

# **Body Image in breast cancer survivors: a new *Injured Self* construct and available psychological interventions**

## **ABSTRACT**

To date, research on Body Image (BI) has burgeoned in the psychological field; however, most studies have failed to acknowledge the multidimensional nature of BI in breast cancer survivors, who were dealing with a traumatic event. My Ph.D. thesis focuses on the impact of the BI on the Quality of Life (QoL) in breast cancer survivors. The current project proposes a renovated definition of the Bodily Self with the integration of a new self-representation, called *Injured Self*, based on the association between autobiographical memory and the cancer experience. Specifically, three studies addressed BI and the *Injured Self* through quantitative and qualitative methods. Firstly, a review and meta-analysis study demonstrated the effectiveness of mixed-methods interventions on BI in breast cancer patients and survivors. However, BI does not appropriately address all bodily' issues in the oncological field. Then, a study based on both physical exercises and psychological interventions tailored to the *Injured Self* issues increased well-being. Third, a new psychological intervention focused on Body Compassion's contents to promote a positive Injured Self was proposed. The present thesis gives future directions to increase a positive relationship with the body in breast cancer survivors, by decreasing the traumatic event' perception related to the cancer experience.

## **INTRODUCTION**

Nowadays, most of the main challenges emerging from the healthcare systems worldwide regard long-term care of chronic conditions. Diseases once lethal are today treatable, but still deeply affect patients and survivors' Quality of Life (QoL) requiring continual healthcare management even after recovery. In chronic disease, breast cancer is the most common cancer in women worldwide, with an estimated 1.7 million new cancer cases diagnosed in 2012, representing 25% of all cancers. Breast cancer is also the most frequent cause of death for women aged <55 years (Lahart et al., 2015; Bower et al., 2015). The American Psychiatric Association recognized cancer diagnosis as a traumatic stressor possibly generating impairments in different areas of functioning, such as the ability to work and intimate and social relationships, because of negative moods (e.g., anxiety, anger, sadness, suffering, guilt, and fear of death) (Arnaboldi et al., 2014) with notable consequences on breast cancer's women QoL (Słowik et al., 2017; Soo et al., 2016) and even in the disease progression (Renzi et al., 2016<sup>a</sup>).

On a physical level, oncological treatments may lead to several physical changes, such as skin discoloration, dermatitis, soreness, and hair loss (Gorini et al., 2016; Parker et al., 2017). Moreover, chemotherapy and hormonal therapy are associated with weight increase and surgery may remove one or both breasts and leave scars (Park, 2017; Trusson & Pilnick, 2017). Referring to bodily changes, adverse effects such as dizziness, nausea, a tingling sensation in the fingers and feet, swollen joints and swelling of the affected limb and range of motion as consequences of chemotherapy and anti-hormonal therapy are commonly mentioned (Kim et al., 2020), disturbing women even five years later (Fang et al., 2016). In this regard, oncological treatments can also affect the body about induced menopause, vaginal dryness, and loss of fertility, which can threaten overall self-satisfaction. Being dissatisfied with one's own body affects sexuality and femininity too on several dimensions. Cancer can affect sexual identity and intimacy with the partner due to the embarrassment for the body (Male et al., 2016; Woertman & Van den Brink, 2012). This could be associated with the fear related to insecurity in one's body resulting from changes in the shape and sensitivity of breasts as well as the fear that the partner does not accept these bodily changes (Fioretti et al., 2017). The relationship with the partner is often threatened by the impossibility of pregnancy too (Rowland et al., 2009).

All physical changes affect women' perception of their own Body Image (BI) (Brunet et al., 2022; Slowik et al., 2017). Additionally, bodily sensations and interoceptive sensations are constant reminders of their illness experience and, especially, of the distressing possibility that cancer may have returned (Harris et al., 2017). Women often reported that, even if they try to reconcile their FCR, bodily marks (e.g., tattoo and burn marks from radiotherapy, and the lost either part, or the whole, of one or both breasts) are constant reminders of their illness experience (Trusson et al., 2016; Fang et al., 2016). Therefore, "checking behaviors" (i.e., touching sensitive areas of their own bodies and looking for nodules or anomalies daily) can be a typical behavioral feature after diagnosis that represents a strong FCR (McGinty et al., 2016). Thewes and colleagues (2012) showed that breast cancer survivors declared a higher frequency of breast self-examination due to high Fear of Cancer Recurrences (FCR). In other words, interoceptive sensations and pain within the breast and chest, once ignored, are now suddenly salient and disruptive due to the FCR (Falbjork et al., 2013; Paterson et al., 2016). To sum up, women reported that physical alterations as a permanent embodied reminder that with high distress for the negative impact on the sense of femininity and sexuality (Thomas-MacLean, 2005). However, others refer that physical alterations are not wholly a negative experience, but a source of being proud in their strength to cope with illness.

On a psychological level, studies provided evidence that cancer treatments can lead to mood disorders and cognitive dysfunctions (Arnaboldi, et al., 2014; Park et al., 2017). Moreover, breast cancer diagnosis often comes at an age when women are in the middle of career development or child-rearing. Women do not feel ready and able to face a chronic risky illness for life (Hermann et al., 1996). This way, the anticipation of

adverse outcomes, uncertainty about the future, and changes in lifestyle post-diagnosis can lead to higher emotional distress (Ng et al., 2017). On a cognitive level, living with breast cancer can also lead to impairments in attention, executive function, learning, and memory (Ibrahim et al., 2017). Many patients undergoing cancer treatment complain about so-called “*chemobrain*” (McAllister et al., 2004), a cognitive decline associated with brain intoxication (Butler & Haser, 2006). Symptoms of “*chemobrain*” often persist after the completion of therapy and cause discomfort to survivors who are unable to return to daily life or find difficulties at work. Finally, another relevant issue for cancer patients is decision-making during their cancer care process. As known, cancer continuum is characterized by several stages (i.e., prevention, screening, diagnosis, treatment, survival, or end of life) and each of them requires at least one specific decision (Reyna et al., 2015; Gorini et al., 2018). Good cognitive skills and flexibility to make the right choice *per se* and lead to appropriate changes in lifestyle are needed (Arnaboldi et al., 2016). Ideally, along cancer continuum, decisions should be based on clear benefits and fully understood drawbacks associated with an understanding of alternative courses of action (Reyna et al., 2015). Breast cancer patients must be aware of what is happening to them and the current state of the disease, comparing all the different treatment options and assessing their ongoing emotions (Renzi et al., 2016<sup>b</sup>).

