breast has a strong symbolic meaning, for being part of the social conception of womanhood. Hence, mastectomy represents a fragmentation of the female body, in which the symbol of women's femininity and sexuality becomes disposable. In this regard, even after cure, the breast removal leaves a permanent mark on the perception of their own body. Furthermore, breast reconstruction proved to be an important way of restoring a complete BI in some articles. This can be justified by the fact that this surgery seeks to rebuild the breasts' symbolic representation, offering women a BI closer to what is socially established as "normal" and feminine. This result is consistent with the findings of the review performed by Santos and Vieira, that understood reconstruction as a valuable tool for improving BI. Given the symbolic importance of breast, as well as the potential positive effects of reconstruction, yet another result of this review can be explained: the low levels of BI disorders among patients who underwent nipple-sparing mastectomy with immediate breast reconstruction. After all, the nipple is extremely important for the full function and recognition of the breast and its preservation can reduce the feeling of mutilation, thus allowing a result closer to the original breast after reconstruction (Martins et al., 2021).

Alexithymia in Breast Cancer Patients

Studies have found the prevalence of alexithymia in cancer patients has been reported to be about 8-fold greater than in the general population of Italy. There are numerous factors influencing the development of alexithymia. Recently many neuroimaging studies demonstrated dysfunction of the right hemisphere and dysregulation of the prefrontal cortex and regions of the anterior areas during the evaluation of emotional stimuli. The studies we investigated in this review report two findings: a) support the role of the alexithymia in the development of anxiety symptoms among family members correlated with high degree of depression; b) demonstrate the relative stability of alexithymia the day before surgery and after 6 months even if the construct were closely associated with the severity and improvement of cancer-related pain. Limitations of the studies investigated in this systematic review must be considered in further investigations. Pain perception was found to be closely related to alexithymia, maladaptative coping and negative affect. Tulipani et al. demonstrated that cancer patients who did not receive psychological treatment, both pain and alexithymia scores were higher than patients who received psychological intervention. Porcelli et al. reported that psychological intervention in cancer patients didn't alter the relative stability of alexithymia, but altered the absolute stability of the construct. This study confirmed the relative stability of alexithymia and that the lack of absolute stability of the construct was influenced by psychological intervention in cancer patients (Berardis et al., 2016).

Another study found that the highest level of alexithymia was reported in patients, followed by their siblings. Healthy controls reported the lowest level of alexithymia. Difficulty in describing feeling scores has shown significant negative correlation with age and marital status among women with breast cancer. Women 51 years and above and married women have lower scores than those below 50 years aged women and those who are single, in a live-in relationship, widowed or divorced. No such significant correlation was observed among siblings and control group. The intensity of cancer was a significant predictor of the alexithymia score. Patients with T4 stage disease reported the highest levels of alexithymia. No significant differences were found among patients with lower staging (Han et al., 2018).

On an analytical study, it was revealed that Psychiatric disorders, especially depression, are significant problems in cancer patients, even with early stage Breast Cancer. There is a relationship between depressive symptoms, low perceived social support, and alexithymia in early-stage Breast Cancer patients. Also, alexithymia may have a role in depression pathogenesis in early-stage Breast Cancer patients. New studies are needed to evaluate the relationship between depression, alexithymia, and perceived social support in various cancer patient groups. Also, there is a need for intervention studies on this relationship and studies to evaluate the relationship in terms of causality (Eraslan et al., 2022).

In a study , High anxiety levels were significantly associated to high TAS-20 total score and to communication and affective responsiveness subscales of the Family Assessment Device (FAD). Depression levels were associated with much more variables: high TAS-20 total score, high scores on the communication, affective responsiveness, behavior control, and general functioning subscale scores of the FAD, and the presence of pain. Multiple regression analysis reported that only high TAS-20 total score and only high score on the affective responsiveness subscale of the FAD were correlated respectively with high degree of anxiety and high depression levels. In other words, alexithymia were important for the development of anxiety symptoms and perceptions of inappropriate affective responsiveness among family members correlated with high degree of depression (Marini et al., 2016)

Self-Concept Alterations in Breast Cancer Patients

A breast cancer diagnosis and its subsequent treatments profoundly alter a woman's self-concept, specifically impacting her body image, self-esteem, self-role, and self-identity. The core understanding here is that breasts are often deeply intertwined with a woman's identity, femininity, and sense of self. The physical loss or alteration of a breast due to cancer or its treatment (e.g., mastectomy, lumpectomy) therefore represents a profound symbolic loss that affects multiple facets of her self-concept: physical self-image, self-esteem, and social/sexual roles. This "loss of femininity" can manifest as sexual anxiety, fear of sex , and a diminished sense of desirability. This deeper understanding highlights why body image concerns are so central and why interventions must acknowledge and address this profound identity shift, rather than focusing solely on physical recovery (King at al., 2022).

A recent study found that Self-concept is a psychosocial problem related to individual health, self-esteem, self-identity, and body image. Breast cancer patients undergoing mastectomy report psychosocial and sexual problems. Patients who are genetic carriers of cancer state that there are changes in their self-perception, in this case, about body image, self-esteem, and self-identity. Multidimensional self-concept is currently still very limited and has not been addressed adequately. Cancer patients report low self-esteem due to gender dynamics; breast cancer and its treatment are associated with symptoms that impact physical, social, and mental, especially self-esteem, which is influenced by body changes and short to long-term cognitive function (Richard et al., 2019). Self-esteem, perception, and self-image are important factors in health recovery. Body image and identity issues are interconnected with long-term declines in self-esteem, along with reactions of breast tissue and skin after radiation. Body image is a problem that occurs as a negative mental perception of an individual's body regarding its appearance and physical function. This is a major problem for women who focus on femininity. Side effects include forced menopause in young mothers, some of whom have to terminate pregnancies and are infertile, thus disrupting their capacity as mothers/wives. These things influence them in that their self-identity, self-role, and self-ideal are not following their supposed capacities. Dissatisfaction with oneself will have an impact on difficulties in building relationships in breast cancer patients because they are afraid of rejection from their partner. The problem of self-concept components is related to one component with other components. For example, in breast cancer patients who undergo a mastectomy, their role as a breastfeeding mother has a major impact on their role representation and identity (Merlin et al., 2025).

A study by Pintado et al., 2017, is a new contribution to understand how emotional well-being on breast cancer patients is damaged. Normally, results of investigations have demonstrated a direct relationship between body image and well-being; but the present investigation shows that there are variables mediating this connection, as some current authors (Miller et al., 2014; Przezdziecki et al., 2013; Ridolfi & Crowther, 2013). In addition, results showed that women who received a radical mastectomy had higher levels of depression, in accordance with the previous studies analyzed (Al-Ghazal et al., 2000 Avis et al., 2004; Skrzypulec et al., 2007; Yurek et al., 2000). However, we found similar levels of anxiety in both groups, as the work of other authors indicates (Ganz et al., 2002; Schover et al., 1995; Wong-Kim & Bloom, 2005). But, the main contribution of this study is that, until the type of surgery and depression are related to, this relationship has an indirect effect. That is, the type of surgery affects the body image; and the alterations of body image affect the self-esteem and the self-efficacy. And all these alterations contribute a poor emotional well-being and to increase symptoms of anxiety and depression. Concluding, emotional well-being on breast cancer patients is related to the alterations in the self-concept. However, not at all variables involved on self-concept have a direct relationship with the emotional-wellbeing. The present study contributes to our understanding of how body image affects the emotional well-being by intermediary variables of self-concept, as self-esteem and self-efficacy.

Scientific literature highlights the relationship between Body Image (BI) and Breast Cancer (BC): its chronic nature, its epidemiological relevance, and the substantial psychological and social connotations it has for women because of the importance of breasts for them . Part of this importance lies in the association between women's breasts and the idea of femininity dictated by social and cultural systems, which stress the ideal of beauty for women (i.e., health, youth, and symmetry) . For most women, breasts are one of the elements that define them as such, and the loss of these would mean the forfeiture of their femininity. Moreover, the women's breast is related to the sphere of sexuality, physical attractiveness, motherhood, and breastfeeding. Therefore, for many women who suffer from this disease, this fact may mean that they give up their desire to be a mother . It has also been scientifically proven that the type of surgical intervention used constitutes a relevant factor for the Body Image of women affected by this disease. When the treatment implies a surgical process, the situation becomes harder, since the woman must face a significant loss of her body . In this regard, Breast Cancer survivor women who have had a mastectomy can show emotional instability, diminished physical attractiveness perception, reduction in self-esteem, and partner relationship disturbances . A greater dissatisfaction was also found with Body Image in women preparing for late reconstruction than those with immediate reconstruction . Both patients who had a mastectomy, and patients who had breast reconstruction or implants, reported lower satisfaction with their breasts, BI, and sexual functioning than those who had undergone breast conservation therapy or autologous reconstruction of the breasts . In addition to these impacts, and the consequence of them, these women must also start a completely different life adapting to other routines and activities. Therefore, it is necessary to promote intended actions to achieve an adequate adaptation to the changes that they will experience . In this respect, it is essential to work on the self-esteem and BI of patients due to the negative impact of Breast Cancer on Body Image and female self-esteem, as well as due to its importance in the process of the illness . Among Breast Cancer women, the most common psychological symptoms in the adaptation to the disease include distorted BI, and diminished self-esteem. In this respect, it is essential to work on these two aspects due to the negative impact of Breast Cancer on Body Image and female self-esteem, as well as due to its importance in the process of the illness (Sanchez et al., 2021).

In a study with Iranian Women with Breast Cancer , going through Radical Mastectomy,it was revealed that Negative dimensions, particularly sexual anxiety and fear of sex, were higher in BC survivors versus women without BC, whereas positive dimensions were higher in healthy women. In line with the present study, Pintado indicated that depression had a positive and high correlation with anxiety, a negative and high correlation with self-esteem, a positive and moderate correlation with body image, and a negative and high correlation with self-efficacy. Similarly, they showed a significant relationship between emotional well-being and the components of self-concept and the type of surgery; radical mastectomy was related to increased depression (Esmkhani et al., 2024).

Sexual Desire and Dysfunction in Breast Cancer Patients

Sexual desire is an emotional state that can be activated by inner or outside signals and lead to sexual behavior (Vowels et al., 2021). It is obvious that quality fulfilling this urge has an essential role in preserving one's and society's health and achieving peace and comfort (Pettigrew et al., 2021). Sexual desire is the motivation to have sex and an indicator of sexual health (TorresObregon et al., 2019).

A research study by University of British Columbia found that different types of cancer treatment can be responsible for the range of sexual health issues that women face.For example, tamoxifen, which acts to antagonize (or block) estrogen at its receptor, can have an impact on sexual function. Side effects of chemotherapy include nausea, hair loss and fatigue, which can alter a person's sense of sexual attractiveness. Chemotherapy can cause premature menopause, and also vaginal dryness and bleeding, which makes intercourse painful. Painful experiences during sex can trigger fear and avoidance of sex. Some also talk about not feeling like themselves in many areas of their lives.Sexual difficulties are prevalent and can be deeply distressing for breast cancer patients and survivors. Over half of breast cancer survivors experience ongoing difficulties with sexual desire, sexual arousal, sexual distress or genital pain following treatment. Some studies even report that up to 86% of survivors face difficulties in this area. Sexual difficulties can begin during breast cancer treatment and can persist long into survivorship.

For women diagnosed with cancer, sexual dysfunction is associated with higher symptom burden, anxiety, and depression. However, most women are left in the dark without any guidance from their oncology teams regarding potential side effects and treatment options. As a result, sexual dysfunction often goes untreated, impacting quality of life, mental and physical health, and relationships. Sexual dysfunction in women after cancer treatment has been well documented. Persistent sexual concerns, as a result of oncologic treatment and psychological distress, have been reported in up to 90% of women with gynecological cancer, up to 75% of women diagnosed with breast cancer, and 77% of women with lung cancer.Certain cancer treatments can result in specific sexual health toxicities. For example, 29%-49% of female stem cell transplant recipients may experience gynecological graft versus host disease symptoms, such as vaginal dryness, dyspareunia, vulvovaginal scarring, and vaginal stenosis. Multiple professional medical organizations have recognized the importance of sexuality and wellness after cancer diagnosis and have issued guidelines or consensus statements regarding the assessment and treatment of sexual dysfunction in patients with cancer. These guidelines recommend regular assessments and treatments of sexuality throughout cancer diagnosis, treatment, and follow-up. The genitourinary syndrome of menopause (GSM) includes vaginal and vulvar dryness, decreased lubrication, vaginal narrowing or shortening, and urinary symptoms. GSM is common in patients who are affected by cancer and is caused by cancer treatments and menopause. Non-hormonal moisturizers, lubricants, and low-dose local vaginal hormones are used to treat GSM. Dyspareunia Pain with penetration or dyspareunia has been reported in patients with breast cancer, gynecologic cancers, lung cancer, and colorectal cancer. Dyspareunia can be caused by vaginal stenosis or narrowing, insertional dyspareunia, or pelvic floor dysfunction. Vaginal dilators help treat vaginal stenosis and should be recommended after pelvic radiation to reduce the risk of vaginal stenosis. Pelvic floor dysfunction frequently contributes to dyspareunia and can be treated with pelvic floor physical therapy and, in some cases surgery (Kaufman et al., 2024).

The impact of cancer on sexuality has been examined for many years (Andersen, 1985), with evidence showing significant sexual morbidity rates in a large number of cancer patients (Andersen, 1990). Symptoms in the patient ' s sexual sphere are in fact common after treatment and can alter sexual life in long-term survivors and disease-free individuals. Several types and sites of cancer (e.g. breast, cervix, ovary, prostate and testicles), and several types of intervention (e.g. surgery, hormone therapy, radiotherapy and chemotherapy) may have signifi cant repercussions on gender identity and sexuality for all the possible implications affecting not only the bodily functions (e.g. infertility and impotence in men; loss of menstrual cycle, reduced vaginal lubrication in women) but obviously the psychological and interpersonal dimensions (Desimone et al., 2012; Gilbert et al., 2010; Morreale, 2011; Traa et al., 2012). Data regarding the relationship between psychological factors and sexual morbidity have been collected, with studies showing the association of adjustment disorders, poor coping and depression with sexual morbidity (Abbott-Anderson &Kwekkeboom, 2012; Levin et al., 2010). Data are also available in the context of adolescent and young adult patients with cancer and survivors, given the impact of the disease and treatment on identity development, including sexual identity, body image, which may influence intimate and emotional relationships (Zebrack &Isaacson, 2012). Sexual impairment in cancer patients has been indicated as a factor that can impair patients ’ adaptation to illness and their general satisfaction (Klaeson et al., 2012).

Somatic Preoccupation and its Links to Other Constructs

The process of somatization, or somatic preoccupation, presents a significant challenge in cancer care, often being overlooked due to the inherent difficulty in distinguishing between psychological and biologically determined symptoms. This oversight is critical, as somatic preoccupation has been shown to negatively impact patients' coping mechanisms and overall quality of life.

A study by Grassi et al, 2013 shows that the presence of pain, fatigue, sexual symptoms and somatosensory and multiple somatic symptoms have been indicated among the criteria that should be met for the diagnosis of somatization disorder in DSM-IV. The same series symptoms should be taken into account in the experience of cancer and the evaluation of a possible relationship between these symptoms and somatization and/or abnormal illness behaviour in cancer patients is extremely important and challenging (Chaturvedi &Maguire, 1998; Chaturvedi et al., 2006). Other somatic symptoms presented by cancer patients are anorexia, weight loss and weakness, a reduction of energy, breathlessness, dizziness, lethargy and tremors. A study evidenced that about 40% of cancer patients referred for a psychiatric evaluation reported somatic concerns and preoccupation (Chaturvedi et al., 1993). Each of these symptoms in disease-free patients may be a consequence of depression, anxiety or a pre-existing psychiatric disorder, whilst in active cancer they may overlap to and complicate the organic symptomatology. Furthermore, somatization is closely associated with depression, anxiety, and hostility in cancer patients. It is also linked to abnormal illness behavior, which is characterized by hypochondriacal tendencies, a strong conviction of disease despite medical reassurance, and resistance to medical opinions. The existing literature indicates a need for more research to fully understand the association of somatization with specific personality traits, such as alexithymia, and attachment styles.

Bodily Compulsion/Body Image and its Interplay with Self-Concept and Sexual Desire

The physical changes resulting from breast cancer treatment, particularly invasive surgery like mastectomy, can initiate a cascading effect on a woman's psychological and sexual well-being. Body image dissatisfaction, a direct consequence of these physical alterations, can lead to an increase in dysmorphic and obsessive-compulsive types of behaviors and thoughts, causing significant embarrassment, mental conflict, and rumination. Studies show that pre-surgery body avoidance and increased weight phobia are significantly associated with higher levels of post-intervention psychological symptoms, including somatization, depression, anxiety, and hostility.

