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Maternal burn-out: an exploratory study

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ABSTRACT

Introduction: Maternal burn-out is a psychological, emotional and physiological condition resulting from the accumulation of various stressors characterised by a moderate but also a chronic and repetitive dimension. Little research has focused on this syndrome.

Objective: The current study aims to assess maternal burn-out rate and to identify factors associated with this state of exhaustion.

Method: 263 French mothers aged between 20 and 49 years answered five scales quantifying maternal burn-out, perceived social support, parental stress, depression and anxiety symptoms and history of postnatal depression.

Results: About 20% of mothers were affected by maternal burn-out. The main factors related to maternal burn-out were having a child perceived as difficult, history of postnatal depression, anxiety, satisfaction of a balance between professional and personal life and parental stress.

Conclusion: This research shows the need for further work on maternal burn-out to better understand and prevent this syndrome.

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Maternal burn-out;
parental stress; exhaustion;
depression

Introduction

Burn-out is the result of accumulated repeated stressors varying in intensity from moderate to strong, for which no appropriate coping strategies have been developed. According to Maslach's model, burn-out is a multidimensional syndrome composed of emotional fatigue, feelings of depersonalisation and a diminishing sense of personal accomplishment (Maslach, Schaufeli, & Leiter, 2001). If burn-out was originally recognised in caretaking professions, authors noted that burn-out could be applied to non-professional domains (Bianchi, Truchot, Laurent, Brisson, & Schonfeld, 2014). Mothers confronted with multiple chronic stressors that demonstrate strong parallels with those seen in the manifestation of professional burn-out: excessive workload, unanticipated events, little or no control over events, lack of recognition for their accomplishments, lack of support and negative attributions regarding accomplishments (Maslach & Goldberg, 1998). Moreover, as in the case of health professionals for whom burn-out was originally identified, motherhood implies a caretaking relationship, involving both caregiving and education of the child. Parents are currently perceived as providing indispensable protection and caregiving to their children (Verjus & Boisson,

2005) and mothers are moreover influenced by a societal myth of the 'perfect' mother who can easily reconcile motherhood, significant other relationships and career (Douglas & Michaels, 2004).

Maternal burn-out has been studied mainly in reduced and selective samples (Lindström, Åman, & Norberg, 2010). Nevertheless, more recently, a study of a large general and non-specific sample of French-speaking parents focused on risk factors for parental burn-out and considered sociodemographic factors but also stable traits of the parent and parenting and family functioning (Mikolajczak, Raes, Avalosse, & Roskam, 2017). Regarding the age of the children, while fatigue, stress and burn-out are most often noted in mothers caring for young children (Giallo, Rose, Cooklin, & McCormack, 2013; Mikolajczak et al., 2017), some authors point out that mothers of adolescents are also prone to burn-out (Auriol-Bartro, 2011; Guéritault, 2004). Other studies confirm that the age of the children would have no effect on the burn-out (Lindström, Åman, & Norberg, 2011). Social environment plays a significant role in the manifestation of maternal burn-out, particularly if the father is absent (Guéritault, 2004). Many studies have demonstrated a link between maternal fatigue and parental stress (Cooklin, Giallo, & Rose, 2012; Dunning & Giallo, 2012; Giallo, Rose, & Vittorino, 2011) and high levels of depression and anxiety (Giallo et al., 2011). Regarding the difference between depression and burn-out, some studies among professional burn-out have found a causal yet differentiated relationship between these constructs (Ahola & Hakanen, 2007; Toker & Biron, 2012). Few studies specifically focus on parental burn-out, but it would appear that depression and anxiety may be predictive variables of maternal emotional exhaustion (Weiss, 2002). Finally, some studies have linked the feeling of guilt with professional burn-out (Gil-Monte, 2012; Rotkirch & Janhunen, 2010) and this feeling could also be studied in parents.

Although parental difficulties can have an impact on children and are considered to be a public health problem (Stewart-Brown, 2008), aside from a limited number of specific studies, there is a lack of empirical data on general maternal burn-out and the factors linked to it. The first objective of this exploratory study was to examine the frequency of maternal burn-out in a non-clinical sample of French mothers and to compare characteristics of mothers suffering or not from burn-out. The second objective of the study aimed to take into consideration psychosocial, familial, psychological and professional variables that could be linked to maternal burn-out. Variables identified in the empirical studies on burn-out but also on stress and fatigue of parents, as well as other variables less studied in the literature but susceptible to influence the fatigue of the mothers were considered in this exploratory study.