In conclusion, traumatic life event, as breast cancer, deeply influences BI and the overall well-being in breast cancer survivors strongly, who have to deal with important and specific challenges after cancer (Gudenkauf et al., 2015; Sebri et al., 2019; 2020<sup>b</sup>). The perception of a sense of powerlessness is frequently associated with a poor self-conception, often affecting also self-esteem and the perception of womanhood (Chung et al., 2017; Wilmoth, 2001). Thus, it is important to explore BI issues in breast cancer survivors and available interventions to promote well-being and health management.

### **From Body Image to *Injured Self***

As aforementioned, oncological disease does not only affect the body and its aesthetic appearance (Trusson et al., 2016). A growing body of literature shows that breast cancer seriously infringes on survivors' BI (Jabłoński et al., 2019). Specifically, BI can be defined as an “internal representation of one's own outer appearance” (Thompson et al., 1999, p. 4). It is a complex representation of one's own body and related emotions within an overall sense of bodily self (Lewis-Smith et al., 2018) at several levels: attitudinal (such as the subjective satisfaction about one's own body), affective (i.e., sensations and emotions), perceptual (for example, being able to estimate the body size), cognitive (in terms of involvement in appearance belief about the body, for instance), and behavioral dimensions (i.e., compensatory behaviors such as physical activity and dieting) (Cash & Smolak, 2011). BI is the result of integration of multiple inputs; some of them coming from the perception of the body itself (*somatic perception*, influenced by body position in space, interoceptive and exteroceptive inputs); others come from cognitive representations, which are influenced by environment and

culture (*somato-representation* or the semantic knowledge of the body) (Longo et al., 2010).

Since the previous background, women often feel inappropriate (Falk Dahl et al., 2010; Dua et al., 2015) and tend to constantly self-scrutinize their physical appearance and related signs of oncological treatments (Triberti et al., 2017; 2019). On a behavioral level, the everyday act of clothing becomes a charge. Efforts to camouflage defects with hats or makeup, excessive grooming (e.g., hair combing), and changes in dieting and clothing could be expected behaviors to cope with oncological signs (Phillips, 2008). Similarly, women reported the measures they took to conceal the surgery results, such as avoiding low necklines, which might reveal a scar or the top of their prosthesis, and certain situations where they were not confident. Thus, social relationships are sometimes experienced with a certain amount of shame and anxiety for the distressed apprehension of the self as inadequate and seemed worried that this inadequacy may come suddenly to light (Bartky, 1990). Finally, impairments in the relationship with the own body impact the abilities to face diagnosis and oncological treatments. Studies reported that capacities in managing the diseases could be compromised if oncological survivors are apprehensive about their bodies (Speck et al., 2010).

To sum up, body perception and social interactions combine to integrate a view of “me”. From this “me,” an expectation develops of how the body would function and respond in certain situations and the physical changes of cancer can interrupt this familiar self-definition (Hungr et al., 2017). Oncological intervention and treatments are much more than the change/loss of a body part but they profoundly affect self-esteem and social relationships. Therefore, women after cancer tend to reframe their identity, which is affected by storylines articulated around autobiographical memories as a survivor (Nieto et al., 2019). Despite the relevance of assessing breast cancer survivors' evaluation of their own physical appearance as well as attitudes towards the body (Sherman et al., 2018; Torres et al., 2020), a theory to define what BI means for breast cancer survivors, what factors influence BI, and its consequences is lacking in the current literature. A new self-representation, the so-called *Injured Self*, is proposed (Sebri et al., 2020<sup>b</sup>).

#### *The Injured Self: definition and clinical implications*

As previously reported, breast cancer survivors are affected by “injuries” to the self, although they received successful treatment. However, there is not a specific self-representation associated with illness experience currently. The present Ph.D. thesis proposes the *Injured Self* constructs, an illness-related self-schema, which actively affects the overall self and everyday life decisions; breast cancer survivors have to integrate the Injured Self into a renovated self to promote an overall and coherence sense of the Self, in terms of BI especially (Sebri et al., 2020<sup>b</sup>).

The episodic memory system, in particular, plays an essential role in defining of the *Injured Self* ‘s

definition (Conway, 2005). On a cognitive level, interoceptive and exteroceptive perception resulting from the body during and after a cancer experience can affect the Self-Memory System (SMS). Specifically, SMS is involved in the closely knit and reciprocal interconnection between the Self and autobiographical memories (Conway, 2005) and is characterized by vividness, connection to concern or unresolved conflict, and a high rehearsal (Singer & Salovey, 1993). This way, illness-relevant information, which belongs to SMS, becomes more salient and accessible than others (Clemmey & Nicassio, 1997), leading to strong consequences on emotions and behaviors and meaning-making of life events (Conway, 2005; Franco et al., 2017). The flexibility of SMS is essential to allow emotion regulation and reach individuals' goals (Josephson et al., 1996). In contrast, a greater identification as a cancer patient/survivor predicts maladaptive autobiographical thinking processes can emerge (Sansom-Daly et al., 2018). Nieto and colleagues evidenced that intrusive memories of cancer experiences and avoidance are associated with autobiographical memory issues and depressive thinking. Additionally, the experience of inability to perceive the correspondence between autobiographical memories and self-representations can destroy any delineated sense of Self (Conway et al., 2005). Thus, the experience of breast cancer, also in terms of alterations within the SMS, has relevant consequences on mental health, involving high levels of anxiety, depression, and distress until some years after acute treatments (Woertman & Van den Brink, 2012).