A study shows that a considerable number of women reported experiencing body image disturbance related to their breast cancer diagnosis and treatment, consistent with other studies reporting sustained body image difficulties at 12 months post-diagnosis and beyond. Moreover, not surprisingly, greater body image disturbance was evident in women reporting lower comfort with weight and greater pressure from others regarding current weight. As hypothesised, body image disturbance was associated with increased psychological distress in breast cancer survivors, consistent with findings from other studies of cancer and breast cancer survivors , highlighting the importance of body image to overall psychological well-being. These ongoing difficulties with body image in breast cancer survivors suggest that the needs of these women are not always being adequately addressed (Przezdziecki et al., 2012).

Alexithymia's Role in Emotional Processing and Somatic Symptoms

A study revealed the finding of significantly higher levels of generalized dysphoria, as well as somatic complaints, in the alexithymic patients is consistent with the moderately high correlations that are generally found between anxiety, depression, and somatic symptoms in both normals and various patient groups. The close association between these variables raises the possibility, however, that alexithymia is merely a state phenomenon secondary to anxiety and/or depression. As originally described by Nemiah and Sifneos and Nemiah et al. , Alexithymic individuals often display evidence of emotion and may spontaneously use words such as 'sad', 'angry' and 'frightened'; however, they are unable to elaborate further on their feelings and, in most instances, are unable to link them with accompanying somatic sensations or with memories, fantasies, or specific situations. These limitations have been attributed to psychological deficits, rather than to defenses, and are thought to reduce an alexithymic individual's capacity to cope with stressful experiences. This viewpoint is supported by the finding of lower scores on the Ego Strength Scale for our alexithymic patients, and by non-significant differences between the alexithymic and non-alexithymic patients on the MMPI Repression and Hysteria Scales which are considered to reflect denial and repression.The higher scores on the MMPI Psychopathic Deviate and Dependency Scales for the alexithymic patients are consistent with reports that alexithymic individuals attempt to cope with undifferentiated states of unpleasant emotional arousal through impulsive and acting out behaviors, and/or through substance abuse and an excessive dependency on other people. The finding in the present study that the alexithymic psychiatric out-patients were less educated and of lower socioeconomic status than the non-alexithymic patients is consistent with reports that patients from lower socioeconomic classes tend to express emotional distress and discomfort in bodily terms (Taylor et al., 1992).

Alexithymia has been reported to be strongly associated with various somatic conditions, including breast cancer. It has been proposed that alexithymia contributes to the development of somatic diseases through a failure to regulate negative emotions. Patients are poorly able to link their feelings with accompanying body sensations, motor activity, or fantasies. Thus, the somatic sensation associated with emotional arousal might then be amplified and misinterpreted as symptoms of disease. In line with this hypothesis, alexithymia has been shown to be correlated with high baseline levels of sympathetic activity. However, alexithymia is distinct from emotional dysregulation, in which subjects fail to monitor and control their emotions in a socially tolerable manner. However, it has been found that subjects with alexithymia experience and report more physical symptoms, but might not necessarily have more somatic disease. Alexithymia has been associated with somatosensory amplification, and lower tolerance to painful stimuli (Baudic et al., 2016).

Study by Sebri et al. (2024) states that Oncological treatments (e.g., chemotherapy, radiotherapy, immunotherapy) can damage the body due to the presence of scars, hair loss, and breast(s) removal, for example (Fioretti et al., 2017). Therefore, patients generally report high levels of distress, anxiety, depression, physical symptoms of pain, fatigue and sleep–wake rhythm dysfunction, even several years after finishing treatments (Abrahams et al., 2018). Concerning emotional issues, it is mandatory to address the bodily self, defined as an expression of implicit knowledge about physical actions and movements (Sebri et al., 2021). Addressing bodily self is particularly relevant for breast cancer survivors, who concern changes in body image perception due to altered weight, possible hair loss, and the sudden onset of menopausal symptoms (Pintado and Andrade, 2017; Sebri et al., 2022). Additionally, body perception and body image are strictly tied to social and intimate relationships. Following the Discrepancy Theory by Higgins (1987), when there is a significant gap between one's current and the desired body, it can lead to feelings of dissatisfaction and emotional distress. This discrepancy can severely impact women's sense of femininity and sexuality (Male et al., 2016). Moreover, one's own body after diagnosis and oncological treatments can be experienced as ill and damaged, even perceiving them as a source of danger for the fear of cancer recurrence. This can increase the risk of being labeled as "patients" rather than "persons," reinforcing this type of self-definition and representation (McGannon et al., 2016).

The Impact of Self-Concept on Sexual Desire and Overall Well-being

A Study highlights differences in sexual behavior between breast cancer and non-breast cancer patients. Breast cancer status impacts behaviors such as recent sexual partnerships but does not significantly affect lifetime partners or STI prevalence. The potential impact of surgical interventions on sexual health was noted. These findings emphasize the need to explore causal pathways linking sexual behavior, comorbidities, and breast cancer to better understand the impact on sexual function and quality of life (Noboa et al., 2025).

Another study by Kennedy et al., 2024, reveals that Breast Cancer (BC) survivors encounter significantly more sexual health problems and concerns when compared to women who had never received a BC diagnosis . Further, BC survivors, when compared to non-cancer-affected women, are more likely to meet the criteria for a hypo-active sexual desire disorder . Sexual health after BC has emerged as a crucial dimension of survivorship. The prevalence of BC and the increased risk of sexual dysfunction among survivors, demonstrated a need for increased provision of sexual health care counseling and treatment to these patients. The findings of these studies were consistent and demonstrated an inverse relationship between sexual activity and physical symptoms such as vaginal dryness, which is a common sign of vaginal atrophy. However, this was likely a bidirectional association. Other research has demonstrated the influence of menopausal status and age on the severity of symptoms experienced by BC survivors. For example, results from the study by Avis et al. [2018] study found that older age presented as a significant ($P<0.001$) predictor of inactivity . Furthermore, patients who were premenopausal at diagnosis had significantly lower sexual functioning and greater discomfort than similar-aged controls . Additionally, worse bladder symptom scale scores were reported in pre-menopausal BC survivors than in pre-menopausal controls. BC survivors may experience psychological symptoms from their diagnosis and treatment which has a reciprocal relationship with their sexual health. Avis et al. [2018] found that depressive symptoms were significantly associated with inactivity ($P<0.0001$) . Additionally, Vegunta et al. [2022] presented parallel findings that depressive symptoms were highest in survivors that struggled with sexual arousal. In a survey conducted by Ganz et al. [1999], better mental health scores were associated with greater sexual interest . Findings from a focus group study by Halley et al. [2014] also highlighted the psychological toll of breast loss and alteration . For example, one patient discussed the psychological concerns related to her awareness of losing her breast and her perceived loss of sexual desire following treatment . However, the relationship between sexual activity and the quality of mental health seems to be reciprocal. A survey conducted by Huynh et al. [2022] found that over 50% of patients reported that they struggled with body image and 75% stated that sexual health symptoms affected their mental health.A multivariate analysis conducted by Oberguggenberger et al. [2017] found that depression may worsen these symptoms and found that lower depression scores were a predictor of higher partnership satisfaction . Similarly, Marsh et al. [2020] identified higher age, increased depressive symptoms, and lower partnership satisfaction as risk factors for poorer sexual health. Additionally, BC survivors who experienced dissatisfaction with sexual function due to psychological distress surrounding body image, reduced sexual desire, and anxiety caused by disclosure of cancer diagnosis when dating.

Tat et al. [2018] conducted a qualitative study of 135 BC survivors and identified three main themes that were barriers to sexual function after BC treatment. The themes identified were that BC survivors had to

(I) adapt to the physical and emotional traumas of BC surgery and treatment; (II) navigate complicated sexual communications with potential and existing partners; and (III) negotiate intimacy and closeness without sexual intercourse with existing partners . Dissatisfaction with physical appearance after surgery may relate to the type of surgery the patient underwent. For example, Dahlbäck et al. found that patients who had more than 20% of their breast volume removed reported less satisfaction with breast appearance including breast shape and postoperative scarring . Similarly, a quantitative study by Gass et al. [2017] which investigated the effects of surgical treatments for BC on sexual function using the FSFI and found that only 59.1% of women who received a mastectomy without reconstruction reported satisfaction with their appearance. They identified that physical symptoms associated with sudden induced menopause such as hot flashes and vaginal atrophy led to increased pain during intercourse and suggested this may stem from chemotherapy and endocrine therapy.

Furthermore, the results of a study conducted by Gorman et al. [2021] found that physical changes impacted body image and femininity. This was also demonstrated in a mixed methods study conducted by Canzona et al. [2019] which suggested this may be due to weight changes caused by treatment. The effect of chemotherapy on sexual health was also demonstrated in a cohort study by Soldera et al. [2018] which found that these patients reported worse scores for vaginal dryness and difficulty with bladder control when laughing or crying.

The comprehensive review of literature unequivocally demonstrates that breast cancer patients experience a significantly elevated psychological and sexual burden compared to healthy controls. This burden is characterized by a higher prevalence of somatic preoccupation, issues related to bodily compulsion (particularly body image concerns and Body Dysmorphic Disorder), alexithymia, and substantial alterations in self-concept and sexual desire.

A central theme emerging from the analysis is the profound impact of breast cancer and its treatments on a woman's self-concept, especially her body image and self-esteem. These aspects are intricately linked to her sense of identity and femininity, making their disruption particularly distressing. The physical changes resulting from treatment, such as mastectomy, serve as a primary trigger for body image dissatisfaction, which then initiates a complex chain of psychological and sexual challenges. This negative body image can lead to dysmorphic and obsessive-compulsive thoughts and behaviors, erode self-esteem, contribute to depression, and directly impair sexual desire and function.

Alexithymia, characterized by difficulties in emotional processing, acts as a significant vulnerability factor. Its higher prevalence in breast cancer patients, particularly with advanced disease, suggests it can be exacerbated by the cancer experience itself. This emotional dysregulation can amplify physical symptoms, such as persistent pain, and hinder effective coping mechanisms, further compounding distress. Furthermore, somatic preoccupation, particularly in the form of Somatic Symptom Disorder, plays a crucial mediating role. It is not merely a co-occurring symptom but a significant factor that translates general psychological distress (e.g., anxiety, depression, fear of recurrence) into a tangible reduction in quality of life. The tendency of breast cancer patients to attribute somatic symptoms to their disease, while potentially reducing health anxiety, can also lead to the psychological component of their preoccupation being overlooked.

The relationships among these constructs are largely reciprocal, creating a challenging cycle for patients. Physical changes from treatment lead to psychological distress, which in turn can amplify physical symptoms and further impair quality of life and sexual function. For instance, sexual difficulties, often a direct consequence of treatment, can further erode self-concept and contribute to psychological distress, creating a self-perpetuating cycle of suffering. The interconnectedness of these issues highlights that a patient's experience is holistic; distress in one domain can readily trigger or exacerbate problems in others. This chapter illustrates the Statement of the problem, the objectives, the hypotheses, selection of variables and their operational definitions, the design of the study, sample and tools used, procedure and finally the data analysis

Statement of the Problem

To determine whether there is a significant difference in somatic preoccupations, bodily compulsions, self-concept, perceived sexual interest and desire, alexithymia among breast cancer survivors , cervical cancer survivors in comparison to healthy controls.

Objectives of the Study and Associated Hypotheses:

Objective 1:

To determine whether there is a significant difference among breast cancer survivors and healthy controls with respect to perceived sexual desire/interest, self concept, bodily compulsions, somatic preoccupations and alexithymia.

Hypotheses:

H1- There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of perceived sexual desire.

H2- There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of self concept.

H3- There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of bodily compulsions.

H4- There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of somatic preoccupations.

H5- There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of alexithymia.

Objective 2

To determine whether there exists a correlation among perceived sexual desire/interest, self concept, bodily compulsions, somatic preoccupations and alexithymia within each of the 2 groups (breast cancer survivors, healthy controls).

Hypotheses:

H6- There exists a significant correlation among perceived sexual desire/interest, self concept, bodily compulsions, somatic preoccupations and alexithymia among breast cancer survivors.

H7- There exists a significant correlation among perceived sexual desire/interest, self concept, bodily compulsions, somatic preoccupations and alexithymia among healthy controls.

Design of the study

Selection of Variables:-

A variable is a quality or a quantity that differs across individuals or situations, for instance, height, weight, age. A quantitative variable is one which is quantifiable, like height or weight. It is one which can be measured by designating a number to an individual. Whereas, a categorical variable is one which is measured by assigning a label to each individual, like a person’s nationality. Variables can also be classified as independent variables and dependent variables. An independent variable is one which the researcher actively manipulates, controls or chooses, it is thought to have a direct effect on the dependent variable. The dependent variable is one which is observed by the researcher during an experiment and is thought to be 'dependent' on the independent variable. Thus, a change in the independent variable is thought to bring about a change in the dependent variable. In reference to the present study, the independent and dependent variables and their operational definitions are discussed ahead.

Independent Variables:
Cancer Survivors: A cancer survivor is as any individual who has been diagnosed with cancer, from the time of diagnosis through the remainder of their life. The concept encompasses not only those who are free of disease following treatment but also those who continue to live with cancer, manage chronic symptoms, or are in remission. Survivorship includes the physical, psychological, social, and emotional aspects of living with and beyond cancer. Cancer survivors are defined as individuals who have completed primary treatment for cancer (such as surgery, chemotherapy, or radiation therapy) and are currently in the post-treatment phase, regardless of whether they are in full remission or under long-term monitoring. The present study focuses on 1 category of cancer survivors : breast cancer survivors and healthy controls. Breast cancer survivors are individuals who have been diagnosed with breast cancer and have completed treatment, or are living with the disease, and are working towards their "new normal". Survivorship encompasses the period from diagnosis through the end of life, including the challenges and adjustments faced after treatment.
Dependent Variables:
Somatic Preoccupation: Somatic preoccupations refer to an individual's excessive focus, concern, or worry about physical symptoms or bodily sensations that may not have a clear medical explanation. In the context of this study, somatic preoccupations are defined as frequent and intense thoughts, feelings, or fears about one's health or body that interfere with daily functioning or emotional well-being. These may include persistent concerns about pain, fatigue, digestive issues, or other bodily discomforts, even after medical reassurance.
The Patient Health Questionnaire-15: Physical Symptoms (PHQ-15)scale was developed by Kroenka et.al in 2002 and is used in the current study to assess somatic preoccupation.
Perceived sexual desire: Perceived sexual desire is defined as the self-reported level of interest in sexual activity, as experienced and interpreted by the individual themselves. It includes how often they feel sexually inclined, how strong those feelings are, and how satisfied they feel with their sexual interest. This perception may be influenced by emotional well-being, body image, relationship dynamics, hormonal changes, and past experiences.
The Sexual Desire Inventory (SDI) was developed by Spector et al. in 1996 and is used in the current study to assess perceived sexual desire.
Self concept: Self-concept is the way a person sees, understands, and values themselves. It includes how individuals perceive their strengths, weaknesses, roles, and identity in the world. In this study, self-concept is defined as an individual's self-perception across physical, emotional, and social dimensions, as reflected in their thoughts, feelings, and behaviors about who they are.
The Robson Self Concept Questionnaire (Robson SCQ) was developed by Robson, P.J. in 1989 and is used in the current study to assess self concept.
Bodily compulsions: Bodily compulsions can be the small, repetitive physical actions that show up in response to anxiety, fear of recurrence, or the lingering emotional toll of treatment. These might include checking the body for lumps, repeatedly feeling for pain, tapping areas of discomfort, or scanning for

symptoms. They're not just habits—they're ways of trying to regain a sense of control in a body that's been through so much. Even when you know these actions might not change the outcome, the urge can feel powerful, like a way to calm the storm inside. It's okay to feel this way—your mind and body are still healing.

The Yale Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (BDD-YBOCS) was developed by Katherine A. Phillips and colleagues in 199 and is used in the current study to assess bodily compulsions.

Alexithymia: Alexithymia is defined as a difficulty in identifying, describing, and expressing one's emotions. Participants exhibiting alexithymia may struggle to recognize what they're feeling or to put those feelings into words. This often leads to a tendency to focus more on physical sensations or external events rather than internal emotional experiences.

The Toronto Alexithymia Scale (TAS) was developed by Michael Bagby et al. in 1985 and is used in the current study to assess alexithymia.

Rationale for selection of independent variable:

The selected of independent variables, which is the category of cancer survivors (breast cancer and cervical cancer in comparison to healthy controls) is based on the assumption that the type of cancer influences other dependent variables like somatic preoccupations, self concept, alexithymia, bodily compulsions, perceived sexual desire . It is particularly relevant in the field of psycho oncology. Psycho-oncology is a specialized field that explores the psychological, social, and behavioral aspects of cancer. It focuses on the emotional, social, and practical challenges faced by cancer patients, their families, and caregivers throughout the cancer journey, from diagnosis to survivorship. Understanding the impact of type of cancer is crucial in psycho oncologist as it can shed some light on the unique stressors and challenges that are faced by the cancer survivors.

