



The role of depression and emotion regulation on parenting stress in a sample of mothers with cancer

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Abstract

Purpose The aim of the current study was to investigate if and to what extent depression and emotional regulation strategies (namely, cognitive reappraisal and expressive suppression) might lead to parenting stress in a sample of mothers with cancer and in a sample of healthy mothers.

Methods A sample of mothers with cancer (clinical group; $n = 64$) and a sample of healthy mothers (control group; $n = 80$) were administered self-report questionnaires investigating parenting stress (the parenting stress index), depressive symptoms (the Zung depression self-rating scale) and emotion regulation strategies (the emotion regulation questionnaire).

Results Depressive levels represented the most significant predictor of maternal parenting stress in both groups ($p < .001$). In addition, cognitive reappraisal ($p < .05$) but not expressive suppression significantly predicted parenting stress exclusively in the group of mothers with cancer. Finally, cognitive reappraisal was negatively and significantly associated with time since cancer diagnosis to survey.

Conclusions This study highlights that depressive levels and cognitive reappraisal may play a significant role in parenting stress. The systematic assessment of these variables in women with an oncological diagnosis might help mental health professionals to identify those mothers at risk of developing higher levels of parenting stress ensuring adequate support and preventing negative effects on the parent–child relationship.

Keywords Cancer · Oncology · Parenting stress · Depression · Emotion regulation · Cognitive reappraisal

Background

There are approximately 14 million of new worldwide cancer diagnoses per year [1]. A cancer diagnosis and its treatment are life-changing experiences, and they have a significant impact on body image and function, psychological well-being and alterations within the family system [2]. Cancer causes patients and their families to worry about the future, for example about its recurrence [3] and the possibility of the patient's death [4]. Cancer patients experience a high level of distress and an increased risk of anxiety and depression [5] compared to general population [6].

Psychological distress of patients with cancer may vary according to time since diagnosis, though this topic has been little investigated and produced mixed results: some studies did not find associations between time elapsed from diagnosis and distress levels [7, 8], while a recent review found that the shorter the time since diagnosis the higher the levels of perceived needs [9].

About 24% of cancer patients are also parents of an under-age child; thus, they must to deal with their cancer and its treatment as well as with their duties as parents [10, 11]. It is possible that they have more negative outcomes in their relationship with their children and their partners [2] than parents without a cancer diagnosis [6].

When a mother has cancer, the diagnosis upsets the entire family system, with repercussions on the patient's relationship with her partner and children, daily routines and the children's development [10]. Furthermore, this disease may influence a mother's perception of being a good parent, parenting concerns and parenting stress (PS) [10, 12].

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Specifically, PS is a multidimensional construct defined as the disparity between the demands of being a parent and the perceived resources available to cope with those demands [13]. Compared to daily life stress, PS is qualitatively different [14]. PS depends on parents' and children's characteristics (e.g. the child's age and gender), the qualities of caregiver–child interactions, emotional and practical support, contextual life events (e.g. losing job, having a new baby) and perceived competence [15–17]. In the context of cancer, emotion regulation is associated with adaptation to illness and psychological well-being [18]. Each type of emotion regulation (i.e. cognitive reappraisal or expressive suppression) is linked to different outcomes. Suppression is associated with depressive symptoms, anxiety, anger, guilt, lower quality of life and fear of death and suffering [19, 20]; instead, cognitive reappraisal has better psycho-emotional outcomes such as lower levels of depressive symptoms, anxiety and stress [21].

To our knowledge, there is a lack of studies about associations between emotion regulation and depression with PS in samples of mothers with cancer. Beginning from these premises, our aim was to investigate if and to what extent depressive symptoms and emotion regulation strategies (i.e. cognitive reappraisal and expressive suppression) might lead to PS in a sample of mothers with cancer and in a sample of healthy mothers. To create our hypotheses, we considered studies on these constructs, but in contexts differing from cancer, with the expectation that depressive symptoms and emotional regulation strategies (i.e. expressive suppression and cognitive reappraisal) might predict PS in both samples of mothers. In addition, in order to control for the effect of time passed from the cancer diagnosis to survey, only in the sample of mothers with cancer we evaluated the associations among the considered variables (i.e. depressive symptoms, parenting stress and emotional regulation strategies) and the time since diagnosis.