Women must recognize and manage the *Injured Self* as a new self-representation that affects their attitudes and behaviors (Zacks et al., 2001). In this sense, it has to be integrated into the overall self by following the self-coherence request (Markus & Nurius, 1986). Five relevant areas could be affected by an *Injured Self*-representation:

- *adherence to treatments*: the *Injured Self* may lead women to depression symptoms and, then, to a low engagement in healthy behaviors (Kaplan et al., 2010) by adhering to treatments in a passive and lacking manner. This is evident when they struggle or refrain from actively making decisions, despite the relevance of their active role in the process of care (Kondylakis et al., 2017);
- *view on the future*: positive self-representations are essential to adopt adaptive coping styles (Zhang et al., 2010). On the contrary, *Injured Self* may highlight the fear of thinking and dreaming about the future, leading women to focus on their self-representation as a patient only (Sansom-Daly et al., 2018). Yet, goals are seriously limited because of an overall perception of hopelessness grounded in the self-representations;
- *daily lifestyle and relationships*: *Injured Self* seriously impairs routine and relationships (Jacobs et al., 2018). Breast cancer survivors might remain trapped in the idea of being not self-sufficient or, on the contrary, the desire to demonstrate their willingness to be healthy could increase distress;
- *emotion regulation*: *Injured Self* may lead to impairments in autobiographical memories and self-representations (Giffard et al., 2013). However, not all women are aware of one's own inner sensations and feelings; thus, it is relevant to support them in emotional awareness improvements (Herwig et al.,

2010);

- *coherence and flexibility of the overall Self: Injured Self* may cause a breakdown in life continuity. This affects self-identity, making the cancer event an important part of self-representations (Cheung & Delfabbro, 2016).

As a clinical implication, psychological interventions should aim to reintegrate self-coherence among self-representations and *Injured Self*. Mainly, *Injured Self* could be addressed about one's changes, time of appearance, and the subjective interpretation of the events, breast cancer firstly. An example of an efficacy intervention could be life review therapy, based on retrieving positive memories and re-evaluating of patients' life events (Kleijn et al., 2018). Thus, the exploration of other characteristics associated with chronic illness-related alterations to the self as well as a specific and appropriate psychological treatment for *Injured Self* is needed.

### **The Impact of Unsupportive Social Support on the Injured Self in Breast Cancer Patients**

Addressing *Injured Self* and its characteristics, it is relevant to consider social support (Sebri et al., 2021<sup>c</sup>). Social support is a human need associated with believing that others have positive or negative views about us (Wills, 1991). In general, a distinction between perceived and received social support is needed. From a constructionist point of view (Lakey et al., 1992), studies demonstrated that social support is impacted by the recipient's perception of the others' evaluation of themselves and their personality characteristics. The perceived social support is influenced by the receiver, supporter, and their relationship characteristics (Haber et al., 2007). As known from life-span approaches (Uchino, 2009), the familiar environment impacts on perceived social support too. In other words, the current social and relational network influence received social support, which is context-related and, therefore, grounded in social self-representations over time. In this regard, restrictive cultures may limit the possibilities of developing supportive relationships outside of the family nucleus (Badr et al., 2001). This way, not all forms of social support are beneficial (Breuer et al., 2017), but they can be divided into positive and negative ones. Firstly, positive support is conceived as interactions that promote affection (Ahn et al., 2017). On the contrary, negative support is related to support perceived as unhelpful or social constraints by others. This second one received less attention from scholars over the years (Breuer et al., 2017). Four main types of social support were identified by Suurmeijer and colleagues (1995): social-emotional or relationships based on affection and companionship; instrumental (e.g., advice and practical suggestions); problem-oriented or actual supportive interaction, which related to the resolution of a specific problem; and daily support, focused on the full-time assistance for both socio-emotional and instrumental means.

Breast cancer patients are particularly susceptible to the availability of social support at specific times of the cancer experience (e.g., diagnosis). For example, high social support could be strongly relevant for breast cancer patients, survivors, and their health management. Positive social support can promote illness adjustment by decreasing distress and lowering the risk of recurrence (Drageset et al., 2016; Martos-Méndez, 2015). Similarly, women may perceive that others will provide the resources to redefine the traumatic events, attenuating distress through the assurance of esteem and a sense of security as well as protection from negative feelings (e.g., helplessness and loss of self-esteem) (Zhang et al., 2017). This is in line with the *buffering model*, which is a process of support that protects individuals from the potentially adverse effects of stressful events (Cohen & Wills, 1985). On the contrary, it is paramount to note that negative social support affects breast cancer patients' QoL (Shiozaki et al., 2011). A similar phenomenon has been defined in terms of “oppressive support” (Mazzoni et al., 2017), “problematic support” (Revenson et al., 1991), and “negative support” (Shiozaki et al., 2011). In these cases, social interactions that are perceived as detrimental can promote disengagement coping strategies, despite the perception of the supportive intent of the provider (Nouman & Zanbar, 2020). Moreover, low physical well-being and high depressive symptoms emerged (Yu & Sherman, 2015). Patient-and-caregiver communication is one of the main points involved in a supportive or unsupportive interaction. For example, avoidant communication about cancer issues generally increases lower relationship satisfaction, anxiety, and depression (Donovan-Kicken & Caughlin, 2011). In conclusion, unsupportive social support is not just the lack of support, but social interactions that do not meet the needs of patients. The unintentional nature of unsupportive social support leads to not knowing what kind of supportive actions is needed. This is relevant to know because also providers may experience further stress, which results in a vicious cycle of detrimental interactions (Shiozaki et al., 2011).