Rationale for selection of dependent variable:

The chosen dependent variables—somatic preoccupations, self-concept, bodily compulsions, alexithymia, and perceived sexual desire—are highly pertinent in psycho-oncology research, particularly in understanding the psychological landscape of individuals coping with cancer diagnoses and treatment trajectories.

Somatic Preoccupations:

Somatic preoccupations, defined as heightened attention and concern toward bodily sensations, are frequently observed among cancer patients due to the invasive nature of both the illness and its treatments (Brunet et al., 2013). Persistent monitoring of bodily symptoms can amplify distress, contributing to heightened health anxiety and functional impairment (Mehnert & Koch, 2007). Understanding somatic preoccupation patterns is critical in psycho-oncology, as it may inform interventions aimed at reducing maladaptive health behaviors and promoting psychological resilience during survivorship.

Self-Concept:

Self-concept, or the cognitive representation of one's identity and worth, often undergoes profound disruption following a cancer diagnosis (Helgeson & Tomich, 2005). Changes in physical appearance, perceived abilities, and social roles can challenge one's self-esteem and coherence of self. Assessing self-concept in cancer populations provides vital insight into how individuals reconstruct their sense of identity post-illness, which is essential for supporting emotional recovery and long-term adaptation (Mosher & Danoff-Burg, 2005).

Bodily Compulsions:

Bodily compulsions, such as repetitive checking or reassurance-seeking regarding bodily states, emerge as coping strategies to manage health-related fears (Salkovskis & Warwick, 2001). In cancer patients, these behaviors may become particularly salient as fears of recurrence or disease progression persist (Thewes et al., 2012). Exploring bodily compulsions can reveal underlying anxiety processes and inform therapeutic strategies aimed at fostering healthier body awareness and reducing distressing rituals.

Alexithymia:

Alexithymia, characterized by difficulties in identifying and expressing emotions, has been consistently linked to poor psychological outcomes in oncology settings (De Vries et al., 2012). Individuals with higher alexithymia levels may struggle to process the emotional toll of their diagnosis and treatment, leading to greater depression, anxiety, and poorer quality of life (Martino et al., 2019). Investigating alexithymia among cancer patients is essential to tailoring psychosocial interventions that enhance emotional expression and psychological flexibility.

Perceived Sexual Desire:

Perceived sexual desire often diminishes among cancer patients due to physical, psychological, and relational changes induced by the disease and its treatments (Bober & Varela, 2012). Loss of sexual functioning and desire can deeply affect self-esteem, intimate relationships, and overall well-being. Examining perceived sexual desire enables a more holistic understanding of survivorship challenges and guides the development of interventions aimed at preserving sexual health and relational intimacy in psycho-oncological care (Flynn et al., 2011).

By examining these dependent variables within the context of psycho-oncology, this research aims to deepen the understanding of how cancer and its psychosocial consequences impact critical dimensions of mental health and quality of life. These findings have the potential to inform the development of targeted, evidence-based psychological interventions designed to support the holistic recovery of individuals living with and beyond cancer.

Selection of control variables:

Control variables refer to all those variables that may have an effect on the dependent variable but are not of central interest pertaining to the present study , thus, researchers try to either control or eliminate their effects.

The control variables of the present study are -

- Age- 25-60 years
- Sex and Gender- Female
- Nationality- Indian
- Language of communication- English, Bengali
- No other psychiatric condition

Rationale for selection of control variables:

Considering the significance of age in influencing cognitive abilities, attitudes and preferences, the study specifically focussed on individuals between the age of 25 to 60 years. This age range allowed capturing of a diverse group of participants while controlling for potential age - related differences that could impact the results.

Furthermore, sex and gender is important because of the high probability of women being diagnosed with breast cancer and to study their perceived sexual desire after surviving the cancer. This decision was made solely to ensure that the observed effects are not due to any gender related discrepancies.

Moreover, the significance of nationality as a sociocultural variable in shaping individuals' experiences, beliefs, and values were acknowledged. To ensure homogeneity within the study, only Indian nationals were included. This allowed control for potential differences

In cultural backgrounds, societal norms, or legal framework that might influence the study's outcomes.

The impact of language on participants' cognitive processes, linguistic abilities and cultural context was determined. To address this, language differences were controlled by conducting the study in English and Bengali.

Lastly, to eliminate any possible effects that other psychiatric illness may have on the study's outcomes, participants were chosen accordingly.

By implementing these measures, attempts were made to enhance validity and reliability of the study, providing a more focused and accurate understanding of the effects of the independent variables of interest.

Sample information:

A sample is any number of individuals, organisms or objects selected to represent the entire group as a whole when doing research in order to make inferences about various aspects of the entire group. The rule, plan or technique used to draw a sample is known as sampling. The target population for this study consists of female breast cancer survivors. Additionally, female individuals who are healthy and not diagnosed with any major illness were also included in the sample to facilitate a comparative analysis among the groups.

A total of 92 individuals participated in the study. Out of which 50 were healthy controls and 42 were breast cancer survivors.

Sampling technique:

Purposive sampling and snowball sampling methods were primarily used to gather data.

Purposive sampling, sometimes referred to as a judgemental or selective sampling, is a non-probability sampling approach used in research to choose subjects or instances based on particular standards or traits.

Rationale: the researcher has some faith that the carefully chosen sample is a very accurate representation of the population under study.

Snowball sampling, (a non- probability sampling technique) often referred to as chain referral sampling, is used in research to find and attract individuals by way of recommendations from initial participants.

Purposive sampling was used to pick the initial participants. Following their participation, they were requested to suggest other participants who fit the study's eligibility requirements.

Rationale: It was challenging to reach the target audience who met the inclusive criteria; hence the snowballing strategy was adopted.

Collection of sample:

For the present comparative study, a total of 92 data were collected pertaining to inclusion criteria completely. 42 data of breast cancer survivors were collected from various hospitals, NGOs in Kolkata and referral sources of those participants. Most of the time, the people were individually approached to obtain the data. A methodical procedure was used to get the data. For the breast cancer survivor population, first clearance was obtained from Chittaranjan National Cancer Institute (CNCI). For the purpose of verification, a cover letter outlining the goals of the study and a copy of the instruments to be used were submitted to the hospital. Permission was given to conduct the study. Prior to the data collection, all the participants were informed about the purpose of the study by providing a cover letter describing the study in detail. Participants indicated their consent to be a part of the study by providing their signature . Participants were assured of complete anonymity. The data collected using standardised questionnaires were anonymous after the participants' written consent was received. While at the places , the researcher approached the breast cancer survivors who came for check ups who met the inclusion criteria. They were then encouraged to distribute the form to other acquainted survivors in the family or other friends, who met the inclusion criteria. Snowballing technique was used in this phase to reach out to other hospitals and NGOs across Kolkata. Permission was granted from Hitaishini NGO (CNCI and Saroj Gupta Cancer Research Institute), Belleview Nursing Home (Dr. Subhasish Sarkar).

List of Hospitals visited for data collection

1. Chittaranjan National Cancer Institute (Hazra, New Town)
2. Private Clinic
3. Saroj Gupta Cancer Research Institute (as a part of Hitaishini NGO)

For comparing the information and outcomes collected from Breast Cancer Survivors , it was also crucial to choose a healthy control group with demographically matched characteristics (age, gender). As a result 50 people were chosen as control group.

Inclusion and Exclusion Criteria

The inclusion and exclusion criteria for breast cancer survivors are as follows:

Inclusion criteria -

- Gender- female
- Age range- 25 to 60 years
- Education level- minimum higher secondary level of education
- Language of communication- English, Bengali
- Nationality - Indian
- Completion of breast cancer treatment (surgery, chemotherapy, hormone therapy etc.)
- Consenting to participate in the study.

Exclusion criteria-

- Participants with history of mental illness, suicide attempt and substance abuse are excluded from the study.
- Participants with a history of Psychiatric Illness in the family were also excluded.
- Participants furnishing incomplete information were also not included.
- Participants lacking corroborativeness in information provided across Questionnaire were not included.
- Participants lacking cooperativeness were not included.
- Non consenting individuals were not included.

The inclusion and exclusion criteria for **healthy participants** are as follows-

Inclusion criteria-

- Gender- female
- Age range- 25 to 60 years
- Education level- minimum higher secondary level of education
- Language of communication- English, Bengali
- Nationality - Indian

Exclusion criteria-

- Participants with history of mental illness, suicide attempt and substance abuse are excluded from the study.
- Participants with a history of Psychiatric Illness in the family were also excluded.
- Participants furnishing incomplete information were also not included.
- Participants lacking corroborativeness in information provided across Questionnaire were not included.
- Participants lacking cooperativeness were not included.
- Non consenting individuals were not included.

Tools used:

- Consent form
- Information schedule
- Toronto Alexithymia Scale (TAS-20)
- Robson's Self Concept Questionnaire (SCQ)
- Physical Health Questionnaire (PHQ-15)
- The Yale Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (BDD-YBOCS)
- Sexual Desire Inventory (SDI)

Description of Tools used:

Consent form-

The consent form mentioned in brief the topic of research and it ensured that all the respondents understood the nature of the studies that is being undertaken and only voluntary participation was encouraged. It also mentioned and assured the confidentiality and anonymity of the responses received in relation to the study so that the interest and right of each respondent can be safeguarded. It was also declared that none of the information received will be made public except the results obtained by pooling the data for academic purposes only and their was no financial gain associated with the research study.

Information Schedule-

The information schedule consisted of questions regarding personal and familial information highlighting demography characteristics. It comprises questions regarding age, gender,contact number, education, occupation, residential area, nationality, mother tongue, relationship/marital status, monthly family income, number of family members etc.

Toronto Alexithymia Scale (TAS-20)- Michael Bagby et al.,1994

The Toronto Alexithymia Scale (TAS-20) is a 20-item, self-administered questionnaire that measures difficulty in identifying and describing emotions, which is a big part of alexithymia. It was published in 1994, authored by Michael Bagby, James D. A. Parker, Graeme J. Taylor.

The TAS-20 is one of the most commonly used measures of alexithymia.[1] It measures the following three factors:

Factor	Description	Associated test items
Factor I	Difficulty identifying feelings	1, 3, 6, 7, 9, 13, 14
Factor II	Difficulty describing feelings	2, 4, 11, 12, 17

Factor III	Externally-oriented thinking	5, 8, 10, 15, 16, 18, 19, 20

The English version of TAS-20 has been translated into 30+ different languages,[2] and there are many papers on the validity of translated versions of the test.[3] Yet the test isn't readily available online. Here are the few translations we have been able to find (in PDF-form, so not auto-scored):

Language	Test
Dutch	TAS-20
French	Questionnaire TAS-20

- Scoring range: 20–100 (higher scores indicate greater impairment/challenges).
- Each item is scored on a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree).
- Five of the items are reverse-scored: 4, 5, 10, 18, and 19.

The total alexithymia score is the sum of responses to all 20 items, while the score for each subscale factor is the sum of the responses to that subscale.

Subscales

The TAS-20 has 3 subscales:

Factor	**Description**	**Associated test items**
Factor I	Difficulty identifying feelings	1, 3, 6, 7, 9, 13, 14
Factor II	Difficulty describing feelings	2, 4, 11, 12, 17
Factor III	Externally-oriented thinking	5, 8, 10, 15, 16, 18, 19, 20

Your highest average subtype score indicates what part of alexithymia you have the greatest challenge with.

Interpretation

The TAS-20 uses cutoff scoring:

Score	**Interpretation**
0–51	No alexithymia
52–60	Possible alexithymia
61–100	Alexithymia present

Validity

The 3-factor structure of the TAS-20 was found to be theoretically congruent with the alexithymia construct, and research using the TAS-20 demonstrates adequate levels of convergent and concurrent validity. The TAS-20 also demonstrates good internal consistency and test-retest reliability.[4]

Language	**Test**
Dutch	TAS-20
French	Questionnaire TAS-20

In addition, the TAS-20 has been found to be stable and replicable across clinical and non-clinical populations. However, there was a small but statistically significant difference between the mean TAS-20 scores for men (51.14) and women (48.99).[5]

Limitations

Some question whether self-report scales such as the TAS-20 can adequately assess alexithymia in individuals where alexithymia is high, as they may be unable to evaluate their awareness of emotional feelings accurately. This limitation was also acknowledged by the authors in 1997.

Based on the idea that a multimethod approach may be able to assess alexithymia more accurately, the authors of the TAS-20 also developed a structured interview method based on the TAS-20, called the Toronto Structured Interview for Alexithymia (TSIA).

Robson's Self Concept Questionnaire (SCQ)-

Developed by psychologist John M. Robson in 1989, the SCQ transcends a mere score by offering a nuanced lens into the various facets of self-esteem. Unlike unidimensional measures, it delves into seven key domains, each illuminating a distinct aspect of our self-imageThe Robson Self-Concept Questionnaire (Robson, 1989) is a self-report questionnaire designed to assess self-esteem. It consists of 30 items that measure different aspects of self-esteem, including significance, worthiness, appearance/social acceptability, competence, resilience, control over destiny, and the value of existence. Respondents indicate their level of agreement with each statement on a scale, and the scores are then tallied to determine a total score.

Scoring

Some items are scored as printed, others are reversed.

- The 14 'normal' items (Qu 1, 2, 3, 6, 9, 10, 12, 15, 16, 18, 24, 26, 29, 30) have a full stop after the question number (e.g. 2.) — scoring for these is taken straight off the scale as printed.
- The 16 'reversed' items (Qu 4, 5, 7, 8, 11, 13, 14, 17, 19, 20, 21, 22, 23, 25, 27, 28) have a colon after the question number (e.g. 4:) — scoring is *reversed* for these (i.e. 0 = 7, 1 = 6 etc).
- Add up the numbers obtained like this to get the total score.

Norms

Reference group	Mean total score	S.D.
From Robson (1989):		
70 controls with "...no evidence of psychological disorder..."	137.0	20.2
51 patients with DSM-III GAD	108.0	24.8

47 consecutive referrals to Psychotherapy Dept	99.8	24.0
From Robson (personal communication)		
200 controls	140.0	19.8
From Romans, Martin & Mullen (1996) [New Zealand sample]:		
225 women from random community sample (those who did *not* report CSA)	147.4	25.8
252 women from random community sample (those who *did* report CSA)	138.8	29.6

Pooling the Robson control samples gives an estimate for the 'normal' mean in British samples = 139.2 (SD=19.9); so to simplify a bit for routine clinical use we take it as mean = 140, SD = 20.

Physical Health Questionnaire (PHQ-15)

The Patient Health Questionnaire-15 (PHQ-15) is a 15-item scale used to assess the severity of somatic symptoms in patients. It's a self-administered questionnaire designed to be used in primary care settings. The PHQ-15 asks about 15 common physical symptoms, and each symptom is rated on a 3-point scale (0 = "not bothered at all" to 2 = "bothered a lot"). The sum of the scores across all 15 items provides a total score, ranging from 0 to 30, reflecting the overall somatic symptom burden. The Patient Health Questionnaire (PHQ) is a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders. The PHQ-15 comprises 15 somatic symptoms from the PHQ, each symptom scored from 0 ("not bothered at all") to 2 ("bothered a lot"). The PHQ-15 was administered to 6000 patients in eight general internal medicine and family practice clinics and seven obstetrics-gynecology clinics. Outcomes included functional status as assessed by the 20-item Short-Form General Health Survey (SF-20), self-reported sick days and clinic visits, and symptom-related difficulty. PHQ-15 scores of 5, 10, 15, represented cutoff points for low, medium, and high somatic symptom severity, respectively. Somatic and depressive symptom severity had differential effects on outcomes.

The Yale Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (BDD-YBOCS)

The Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (BDD-YBOCS; Phillips et al., 1997) is a 12-item, semi-structured, rater-administered measure that assesses BDD severity during the past week. It was adapted from the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), the most widely used measure of obsessive-compulsive disorder (OCD) severity (Goodman et al., 1989a,b), because BDD has many similarities to OCD (Phillips et al., 2010). The BDD-YBOCS has been the most widely used measure of BDD severity in research studies, including studies evaluating the efficacy of psychosocial (cognitive-behavioral) and pharmacologic treatments for BDD (e.g., Phillips & Najjar, 2003; Phillips, Albertini, & Rasmussen, 2002; Wilhelm, Otto, Lohr, & Deckersbach, 1999; Wilhelm, Phillips, Fama, Greenberg, & Steketee, 2011). A total score of ≥ 20 is the cut point used in most studies to determine the presence of BDD (e.g., Phillips, 2006), which is consistent with the widely used cut point of 16 on the Y-BOCS to determine the presence of OCD (taking into account the additional two items on the BDD-YBOCS). The *BDD-YBOCS* is a 12-item semi-structured, rater-administered scale that assesses BDD severity during the past week (Phillips et al., 1997). The first five items assess obsessional preoccupations about perceived appearance defects (*time preoccupied, interference in functioning* and *distress* due to perceived appearance defects, *resistance* against preoccupations, and *control* over preoccupations). Items 6–10 assess BDD-related repetitive behaviors (e.g., excessive grooming, mirror checking) and are similar to items 1–5 (*time spent* performing the behaviors, *interference in functioning* due to the behaviors, *distress* experienced if the behaviors are prevented, and *resistance* of and *control* over the behaviors). Item 11 assesses insight into appearance beliefs (e.g., "I am ugly"), and item 12 assesses avoidance (e.g., of work/school or social activities) because of BDD symptoms. Scores for each item range from 0 (no symptoms) to 4 (extreme symptoms); the total score ranges from 0 to 48, with higher scores reflecting more severe symptoms.

