

Early Diagnosis of Skin and Breast Cancer in Women: Influence of Body Image Perception

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Abstract

Background. The diagnosis of melanoma and breast cancer may impact many aspects of life with significant reductions in emotional functioning and quality of life.

Aims. Aim of the study was to analyze the emotional traits of female patients with oncological diagnosis (early stage melanoma/breast cancer) investigating prevalence and predictors for psychological stress.

Methods. A sample of 84 female patients (age range 30-50 years) with diagnosis of melanoma/breast cancer stage T0-T2 participated in the study. The examined emotional variables were: psychological distress, depression, stress, anxiety, metacognitions and body self-perception.

Results. Findings showed higher psychological distress in breast cancer than melanoma patients and, that was related to lower positive self-perception of body image. No significant difference between cancer staging.

Conclusions. Prevention and intervention protocols must be adapted taking into account tumor type in the adoption of preventive behaviors and compliance with medical recommendations during survivorship.

Background

Acceleration in psychosocial research effort over the past 5 years is clear; however, this is not enough to define psychological aspects and emotional trends of early melanoma stage patients during clinical trajectory. Currently new medical treatments are being offered promising long survivorship as chronic life-threatening disease, however most of randomized clinical trials are focused on medical treatment outcomes of melanoma rather than psychosocial ones. Psychosocial research and practice have failed to keep pace with advances in medical management of the disease [1, 2, 3, 4, 5].

Negative emotional reactions to stressful life events are normal short-term emotional-behavioral response to threat; anger, fear, and are not sign of psychopathological disorder [2, 4]. Melanoma may have a considerable impact on patients' lives including their health-related quality of life. Moreover, psychological responses to diagnosis and treatments may vary substantially over time and according to clinical aspects of the healthcare pathway. Throughout the diagnostic process and survivorship, patients with melanoma report significant reductions in psychological well-being and quality of life, including greater pain and fatigue, insomnia, and greater interference of stressors (physical and emotional) on social activities [1, 2, 3, 4, 5].

The antecedents and contributing factors to distress and other psychosocial outcomes are largely unexplored. Furthermore, a clear framework for adaptation and effective coping in the context of melanoma is not defined to identify patients at risk of negative psychosocial outcomes in order to structure personalized interventions.

Kasparian's contribution [6] have highlighted oncological patients' significant psychosocial challenges and consequences of having melanoma. A diagnosis of melanoma may impact all aspects of life. The primary negative impact of melanoma is on individual personal level (life expectation, body image, self-esteem, well-being); the secondary effect is on social relationships (sociality, work performance, sexuality, family roles). The psychological distress evoked by cancer diagnosis, long lasting threatening survivorship, and outcome uncertainty may impact negatively on patient compliance to medical treatment and win back to everyday life.

Aims

Study aimed to investigate the emotional traits of female patients with early stage melanoma and breast cancer diagnosis analyzing body image perception. Breast cancer and melanoma were selected for this study because they have impact the physical perception of women. We wanted to analyze the psychological dimensions of young patients dealing with early stage cancer diagnosis evaluating the metacognition thinking, emotional traits and body self-perception.

Material And Methods

Ethic Statement

This study was approved by the Institutional Review Board of the University of L'Aquila, Italy (Prot. N° 16372/2019). Informed consent was obtained from each participant, and all procedures were in accordance with the Declaration of Helsinki.

Participants

Participants were n.84 female patients aged 35-50 years old (mean age 42.2, ± 8.3), living in central Italy distributed in n.2 groups: a) M group (Mg) composed of n. 42 patients with melanoma diagnosis (Stage 0-II) and b) B group (Bg) composed of n. 42 patients with breast cancer diagnosis (Stage 0-II). All patients had early stage diagnosis by early screening.