Following *Injured Self*, positive social support may help breast cancer survivors to integrate this new self-schema into a coherent one. In this regard, peers can promote group belonging to overcome stigmatization (Pardede et al., 2021). At the same time, partner support is relevant to face sexual disturbances caused by changes in BI (Yu & Sherman, 2015). On a general level, being treated as a person, and not just as a cancer survivor, is fundamental to restore the overall Self and adopt adaptive coping styles (Schulman-Green et al., 2016; Sebri et al., 2020<sup>a</sup>). Accordingly, mechanisms' sensitivity to patients' expectations, needs, and personal characteristics are determinants in the final reception of social support (Collins & Feeney, 2004).

Considering the four types of social support provision previous presented (social-emotional, instrumental, problem-oriented, and daily social support proposed by Suurmeijer et al. (1995)), four types of negative social support that may further aggravate the Injured Self features were explored. Specifically:

- *illness denial*: diagnosis can highly burden family members who may tend to avoid problems to keep patients far from distress (Sauer et al., 2019). For instance, caregivers may tend to suppress thoughts and sensations and underestimate the effects of oncological (Shiozaki et al., 2011). Patients cannot

handle their concerns directly, promoting an experience of self-fragmentation characterized by features of low self-esteem as well as negative BI. In conclusion, illness denial may protect patients from the overwhelming experience of cancer diagnosis and its treatment in the short term; however, it will cause damage by delaying or hindering health management in a long run, with difficulties in the integration of the Injured Self into the overall Self as breast cancer survivors;

- *taking over*: if caregivers are overly involved in patients' affairs (e.g., medical appointments), patients' loss of control, perception of inability to be self-sufficient, and vulnerability may increase (Boutin-Foster, 2005). This is more likely to happen after diagnosis, when patients may live an "emotional blackout" (Graffigna et al., 2016). Consequently, women could be more likely to accept caregivers' behaviors and decisions in a passive manner, for example rejecting oncological treatments or accepting them just passively without shared decision-making;

- *poor communication with caregivers*: communication with caregivers sometimes finds trouble sensitively and openly regarding breast cancer topics (Goldsmith & Miller, 2013). On the one hand, patients tend to protect both themselves and others from the discomfort of discussing cancer-related issues. For example, sexual concerns and fears about disease progression and death could be hidden (Yu & Sherman, 2015). On the other hand, oncological patients may avoid open communication due to the experience of unwelcome suggestions, unsolicited information, or critiques about how they should cope (Boutin-Foster, 2005). However, the fewer people are open to talk about cancer-related issues, the fewer possibilities patients have to elaborate on their cancer experience, which can increase anxiety, distress, and depression (Munro et al., 2014). This could be defined as a disengaged type of instrumental support in which patients perceive not being worthy of attention regarding desires and needs;

- *illness-centered view*: nowadays, studies evidence the efficacy of the psychological intervention (e.g., support-expressive group therapy) in improving emotional well-being in breast cancer patients (Bellver-Pérez et al., 2019). interacting just about the cancer experiences may promote the stigma of being only a survivor (Penner et al., 2018). This way, studies suggest that psychological interventions need to be supported in developing a positive life project beyond the disease to develop intrinsic motivation and hope (Graffigna et al., 2016; Pene & Kissane, 2019). Not asking breast cancer patients what their future goals and dreams are may lead them to perceive a sense of isolation from society with sensations of guilt and shame, for instance.

In conclusion, unsupportive social support may contribute to individuals' self-fragmentation. This is particularly evident in breast cancer patients, since their "injuries" to the self (Boutin-Foster, 2005). Future studies could better explore the relationship between *Injured Self* features, personal needs, personality characteristics, and social support. In this regard, structured psychological interventions based on positive



social support to cope with *Injured Self* and prevent mental burden may be proposed. At the same time, improvements in coping strategies related to social support relationships may offer functional benefits in psychological adjustment and well-being (Donovan-Kicken & Caughlin, 2011). For example, a qualitative approach, such as interviews, might investigate how social support can affect women's adaptive coping skills and survivors-and-caregiver communication. It could also be relevant to profile survivors regarding personality traits and needs to develop ad-hoc resources for optimizing social support strategies. Available aims could be the promotion of awareness on the functions of social support and the identification of the best support conducts to enact towards the patient (Cherif et al., 2020; Williams, 2009). For example, developing a psychological intervention that promotes the relevance of assessing the patient's consensus of receiving advice may support their active involvement in the decision-making processes (Boutin-Foster, 2005). In addition, it could be interesting to explore how to manage *Injured Self* through positive social support by examining the stage of cancer and timing of treatment, cultural background, and the role of personality traits (Shiozaki et al., 2011). This way, interventions have to be targeted at both patients and caregivers to promote more effective support conducts and raise awareness of the opportunities and risks within different types of social support.

## PSYCHOLOGICAL RESEARCH

### **The Efficacy of Psychological Intervention on Body Image in Breast Cancer Patients and Survivors: A Systematic-Review and Meta-Analysis (Study 1)**

The present review and meta-analysis study synthesizes and quantifies the efficacy of psychological interventions for BI in breast cancer patients and survivors. Additionally, since sexual functioning emerged as a relevant aspect in the BI distortions, we explored the efficacy of psychological interventions on sexual functioning related to BI in breast cancer patients and survivors. The literature search for relevant contributions was carried out in March 2020 through the following electronic databases: Scopus, PsycINFO, and ProQUEST. Only articles available in English and that featured psychological interventions for body image in breast cancer patients or survivors with controls were included. Seven articles with 17 dependent effect sizes were selected for this meta-analysis. Variables were grouped into: BI (six studies, nine dependent effect sizes) and Sexual Functioning Related to the BI in breast cancer patients and survivors (four studies, eight dependent effect sizes).