Sexual Desire Inventory (SDI)

The Sexual Desire Inventory- 2 (SDI-2) was created by Spector, Carey and Steinberg in order to develop a measure that quantified sexual desire in cognitive terms as opposed to previous measures that used predominantly behavioural methods in 1996. The SDI-2 is a brief 14-item scale, based on the original scale, that aims to measure the multidimensional construct of sexual desire in a dyadic context.

The items were selected using theoretical models of desire, and diagnostic criteria used in the DSM-III-R for Hypoactive Sexual Desire Disorder (HSDD), and clinical experience in assessing and treating sexual desire disorders. The items were presented initially to sexology researchers and clinicians. Since then it has been widely used to assess sexual desire in men and women throughout the world. This questionnaire has been studied and shows validity and reliability, yet even with its wide clinical use it has a limited number of studies with psychometric properties that would make it usable for screening, or diagnosis.

Rationale for selection of tools:

The consent form ensured participants have given their informed consent to voluntarily participate in the study there by upholding ethical standards, promoting transparency and protecting participant rights.

The information schedule was constructed on the basis of the various inclusion and exclusion criteria according to which individuals would be selected for the study.

The other questionnaires namely TAS-20, SDI, Robson's SCQ, PHQ-15, BDD-YBOCS were administered to gather quantitative data on specific psychological constructs and provide standardized measures to help understand and compare individuals' experiences, attitudes, behaviour and psychological well- being related to alexithymia, sexual desire, self concept, somatic preoccupations and bodily compulsions respectively. The data collected from these scales can be analysed statistically to draw conclusions and make meaningful interpretations regarding nature and levels of these psychological constructs in breast cancer survivors and healthy control participants.

Procedure : To accomplish the objectives of the present study the following steps were undertaken.The research problem was selected.Variables to be studied were selected and divided into IV and DV. Available literature on the dependent variables were explored. The sample size, inclusion and exclusion criteria were decided upon. The various questionnaires required were selected considering their reliability, validity and applicability in the Indian context. The research design and the major objectives and the hypotheses were formulated. The questionnaires were administered to the individuals selected as members of the sample. The order of presentation was as follows:

Every individual signed/ clicked on an informed consent form.

Then an information schedule was provided to find necessary details of the participants according to which they are either included or excluded from the study.

Next the TAS-20 (Toronto Alexithymia Scale -20) was used to measure alexithymia .

The SDI (Sexual Desire Inventory) was used to assess the perceived sexual desire of the participants.

The SCQ (Robson's Self Concept Questionnaire) was used to assess the perceived self concept of the individual participants.

Then PHQ-15 (Physical Health Questionnaire- 15) was used to assess the somatic preoccupations held by the participants.
Lastly, BDD-YBOCS (Yale-Brown Obsessive-Compulsive Scale Modified for Body Dysmorphic Disorder) was used to assess the bodily compulsions and related thoughts about it .
The questionnaires were provided in English and no time limit was given. It took 4 months to collect data . After the data collection was over, the data was scored using scoring key and standard protocol and was subjected to statistical analyses. The results were discussed and conclusions were drawn. The final findings were analysed to check if the formed hypotheses were verified. The applications and limitations of the study were pointed out.

Statistical Treatment :
The received raw data was statistically treated to generate quantitative values that would aid in the process of hypothesis verification.
The statistical analysis done with the help of SPSS (Statistical package for Social Sciences) developed by IBM Corporation included were:
Descriptive statistics- to describe the properties of the present sample. Computations include-
Skewness- Skewness is a statistical measure that was employed to check the asymmetry of a distribution. It indicates whether the data is skewed to the left (negative skewness), skewed to the right (positive skewness), or approximately symmetric (zero skewness).
Kurtosis- Kurtosis is a statistical major that was employed to check about the heaviness of the tails and the presence of outliers compared to a normal distribution. Positive kurtosis indicates heavier tales and the sharper peak suggesting the presence of more extreme values or outliers. Negative kurtosis indicates lighter tales and the flatter peak indicating a lower likelihood of extreme values or outliers.
Note - The skewness and Kurtosis for the present study was checked on the basis of age of participants.
Mean - Arithmetic average of the scores. Mean values were calculated to get a consolidated value of the raw data for each variable under study.
Standard Deviation- Standard deviation values represent the dispersion of scores from the mean. It was calculated to get an overall understanding if there were any major deviations in the collected data.
Pearson product- moment correlation- It is a statistical measure that quantifies the strength and direction of the linear relationship between two continuous variables. Pearson's correlation Coefficient is calculated based on the observed data and provides information about the degree of association between the variables.
Inferential statistics - To draw inferences that can be generalized from sample to the mother population. Computations include:
Levene's Test - It is used to make inferences about the variances of different groups or samples based on the data collected from the groups. The test examines whether there is evidence to support the hypothesis of equal variances or if there is a significant difference in variances among groups.
Independent sample t-test - An independent sample t-test, also known as an unpaired t-test, is a statistical method used to determine if there is a significant difference between the means of two independent groups. It assesses whether the observed difference between the sample means is likely due to a real difference in the populations they represent, or if it could have occurred by random chance.
The present study was aimed to explore the differences if any among healthy controls and breast cancer survivors with respect to some psychological factors (like perceived sexual desire, Alexithymia, self

concept, somatic preoccupation and bodily compulsion), differences between healthy controls and breast cancer survivors if any with respect to the variables. Results were done to investigate whether healthy controls and breast cancer survivors differ significantly with reference to the above-mentioned psychological factors.

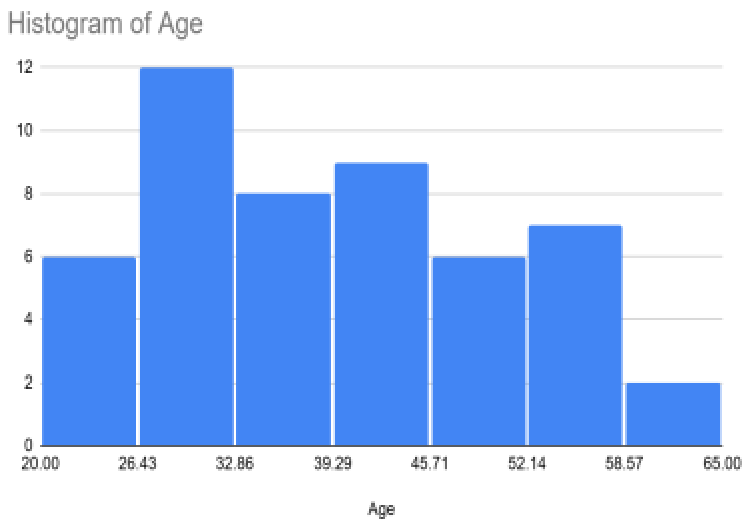
TABLE1: SKEWNESS AND KURTOSIS RESULTS FOR NORMALITY OF DISTRIBUTION ON THE BASIS OF AGE OF THE PARTICIPANTS

AGE		Healthy controls	Breast cancer survivors
N	Valid	50	42
	Missing	0	8
Skewness		0.387	-0.366
Kurtosis		-1.094	-0.956

According to the information provided in Table 1, the skewness and kurtosis values of healthy controls were calculated to be 0.387 and -1.094 respectively. Based on the skewness values being between the range of -0.5 and 0.5, it can be concluded that the data is fairly symmetrical . Regarding kurtosis, since the obtained value falls within the range of -2 to +2, the distribution can be categorized as normal univariate distribution.

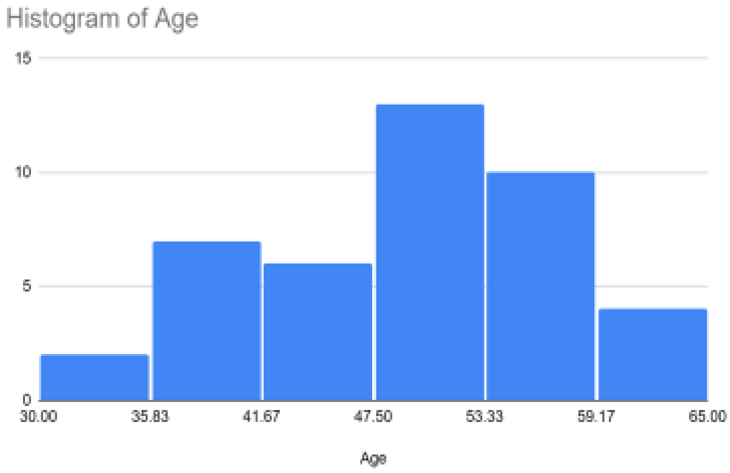
The skewness and kurtosis values of breast cancer survivors were calculated to be -0.366 and -0.956 respectively. Thus, based on the above mentioned skewness range, it can be concluded that the data is fairly symmetrical and regarding kurtosis also, following the given range , the distribution can be categorized as a normal univariate distribution.

FIGURE 1: AGE DISTRIBUTION OF HEALTHY CONTROLS



Skewness: 0.387

FIGURE 2: AGE DISTRIBUTION OF BREAST CANCER SURVIVORS



Skewness: -0.366

TABLE 2: TEST OF HOMOGENEITY OF VARIANCE

Study Variables	*Levene Statistic*	*Significance*
Perceived sexual desire	81.223	<0.001
Alexithymia	0.782	0.379
Self concept	4.446	0.038
Somatic preoccupation	1.417	0.237
Bodily compulsion	0.726	0.396

The Null Hypothesis for the parametric test is that there is an equality of variance if the p value is below 0.05, we reject the Null Hypothesis that there is no equality of variance . However, if the p value is above 0.05, we accept the Null Hypothesis that there is equality (homogeneity) of variance. For the present study, it has been found that for maximum cases the Levene Homogeneity of Variance has been met.

TABLE 3: Showing the Mean, Standard Deviation, and F value for the study variables of Perceived Sexual Desire, Alexithymia, Self Concept, Somatic Preoccupation, Bodily compulsions among the 2 groups: Healthy controls and Breast Cancer survivors

STUDY VARIABLES	GROUPS	MEAN	STANDARD DEVIATION	t- value
Perceived Sexual Desire	Healthy controls	37.3000	28.53229	6.891*
	Breast cancer	5.9762	7.90026	

	survivors			
Alexithymia	Healthy controls	46.7800	10.65276	-5.457*
	Breast cancer survivors	60.3810	13.25354	
Self concept	Healthy control	132.2000	17.32640	6.106*
	Breast cancer survivors	112.0952	13.58049	
Somatic preoccupation	Healthy control	8.3800	3.87504	-2.992*
	Breast cancer survivors	11.0000	4.52635	
Bodily compulsion	Healthy control	10.4000	6.25643	-6.906*
	Breast cancer survivors	20.1190	7.24216	

*-p<0.05

From Table 3, it can be inferred that-

In comparison to the original norms-

Mean scores:

In terms of condition of the sample (with and without breast cancer), healthy controls exhibited higher than average scores for Perceived Sexual Desire. Regarding Alexithymia, breast cancer survivors exhibited higher than average scores. In terms of Self Concept, healthy controls exhibited higher than average scores. In case of Somatic Preoccupation, breast cancer survivors exhibited a little higher than average scores. For Bodily Compulsions, breast cancer survivors exhibited higher than average scores.

Comparing the findings among different groups in the current study-

Mean Scores :

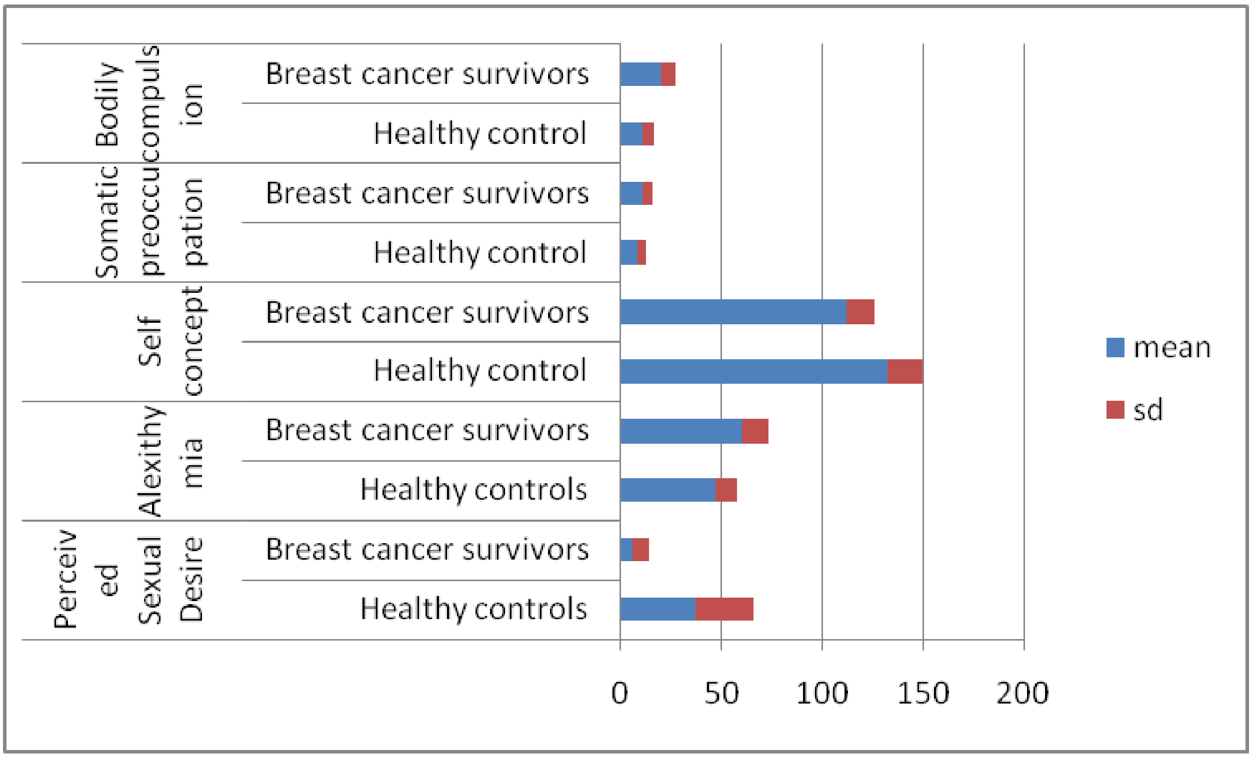
For the Healthy Control Group, mean score of Perceived Sexual Desire is 37.3000 (SD 28.53229), mean score for Alexithymia is 46.7800 (SD 10.65276), mean score for Self Concept is 132.2000 (SD 17.32640), mean score for Somatic Preoccupation is 8.3800 (SD 3.87504), mean score of Bodily Compulsion is 10.4000 (SD 6.25643).

For the Breast Cancer Survivors, mean score of Perceived Sexual Desire is 5.9762 (SD 7.90026), mean score for Alexithymia is 60.3810 (SD 13.25354), mean score for Self Concept is 112.0952 (SD 13.58049), mean score for Somatic Preoccupation is 11.0000 (SD 4.52635), mean score of Bodily Compulsion is 20.1190 (SD 7.24216).

The ***t-Values*** show that there are significant differences between healthy controls and breast cancer survivors with reference to Perceived Sexual Desire, Alexithymia, Self Concept, Somatic Preoccupation and Bodily Compulsions.

Graphical Representation of the Means and Standard Deviations of Perceived Sexual Desire, Alexithymia, Self Concept, Somatic Preoccupation and Bodily Compulsions across the 2 groups.

GRAPH- 1



Graph 1 is showing the Mean and Standard Deviation values of Perceived Sexual Desire, Alexithymia, Self Concept, Somatic Preoccupation and Bodily Compulsions across the 2 groups.

The analysis of **mean values** reveals that Healthy Controls have the highest mean score in Self-Concept and Perceived Sexual Desire and the Breast Cancer Survivors have the highest mean score in Alexithymia, Somatic Preoccupation and Bodily Compulsions.

The analysis of **SD values** reveal consistency of scores.

Showing if there are any significant differences between healthy controls and breast cancer survivors in terms of Perceived Sexual Desire,Self Concept, Bodily Compulsion, Somatic Preoccupation and Alexithymia.