Eligible participants have been approached to be enrolled in the study at the Oncological Dermatology Division (Resp. Prof. Farnoli) and Oncological Medicine Division (Dir. Prof. Ficarella) of S. Salvatore Hospital in L'Aquila (IT). We contacted 114 eligible patients, of whom 84 provided informed consent; 28 patients did not consent to participate in the experimental protocol; whereas two patients signed the informed consent form, but at the first session, they declined further involvement (dropped out).

Demographic characteristics of the participants are reported in Table 1.

Table 1. Sociodemographic data of participants.

Age, years	Breast group (mean age 45.3, sd±1.5)	Melanoma group (mean age 45.5, sd±2.5)
Relationship status		
Married/living with partner	80,9%	78,5%
Single	19,0%	21,4%
Education		
Not graduate	19,0%	4,7%
High school	52,3%	64,2%
Graduation	28,5%	30,9%
Occupation		
Housewife	27,9%	23,8%
Employed	53,5%	57,1%
Self-employed	17,4%	19,0%
TNM Cancer stage		
0	47,6%	40,4%
I	28,5%	57,1%
II	23,8%	2,3%
Diagnosis Timing		
T0	30,9%	21,4%
T1	57,1%	45,2%
T2	11,9%	33,3%

Inclusion criteria have been: a) 20-50 years old; b) no cancer recurrence (2nd primary diagnosis); and c) diagnosis of melanoma/breast cancer had been in the time period from 0 to 36 months. Participants were eligible to enrol in the study if they had a breast cancer diagnosis or melanoma and followed a clinical path within 24 months following diagnosis, and after surgical intervention and/or treatment with adjuvant chemotherapy, radiation therapy, or both, for stages 0-II cancer.

Medical staff applied the TMN classification of malignant tumours, a cancer staging system developed by the American Joint Committee on Cancer and the Union for International Cancer Control (UICC), to classify the cancer stage of patients.

Measurement

Sociodemographic variables

Sociodemographic data were collected. First, demographic data were provided via the self-report of patients; we selected independent variables for inclusion in the analyses if they were characteristic of the age/life stage (e.g. having children, marital status, education, occupation) related to the cancer. Second, clinical data were obtained from the patients' medical records regarding melanoma and breast cancer stage, treatments, and therapies.

Psychological tests

The psychological battery was composed of self-reports: the Psychological Distress Inventory (PDI) to measure distress, the Depression Anxiety Stress Scale 21 (DASS-21) to assess signs of anxiety, depression, stress, and Metacognition Questionnaire 30 (MCQ-30) to detect metacognitive thinking.

Psychological Distress Inventory (PDI) [8]. This is a 5-point self-administered 13 item-questionnaire developed to measure level of psychological distress caused by cancer. The standard score indicates the presence/absence of psychological distress. The internal reliability was good ($\alpha=0.86$).

Depression Anxiety Stress Scales-21 (DASS-21) [10]. DASS-21 is a 21-item self-report questionnaire assessing three dimensions (7 items per subscale): depression, anxiety and stress. Patients are asked to score every item on a scale from 0 (did not apply to me at all) to 3 (applied to me very much). Sum scores are computed by adding up the scores on the items per (sub)scale and multiplying them by a factor 2. Sum scores for each of the subscales may range between 0 and 42.

Metacognition Questionnaire-30 (MCQ-30) [9]. It is a self-report assessing a range of metacognitive beliefs and processes relevant to the vulnerability and maintenance of psychological disorders. The items are rated on a 4-point Likert scale from 1 (do not agree) to 4 (completely agree). The items are grouped into five subscales: a) Cognitive Confidence (CC), b) Positive Beliefs about Worry (POS), c) Cognitive Self-Consciousness (CSC), d) Negative Beliefs about Uncontrollability and Danger (NEG), e) Need to Control Thoughts (NC). The MCQ-30 has good internal consistency, as do its five subscales.