The three-level meta-analysis showed a statistically significant effect for Body Image [ $g = 0.50$ ; 95% CI (0.08; 0.93);  $p < 0.05$ ] but no significant results for Sexual Functioning Related to Body Image [ $g = 0.33$ ; 95% CI (-0.20; 0.85);  $p = 0.19$ ]. Firstly, findings suggested that different psychological interventions are effective for breast cancer patients and survivors' BI with a medium effect size. Interestingly, improvements are

not modality-specific; cognitive, sexual, social interventions, mindfulness, art therapy, and web-based treatments were involved. Positive outcomes on BI do not depend on specific characteristics of psychological interventions, but on meeting patients and survivors' needs and preferences, as affirmed by Möller et al. (2019) and in line with the complexity of BI definition as a multidimensional construct. Therefore, personalized and collaborative psychological interventions (e.g., Aschieri et al., 2015; Durosini et al., 2017) are needed to deal with BI issues by considering any individual breast cancer patient or survivor's characteristics and experiences. In addition, the most psychological interventions are extended and consistent over time (from 5 to 14 weeks for each intervention). Moreover, psychologist who deliver interventions must engage many aspects of BI and related emotional and social changes avoiding self-fragmentation. Otherwise, despite the strong association between BI and sexual functioning in breast cancer patients and survivors (Woertman & Van den Brink, 2012), sexual functioning does not show improvement among the reviewed contributions. It is possible that these interventions were not effective due to a lack of a specific focus on sexuality.

In conclusion, this study explored the efficacy of psychological interventions by involving both individual and relational aspects of BI. Positive outcomes on BI were presented, involving both individual and group psychological interventions conducted by trained professionals. Specifically, results suggest that psychological interventions are effective in reducing BI issues but not in reducing sexual functioning issues related to BI in breast cancer patients and survivors, which requires tailored intervention on this specific issue. As a limitation, strict criteria for data selection and cultural differences have been applied. Additionally, gray literature and doctoral dissertation were excluded and keywords related to specific psychological interventions were not used. Literature search might be insufficient to provide a comprehensive and complete picture of the evidence by excluding some studies that were not identified as fulfilling the selection criteria adequately. Only three databases were used for the study research, without relevant medical databases related to breast cancer issues. Future research may improve measurements, feature more psychological characteristics, and change the inclusion criteria of study selection. Additionally, qualitative studies could be reviewed to explore BI dimensions and implement personalized psychological interventions centered on the lived illness to assess the individual perceptions of patients and survivors. Finally, psychological interventions should assess BI and related constructs in terms of BI appreciation and sexual functioning as recommendations for clinical practice. Clinical implications could be the foundation of intervention able to individualize aids in meeting breast cancer patients and survivors' needs, given more space to sexual functioning. The low number of available studies focused on BI issues shows that it needs to be explored more in the current literature. This way, the need to promote psychological interventions in this field is mandatory.

## **How to heal the Injured Self: a physical and psychological intervention (Study 2)**

As previously demonstrated in the review and meta-analysis study (Sebri et al., 2021<sup>b</sup>), novel and mixed approaches effectively promote well-being in breast cancer survivors (Björneklett et al., 2013). A possible intervention can include both psychological sessions and physical activities, for example. On one side, psychological intervention (e.g., cognitive, social, and sexual programs) effectively decrease emotional distress and negative behaviors, which are relevant to sustain the illness adjustment and avoid self-fragmentation (Jabłoński et al., 2019). Specifically, studies highlighted that psychological interventions decrease distress by providing problem-solving methods and relaxation (Blanco et al., 2014). This can be helpful thanks to favorable modification in the perception of one's own body (Blanco et al., 2014). Similarly, physical activities are safe and accessible activities to decrease self-distortions (Yang et al., 2017) with long-lasting effects on cognition, emotions, and behaviors (Morel et al., 2015). Literature showed that combining aerobic and resistance fitness, which increases muscle strength and functional ability to perform tasks, might improve perceptions of health and appropriate BI (Speck et al., 2010; Woertman & Van den Brink, 2012). A study Stan and colleagues (2012) showed significant improvements in QoL, mood, and BI after 12 weeks of group Pilates programs. In general, the internal focus and awareness of the body and its inner sensations may be particularly beneficial to empower breast cancer survivors who feel more in command over their body by reducing perceived constraints, such as shame, self-doubt, and negative BI. Finally, it is important to note that, when developing an exercise program for cancer survivors, individual differences must be considered and adjusted regarding individual fitness level, health status, treatment protocols, side effects, and surgeries (Schmitz et al., 2010). Potential risks related to side effects of cancer treatment (e.g., fractures due to hormonal therapies) should be considered when developing an exercise program (Kirkham et al., 2016). Interventions should suit the individual's physical ability to gain the most benefits and avoid injuries (Kirkham et al., 2016).