Method

Procedure

Mothers were invited to participate in a study on the role of mother and on the singular experience of motherhood. All French mothers with a child under 18 years of age could participate. Participants who responded to the paper version of the questionnaire were recruited through day-care centres and after-school care centres, while those who responded to the online version were recruited through social networks and on internet forums focused on maternity. A total of 410 mothers accepted to participate in this study. Participants whose children were older than 18 ($n = 9$), who were not of French nationality ($n = 8$), who did not

complete the questionnaire at all ($n = 51$) or who did not fully complete the questionnaire ($n = 79$) were removed from the sample. The final sample was composed of 263 participants, who either responded to a paper version of the questionnaire ($n = 85$; 33.3%) or to an online version ($n = 178$; 67.6%). The overall theme of the study along with information regarding anonymity and confidentiality were provided on the first page of the form. Women completed and signed informed consent to participate. Average time to complete the questionnaire was 30 min.

Measures

All participants completed a form collecting sample descriptive information including social and demographic data (age, educational level, family situation, number and age of children); health data (psychiatric disorders and physical health problems); employment (presence of, full- or part-time, scheduling flexibility, satisfaction with work-home balance). Other variables linked to parental difficulties dealing with daily life were also evaluated: perceived financial difficulties, presence of children's handicap, presence of other dependents in the household, mothers' satisfaction with their partners' involvement in home life ('Are you satisfied with your partner's help in household chores and child care?'), mothers' satisfaction with their partners' involvement in the father's role ('Does your partner invest in his role as a father as you wish?'), perception of child as difficult ('Is your child a rather difficult child?').

Feelings of guilt with regards to certain behaviours directed at children were explored with five items created for the study, inspired by a questionnaire by Gil-Monte (2011); for example, 'I have regrets about some of my behaviour as a mother'. Responses were indicated on a five-point Likert scale from 0 'never' to 4 'quite frequently, daily' and allowed to calculate the sum. The Cronbach alpha was 0.84.

Maternal burn-out was measured using the *Burn-out Measure Short version* (BMS-10), a shortened version of the *Burn-out Measure* by Malach-Pines (2005) (French validation by Lourel, Gueguen, & Mouda, 2007). The BMS is a 10-item measure of a seven-point Likert scale (1 'never' to 7 'always') and evaluates the level of fatigue. For the purposes of this study, the introductory phrase, 'When you think about your work overall ...' was replaced with 'When you think about your life as a mother overall ...'. The formulation of the items of BMS-10 is adapted to the specific area of motherhood (e.g. 'Have you felt desperate?'). The presence of burn-out is at the 4-point threshold. Moreover, according to Malach-Pines (2005), scores between 4.5 and 5.4 indicate an elevated exposure to burn-out and scores over 5.5 indicate an extremely high level of burn-out. Cronbach alpha results for the current study was 0.87.

Social support was measured by the *Multidimensional Scale of Perceived Social Support* (MSPSS) developed by Zimet, Dahlem, Zimet, and Farley (1988) (Denis, Callahan, & Bouvard, 2015 for the French version). This 12-item self-report scale provides information regarding perceived social support in the individual's entourage through three subscales: support from friends, from family members and from a significant person. Item response is on a seven-point Likert scale (1 'very strongly disagree' to 7 'very strongly agree'). A high score indicates a high perceived social support. In this study, the Cronbach alpha was 0.92.

Parental stress was measured with the *Parenting Stress Index Short Form* (PSI-s; Abidin, 1990; Bigras, Lafreniere, & Abidin, 1996). This 36-item questionnaire grouped into three subscales: *parental distress* assesses the distress experienced by the parent in his/her role and personal difficulties encountered by the individual; *parent-child dysfunctional interactions*

explores the degree to which the child responds to parents' expectations; and *difficult child* evaluates the level of parental distress when confronted with diverse child behaviour. For mothers with several children, they were asked to answer for the most complicated child. The item responses are on a five-point Likert scale (1 'strongly agree' to 5 'strongly disagree'). Scores are transformed into percentiles (high level of stress above the 85th percentile, average stress levels between the 15th and 80th percentile, low stress below the 15th percentile). Cronbach alphas were 0.94 for the overall scale and 0.87, 0.90 and 0.88 for the three subscales.