Body Self-perception questionnaire (BSPq). It is an ad hoc questionnaire consisting of 16 items aimed to measure three domains of body image: a) Treatment Consequences on Body Image (TCBI); Social Wellness (SW), and Physical Feeling, (PF). Responses are based on a 4-point Likert scale. The pilot study previously conducted showed a good reliability.

Procedure

Medical staff in the Oncological Dermatology Division (Director Prof. M.C. Farnoli) identified eligible melanoma patients and medical staff in the Oncological Medicine Division (Director Prof. C. Ferri) identified eligible patients with breast cancer. All participants gave informed consent at the time of enrolment. Trained clinical psychologists (blinded to the aim of the study) conducted the psychological evaluations lasted 40 minutes in a dedicated room. The participants filled out digital versions of the

questionnaires. Participants were recruited on outpatient basis during their scheduled medical follow-ups. Data were collected anonymously.

Study design

We conducted an observational study to evaluate the emotional traits, body self-perception, and metacognitions in melanoma and breast cancer patients. Descriptive statistics were calculated for baseline characteristics and outcome measures. One-way analysis of variance (ANOVA) and analysis of covariance were conducted to detect the statistical significance of the overall differences across the examined psychological variables, while a MANOVA was performed to calculate the significant differences according to cancer type. Statistical analyses were performed using the jamovi 1.6.10.0 with a fixed α -value ≤ 0.05 .

Results

Analyzing the sociodemographic data, breast cancer and melanoma patients did not differ significantly by age ($t = 112$, $p = 0.27$), education ($v^2 = 1.64$, $p = 0.44$), and marital status ($v^2 = 0.66$, $p = 0.42$), or perceived standard of living ($v^2 = 0.92$, $p = 0.63$) at 1 month post-diagnosis (T1, see Table I). Participants resulted homogeneous in demographic data.

In Table 2 we reported clinical treatments. As expected, treatments differed between the types of cancer.

Table 2
Clinical treatments for patients with breast cancer and melanoma

	Melanoma Group	Breast Cancer Group
Surgery	100%	-
Excision	-	66,6%
Lumpectomy	-	30,9%
Mastectomy		
Pharmacological therapy*	100%	7,1%
No treatment	-	52,3%
Chemotherapy	-	38,0%
Hormonal therapy		

*Chemotherapy and hormonal therapy are not mutually excluded.

Almost, breast cancer patients were treated with surgery (66,6% lumpectomy and 30,9% mastectomy) and radiotherapy. 38% of them received hormonal therapy, and half of them received chemotherapy. Differently, melanoma patients received surgical excision and no pharmacological therapy.

Both groups (Mg and Bg) showed no signs of anxiety, depression or stress comparing raw score and cut-off (DASS-21 Anxiety score < 7, DASS-21 Depression score < 9, DASS-21 Stress score < 14). Only Bg showed psychological distress (PDI score > 25).

Then, MANOVA statistical analyses (3x2) was conducted comparing emotional traits (MCQ, PDI, BPS) and groups (Bg and Mg). Table 3 reported the raw scores.

Table 3
Raw score (mean and standard deviations) of participants in the psychological evaluation

Test	Breast Cancer group		Melanoma group	
	\bar{x}	sd	\bar{x}	sd
MCQ-30	58,5	10,3	60,7	12,4
POS	9,0	3,0	10,2	3,4
NEG	13,1	3,5	13,2	3,3
CC	10,6	3,8	10,4	3,4
NC	11,0	3,4	11,6	3,2
CSC	14,6	3,1	15,2	3,6
PDI	29,2	8,8	23,3	5,4
BSP	31,7	9,9	35,6	5,3
TCBI	11,24	3,5	12,8	2,4
SW	10,5	3,7	11,8	2,0
PF	9,9	3,5	10,9	2,0
DASS-21				
D	4,1	4,2	3,0	2,7
A	4,0	3,5	3,5	3,0
S	6,2	4,4	5,6	2,6
\bar{x} = mean value; sd = standard deviation				

Mg evidenced significant positive emotional traits than Bg: Bg showed higher psychological distress ($p = 0.00$, whereas Mg showed better Body Image Perception ($p = 0.03$), in particular in Impact of Treatment Consequences on Body Image index ($p = 0.01$) and on social wellness index ($p = 0.04$) (see Figure 1).