Since the outbreak of COVID-19, psychological issues in terms of worry, anxiety, and depression have particularly increased (Sebri et al., 2021<sup>a</sup>). Internet-based interventions have been implemented to deal with psychological and physical issues in cancer patients especially (Weiner et al., 2020). The need to improve patients' QoL through exercise, which is related to survival and healing, increased, especially during the lockdown. Online interventions were not only used to monitor exercise training at home (Grazioli et al., 2020), but offered the opportunity to provide tailored psychosocial cancer care. Moreover, patients can complete online training sessions at their convenience, with the added benefit of reviewing sessions of delivered information as often as needed (Esplen & Trachtenberg, 2020). Online interventions are gaining popularity as a cost-effective way to address these persistent challenges (Esplen & Trachtenberg, 2020). Current studies showed the effectiveness of online interventions on BI by enhancing QoL and decreasing fatigue (Weiner et al., 2020). More specifically, on a psychological level, Esplen and colleagues (2018) showed the effectiveness of 8-week online text-based group intervention developed by a therapist-led in-person and evaluated in a randomized controlled trial to restore BI in terms of self-schemas and emotional reactions after cancer. This

program significantly improved BI and QoL thanks to: group therapy techniques to address emotional reactions, such as grief and loss; guided imagery exercises to address self-schema and altered and emerging identity; and psychoeducational materials to stimulate group discussions on the sociocultural influences that are impeding adjustment. At the same time, Sherman et al. (2018) recently conducted a randomized controlled trial based on a writing web-based psychological intervention (My Changed Body) to alleviate BI distress in breast cancer survivors. My Changed Body intervention was brief and conducted as a single-session, self-compassionate online writing activity. Campo et al. (2017) conducted a feasibility pilot study of a mindful self-compassion videoconference intervention designed for young adult cancer survivors. The intervention was group-based and consisted of 90-minutes videoconference weekly sessions over 8 weeks, with audio-supplemented home practice. Finally, an Italian study by Grazioli and colleagues (2020) revealed the positive effects of home-based combined training regimen on BI. Breast cancer survivors were required to participate in 2 h/week supervised and home-based combined training for sixteen weeks. Women reported improvements in the emotional function of QoL and fatigue perception in breast cancer women undergoing therapy. Women attended all training sessions with no adverse events, showing the sustainability of this training as an alternative and affordable method capable of improving patients' well-being. To sum up, online interventions increased BI's perception in breast cancer survivors, which is a crucial endpoint in QoL evaluation.

It is important to notice that women's psychological experience of BI is also integrated within a broader socio-cultural context. Along with understanding women's broad experience of changed womanhood after cancer, it is vital to understand how this experience plays out within a particular cultural environment and group-belongingness (Hungr et al., 2017). A growing body of literature evidences the efficacy of psychological interventions in groups to improve personal well-being and a deeper understanding of their inner psychological world, thanks to positive social support. Paulo and colleagues (2019) evidenced that group physical activities increase positive perceptions and satisfaction with BI by improving self-esteem, feeling better, motivation, and social relationships in sharing experiences, fears, and challenges. At the same time, Mehnert and colleagues (2011) reported the effectiveness of a 10-week physical exercise intervention in increasing individual BI, overall well-being, and physical fitness. Authors indicated that group intervention led to more benefits than individual ones thanks to combined training elements and high patients' participation. This way, adding group belongingness to remotely delivered physical activity interventions may enhance their effectiveness thanks to giving and receiving feedback and sharing ideas with other survivors (Lloyd et al., 2020). Group interventions are useful thanks to others' point of view by sharing experiences, intimacy, and recognition by others. Authors stated that a safe context with members who lived similar life experiences could be helpful in exploring illness experiences and formalize goals, creating a sense of accountability, facilitating an understanding of their achievements, and supporting behavior change techniques (Michie et al., 2011; Speck et al., 2010). More specifically, groups facilitate knowledge and strategic skills acquisition. At the same time, it encourages critical reflection about the Self and possible changes in the way of being with and looking at others, promoting a

mutual understanding of internal growth processes. Additionally, the presence of an expert group moderator can be important too (Rabin et al., 2016). Previous interventions based on online forums through study websites (Rabin et al., 2016) or Facebook (Valle et al., 2013) reported low participants' engagement, perhaps due to lack of moderation or moderation by a researcher (Valle et al., 2013). A moderator could further enhance intervention effectiveness by increasing the likelihood that participants will be engaged in promoting of their behavioral changes (Lloyd et al., 2020).

In the present study, participants were required to be over 18 years of age and previously diagnosed with breast cancer. They were volunteers recruited online through email and online platforms (e.g., Facebook). Exclusion criteria were as follows: absence of more than one psychological intervention session; not wanting to continue participating in the program; development of metastasis elsewhere in the body during the research. The sample size needed was determined using G\*Power 3 (Faul et al. 2007). A total of 17 participants were estimated to be included in the sample to detect an effect size of Cohen's  $d = 0.30$  on the primary outcome, an alpha error of .05, and statistical power of .80. Study's goal was to investigate a new intervention for the Injured Self in a preferably homogenous sample. Participants were randomized either to the BI therapy condition (intervention group following the Injured Self program;  $n = 26$ ) or to the control condition (control group without intervention, CG;  $n = 25$ ). In order to exclude possible complications related to sports, participants filled out a questionnaire based on a medical examination, including an anamnesis carried out by the trainer in gymnastics. In addition, to quantify changes in various aspects of *Injured Self* and related constructs, the following self-report measures have been administered pre- and post- intervention, as follows: Body Image Scale (BIS), the Italian version of the Objectified Body Consciousness Scale (I-OBCS), Patient Health Questionnaire (PHQ), State-Trait Anxiety Inventory (STAI), and The Functional Assessment of Cancer Therapy-Breast, (FACT-B), Version 4. These questionnaires are widely used in BI research in oncology. The project was based on six weeks of a home-based intervention, monitored through video call, twice a week, and was conducted from February to April 2021.