Methods

Participants and procedure

We recruited participants online and from the Italian oncology units of the Santo Spirito Hospital in Pescara, Antonio Perrino Hospital in Brindisi and Garibaldi-Nesima Hospital in Catania, between March and December 2017. A total of 144 women participated in our study; of these, 64 were females who had received a cancer diagnosis (clinical group) in their lifetime and 80 were healthy mothers (control group). Their mean age was 42.39 years (standard deviation [SD] = 7.15). The inclusion criteria comprised having a child aged 0–18 years (for both groups) and having had a cancer diagnosis in their lifetime (only for the clinical group). In order to avoid that our findings should be influenced by a recent cancer diagnosis, we selected only women who have had an

oncological diagnosis at least 1 year before. As 57.64% of the overall sample had more than one child, we asked them to answer the questionnaires measuring their parent–child relationship specifically referring to the youngest child.

We sent all the participants a letter containing detailed information on the main study aims and rationale. The letter also stressed that participation in the study was voluntary. We obtained written informed consent from every participant. We alphanumerically coded the questionnaires in order to guarantee anonymity. The Psychological Review Board of our Department found that all the employed procedures and measures were fully compliant with the Ethics Code of the Italian Board of Psychology—the regulatory Authority that provides the national guidelines for research and clinical practice.

Measures

Socio-demographic and medical characteristics

We developed the socio-demographic and medical questionnaire in order to assess general information (e.g. age, education level and employment status), personal information about the women's relationships with their partners (e.g. marital status and length of the relationship), family composition (e.g. number and age of children) and general information about their cancer diagnosis (e.g. type of diagnosis, time since diagnosis and cancer treatment).

The emotion regulation questionnaire (ERQ)

The Italian version of the emotion regulation questionnaire [22] is a self-report questionnaire composed of ten items that are scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). It is designed to assess respondents' tendency to regulate their emotions through two commonly used strategies: cognitive reappraisal (6 items), evaluating the cognitive ability of modifying the meaning and the emotional impact of a situation (sample items: "When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm"; "I control my emotions by changing the way I think about the situation I'm in") and expressive suppression (4 items), assessing the inhibition of emotional expression (sample items: "I keep my emotions to myself"; "When I am feeling negative emotions, I make sure not to express them"). Cronbach's α for the total scale was .708.

The parenting stress index short form (PSI/SF)

The PSI/SF [15], one of the most worldwide used questionnaire to assess parenting stress, encompasses 36 items rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The PSI/SF includes a total stress score and

three subscale scores: parental distress, parent–child dysfunctional interaction and difficult child characteristics (sample item: “I feel trapped by my responsibilities as a parent”). We considered the total stress score, obtained from the sum of the three subscales, in the current study. Cronbach’s α for the total scale was .920.

The Zung depression self-rating scale

The Zung depression self-rating scale [23] is a self-report questionnaire composed of 20 items designed to assess depressive symptoms. With respect to other tools, the Zung is a short and easy self-administered questionnaire to identify the common characteristics of depression. Each item (e.g. “I still look forward to things as much as I used to”; “I would be better off dead”) is rated on a 4-point Likert scale ranging from 1 (some of the time) to 4 (most of the time); the total score ranges from 20 to 80; higher scores signal higher levels of depressive symptomatology. Cronbach’s α for the scale was .855.

Statistical analyses

We conducted statistical analyses with the Statistical Package for the Social Sciences (SPSS, Version 19). We set the significance level for all analyses at $p < .05$. First, we tested the skewness and kurtosis of all the variables to check their distribution. We computed descriptive statistics in order to investigate participants’ sociodemographic characteristics. We analysed differences between the clinical group and the control group using chi-square tests for categorical variables and univariate analysis of variance (ANOVA) for metric data. We performed a series of linear regression analyses to test the effects of depression and emotion regulation (considering its two strategies of cognitive reappraisal and expressive suppression) on PS. Finally, in order to control for the effect of time passed from the cancer diagnosis to survey, only in the sample of mothers with cancer we carried out Pearson’s correlations between the time since diagnosis and depressive symptoms, parenting stress and emotional regulation strategies.

Results

The skewness and kurtosis of all the variables were between -1 and $+1$; thus, we consider the distributions as acceptably normal [24]. The sample comprised 144 women (64 belonging to the clinical group and 80 to the control group) with an overall mean age of 42.39 years ($SD = 7.15$); their ages ranged from 27 to 59 years. There were no differences between the clinical group and the control group with respect to participants’ sociodemographic characteristics (i.e. age, occupation, education, marital status, duration of marital relationship, number of children, gender and age of the child considered

for the current study), levels of depression, cognitive reappraisal and expressive suppression. A statistically significant difference was detected in parenting stress. We have synthesised the descriptive statistics and comparisons between the two groups in Table 1.