Discussion

Aim of the study was to analyze the emotional traits of female patients with early stage breast cancer and melanoma diagnosis, verifying the diagnosis impact on body image perception; in particular, focus of the study was to define the predictive factor of psychological stress by metacognition thinking, emotional traits and body self-perception on the younger sample (range age 30-50 years).

According to the emerging literature on the wellness in survivorship of younger cancer patients [11, 12, 13, 14, 15, 16], our findings showed the young women with melanoma/breast cancer resilient as our sample showed no signs of mood disorders or psychopathological conditions.

According to Bourdon's suggestions [17], melanoma patients showed fewer negative physical and social consequences than breast cancer patients, which decreased their body image self-perception as physical and role functioning experiencing more extensive and painful treatment.

Our study shows that early stage melanoma patients represent an oncological target with the best adaptability and management of their own body in the post-diagnosis. Early screening as an effective tool for the early diagnosis of melanoma favors not only less invasive clinical treatments but also a greater awareness of one's body with a better management of it in the post-diagnosis, thus laying down for a better quality of life and well-being during survivorship.

Taking into account breast cancer patients' performance, the diagnosis represents a stressor not only for illness management, but even for physical perception impacting significantly the psychological dimensions for body image.

Our finding confirmed the investigated largely negative impact of cancer diagnosis [2, 5, 8, 13, 14, 15, 16], and contributed in emerging research topic regard to the clinical implication of early diagnosis in younger age (in this case in women population), detecting the high relevance of clinical psychological interventions among medical and pharmacological solutions in primary treatments.

This study has some limitations. First, this study is an observational study, which is difficult to determine the causal relationships, further follow-up studies are needed. The psychological battery is composed of self-report measures of depression, anxiety, and distress symptoms and are not measures of their clinical indicators. Further, the relatively small sample size limits the generalizability of our findings regarding regaining a normal life after clinical pathway.

Conclusions

Our study suggested that psychological support in primary treatments should be specific and related to the cancer type in order to recover mental well-being. Last, our finding highlighted the need for regular screening of psychological distress even in patients with early cancer diagnosis, and also in the case of long-term follow-up.

List Of Abbreviations

Bg = Breast cancer group

BSPq = Body Self-perception questionnaire

CC = Cognitive Confidence

CSC = Cognitive Self-Consciousness

DASS-21 = Depression Anxiety Stress Scales – 21

MCQ-30 = Metacognition Questionnaire – 30

Mg = Melanoma group

NC = Need to Control Thoughts

NEG = Negative Beliefs about Uncontrollability and Danger

PDI = Psychological Distress Inventory

PF = Physical Feeling

POS = Positive Beliefs about Worry

SW = Social Wellness (SW)

TCBI = Treatment Consequences on Body Image

Declarations

Ethics approval and consent to participate

This study was approved by the Institutional Review Board of the University of L'Aquila, Italy (Prot. N° 16372/2019) and S. Salvatore Hospital of L'Aquila (IT), where participants were enrolled. Informed consent was obtained from each participant, and the study adhered to the Declaration of Helsinki.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

Drs Di Giacomo had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Concept and design: All authors. Acquisition, analysis, or interpretation of data: Federica Guerra, Jessica Ranieri, Eleonora Cilli Drafting of the manuscript: Di Giacomo Dina. Enrolling patients: Valeria Ciccarelli, Alessandra Ventura. Supervisor of the study: Maria Concetta Farnoli.