In order to explore socio-demographic variables (i.e., age, type of job, marital status) of participants, a descriptive analysis (frequencies and/or mean and standard deviation scores) was performed. Fifty-one females fulfilled the inclusion criteria and agreed to participate. The full sample had an average age 51.55 years (range 33 – 68). The majority of the sample attended high school (34.4%), were office workers (17.9%), were married (52.9%) and had one or more children (62.7%). In addition, most participants usually do physical activities (64.7%) and are not involved in psychotherapy's sessions (76.5%). A repeated measure analysis of Variance (ANOVA) was also computed to assess possible differences in well-being, depression, anxiety, and BI's perceptions between groups pre and post-intervention. Post hoc tests were corrected using the Bonferroni method for multiple comparisons. Data analyses were performed using the statistical software package SPSS

(Version 26.0). ANOVA was conducted with two conditions (experimental and control groups) as the between-subjects' factors and the battery of questionnaires as the dependent variable. There were significant effects of experimental conditions on physical well-being. Significant results emerged for physical well-being,  $F(1,55) = 5.233$ ,  $p = .027$ ,  $\eta_p^2 = .100$ , meaning that the online intervention increased breast cancer survivors' well-being significantly in the experimental group ( $M = 24$ ;  $DS = 2.755$ ) compared with the control ( $M = 23,347$ ;  $DS = 4,839$ ). Otherwise, no significant results emerged for the other variables (anxiety, depression, and BI)

In conclusion, this pilot study preliminarily assessed a mixed intervention coupling psychological support and postural exercise sessions through online sessions to promote well-being and BI in breast cancer survivors. Findings suggested a positive effect of mixed-method programs on physical well-being in breast cancer survivors. However, no significant findings emerged about BI, anxiety, and depression. First of all, physical exercises based on progressive muscular relaxation greatly impact pain reduction in women after breast cancer surgery, in line with the literature (Odynets et al., 2020). Similarly, these findings present improvements on a physical well-being level, supporting the helpful programs in which the body is involved as a central aspect of the intervention. At the same time, the group-belonging perception and affiliative bonds could increase well-being (Rice et al., 2016). Authors also demonstrated that online programs of intervention could enhance social connectedness. Literature showed that people can offer peer support to others in an online intervention too (Hsiung, 2007). Moreover, the social interaction between people who have had a similar experience (e.g., breast cancer) may reduce feelings of separateness and isolation (Gilat & Shahar, 2009). On the contrary, other variables, such as BI, anxiety, and depression, did not improve positively. Following studies that highlight the positive promotion of emotions and BI after exercise interventions (Mifsud et al., 2021; Salam et al., 2022), some hypotheses have been presented as follows. Firstly, the ongoing COVID-19 health emergency could have played a negative role in promoting of positive emotions. Particularly, lockdown measures have disengaged cancer patients from formal health care settings, leading to significant negative sentiments, with fear being the predominant emotion (Moraliyage et al., 2021; Mullarkey et al., 2022). In addition, the COVID-19 emergency and the related lockdown led to a significant increase in weight concerns, disordered eating, and negative emotions compared to pre-COVID (Zhou et al., 2021). As study limitations, the relatively small and self-selected sample size may have strongly impacted on the result. Future studies should take into account motivation to participate in psychological interventions as it could influence adherence and outcomes (Durosini et al., 2021). Additionally, further studies are needed to investigate the effectiveness of this type of mixed intervention in a heterogeneous population, not only in a breast cancer survivor sample. This could be interesting to explore possible differences in emotions, physical well-being, and BI among populations.

### **The Body after Cancer: A Qualitative Study on Breast Cancer Survivors' Body Representation (Study 3)**

Starting from the efficacy of psychological interventions for breast cancer survivors, a tailored psychological support program was provided to promote overall well-being and related emotions and thoughts. This study presents changes in the description of the relationship with their bodies and participants' emotions and thoughts before and after a psychological intervention. We explored the process of change in the relationship, emotions, and thoughts that occurred in a group of breast cancer survivors over an intervention based on self-compassion towards their body. Participants answered three questions related to their bodies before and after the psychological intervention, specifically: "How is the relationship with your body?"; "What are the emotions linked to your body now?"; "What are the thoughts associated with your body now?".

All the participants were 18 and older years old and were not under oncological treatment currently. Exclusion criteria were cognitive impairment, inability to understand the study or to sign the informed consent, and/or mental disorders. Eighteen women with a history of breast cancer voluntarily agree to participate in this study (age range: 38–69;  $M_{age} = 50.6$ ;  $SD_{age} = 8.97$ ). The majority of participants had obtained a bachelor's degree (50%), lived in the North of Italy (83.2%), and worked as white-collar employees (83.2%). Additionally, more than half of them was not currently involved in individual psychological therapy (55.6%), had a partner (72.3%) and one or more sons (55.6%). The study was carried out in March 2022. All women responded to open questions at the beginning and at the end of the psychological intervention.

Results were analyzed in accordance with the procedure of the Word Association Analysis through the T-Lab software and the Qualitative Thematic Analysis. A lexicometry analysis of the participants' answers suggested a general increase in the use of words communicating attention, appreciation, and care toward the body. This tendency was further confirmed in the analysis of the answers through qualitative thematic analysis.

Firstly, findings emphasize an increasingly positive relationship with the body, in terms of body acceptance and less distance, more confidence, and collaboration, in line with emotional improvements obtained at the end of the intervention. Similarly, current studies evidence the positive impact of psychological intervention focused on self-care and kindness on BI in breast cancer survivors (Lewis-Smith et al., 2018). In particular, Lewis-Smith and colleagues showed that this kind of intervention can promote body appreciation and acceptance, reducing weight, and shape concerns. Moreover, improvements in self-esteem, which is strongly associated with BI issues in a breast cancer population, play a relevant role too (Fobair et al., 2006). Despite some participants' reporting negative aspects in their relationship and emotions regarding the body, even after the intervention, a reduction in the frequency and intensity of the reported negative emotions was found. The past cancer experience could have seriously impacted these dimensions (Jabłoński et al., 2019) in a way that this brief psychological intervention cannot completely heal. However, it was possible to observe an increased consciousness about the importance of a good relationship with their body to promote general well-

being, increased agency, and less impotence. Accordingly, Mifsud and colleagues (2021) evidenced that a brief self-compassion intervention addressing BI issues can promote breast cancer survivors' well-being, promoting individuals' awareness about their experiences and related responses in a broader context. Lastly, an interesting result is the new body perception, which is strictly related to the aim of the intervention. At the beginning of the program, women stated that they would not touch and look at their bodies in the mirror. On the contrary, the desire to have contact with bodily parts, even changed due to oncological surgeries and treatments (e.g., breast), emerged after the psychological sessions. Participants also considered healthy activities (e.g. sport and relaxation) helpful in promoting well-being and improving their abilities to manage emotions. In line with it, literature suggested that sport and physical exercises represent an important aspect after cancer, helping women to enhance cognitive skills and QoL (Sebri et al., 2019; Durosini et al., 2021).