Depression and anxiety were evaluated using the *Hospital Anxiety and Depression Scale* (HADS, Zigmond & Snaith, 1983; French validation by Razavi, Delvaux, Farvacques, & Robaye, 1989). This scale is composed of 14 items of which seven evaluate anxiety and seven evaluate depression. A score greater than 11 on either subscale indicates the presence of anxiety and/or depression. The Cronbach alpha for the HADS in the current study was 0.87.

Previous postnatal depression episodes were explored using the *Bromley postnatal depression scale* (Stein & Van den Akker, 1992) allowing for a retrospective auto-evaluation of postnatal depression. For the purposes of the current study, only the first item was presented to allow mothers to indicate if they had experienced postnatal depression as described in the scale.

Statistical analyses

Statistical analyses were carried out with Statistica (version 10). Data distribution was normal. In order to meet the first objective of the study and to give an estimate of the frequency of maternal burn-out, descriptive statistics were used (average, standard deviation and frequency). Then, a Little's missing completely at random (MCAR) test was conducted to assess if missing data can be attributed to fortuity or not (Little, 1988). The second objective of the study was carried out by testing for univariate associations with burn-out (Pearson correlations) and by comparing 'burned out' and 'non-burned out mothers' using ANOVA, Student *t*-tests and Chi-squares. Finally, multivariate analyses with multiple regression analyses were used to examine factors independently associated with burn-out. Three preliminary analyses by groups of variables allowed the final model to be achieved.

Results

Description of the sample and frequency of maternal burn-out

Participants were aged from 20 to 49 ($M = 33.85$; $SD = 6.36$) and 49.4% ($n = 130$) had more than one child (average number of children per mother = 1.65 ± 0.80 ; range = 1–5). Children's ages ranged from 0 to 17 years with an average of 4 years ($SD = 3.85$) (average age was 6.14 years ($SD = 5.5$) for the first or only child, 5.82 ($SD = 5.11$) for the second, 6.33 ($SD = 5.14$) for the third and 5.52 ($SD = 4.25$) for the fourth). Within the sample, 20 children (7.6%) were identified with a physical handicap (e.g. epilepsy, spondylarthritis) or a mental handicap (e.g. autism, dyslexia, light mental retardation, ADHD). The majority of the mothers had a partner (90.4%; $n = 238$) and a small subset were living in a step family (8%; $n = 21$). Among mothers indicating outside employment (77.1%; $n = 203$), 54% ($n = 142$) reported working full-time and 23.2% ($n = 61$) part-time. As for educational level, the sample included: 43.7%

($n = 115$) four-year university degree or more, 27.4% ($n = 72$) three-year professional/university degree, 14.8% ($n = 39$) two-year university degree or equivalent, 11% ($n = 29$) vocational training and 3% ($n = 8$) had no post-secondary education. Of the total of 263 participants, 10.6% ($n = 28$) indicated having health problems and 4.9% ($n = 13$) indicated the presence of psychiatric disorders. Finally, 71.4% ($n = 188$) indicated that they experienced no financial difficulties.

Mean score on the BMS-10 was 3.16 ($SD = 1.01$) with 21.3% ($n = 56$) of participants fulfilling criteria for maternal burn-out. Among these, 51.7% ($n = 29$) suffered from a high level of burn-out and 3.5% ($n = 2$) manifested extreme burn-out. Mean score on the BMS-10 was significantly higher in women who completed the questionnaire online than those who had completed the paper version (3.29; $SD = 1.01$ vs. 2.88; $SD = .93$; $t(261) = 3.15$, $p = .001$). However, there was no significant difference between the two groups concerning the percentage of women suffering from burn-out (24.1% vs. 15.3%; $\chi^2(1) = 2.70$; $p = .10$).

HADS scores for anxiety ($M = 2.15$; $SD = .80$) and depression ($M = 2.73$; $SD = .59$) indicated that 25.9% ($n = 68$) of mothers manifested marked anxiety symptoms and 76% ($n = 20$) manifested depressive symptoms. Moreover, 58 women (20%) reported a history of postnatal depression.