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Not applicable

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Figures

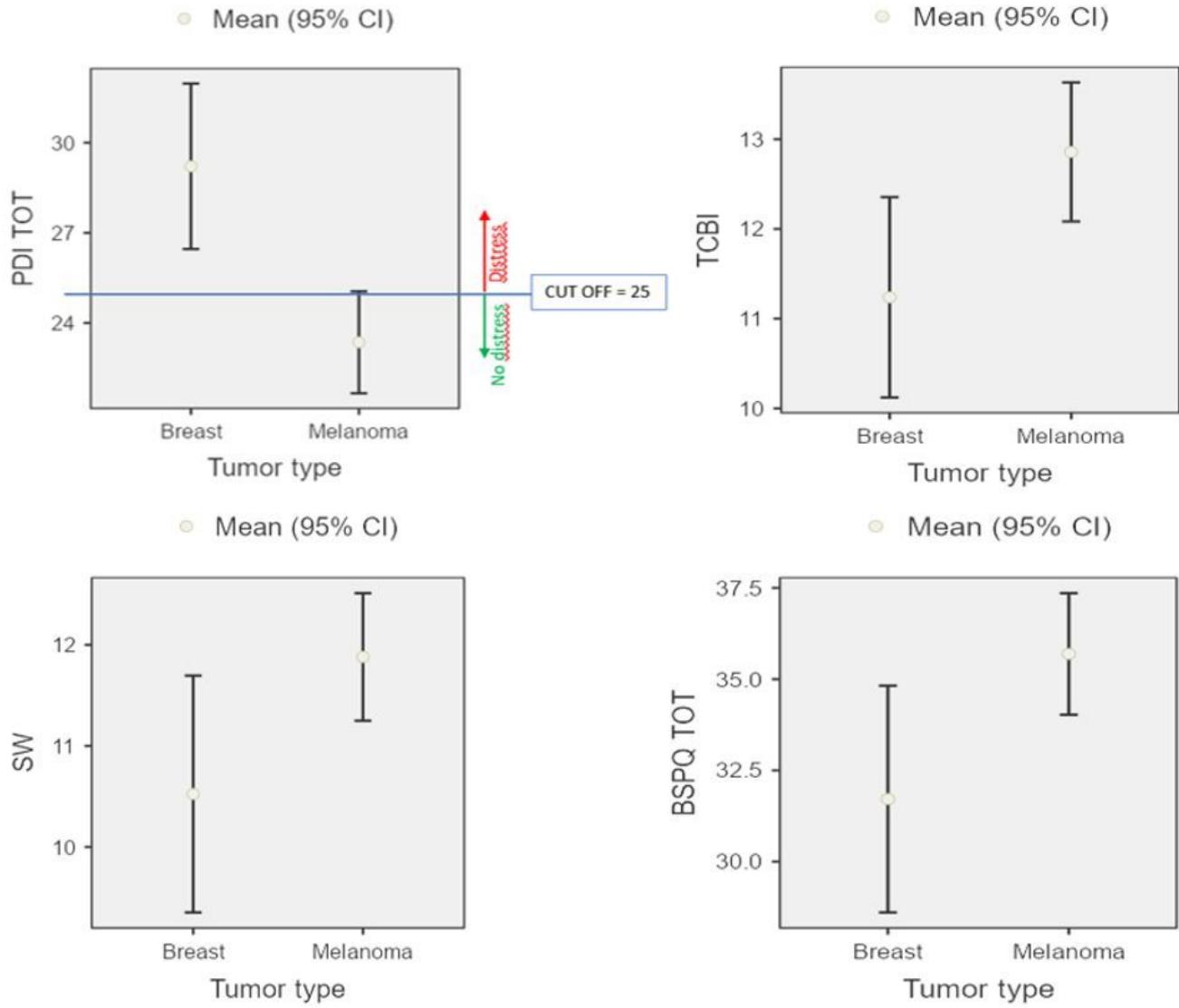


Figure 1

Psychological distress and self-body perception representation of both Bg and Mg groups.