We used linear regression analysis to measure the association of depressive levels and emotion regulation strategies (i.e. cognitive reappraisal and expressive suppression) on the parenting stress index. We found that in the control group, the only significant predictor of PS was depression, with 39.6% explained variance (Table 2). In the clinical group, both depressive levels and cognitive reappraisal lead to PS, with 25.0% explained variance. Hence, as shown in Table 3, high depression and low cognitive reappraisal appeared to predict high PS in mothers with cancer.

Pearson’s correlational analyses showed no associations of time since diagnosis with depressive symptoms, parenting stress and expressive suppression. We found only a significant but slight negative correlation with cognitive reappraisal, as shown in Table 4.

Discussion

In the current study, we aimed to explore correlates of PS in mothers with a cancer diagnosis as compared to healthy mothers. Our first finding was that depressive levels represented the most significant predictor of maternal PS in both groups. These data are consistent with previous studies that found associations between maternal depression and parenting behaviour [13]. In fact, depression may affect parent–child relationships [25]: for instance, depressed mothers display less positive emotions when interacting with their children [26] and are less sensitive to infants’ signals compared to non-depressed mothers [27]. Specifically, considering associations of depression with PS, in a sample of parents of preterm infants, Gray et al. [28] found that depressive symptoms are a risk factor for higher PS. Other researchers have investigated the association between depression and PS and found the same result [29–31]; however, this was different from samples of parents with a cancer diagnosis. As far as we know, the only study that investigated the role of depression on PS in an oncological context was carried out by Fernandes et al. [32] on a sample of patients with haematological cancer. These authors found that depression was significantly correlated with PS—a result in line with ours.

A second finding was that a specific emotion regulation strategy, like cognitive reappraisal, was a significant predictor of maternal PS only in the group of mothers with a cancer diagnosis. Cognitive reappraisal refers to attempts to re-evaluate, reframe or get new perspectives on an emotional situation in order to change its emotional meaning [33] and to decrease its impact in negative emotional contexts [34].

Table 1 Demographic and clinical characteristics of the study sample ($N = 144$)

	Clinical group ($n = 64$)	Control group ($n = 80$)	
Age (M \pm SD)	43.44 \pm 7.064	41.55 \pm 7.142	$F = 2.507$, n.s.
Education			
Middle school or less	8	15	
High school or equivalent	32	35	
College degree or higher	24	30	$\text{Chi}^2_{(3df)} = 1.176$, n.s.
Occupation			
Employed	42	62	
Housewife	22	18	$\text{Chi}^2_{(2df)} = 2.499$, n.s.
Diagnosis			
Breast cancer	26		
Uterine cancer	5		
Thyroid cancer	7		
Ovarian cancer	7		
Melanoma	3		
Other types	16		
Time from diagnosis	9.52 \pm 8.774		
Marital status			
Relationship	55	67	
No relationship	9	13	$\text{Chi}^2_{(2df)} = 0.131$, n.s.
Marital relationship duration (in years)	12.59 \pm 8.804	11.33 \pm 7.396	$F = .883$, n.s.
Children			
$N = 1$	27	34	
$N \geq 2$	37	46	$\text{Chi}^2_{(2df)} = 0.011$, n.s.
Child's gender			
Male	32	49	
Female	32	31	$\text{Chi}^2_{(2df)} = 1.828$, n.s.
Age of children (in years)	10.25 \pm 6.000	9.34 \pm 5.805	$F = .853$, n.s.
Study variables			
Parenting stress	83.73	74.31	$F = 7.838^*$
Depression	38.47	35.90	$F = 3.092$, n.s.
Cognitive Reappraisal	31.45	29.45	$F = 2.437$, n.s.
Expressive suppression	14.47	13.01	$F = 2.392$, n.s.

* $p < .01$

Previous researchers have reported that cognitive reappraisal is associated with better psychosocial outcomes in patients with cancer [18], but nobody has explored the association between cognitive reappraisal and PS. Very interestingly, we did not confirm this result in the group of healthy women, meaning that such an association is significant only in the context of an oncological diagnosis.

A third result was that, among mothers with cancer, time since diagnosis to survey was not associated with PS, depression and expressive suppression, a finding consistent with some previous studies [7, 8] that showed no significant differences in terms of time since cancer diagnosis with regard to psychological distress. However, we observed a negative correlation between time since diagnosis and cognitive reappraisal, i.e. the lower the time since cancer diagnosis, the higher the

cognitive reappraisal. This last result is quite new and might indicate that cognitive reappraisal is an emotional regulation strategy that people particularly use in the first moments after a cancer diagnosis. However, our result is only weakly statistically significant and the topic has been little investigated in the psycho-oncology literature; therefore, further studies should more deeply explore this issue.