TABLE 4

Study Variables	Groups	t-value	Mean Difference	Significance
Perceived Sexual Desire	Healthy Controls	6.891	31.32381*	p<0.001

	Breast Cancer Survivors			
Self Concept	Healthy Controls	6.106	20.10476*	0.038
	Breast Cancer Survivors			
Bodily Compulsion	Healthy Controls	-6.906	-9.71905*	0.396
	Breast Cancer Survivors			
Somatic Preoccupation	Healthy Controls	-2.992	-2.62000*	0.237
	Breast Cancer Survivors			
Alexithymia	Healthy Controls	-5.457	-13.60095*	0.379
	Breast Cancer Survivors			

*-p<0.05

The table results (Table 4) indicate that there are significant mean differences between the Healthy Controls and Breast Cancer survivors in terms of Perceived Sexual Desire,Self Concept, Bodily Compulsion, Somatic Preoccupation and Alexithymia.

The Table showing Correlation Values (as obtained by calculating Pearson's product moment correlation) among healthy controls in terms of Perceived Sexual Desire,Self Concept, Bodily Compulsion, Somatic Preoccupation and Alexithymia.

TABLE 5

HEALTHY CONTROL	Sexual Desire	Alexithymia	Self Concept	Somatic Preoccupation	Bodily Compulsion
Sexual Desire	1	-0.025	0.389**	-0.331*	-0.030
Alexithymia	-0.025	1	-0.029	0.144	0.268
Self Concept	0.389**	-0.029	1	-0.457**	-0.161

Somatic Preoccupation	-0.331*	0.144	-0.457**	1	0.392**
Bodily Compulsion	-0.030	0.268	-0.161	0.392**	1

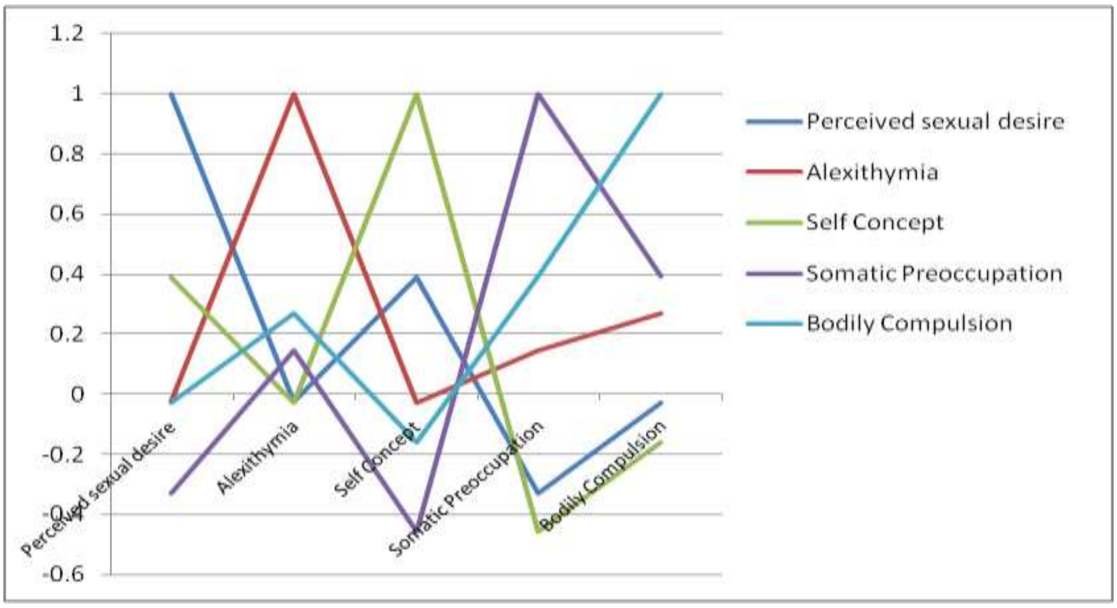
*-p<0.05, **-p<0.01

The correlation matrix showing that for Healthy Controls-

- In terms of **Perceived Sexual Desire**, significant positive correlation with Self Concept (at 0.01 level) and significant negative correlation with somatic preoccupation (at 0.05 level).
- In terms of **Alexithymia**, there is no significant correlation with any of the other variables (Perceived Sexual Desire,Self Concept, Bodily Compulsion, Somatic Preoccupation).
- In terms of **Self Concept,** significant positive correlation with perceived sexual desire and significant negative correlation with somatic preoccupation (both at 0.01 level)
- In terms of **Somatic Preoccupation,** significant positive correlation with bodily compulsion (at 0.01 level) and significant negative correlation with perceived sexual desire (at 0.05 level) and self concept (at 0.01 level).
- In terms of **Bodily Compulsions**, significant positive correlation with somatic preoccupation (at 0.01 level).

The Graph showing Correlation among healthy controls in terms of Perceived Sexual Desire,Self Concept, Bodily Compulsion, Somatic Preoccupation and Alexithymia.

GRAPH 2



The Table showing Correlation Values (as obtained by calculating Pearson's product moment correlation) among Breast Cancer Survivors in terms of Perceived Sexual Desire,Self Concept, Bodily Compulsion, Somatic Preoccupation and Alexithymia.

TABLE 6

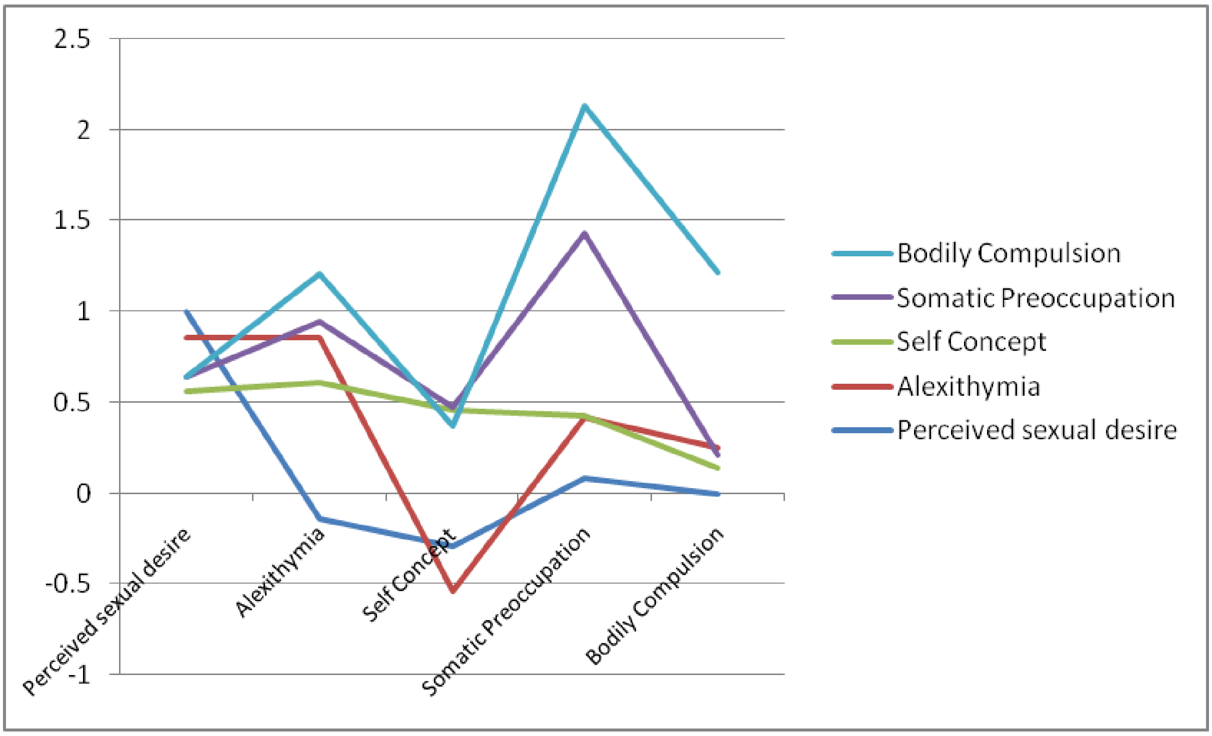
Breast Cancer Survivors	Sexual Desire	Alexithymia	Self Concept	Somatic Preoccupation	Bodily Compulsion
Sexual Desire	1	-0.144	-0.292	0.083	-0.007
Alexithymia	-0.144	1	-0.244	0.332*	0.259
Self Concept	-0.292	-0.244	1	0.015	-0.111
Somatic Preoccupation	0.083	0.332*	0.015	1	0.703**
Bodily Compulsion	-0.007	0.259	-0.111	0.703**	1

*-p<0.05, **-p<0.01

- In terms of **Perceived Sexual Desire,** there is no significant correlation with any other variables (Perceived Sexual Desire,Self Concept, Bodily Compulsion, Somatic Preoccupation).
- In terms of **Alexithymia,** significant positive correlation with somatic preoccupation (at 0.05 level).
- In terms of **Self Concept**, there is no significant correlation with any other variables (Perceived Sexual Desire,Self Concept, Bodily Compulsion, Somatic Preoccupation).
- In terms of **Somatic Preoccupation**, significant positive correlation with alexithymia (at 0.05 level) and bodily compulsion (at 0.01).
- In terms of **Bodily Compulsions**, significant positive correlation with somatic preoccupation (at 0.01)

The Graph showing Correlation among Breast cancer survivors in terms of Perceived Sexual Desire,Self Concept, Bodily Compulsion, Somatic Preoccupation and Alexithymia.

GRAPH 3



The current study aimed to describe the psychosomatic profiles, in terms of perceived sexual desire, alexithymia, self concept, somatic preoccupation and bodily compulsion of breast cancer survivors in comparison to matched (in terms of age) healthy controls.
The comprehensive review of literature unequivocally demonstrates that breast cancer patients experience a significantly elevated psychological and sexual burden compared to healthy controls. This burden is characterized by a higher prevalence of somatic preoccupation, issues related to bodily compulsion (particularly body image concerns and Body Dysmorphic Disorder), alexithymia, and substantial alterations in self-concept and sexual desire.
As per Table 3, *In terms of condition of the sample (with and without breast cancer), healthy controls exhibited higher than average scores for Perceived Sexual Desire* which is in line with the findings of significant sexual morbidity rates in a large number of cancer patients (Andersen, 1990). Symptoms in the patient ' s sexual sphere are in fact common after treatment and can alter sexual life in long-term survivors and disease-free individuals. Two studies reported the prevalence of disturbances in sexual desire which ranged from 14.5 before surgery to 79% prior to Hormone Therapy. One of those studies showed a statistically significant increase in low desire (from 14.5 to 27.5%) (Lee M et al., 2015).
Regarding Alexithymia, breast cancer survivors exhibited higher than average scores, consistent with the findings that the prevalence of alexithymia in cancer patients has been reported to be about 8-fold greater than in the general population of Italy (Berardis et al., 2016). Another study found that the highest level of alexithymia was reported in patients, followed by their siblings. Healthy controls reported the lowest level of alexithymia. The intensity of cancer was a significant predictor of the alexithymia score. Patients with T4 stage disease reported the highest levels of alexithymia. No significant differences were found among patients with lower staging (Han et al., 2018). There is a relationship between depressive symptoms, low perceived social support, and alexithymia in early-stage Breast Cancer patients. Also, alexithymia may have a role in depression pathogenesis in early-stage Breast Cancer patients (Eraslan et al., 2022).
In terms of Self Concept, healthy controls exhibited higher than average scores which is at par with the findings that a breast cancer diagnosis and its subsequent treatments profoundly alter a woman's self-concept, specifically impacting her body image, self-esteem, self-role, and self-identity. Cancer patients report low self-esteem in comparison to healthy people due to gender dynamics; breast cancer and its treatment are associated with symptoms that impact physical, social, and mental, especially self-esteem, which is influenced by body changes and short to long-term cognitive function (Richard et al., 2019).
In case of Somatic Preoccupation, breast cancer survivors exhibited a little higher than average scores which is consistent with previous research findings of a study by Grassi et al, 2013 that the presence of pain, fatigue, sexual symptoms and somatosensory and multiple somatic symptoms have been indicated among the criteria that should be met for the diagnosis of somatization disorder in DSM-IV. The same series symptoms should be taken into account in the experience of cancer and the evaluation of a possible relationship between these symptoms and somatization and/or abnormal illness behaviour in cancer patients is extremely important and challenging (Chaturvedi &Maguire, 1998; Chaturvedi et al., 2006). Other somatic symptoms presented by cancer patients are anorexia, weight loss and weakness, a reduction of energy, breathlessness, dizziness, lethargy and tremors. A study evidenced that about 40% of cancer patients referred for a psychiatric evaluation reported somatic concerns and preoccupation (Chaturvedi et al., 1993). Each of these symptoms in disease-free patients may be a consequence of depression, anxiety

or a pre-existing psychiatric disorder, whilst in active cancer they may overlap to and complicate the organic symptomatology.

For Bodily Compulsions, breast cancer survivors exhibited higher than average scores which is consistent with the previous research findings of considerable number of women reported experiencing body image disturbance related to their breast cancer diagnosis and treatment, consistent with other studies reporting sustained body image difficulties at 12 months post-diagnosis and beyond. Moreover, not surprisingly, greater body image disturbance was evident in women reporting lower comfort with weight and greater pressure from others regarding current weight. As hypothesised, body image disturbance was associated with increased psychological distress in breast cancer survivors, consistent with findings from other studies of cancer and breast cancer survivors (Przezdziecki et al., 2012). Breast cancer survivors can experience a range of bodily compulsions, often linked to psychological distress and body image concerns following treatment. These compulsions can manifest as avoidance behaviors, excessive checking, or compulsive exercising, stemming from fear of recurrence, anxiety, or dissatisfaction with their body (Jeonghee Ahn et al., 2023).

As per Table 4, *there is significant mean difference between the Healthy Controls and Breast Cancer survivors in terms of Perceived Sexual Desire* which is at par with the findings of the study by University of British Columbia which showed that different types of cancer treatment can be responsible for the range of sexual health issues that women face.For example, tamoxifen, which acts to antagonize (or block) estrogen at its receptor, can have an impact on sexual function. Side effects of chemotherapy include nausea, hair loss and fatigue, which can alter a person's sense of sexual attractiveness. Chemotherapy can cause premature menopause, and also vaginal dryness and bleeding, which makes intercourse painful. Painful experiences during sex can trigger fear and avoidance of sex. Some also talk about not feeling like themselves in many areas of their lives.Sexual difficulties are prevalent and can be deeply distressing for breast cancer patients and survivors. Over half of breast cancer survivors experience ongoing difficulties with sexual desire, sexual arousal, sexual distress or genital pain following treatment. Some studies even report that up to 86% of survivors face difficulties in this area. Sexual difficulties can begin during breast cancer treatment and can persist long into survivorship (Kauffman et al., 2024).

There is significant mean difference between the Healthy Controls and Breast Cancer survivors in terms of Self Concept and it is supported by findings that the physical loss or alteration of a breast due to cancer or its treatment (e.g., mastectomy, lumpectomy) therefore represents a profound symbolic loss that affects multiple facets of her self-concept: physical self-image, self-esteem, and social/sexual roles. This "loss of femininity" can manifest as sexual anxiety, fear of sex , and a diminished sense of desirability. This deeper understanding highlights why body image concerns are so central and why interventions must acknowledge and address this profound identity shift, rather than focusing solely on physical recovery (King at al., 2022). A recent study found that Self-concept is a psychosocial problem related to individual health, self-esteem, self-identity, and body image. Breast cancer patients undergoing mastectomy report psychosocial and sexual problems. Patients who are genetic carriers of cancer state that there are changes in their self-perception, in this case, about body image, self-esteem, and self-identity. Multidimensional self-concept is currently still very limited and has not been addressed adequately. Cancer patients report low self-esteem due to gender dynamics; breast cancer and its treatment are associated with symptoms that impact physical, social, and mental, especially self-esteem, which is influenced by body changes and short to long-term cognitive function (Richard et al., 2019).

There is significant mean difference between the Healthy Controls and Breast Cancer survivors in terms of Bodily Compulsion which is consistent with the findings that one's own body after diagnosis and oncological treatments can be experienced as ill and damaged, even perceiving them as a source of danger for the fear of cancer recurrence. This can increase the risk of being labeled as "patients" rather than "persons," reinforcing this type of self-definition and representation (McGannon et al., 2016). Body image dissatisfaction, a direct consequence of these physical alterations, can lead to an increase in dysmorphic and obsessive-compulsive types of behaviors and thoughts, causing significant embarrassment, mental conflict, and rumination. Studies show that pre-surgery body avoidance and increased weight phobia are significantly associated with higher levels of post-intervention psychological symptoms, including somatization, depression, anxiety, and hostility. A study shows that a considerable number of women reported experiencing body image disturbance related to their breast cancer diagnosis and treatment, consistent with other studies reporting sustained body image difficulties at 12 months post-diagnosis and beyond. Moreover, not surprisingly, greater body image disturbance was evident in women reporting lower comfort with weight and greater pressure from others regarding current weight. As hypothesised, body image disturbance was associated with increased psychological distress in breast cancer survivors, consistent with findings from other studies of cancer and breast cancer survivors , highlighting the importance of body image to overall psychological well-being. These ongoing difficulties with body image in breast cancer survivors suggest that the needs of these women are not always being adequately addressed (Przezdziecki et al., 2012).