In conclusion, words and themes that characterized the women' reports highlighted the impact of cancer diagnosis and oncological therapies on breast cancer survivors. this study describes the relationship with the body, emotions, and thoughts of breast cancer survivors participating in an online and group psychological intervention. It highlights the relevance of psychological programs to improve the quality of such relationships, meeting the participants' need to rebuild contact, confidence, and collaboration with their bodied. At an emotional level, reducing the intensity of negative emotions related to the illness experience and improving the sense of gratitude towards their body is fundamental. Finally, the reduction of a sense of impotence and an empowered sense of vitality, perceiving the body as a helper that can sustain women in their daily life activities, can be the main aim to reach in other psychological interventions for breast cancer survivors.

Regarding limitations, one of them is the study design, which did not include a control group nor a quantitative evaluation of the intervention efficacy with validated and standardized measures. Results shed light on the process of body perception change during the intervention, rather than statistically demonstrating the intervention's efficacy in comparison with alternative approaches. Second, another limitation is participants' selection. It is possible that women who decided to participate in the intervention already had specific attention and interest in their bodied and their changes. This is in line with the involvement of almost half of the sample in individual psychological sessions. For this reason, some caution should be used in generalizing the results to the entire population of breast cancer survivors. Despite these limits, some important theoretical, methodological, and practical implications can be proposed. Participation in the psychological intervention focused on self-compassion towards their body helps women to improve body perception. Moreover, this study adopts two complementary approaches to text analysis: the lexicometry approach was used to identify, with a quantitative tool, the specific words that constituted the body representation (Lancia, 2012), while the thematic analysis (Braun & Clarke, 2006) deeply described the breast cancer survivors' relationship with their body and their related cognitions and emotions. These two approaches to text analysis have been rarely applied in the same study (for rare exceptions see: Cortini & Tria, 2014; Mazzoni & Cicognani, 2014); however, as this study



demonstrated, they can be usefully integrated to obtain a more detailed and consistent picture of the texts' meaning. Finally, the relevance of group psychological sessions to improving breast cancer survivors' confidence in their bodies was evidenced. More specifically, it is necessary to implement psychological interventions focused on cancer survivors' needs, describing specific changes that helped the participants to rethink their bodies and promote their well-being. Future studies could further evaluate the psychological intervention's efficacy with validated measures. In addition, the inclusion of a control group may demonstrate the effectiveness of this specific intervention compared to alternative approaches. Moreover, exploring the changes in bodily perceptions in patients with other chronic diseases could be interesting.

### GENERAL CONCLUSION

We have seen earlier from the introduction to this dissertation that addressing BI is essential to promote QoL in breast cancer survivors by decreasing the traumatic perception of breast cancer. It is paramount to consider the relationship between breast cancer and body issues to explore how each survivor deal with them. Currently, there is a lack of specific theoretical conceptualizations of bodily issues and available psychological interventions to manage them. Specifically, the main thesis of the present dissertation is that BI should be evaluated not only on an aesthetical level. BI refers to an overall self-representation of the body, which not only refers to the appreciation of the aesthetic appearance. However, BI conceptualized in terms of appearance does not completely address all of the issues related to breast cancer and its bodily challenges, because those are notably connected to inner sensations of pain and discomfort, the effects of invasive treatment, and the FCR of a threat coming from inside the body, sometimes perceived as a "stranger" or a "traitor". On this basis, *Injured Self* construct was proposed.

The present research project's general objective was to explore the role of self in breast cancer survivors. Since the relevance of bodily issues in a general population, the present dissemination focused on body and related cognitions and emotions in a breast cancer population. This process leads to exploring BI firstly, as at the core of body representations, giving some more space to Body Compassion as another relevant construct. Firstly, the review and meta-analysis study highlighted the efficacy of different psychological interventions on BI in breast cancer survivors. Building on these results, we conducted an integrated online intervention comprising postural exercises and psychological support focused on BI issues for breast cancer survivors. Findings showed that an integrated and this group intervention can promote well-being in breast cancer survivors. Lastly, the qualitative study showed the relevance of *addressing Injured Self* by promoting Body Compassion in breast cancer survivors.

Considering a larger overview, it is helpful to enrich the theoretical knowledge about bodily representations to address all of the main relevant features. Four main conclusions can be drawn:

- bodily issues strongly impact breast cancer survivor's well-being. In order to promote QoL, it is necessary to explore and manage the body's characteristics, needs, and its related consequences on a cognitive, emotional, and behavioral level;
- Aesthetic appearance is insufficient to embrace the bodily issues in breast cancer survivors. A new construct, namely *Injured Self*, as a specific and cancer-related representation, has been proposed
- bodily-representations and the *Injured Self* specifically involved a more extensive overview in which also other constructs, such as Body Compassion, should be integrated;
- it is possible to consider many types of interventions to address *Injured Self* in breast cancer patients and survivors. The present project demonstrated the effectiveness of integrated programs of both physical activities and psychological sessions in groups.

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