Existing research on parenthood in the context of a cancer diagnosis has mainly explored mothers' and fathers' relationships with children with cancer and how children cope with a parent's diagnosis [35–38]. Several studies have addressed parenting in the context of an oncological diagnosis involving mothers and fathers [10, 11, 39], but none of them focused on associations of both depression and emotion regulation with PS. Hence, our research was the first to address this issue.

Table 2 Regression analysis for parenting stress (dependent variable) in the control group

	<i>B</i>	SE	β	<i>t</i>	P level
<i>R</i> = 635; <i>R</i> ² = 403; adjusted <i>R</i> ² = .396 <i>F</i> (1,78) = 52.711; <i>p</i> < .001					
Depression	1.340	.185	.635	7.260	.000

Table 3 Regression analysis for parenting stress (dependent variable) in the clinical group

	<i>B</i>	SE	β	<i>t</i>	P level
<i>R</i> = 523; <i>R</i> ² = 274; adjusted <i>R</i> ² = .250 <i>F</i> (2,61) = 11.488; <i>p</i> < .001					
Depression	1.114	.280	.438	3.985	.000
Cognitive reappraisal	− .622	.288	− .237	− 2.158	.035

Overall, we found that in mothers with a cancer diagnosis, depression and cognitive reappraisal were significant predictors of PS.

According to Abidin's model [15], PS has been classically defined as a disparity between the demands associated with parenting and the perceived resources available to cope with them [13]. Children's healthy development is optimised when parents are responsive, supportive and sensitive to their needs [40]. Unfortunately, stressful circumstances may affect this process and have pernicious effects for parents and children. A cancer diagnosis may be considered as a very stressful event [2]. Therefore, we aimed to deepen the knowledge about antecedents of PS in mothers with cancer, as cancer has consistently been shown to negatively affect the family system, parent–child interactions and children's development [41].

We must mention some limitations of this study. First, its cross-sectional nature prevents us from drawing conclusions about cause-and-effect relationships among the considered variables. Second, our measurements were exclusively based on self-report questionnaires rather than clinical assessments. Third, the limited number of subjects, a self-selection effect and the impossibility to calculate the response rate could have biased our findings and reduced their generalisability. Fourth, time elapsed from diagnosis to questionnaire completion differed among women in our sample, with a possible recall bias caused by the occurrence of events in past years. However, we did not find associations between time since diagnosis and mothers' distress levels (in terms of depression and parenting stress). Finally, we did not examine the effects of children's age and gender on parenting stress. More research is needed in this area in order to further replicate our data and to introduce

appropriate screening strategies in women with a cancer diagnosis who have to parent a child.

The clinical relevance of our research is our finding that depressive levels and cognitive reappraisal may play a significant role in PS. The systematic assessment of these variables (namely, depression and cognitive reappraisal) in women with an oncological diagnosis might help mental health professionals to identify those mothers who are at risk of developing higher levels of PS in order to ensure that they receive adequate support. Previous studies have analysed the efficacy of interventions finalised to decrease depression levels [11, 38], but no one focused on cognitive reappraisal.

As we found that higher cognitive reappraisal may lead to lower PS, it could be useful to plan interventions aimed at strengthening this emotion regulation strategy. Moreover, our finding about the negative correlation between cognitive reappraisal and time since diagnosis might help health professionals to better select women to involve in psychological interventions.

In conclusion, our research is the first to explore associations between depression and emotion regulation strategies with PS in a sample of mothers with cancer. A cancer diagnosis in a mother—being a potentially life-threatening illness—may produce problematic outcomes for family life and for the children's care. Its physical and emotional burden, its treatment, hospitalisations and uncertainty about the prognosis may affect ill individuals' availability to participate in parenting. In order to prevent these negative consequences, it is crucial to identify antecedents of PS (depression and cognitive reappraisal) as early as possible in order to promote healthy mother–child relationships and child development.

Table 4 Pearson's correlations of time since diagnosis with depression, parenting stress and emotional regulation strategies in the clinical group

	Depression	Parenting stress	Cognitive reappraisal	Expressive suppression
Time since diagnosis	− .166	.056	− .277*	.169

**p* ≤ .05

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Abbreviations *PS*, parenting stress; *PSI/SF*, Parenting Stress Index Short Form

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