There is significant mean difference between the Healthy Controls and Breast Cancer survivors in terms of Somatic Preoccupation which is supported by previous research findings like somatic symptoms were prevalent in all cancer patients presenting with cancer pain and/or depression. Nearly all patients reported feeling tired (98%) and most were bothered a lot by this symptom (79%). The 5 most commonly reported symptoms were feeling tired (fatigue), difficulty sleeping, pain in the limbs or joints, back pain, and difficulty remembering things (Kroenke et al., 2010). Not only was symptom prevalence high, a substantial percent of patients noted they were "bothered a lot" by their symptoms, regardless of type of symptom. In a palliative care study, more than half of somatic symptoms were rated as moderate to severe, yet two-thirds of severe symptoms were not volunteered by patients but rather were only identified by systematic assessment (Homsi J et al., 2006). A study evidenced that about 40% of cancer patients referred for a psychiatric evaluation reported somatic concerns and preoccupation (Chaturvedi et al., 1993). Each of these symptoms in disease-free patients may be a consequence of depression, anxiety or a pre-existing psychiatric disorder, whilst in active cancer they may overlap to and complicate the organic symptomatology.

There is significant mean difference between Healthy Controls and Breast Cancer survivors in terms of Alexithymia which is at par with research findings that cancer is a situation that is favorable for changes in alexithymia scores due to its highly threatening status that involves strong variations in mood states. Despite the extreme nature of the context of breast cancer, the three alexithymia factors measured during a highly stressful time (i.e., the day before surgery) explained follow-up alexithymia scores beyond the variance explained by depression and anxiety. The fact that relative stability was still observed in the case of cancer and for each of the three factors provides a strong case for alexithymia as a vulnerability factor (Luminet et al., 2007). Tulipani et al. demonstrated that cancer patients who did not receive psychological treatment, both pain and alexithymia scores were higher than patients who received psychological intervention. Porcelli et al. reported that psychological intervention in cancer patients didn't alter the relative stability of alexithymia, but altered the absolute stability of the construct. This study confirmed the relative stability of alexithymia and that the lack of absolute stability of the construct was influenced by psychological intervention in cancer patients (Berardis et al., 2016).

As per at Table 5, *In healthy controls, Perceived Sexual Desire has a significant positive correlation with Self Concept* which is consistent with the findings that people with low self-esteem suppress their ability to express sexual desires , but a high self-esteem will lead to a healthy sexual behaviour . A study by Ramezani M et al., indicated that self-esteem was correlated with sexual satisfaction and people with low self-esteem levels noted higher sexual dysfunctions (Jamali et al., 2018). Muller (2016) demonstrated that the negative sexual self-concept could lead to a decrease in desire, arousal, and sexual satisfaction in a person . Regarding this, it is expected that the women with positive sexual self-concept experience better sexual function. Women with higher sexual self-esteem better respect their sexual identity, beauty, and attractiveness as a sexual entity, and since these individuals can better manage their sexual thoughts and behaviors and adapt themselves to their spouses' sexual preferences, they perform better sexually. This finding was consistent with the report of Brassard et al. (2015). Also, they demonstrated that there was a direct correlation between sexual function and a person's perception of himself/herself as a sexual partner. Therefore, people who have high sexual self-esteem experience less fear and anxiety during intercourse and experience more acceptable sexual functions. Such women are able to initiate intercourse and direct the sexual relationship toward their objectives. On the other hand, women with low sexual self-esteem focus more on their spouses' sexual satisfaction, tend not to be engaged in talking about intercourse, and rarely initiate sexual activity (Chesli et al., 2024).

In healthy controls, Perceived Sexual Desire has a significant negative correlation with somatic preoccupation which is consistent with the findings that there is a consistent inverse relationship between somatic preoccupations and sexual desire. A notable study by Nimbi et al. (2019) found that individuals with higher levels of somatization reported significantly lower levels of sexual desire, even after controlling for age and gender.

Simonelli et al. (2017) reported that in a clinical sample, high levels of bodily preoccupation were linked to hypoactive sexual desire disorder, suggesting a psychosomatic link between distress over bodily symptoms and reduced sexual functioning. It was also found that somatic symptoms like weakness, nausea, pain, and fainting were directly linked to poor sexual outcomes such as reduced lubrication and distress during sex. While not directly assessing sexual desire, insights from somatic symptom disorder research reveal that high somatic preoccupations, driven by catastrophizing, health anxiety, and poor physical self-concept, create mental burdens known to reduce sexual interest.

In healthy controls, there is significant negative correlation between self concept and somatic preoccupation which is consistent with the findings that there is an inverse relationship between self-concept and somatic distress. For example, Wu et al. (2022) found that Chinese college students with low SCC reported higher social anxiety, which is known to intensify focus on bodily cues like blushing or heart rate—typical signs of somatic preoccupation. Similarly, Matos et al. (2015) revealed that Portuguese participants with weak self-concepts experienced significantly more depressive and anxious symptoms over time, conditions that often include physical manifestations such as fatigue, pain, or gastrointestinal complaints. In clinical populations, this link becomes even more prominent. Jürgensen et al. (2020) studied patients with somatoform disorders and found they had markedly lower levels of self-compassion and self-concept clarity compared to healthy controls. These traits were directly tied to a greater number of reported physical symptoms and reduced quality of life. In simple terms, a fragmented sense of self made people more vulnerable to physical distress—especially in the absence of physical illness.

In healthy controls, there is a significant positive correlation between somatic preoccupation and bodily compulsions that is consistent with previous research findings that patients with somatic symptom disorder frequently engaged in bodily checking rituals, including palpating lymph nodes, checking their heart rate, or inspecting body parts in the mirror. These behaviors were not only more frequent than in healthy controls, but also strongly predicted by the level of somatic preoccupation and anxiety sensitivity (Benatti et al.,2021). Similarly, in a study conducted by Abramowitz, Deacon, and Valentiner (2007), individuals with health anxiety were shown to perform repeated bodily checks and compulsive reassurance-seeking. These compulsions were significantly positively correlated with their level of health-related worry and preoccupation with bodily symptoms. A study by Sibrava et al. (2011) further illustrated that patients with OCD who reported somatic obsessions also exhibited increased frequency of compulsions related to physical checking and repetitive movements. This confirmed that as somatic concern increases, compulsive behaviors around the body intensify. bodily sensations are catastrophically misinterpreted (e.g., “This chest pain means I’m having a heart attack”), leading to anxiety and compulsive behaviors such as touching, pressing, or monitoring the affected area to seek relief (Salkovskis, 1985).

As per Table 6, *In breast cancer survivors, there is significant positive correlation between alexithymia and somatic preoccupation* which is consistent with the research findings that significantly higher levels of generalized dysphoria, as well as somatic complaints, in the alexithymic patients is consistent with the moderately high correlations that are generally found between anxiety, depression, and somatic symptoms in both normals and various patient groups. The close association between these variables raises the possibility, however, that alexithymia is merely a state phenomenon secondary to anxiety and/or depression. As originally described by Nemiah and Sifneos and Nemiah et al. , Alexithymic individuals often display evidence of emotion and may spontaneously use words such as ‘sad’, ‘angry’ and ‘frightened’; however, they are unable to elaborate further on their feelings and, in most instances, are unable to link them with accompanying somatic sensations or with memories, fantasies, or specific situations. These limitations have been attributed to psychological deficits, rather than to defenses, and are thought to reduce an alexithymic individual’s capacity to cope with stressful experiences. This viewpoint is supported by the finding of lower scores on the Ego Strength Scale for our alexithymic patients, and by non-significant differences between the alexithymic and non-alexithymic patients on the MMPI Repression and Hysteria Scales which are considered to reflect denial and repression.The higher scores on the MMPI Psychopathic Deviate and Dependency Scales for the alexithymic patients are consistent with reports that alexithymic individuals attempt to cope with undifferentiated states of unpleasant emotional arousal through impulsive and acting out behaviors, and/or through substance abuse and an excessive dependency on other people. The finding in the present study that the alexithymic psychiatric out-patients were less educated and of lower socioeconomic status than the non-alexithymic patients is consistent with reports that patients from lower socioeconomic classes tend to express emotional distress and discomfort in bodily terms (Taylor et al., 1992). However, it has been found that subjects with alexithymia experience and report more physical symptoms, but might not necessarily have more somatic disease. Alexithymia has been associated with somatosensory amplification, and lower tolerance to painful stimuli (Baudic et al., 2016). Study by Sebri et al. (2024) states that Oncological treatments (e.g., chemotherapy, radiotherapy, immunotherapy) can damage the body due to the presence of scars, hair loss, and breast(s) removal, for example (Fioretti et al., 2017). Therefore, patients generally report high levels of distress, anxiety, depression, physical symptoms of pain, fatigue and sleep–wake rhythm dysfunction, even several years after finishing treatments (Abrahams et al., 2018). Concerning emotional issues, it is mandatory to address the bodily self, defined as an expression of implicit knowledge about physical actions and movements (Sebri et al., 2021).

In breast cancer survivors, there is significant positive correlation between somatic preoccupation and bodily compulsion which is at par with previous research study by Williams et al. (2021) found that on days when fear of cancer recurrence (FCR) was elevated, participants were significantly more likely to engage in bodily checking behaviors. These included repeatedly inspecting their surgical sites or palpating for lumps. The frequency of such behaviors strongly correlated with the intensity of somatic concerns, suggesting a direct and sustained link between the two. Similarly, qualitative research by Fardell et al. (2016) indicated that breast cancer survivors often described a sense of bodily betrayal, where every ache or irregularity was interpreted as a sign of cancer's return. This led to compulsive monitoring routines that, while momentarily reassuring, became time-consuming and distressing. Moreover, Hopwood et al. (2013) emphasized that women with higher FCR were more likely to report both somatic vigilance and health-related safety behaviors, including excessive medical consultations and repeated imaging requests—indicating a broader behavioral pattern consistent with compulsive symptom-checking. The Cognitive-Behavioral Model of Health Anxiety (Salkovskis, 1996) provides a foundational explanation for this relationship. It suggests that misinterpretations of benign bodily sensations (e.g., interpreting post-surgical tightness as tumor recurrence) trigger anxiety, which in turn leads to compulsive behaviors aimed at reducing uncertainty. However, these compulsions—such as self-checking or seeking reassurance—are negatively reinforcing, providing temporary relief that paradoxically maintains or exacerbates the cycle of preoccupation.

Similarly, Leventhal's Self-Regulation Model (1984) posits that individuals respond to bodily sensations through both cognitive appraisal and action. In survivors, high emotional arousal and threat sensitivity lead to excessive scanning and monitoring of the body, reinforcing hyperawareness and anxiety.

The results demonstrate that breast cancer patients experience a significantly elevated psychological and sexual burden compared to healthy controls. This burden is characterized by a higher prevalence of somatic preoccupation, issues related to bodily compulsion (particularly body image concerns and Body Dysmorphic Disorder), alexithymia, and substantial alterations in self-concept and sexual desire

It can be concluded that-

1. There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of perceived sexual interest/desire. Thus, Alternative Hypothesis is accepted and Null Hypothesis is rejected.
2. There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of self concept. Thus, Alternative Hypothesis is accepted and Null Hypothesis is rejected.
3. There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of bodily compulsions. Thus, Alternative Hypothesis is accepted and Null Hypothesis is rejected.
4. There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of somatic preoccupations. Thus, Alternative Hypothesis is accepted and Null Hypothesis is rejected.
5. There exists a significant difference among the 2 groups (breast cancer survivors, healthy controls) in terms of alexithymia. Thus, Alternative Hypothesis is accepted and Null Hypothesis is rejected.

6. There exists a significant correlation among perceived sexual desire/interest, self concept, bodily compulsions, somatic preoccupations and alexithymia among breast cancer survivors. Thus, Alternative Hypothesis is accepted and Null Hypothesis is rejected.
7. There exists a significant correlation among perceived sexual desire/interest, self concept, bodily compulsions, somatic preoccupations and alexithymia among healthy controls. Thus, Alternative Hypothesis is accepted and Null Hypothesis is rejected.

The current study is not without its limitations to enhance the sophistication and generalizability of the research. It would have been beneficial to consider some important factors. These limitations should be taken into consideration when interpreting the finding and for the research should aim to address them for a more comprehensive understanding of the topic.

1. Sample size limitations: Ability to gather data from a large sample size was limited. Limited resources and time constraints hindered reaching out to large, diverse and representative sample, which could affect the generalizability of the findings.
2. Time constraints: it impacted the depth and breadth of research. Balancing other commitments like coursework, or personal obligations limited the amount of time dedicated to data collection, analysis, and writing to some degree.
3. Access to data or participants: obtaining access to specific data sources or participants presented challenges, which was especially faced while collecting data from breast cancer survivors as obtaining permission from hospitals and NGOs to access sensitive information required substantial formalities and paperwork. Limited access to time and accessibility of participants, especially breast cancer survivors restricted the opportunity to collect sufficient data from diversity of participants.
4. Resource limitations: due to financial and social constraints and limited access to research materials, acquiring specialized equipment, software, or more relevant literature was impacted.
5. Methodological limitations: I must acknowledge that my chosen research design, measurement instruments or data collection methods may have inherent limitations. Eg- scope for one to one age matching in the research design would have been beneficial in controlling for potential confounding variables.
6. Scope limitations: given the scope of dissertation, it may not be possible to cover all aspects of the research problem comprehensively. There emerged a need to narrow down focus and limit the depth of analysis to specific dimensions or subtopics. This limitation left some aspects unexplored and limited the generalizability of the findings.
7. External validity: I should recognise that the findings of my research may have limited external validity. As a researcher, my study might be conducted within a specific context or setting, limiting the generalizability of the results to other populations or settings. It is important to acknowledge this limitation and discuss potential implications.
8. Literature gaps: insufficient literature restricted the depth of analysis and posed challenges in establishing a strong theoretical foundation for the research. It is important to acknowledge these limitations and propose avenues for future research to address these gaps.

This study sheds light on a deeply human, often overlooked aspect of breast cancer survivorship — the emotional and psychosomatic struggles that persist long after the last chemotherapy session or surgery. By revealing higher levels of **alexithymia (difficulty identifying and expressing emotions)**, **somatic**

preoccupation, **bodily compulsions**, **low self-concept**, and **reduced sexual desire** in breast cancer survivors compared to healthy controls, the findings highlight a critical gap in post-treatment care: **the emotional and psychological healing that must accompany physical recovery**.

Breast cancer survivors often carry invisible burdens. The trauma of diagnosis, invasive treatments, and changes in body image can dull emotional awareness — not because survivors are "cold" or unfeeling, but because the psychological strain can be overwhelming. High alexithymia means many survivors struggle to articulate what they feel, which can hinder emotional healing and interpersonal relationships. It may also limit how much they benefit from talk therapy or social support if they can't express what they're experiencing. Survivorship programs must include trauma-informed, emotion-focused therapies, such as expressive arts, somatic experiencing, or mindfulness-based approaches, to help survivors reconnect with their emotions and rebuild inner clarity.

Survivors often become hyper-attuned to bodily sensations — every ache or flutter can be interpreted as a potential return of cancer. This heightened somatic focus, sometimes coupled with compulsive body-checking or grooming rituals, reflects an ongoing sense of vulnerability and anxiety. Healthcare providers must recognize these behaviors not as neuroses, but as *understandable adaptations to trauma*. Interventions like cognitive-behavioral therapy for health anxiety or psychoeducation can help survivors feel safer in their own bodies again.

Breast cancer, especially when it involves mastectomy or other visible changes, can deeply disrupt a woman's sense of identity. Survivors may no longer recognize themselves — physically, emotionally, or socially. This loss of self can diminish confidence, affect relationships, and even impact recovery motivation. Support must go beyond physical rehabilitation. Group therapy, identity-affirming programs, and peer mentoring from fellow survivors can help rebuild a coherent, empowered self-concept.

The study's finding of diminished sexual desire underscores how breast cancer affects not just the body, but the most intimate aspects of being human. Pain, hormonal changes, body image concerns, and emotional numbness can all suppress sexual interest — often compounding feelings of disconnection or shame. Sexual health counseling should be a standard part of survivorship care. Partners may also need education and support to help navigate these changes compassionately. Restoring sexual well-being should be seen not as a luxury, but as a vital dimension of holistic recovery.

Studying sexual desire, alexithymia, self concept, somatic preoccupation, bodily compulsions in psychology has significant utility and benefits in several areas. Here are some key aspects highlighting the importance of studying these factors :

1. They Provide a Window into the Mind-Body Connection: These constructs reveal how psychological stress, trauma, or emotional dysregulation can **manifest physically**, often before a person is consciously aware of their mental state. **Somatic preoccupation** and **bodily compulsions** are prime examples of how unresolved emotions or anxieties can be expressed through the body, leading to behaviors or sensations that may mimic or obscure physical illness.
2. They Help Decode the Effects of Trauma and Chronic Stress : Trauma (whether emotional, physical, or medical, such as cancer) often disrupts emotional processing (alexithymia), body awareness (somatic preoccupation), identity (self-concept), and intimacy (sexual desire). These disruptions frequently operate below the level of conscious awareness, yet they shape behavior, relationships, and psychological functioning in profound ways. Studying these factors equips clinicians to offer trauma-informed, body-aware, and emotionally sensitive care — especially for survivors of abuse, violence, or serious illness.

3. They Reveal the Hidden Layers of Identity and Emotional Health : Self-concept is central to how people see themselves in the world — in terms of worth, purpose, and belonging. When someone has a fractured or negative self-concept, they may experience emotional difficulties, relationship problems, and vulnerability to mental illness. Sexual desire is closely linked to identity, especially for those whose self-worth has been tied to physical attractiveness or relational intimacy. By studying these constructs, psychologists can better understand how self-image and emotional self-awareness influence a person's inner life and outer behaviors.
4. They Are Core to the Human Experience Yet Often Silenced or Stigmatized : Many people struggle to talk about emotional numbness (alexithymia), shame about their bodies (bodily compulsions), or loss of sexual desire due to cultural stigma, fear, or misunderstanding. These are not marginal concerns — they touch on some of the most intimate and personal aspects of human life. Bringing these topics into psychological research helps normalize and de-stigmatize them, allowing people to seek help without shame or isolation.
5. They Predict and Influence Mental Health Outcomes : Each of these variables has been empirically linked to depression, anxiety disorders, post-traumatic stress, body image disturbances, obsessive-compulsive behaviors, and relationship dysfunction. High alexithymia is a risk factor for emotional dysregulation and social withdrawal. Low sexual desire can be both a symptom and cause of relationship distress and personal unhappiness. Somatic preoccupation often co-occurs with health anxiety or panic disorder. Studying them provides insights into underlying vulnerabilities and allows for more targeted, effective prevention and treatment strategies.
6. They Support Holistic and Person-Centered Therapeutic Approaches : Rather than reducing mental health to symptoms and diagnoses, these variables encourage clinicians to see clients as whole people — with bodies, emotions, relationships, and identities that interact. This aligns with contemporary psychological movements such as: Trauma-informed care, Integrative therapy, Embodied cognition, Feminist and narrative therapies. Incorporating these variables allows for deeper, more empathetic treatment that honors both the emotional and physical dimensions of suffering and healing.
7. They Have Cross-Disciplinary Relevance: These constructs are not only important in clinical psychology, but also in: Health psychology: Understanding psychosomatic illness and recovery. Neuropsychology: Exploring emotional processing and brain-body integration. Sexual health: Addressing issues of intimacy, consent, trauma, and identity. Cultural psychology: Examining how body image, emotional expression, and sexuality are shaped by culture. This makes them crucial points of inquiry for research and practice across multiple domains of mental health and human science.
9. They Offer Insight into Marginalized or Underrepresented Experiences : Populations such as cancer survivors, abuse survivors, people with chronic illness or disability, and LGBTQ+ individuals often report disruptions in sexual desire, body image, and emotional processing. Yet their psychological needs in these areas are frequently under-researched or underserved. Studying these factors can help create more inclusive, responsive psychological frameworks that honor diverse experiences and needs.
10. Improving psychological assessment: Studying these factors helps in the development of reliable and valid assessment tools to measure sexual Desire, alexithymia, self concept, somatic preoccupation and bodily compulsion. These assessments can aid in diagnosing and evaluating individuals' mental health identifying potential areas of concern and monitoring progress in therapy or intervention programs.

11. Longitudinal Studies : Most existing studies, including comparative designs, are cross-sectional. This limits understanding of how these psychological factors evolve over time. Track breast cancer survivors at multiple stages: diagnosis, during treatment, post-treatment (6 months, 1 year, 5 years). Examine the trajectories of sexual desire, emotional awareness (alexithymia), and self-concept over time to identify critical windows for intervention.
12. Qualitative and Mixed-Methods Research: While quantitative data shows statistical differences, qualitative insights reveal the lived experiences behind the numbers. Conduct in-depth interviews or focus groups with survivors and healthy controls to explore how they make meaning of changes in body image, emotional disconnection, and intimacy. Use mixed-methods to combine standardized scales with narrative data, offering richer, more human-centered insights.
13. Neurobiological and Psychophysiological Correlates: Variables like alexithymia and somatic preoccupation may have underlying neural or physiological correlates (e.g., autonomic nervous system responses, interoception, hormonal levels). Use fMRI, HRV (heart rate variability), or hormonal assays (e.g., estrogen, cortisol) to explore how psychological symptoms in survivors are reflected in biological systems. Investigate whether brain regions involved in emotional regulation and body awareness (e.g., insula, ACC) show differences in survivors vs. controls.
14. Subgroup Analysis Within Survivors: Breast cancer survivors are not a monolithic group. Factors like age, type of treatment, menopausal status, and reconstructive surgery may influence psychological outcomes. Compare:
    - Younger vs. older survivors
    - Mastectomy vs. lumpectomy
    - With vs. without reconstruction
    - Hormonal treatment vs. no hormonal treatment
      Identify which subgroups are at higher risk for low sexual desire, high somatic focus, or emotional disconnection.
15. Partner and Relational Factors : Sexual desire, self-concept, and body image are often shaped in relational contexts, particularly for women. Include partners of survivors to study dyadic coping, relational intimacy, and mutual adjustment. Examine how partner support or relationship satisfaction moderates psychological outcomes in survivors.
16. Cultural and socioeconomic variations: Cultural values influence body image, emotional expression, sexual norms, and help-seeking behavior. Conduct cross-cultural comparisons (e.g., Western vs. Eastern populations) to explore how cultural context impacts the studied variables. Investigate how socioeconomic status affects access to care, body image concerns, and emotional adjustment after cancer.
17. Intervention- based studies: Identifying a problem is only part of the goal — next comes testing interventions that might help. Develop and test psychotherapeutic interventions that target alexithymia, body image, or sexual distress (e.g., mindfulness-based therapy, body-image therapy, emotionally focused therapy). Measure pre- and post-intervention changes in the key variables, comparing with a control group to evaluate effectiveness.
18. Refining and Expanding Measurement Tools : Existing scales may not fully capture the unique experiences of cancer survivors. Adapt existing measures (e.g., Toronto Alexithymia Scale, Body Image Scale) to be more relevant to illness-related changes. Consider developing survivor-specific

scales or modules that address nuanced experiences of bodily changes, fear of recurrence, and trauma-related emotional shifts.

19. Psychological Resilience and Protective Factors: While much focus is on deficits or dysfunction, some survivors show remarkable resilience. Investigate factors that protect or buffer survivors from psychological distress — such as social support, spirituality, body appreciation, or post-traumatic growth. Compare high-resilience vs. low-resilience survivors in terms of the core variables (e.g., is self-concept more intact in resilient individuals despite bodily changes).
20. Integration with Broader Theories: Grounding research in theory enhances its relevance and interpretability. Use frameworks such as:
    - Self-Discrepancy Theory (for self-concept and body image),
    - Attachment Theory (for sexual desire and emotional intimacy),
    - Interoception Theory (for somatic preoccupation and alexithymia),
    - Biopsychosocial Models (for holistic integration of psychological, physical, and social domains).
21. Comparison Across Illness Populations: Understanding whether these issues are specific to breast cancer or general to chronic illness can clarify the impact of illness type. Compare breast cancer survivors with:
    - Survivors of other cancers (e.g., ovarian, colorectal),
    - Individuals with chronic non-cancer conditions (e.g., fibromyalgia, lupus),
    - Healthy controls.

    This can help isolate which psychological effects are unique to breast cancer and which are more universal responses to illness or trauma.

By addressing these research gaps, future studies can provide valuable insights into the role of psycho oncological factors in sexual desire, alexithymia, self concept, somatic preoccupation and bodily compulsion across different individuals (with and without cancer). The findings can inform the development of targeted interventions and strategies to create healthier and more supportive environments ultimately benefiting the survivors emotional will be and outcomes.

REFERENCES

1. Ahn, J., & Suh, E. E. (2023). Body image alteration in women with breast cancer: A concept analysis using an evolutionary method. *Asia-Pacific Journal of Oncology Nursing, 10*(5), Article 100214. https://doi.org/10.1016/j.apjon.2023.100214
2. Al-Ghazal, S. K., Sully, L., Fallowfield, L., & Blamey, R. W. (2000). The psychological impact of mastectomy and breast reconstruction: A prospective, long-term study. *European Journal of Surgical Oncology, 26*(1), 17–19. https://doi.org/10.1053/ejso.1999.0560
3. Anderson, G. L., Chlebowski, R. T., Aragaki, A. K., Kuller, L. H., Manson, J. E., Gass, M., Bluhm, E., Connelly, S., Hubbell, F. A., Lane, D., Martin, L., Ockene, J., Rohan, T., Schenken, R., & Wactawski-Wende, J. (2012). Conjugated equine oestrogen and breast cancer incidence and mortality in postmenopausal women with hysterectomy: Extended follow-up of the Women's Health Initiative randomised placebo-controlled trial. *The Lancet Oncology, 13*(5), 476–486. https://doi.org/10.1016/S1470-2045(12)70075-X
4. Asmundson, G. J. G., Abramowitz, J. S., Richter, A. A., & Whedon, M. (2010). Health anxiety: Current perspectives and future directions. *Current Psychiatry Reports, 12*(4), 306–312. https://doi.org/10.1007/s11920-010-0123-9

5. Avis, N. E., Brockwell, S., & Colvin, A. (2005). [Title of the article]. *The American Journal of Medicine, 118*(12B), 37S–46S. https://doi.org/10.1016/j.amjmed.2005.09.057
6. Basson, R. (2001). Using a different model for female sexual response to address women's problematic low sexual desire. *Journal of Sex & Marital Therapy, 27*(5), 395–403. https://doi.org/10.1080/713846827
7. Baudic, S., Jayr, C., Albi-Feldzer, A., Fermanian, J., Masselin-Dubois, A., Bouhassira, D., & Atta, N. (2016). Effect of alexithymia and emotional repression on postsurgical pain in women with breast cancer: A prospective longitudinal 12-month study. *The Journal of Pain, 17*(1), 90–100. https://doi.org/10.1016/j.jpain.2015.10.001
8. Benatti, B., Dell'Osso, B., & Altamura, A. C. (2021). Somatic symptom disorder: Behavioral checking, reassurance-seeking, and their connection to anxiety sensitivity. *Journal of Psychosomatic Research, 140*, 110–119. https://doi.org/10.1016/j.jpsychores.2020.110273
9. Bober, S. L., et al. (2012). Sexuality in adult cancer survivors: Challenges and intervention. *Journal of Clinical Oncology, 30*(30), 3712–3719. https://doi.org/10.1200/JCO.2012.41.7915
10. Butow, P. N., Phillips, F., Schweder, J., White, K., Underhill, C., & Goldstein, D. (2012). Psychosocial well-being and supportive care needs of cancer patients living in urban and rural/regional areas: A systematic review. *Supportive Care in Cancer*, *20*(1), 1–22. https://doi.org/10.1007/s00520-011-1270-1
11. Carreira, H., Williams, R., Funston, G., Stanway, S., & Bhaskaran, K. (2021). Associations between breast cancer survivorship and adverse mental health outcomes: A matched population-based cohort study in the United Kingdom. *PLoS Medicine, 18*(1), e1003504. https://doi.org/10.1371/journal.pmed.1003504
12. Cernikova, M., et al. (2024). We will be different forever: A qualitative study of changes of body image in women with breast cancer. *BMC Public Health, 24*, 2517. https://doi.org/10.1186/s12889-024-20017-7
13. Chesli, J., et al. (2024). The role of sexual self-esteem, sexual desire, and sexual assertiveness in the female sexual function. *Psicologia: Reflexão e Crítica, 37*, 21. https://doi.org/10.1186/s41155-024-00303-4
14. De Berardis, D., Marini, S., Iasevoli, F., Mazza, M., Valchera, A., Fornaro, M., Perna, G., Orsolini, L., Carano, A., Girinelli, G., Vellante, F., Matarazzo, I., Serroni, N., Cavuto, M., Martinotti, G., Brucchi, M., & Di Giannantonio, M. (2016). Alexithymia and breast cancer surgery: A systematic review. *British Journal of Medicine & Medical Research, 15*(11), 1–11. https://doi.org/10.9734/BJMMR/2016/25934
15. De Vries, A. M., Forni, V., Voellinger, R., & Stiefel, F. (2012). Alexithymia in cancer patients: Review of the literature. *Psychotherapy and Psychosomatics, 81*(2), 79–86. https://doi.org/10.1159/000330888
16. Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, *196*(4286), 129–136. https://doi.org/10.1126/science.847460
17. Eraslan, P., İlhan, A., Karacin, C., et al. (2022). Alexithymia may be associated with depression in early-stage breast cancer patients. *Cureus, 14*(9), e29519. https://doi.org/10.7759/cureus.29519
18. Esmkhani, M., Aghajani, N., Korte, J. E., Youseflo, S., Moharrami-nezhad Fard, M., Garrosi, L., & Merghati-Khoei, E. (2024). Breast cancer and sexual self-concept: Comparing women with breast cancer and healthy women. *Journal Name*, *26*(2), x–x. https://doi.org/10.34172/jsums.81

19. Fardell, J. E., Thewes, B., Turner, J., Gilchrist, J., Sharpe, L., & Butow, P. (2016). Fear of cancer recurrence: A theoretical review and novel cognitive processing formulation. *Journal of Cancer Survivorship, 10*(4), 663–673. https://doi.org/10.1007/s11764-015-0512-5
20. Fioretti, C., Mazzocco, K., & Pravettoni, G. (2017). Psychological support in breast cancer patients: A personalized approach. In U. Veronesi, A. Goldhirsch, P. Veronesi, O. Gentilini, & M. Leonardi (Eds.), *Breast cancer* . Springer. https://doi.org/10.1007/978-3-319-48848-6_73
21. Fiser, C., Crystal, J. S., Tevis, S. E., Kesmodel, S., & Rojas, K. E. (2021). Treatment and survivorship interventions to prevent poor body image outcomes in breast cancer survivors. *Breast Cancer: Targets and Therapy, 13*, 701–709.
22. Flynn, K., Lin, L., Bruner, D., Cyranowski, J., Hahn, E., Jeffery, D., Barsky Reese, J., Reeve, B., Shelby, R., & Weinfurt, K. (2016). Sexual satisfaction and the importance of sexual health to quality of life throughout the life course of U.S. adults. *The Journal of Sexual Medicine, 13*(11), 1642–1650. https://doi.org/10.1016/j.jsxm.2016.08.011
23. Ganz, P. A., Desmond, K. A., Leedham, B., Rowland, J. H., Meyerowitz, B. E., & Belin, T. R. (2002). Quality of life in long-term, disease-free survivors of breast cancer: A follow-up study. *Journal of the National Cancer Institute, 94*(1), 39–49. https://doi.org/10.1093/jnci/94.1.39
24. Gilbert, E., Ussher, J. M., & Perz, J. (2010). Sexuality after breast cancer: A review. *Maturitas, 66*(4), 397–407. https://doi.org/10.1016/j.maturitas.2010.03.027
25. Gooran, S., Simbar, M., Hajian, S., Nazarpour, S., Nasiri, M., & Martin, J. (2020). The relationship between sexual self-concept and mental body image in women with breast cancer. *International Journal of Women's Health and Reproduction Sciences, 8*(4), 383–388. https://doi.org/10.15296/ijwhr.2020.61
26. Grassi, L., Caruso, R., & Nanni, M. G. (2013). Psychological aspects of breast cancer. *International Review of Psychiatry, 25*(1), 41–51. https://doi.org/10.3109/09540261.2012.731384
27. Gutiérrez Hermoso L, Velasco Furlong L, Sánchez-Román S and Salas Costumero L (2020) The Importance of Alexithymia in Post-surgery. Differences on Body Image and Psychological Adjustment in Breast Cancer Patients. Front. Psychol. 11:604004. doi: 10.3389/fpsyg.2020.604004
28. Heidari M, Shahbazi S, Ghodusi M. Evaluation of body esteem and mental health in patients with breast cancer after mastectomy. J Mid-life Health 2015;6:173-7. DOI: 10.4103/0976-7800.172345
29. Homsi, J., Walsh, D., Rivera, N., Rybicki, L., Nelson, K. A., LeGrand, S. B., & Long, K. (2006). Symptom evaluation in palliative medicine: Patient report vs systematic assessment. *Supportive Care in Cancer, 14*(5), 444–453. https://doi.org/10.1007/s00520-005-0007-1
30. Hopwood, P., Sumo, G., Haviland, J. S., Mills, J., Bliss, J. M., & Yarnold, J. R. (2013). Comparison of patient-reported breast, arm, and shoulder symptoms and body image after radiotherapy for early breast cancer. *Journal of Clinical Oncology, 31*(15), 2079–2086. https://doi.org/10.1200/JCO.2012.43.733
31. Hughes, M., Brown, S., Campbell, S., Dandy, S., & Cherry, M. (2021). Self-compassion and anxiety and depression in chronic physical illness populations: A systematic review. *Mindfulness, 12*(10), 2471–2485. https://doi.org/10.1007/s12671-021-01602-y
32. Jamali, S., Poornowrooz, N., Mosallanezhad, Z., & Alborzi, M. (2018). Correlation between sexual satisfaction and self-esteem and stress in women of reproductive age. *Journal of Clinical and Diagnostic Research, 12*(4), 12152. https://doi.org/10.7860/JCDR/2018/37423.12152

33. Jürgensen, R., Rief, W., Doering, B. K., & Barke, A. (2020). Self-compassion in patients with somatoform disorders. *Psychology and Health, 35*(8), 938–955. https://doi.org/10.1080/08870446.2019.170782
34. Kaufman, R., Agrawal, L., Teplinsky, E., Kiel, L., Abioye, O., & Florez, N. (2024). From diagnosis to survivorship: Addressing the sexuality of women during cancer. *The Oncologist, 29*(10), 1014–1023. https://doi.org/10.1093/oncolo/oyae242
35. Kennedy, S. K. F., Mekhaeil, S., Zhang, E., Aghadavoudi Jolfaei, N., Wong, H. C. Y., Chan, A. W., Lee, S. F., Haywood, D., Kirk, D., Abdou, A. M., Gopalakrishnan, R., Guedes, H., Tan, C. J., Thamm, C., & Alkhaifi, M. (2024). Sexual health after breast cancer: A clinical practice review. *Annals of Palliative Medicine, 13*(5), 1281–1290. https://doi.org/10.21037/apm-24-77
36. King, R., Stafford, L., Butow, P., Giunta, S., & Laidsaar-Powell, R. (2023). Psychosocial experiences of breast cancer survivors: A meta-review. *Journal of Cancer Survivorship*. Advance online publication. https://doi.org/10.1007/s11764-023-01336-x
37. Kroenke, K., Zhong, X., Theobald, D., Wu, J., Tu, W., & Carpenter, J. S. (2010). Somatic symptoms in cancer patients with pain and/or depression: Prevalence, disability, and health care use. *Archives of Internal Medicine, 170*(18), 1686–1694. https://doi.org/10.1001/archinternmed.2010.337
38. Lee, M., Kim, Y. H., & Jeon, M. J. (2015). Risk factors for negative impacts on sexual activity and function in younger breast cancer survivors. *Psycho-Oncology, 24*(9), 1097–1103. https://doi.org/10.1002/pon.3772
39. Lengacher, C. A., Johnson-Mallard, V., Post-White, J., Moscoso, M. S., Jacobsen, P. B., Klein, T. W., ... & Kip, K. E. (2009). Randomized controlled trial of mindfulness-based stress reduction (MBSR) for survivors of breast cancer. *Psycho-Oncology, 18*(12), 1261–1272. https://doi.org/10.1002/pon.1529
40. Levin, G. T., Greenwood, K. M., Singh, F., & et al. (2018). Modality of exercise influences rate of decrease in depression for cancer survivors with elevated depressive symptomatology. *Supportive Care in Cancer, 26*, 1597–1606. https://doi.org/10.1007/s00520-017-3996-x
41. López-Muñoz, F., & Pérez-Fernández, F. (2020). A history of the alexithymia concept and its explanatory models: An epistemological perspective. Frontiers in Psychiatry, 10, 1026. https://doi.org/10.3389/fpsyt.2019.01026
42. Luminet, O., Rokbani, L., Ogez, D., & Jadoulle, V. (2007). Alexithymia and treatment decision satisfaction in breast cancer patients: A prospective study. *Journal of Psychosomatic Research, 62*(6), 641–648. https://doi.org/10.1016/j.jpsychores.2007.01.003
43. Marchesi, C., Fontò, S., Balista, C., Cimmino, C., & Maggini, C. (2004). [Title of the article]. *Psychotherapy and Psychosomatics, 74*(1), 56–60. https://doi.org/10.1159/000082028
44. Martino, G., Caputo, A., Vicario, C. M., Feldt-Rasmussen, U., Watt, T., Quattropani, M. C., Benvenga, S., & Vita, R. (2021). Alexithymia, emotional distress, and perceived quality of life in patients with Hashimoto's thyroiditis. *Frontiers in Psychology, 12*. https://doi.org/10.3389/fpsyg.2021.667237
45. Martins Faria, B., Martins Rodrigues, I., Verri Marquez, L., da Silva Pires, U., & Vilges de Oliveira, S. (2021). The impact of mastectomy on body image and sexuality in women with breast cancer: A systematic review. *Psicooncología, 18*, 91–115. https://doi.org/10.5209/psic.74534

46. Mattila, A. K., Salminen, J. K., Nummi, T., & Joukamaa, M. (2006). Age is strongly associated with alexithymia in the general population. *Journal of Psychosomatic Research, 61*(5), 629–635. https://doi.org/10.1016/j.jpsychores.2006.04.013
47. McGannon, K. R., Berry, T. R., Rodgers, W. M., & Spence, J. C. (2016). Breast cancer representations in Canadian news media: A critical discourse analysis of meanings and the implications for identity. *Qualitative Research in Psychology, 13*(2), 188–207. https://doi.org/10.1080/14780887.2016.1145774
48. Metzger-Filho, O., Tutt, A., de Azambuja, E., Saini, K. S., Viale, G., Loi, S., Bradbury, I., Bliss, J. M., Azim, H. A., Jr., Ellis, P., Di Leo, A., Baselga, J., Sotiriou, C., & Piccart-Gebhart, M. (2012). Dissecting the heterogeneity of triple-negative breast cancer. *Journal of Clinical Oncology, 30*(15), 1879–1887. https://doi.org/10.1200/JCO.2011.38.2010
49. Morales-Sánchez, L., Luque-Ribelles, V., Gil-Olarte, P., Ruiz-González, P., & Guil, R. (2021). Enhancing self-esteem and body image of breast cancer women through interventions: A systematic review. *International Journal of Environmental Research and Public Health, 18*(4), 1640. https://doi.org/10.3390/ijerph18041640
50. Morrell, S., Taylor, R., Roder, D., Robson, B., Gregory, M., & Craig, K. (2017). Mammography service screening and breast cancer mortality in New Zealand: A national cohort study 1999–2011. *British Journal of Cancer, 116*(6), 828–839. https://doi.org/10.1038/bjc.2017.6
51. Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology, 69*(1), 28–44. https://doi.org/10.1002/jclp.21923
52. Ni Made Merlin,1 Ibrahim Rahmat,2 Wiwin Lismidiati,3 Israfil Israfil4. Self-concept problem and inpatient with breast cancer: A scoping review. J Psychiatric Nurs 2025;16(1):60-66. DOI: 10.14744/phd.2025.78989
53. Nimbi, F. M., Tripodi, F., Rossi, R., & Simonelli, C. (2019). The role of somatic symptom disorder in sexual functioning. *Journal of Psychosomatic Research, 123*, 109795. https://doi.org/10.1016/j.jpsychores.2019.109795
54. Olatunji, B. O., & Wolitzky-Taylor, K. B. (2009). Anxiety sensitivity and the anxiety disorders: A meta-analytic review and synthesis. *Psychological Bulletin, 135*(6), 974–999. https://doi.org/10.1037/a0017428
55. Osypiuk, K., Kilgore, K., Ligibel, J., Vergara-Diaz, G., Bonato, P., & Wayne, P. M. (2020). “Making peace with our bodies”: A qualitative analysis of breast cancer survivors’ experiences with Qigong mind–body exercise. *The Journal of Alternative and Complementary Medicine, 26*(9), 827–834. https://doi.org/10.1089/acm.2019.0406
56. Parker, G., Cheah, Y. C., & Roy, K. (2001). Do the Chinese somatize depression? A cross-cultural study. *Social Psychiatry and Psychiatric Epidemiology, 36*(6), 287–293. https://doi.org/10.1007/s001270170046
57. Pintado, S. (2017). Self-concept and emotional well-being in patients with breast cancer. Revista Iberoamericana de Psicología y Salud, 8(2), 76-84, https://doi.org/10.23923/j.rips.2017.08.007
58. Pintado, S., & Andrade, S. (2017). Randomized controlled trial of mindfulness program to enhance body image in patients with breast cancer. *European Journal of Integrative Medicine, 12*, 147–152. https://doi.org/10.1016/j.eujim.2017.05.009

59. Przezdziecki, A., Sherman, K. A., Baillie, A., Taylor, A., Foley, E., & Stalgis-Bilinski, K. (2012). My changed body: Breast cancer, body image, distress and self-compassion. *Psycho-Oncology*. Advance online publication. https://doi.org/10.1002/pon.3230
60. Pusic, A. L., Cemal, Y., Albornoz, C., Klassen, A., Cano, S., Sulimanoff, I., Hernandez, M., Massey, M., Cordeiro, P., Morrow, M., & Mehrara, B. (2013). Quality of life among breast cancer patients with lymphedema: A systematic review of patient-reported outcome instruments and outcomes. *Journal of Cancer Survivorship, 7*(1), 83–92. https://doi.org/10.1007/s11764-012-0247-5
61. Rachman, S. (1998). A cognitive theory of compulsive checking. *Behaviour Research and Therapy, 36*(4), 341–354. https://doi.org/10.1016/S0005-7967(97)10041-
62. Rachman, S. (2012). Health anxiety disorders: A cognitive construal. *Behaviour Research and Therapy, 50*(7–8), 502–512. https://doi.org/10.1016/j.brat.2012.05.001
63. Ridolfi, D. R., & Crowther, J. H. (2013). The link between women's body image disturbances and body-focused cancer screening behaviors: A critical review of the literature and a new integrated model for women. *Body Image, 10*(2), 149–162. https://doi.org/10.1016/j.bodyim.2012.11.003
64. Sadri Damirchi E, Esmaeili Ghazivaoloi F, Fathi D, Mehraban Sh, Ahmadboukani S. Effectiveness of Group Psychotherapy Based on Admission and Commitment to Body Dysmorphic Obsessive-Compulsive Disorder in Women With Breast Cancer. Iranian Rehabilitation Journal. 2019; 17(4):351-358. : http://dx.doi.org/10.32598/irj.17.4.351
65. Salkovskis, P. M. (1996). The cognitive approach to anxiety: Threat beliefs, safety-seeking behavior, and the special case of health anxiety and obsessions. In P. M. Salkovskis (Ed.), *Frontiers of cognitive therapy* (pp. 48–74). Guilford Press.
66. Savani, C. D., Patel, A. H., & Oswal, R. M. (2023). Body image concern, quality of life, and psychological reaction among breast cancer patients: A cross-sectional study in a tertiary care hospital of Western India. *Annals of Indian Psychiatry, 7*, 47–53. https://doi.org/10.4103/aip.aip_166_22
67. Schover, L. R., Yetman, R. J., Tuason, L. J., Meisler, E., Esselstyn, C. B., Hermann, R. E., & Grundfest-Broniatowski, S. (1995). Body image, sexuality, and psychosocial adjustment in women after breast cancer treatment: A comparison of lumpectomy, mastectomy, and breast reconstruction. *Cancer, 75*(1), 54–64. https://doi.org/10.1002/1097-0142
68. Sebri, V., Pizzoli, S. F. M., Marzorati, C., Mazzocco, K., & Pravettoni, G. (2024). Interoception and body image in breast cancer patients: A mindfulness-based stress reduction protocol. *Frontiers in Psychology, 15*, 1394355. https://doi.org/10.3389/fpsyg.2024.1394355
69. Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research*, *46*(3), 407–441. https://doi.org/10.3102/00346543046003407
70. Sibrava, N. J., Björgvinsson, T., Lewin, A. B., Silverstein, J. L., & Purdon, C. L. (2011). Patterns of somatic obsession and compulsion in OCD: Clinical implications. *Depression and Anxiety, 28*(3), 219–225. https://doi.org/10.1002/da.20791
71. Sifneos, P. E. (2000). Alexithymia, clinical issues, politics and crime. Psychotherapy and Psychosomatics, 69(3), 113–116. https://doi.org/10.1159/000012377
72. Simonelli, C., Tripodi, F., Rossi, R., & Nimbi, F. M. (2017). Hypoactive sexual desire and somatic complaints: Clinical correlations. *Journal of Affective Disorders, 217*, 42–48. https://doi.org/10.1016/j.jad.2016.11.028

73. Skrzypulec, V., Tobor, E., Drosdzol-Cop, A., & Nowosielski, K. (2009). Biopsychosocial functioning of women after mastectomy. *Journal of Clinical Nursing, 18*(5), 613–619. https://doi.org/10.1111/j.1365-2702.2008.02476.x
74. Sopfe, J., Pettigrew, J., Afghahi, A., Appiah, L. C., & Coons, H. L. (2021). Interventions to improve sexual health in women living with and surviving cancer: Review and recommendations. *Cancers (Basel), 13*(13), 3153. https://doi.org/10.3390/cancers13133153
75. Taylor, G. J., Bagby, R. M., & Parker, J. D. A. (1997). *Disorders of affect regulation: Alexithymia in medical and psychiatric illness*. Cambridge University Press. https://doi.org/10.1017/CBO9780511526831
76. Taylor, G. J., Parker, J. D. A., Bagby, R. M., & Acklin, M. W. (1992). Alexithymia and somatic complaints in psychiatric out-patients. *Journal of Psychosomatic Research, 36*(5), 417–424. https://doi.org/10.1016/0022-3999(92)90002-J
77. Thewes, B., Lebel, S., Seguin Leclair, C., & Butow, P. (2016). A qualitative exploration of fear of cancer recurrence (FCR) amongst Australian and Canadian breast cancer survivors. *Supportive Care in Cancer, 24*(5), 2269–2276. https://doi.org/10.1007/s00520-015-3025-x
78. Tolin, D. F., & Steketee, G. (2007). General issues in psychological treatment for obsessive-compulsive disorder. In M. M. Antony, C. Purdon, & L. J. Summerfeldt (Eds.), *Psychological treatment of obsessive-compulsive disorder: Fundamentals and beyond* (pp. 31–59). American Psychological Association. https://doi.org/10.1037/11543-002
79. Ussher, J. M., Perz, J., Gilbert, E., Wong, W. K., & Hobbs, K. (2015). Perceived causes and consequences of sexual changes after cancer for women and men: A mixed method study. *BMC Cancer, 15*, 268. https://doi.org/10.1186/s12885-015-1243-8
80. Van de Wal, M., Gielissen, M. F. M., Prins, J. B., & Bazelmans, E. (2018). A cognitive-behavioral intervention for fear of cancer recurrence in breast cancer survivors: Results of a randomized controlled trial. *Psycho-Oncology, 27*(6), 1340–1346. https://doi.org/10.1002/pon.4677
81. Wong-Kim, E. C., & Bloom, J. R. (2005). Depression experienced by young women newly diagnosed with breast cancer. *Psycho-Oncology, 14*(7), 564–573. https://doi.org/10.1002/pon.873
82. Wu, M., Zhou, C., & Yu, X. (2022). The impact of self-concept clarity on social anxiety: Mediating role of fear of evaluation. *Personality and Individual Differences, 185*, 111267. https://doi.org/10.1016/j.paid.2022.111267
83. Yurek, D., Farrar, W., & Andersen, B. L. (2000). Breast cancer surgery: Comparing surgical groups and determining individual differences in postoperative sexuality and body change stress. *Journal of Consulting and Clinical Psychology, 68*(4), 697–709. https://doi.org/10.1037/0022-006X.68.4.697
84. Zebrack, B., & Isaacson, S. (2012). Psychosocial care of adolescent and young adult patients with cancer and survivors. *Journal of Clinical Oncology, 30*(11), 1221–1226. https://doi.org/10.1200/JCO.2011.39.5467
85. Ziaei T, Farahmand Rad H, Rezaei Aval M, Roshandel Gh. The Relationship between Sexual Self-concept and Sexual Function in Women of Reproductive Age Referred to Health Centers in Gorgan, North East of Iran. Journal of Midwifery and Reproductive Health. 2017; 5(3): 969-977. DOI: 10.22038/jmrh.2017.8744

Books-

1. Cash, T. F., & Pruzinsky, T. (Eds.). (2002). *Body image: A handbook of theory, research, and clinical*

practice. The Guilford Press.
2. Nemiah, J. C., & Sifneos, P. E. (1970). Affect and fantasy in patients with psychosomatic disorders. In O. W. Hill (Ed.), Modern trends in psychosomatic medicine (pp. 26–34). London: Butterworths.
3. Nemiah, J. C., Freyberger, H., & Sifneos, P. E. (1976). Alexithymia: A view of the psychosomatic process. In O. W. Hill (Ed.), *Modern trends in psychosomatic medicine* (Vol. 3, pp. 430–439). Butterworths.