Overall, the results for Parental Stress Index ($M = 1.95$; $SD = .77$) indicated that 27.4% ($n = 72$) showed relatively low levels of parental stress, 40.7% ($n = 107$) presented a medium level of stress and 31.9% ($n = 84$) revealed a high level of stress.

Results for the MSPSS suggested that these mothers perceived a relatively high level of social support with a mean of 5.40 ($SD = 1.15$) for all subscales. With regards to the scale measuring sentiments of guilt created for the current study, the mean score was 5.27 ($SD = 3.45$; 0–19).

With regard to missing data, Little's missing completely at random test (MCAR) show that these missing data is not by hazard ($\chi^2(43) = 156.08$; $p < .00$). Mothers who have not finished the protocol present higher guilt scores 11.34 ($SD = 3.59$) than mothers who finished the protocol 5.27 ($SD = 3.46$); $t(322) = -12.33$; $p = .00$. Mothers who did not respond were more likely to be single (20.3%; $n = 16$) than mothers who finished the protocol (9.5%; $n = 25$); ($\chi^2(1) = 6.65$; $p < .01$).

Univariate associations with maternal burn-out

(Table 1) Maternal burn-out was positively and moderately correlated with the HADS and the Parental Stress Index and negatively and moderately correlated to the MSPSS. Moreover, the BMS-10 score was moderately correlated to the guilt regarding mother's behaviour with their children; and weakly, but significantly correlated to the mother's educational level.

Comparison between 'burned out' and 'non-burned out mothers'

(Table 2) χ^2 test results noted that more mothers suffering from burn-out perceived their children as being difficult, had children who were handicapped and/or had another person under their care (often elderly). Mothers presenting burn-out were less satisfied with how household tasks were shared, and their ability to organise personal and professional obligations. These mothers were more likely to have suffered from previous postnatal depression or psychiatric disorders. Moreover, according to Student t -tests, mothers manifesting

Table 1. Correlations between BMS-10 and other scales.

	BMS-10
Parent stress (PSI/s)	0.52*
Parent-child stress (PSI/s)	0.29*
Child stress (PSI/s)	0.44*
MSPSS	-0.33*
HADS – Anxiety	0.48*
HADS – Depression	0.47*
Guilt score	0.47*
Maternal age	0.04
Age of eldest child	-0.06
Number of children	0.01
Maternal education level	0.13*

*Results significant at $p < 0.05$; PSI-s, Parenting Stress Index Short Form; MSPSS, Multidimensional Scale of Perceived Social Support; HADS, Hospital Anxiety and Depression Scale.

burn-out had higher mean scores of parental stress, anxiety and depression than those not manifesting burn-out. These same mothers had less positive perceptions of their social support systems, for all three dimensions. Conversely, age, parity, spousal presence and financial difficulties had no significant impact on burn-out scores.

For primiparous mothers, the age of the children was categorised by means of a five-point scale according to the French school system: babies (less than 1 year), young children (1–2.9 years), kindergarten (3–5.9 years), elementary school (6–10.9 years), secondary education (11–17 years). According to an ANOVA analysis, no differences were found for the different age categories ($F(4.127) = 0.59, p = .67$). For mothers with more than one child, the ages of the children were dichotomised in three different ways: having at least one baby (less than one year), having at least one child (1–6 years), having at least one teenager (over 11 years). Student *t*-tests (Table 2) did not show any differences between mothers for these categories.

Multivariate analyses: factors independently associated with burn-out

Three preliminary multiple regression analyses were conducted with all variables showing significant correlation or significant differences in terms of BMS-10 scores. The first analysis (adjusted $R^2 = .15$; $F(6.193) = 7.11, p < .00$) included variables related to personal and family characteristics (presence of additional people to care, dissatisfaction with housework sharing, dissatisfaction with work/personal life balance, presence of children's handicap, perception of child as difficult and maternal educational level). Only the last four variables were significant predictors. The second analysis (adjusted $R^2 = .42$; $F(7.254) = 29.11, p < .00$) concerned variables related to parental role (the three subscales of MSPSS, the three subscales of Parental Stress Index and guilt score). Only the last four variables were significant predictors. The third analysis (adjusted $R^2 = .36$; $F(4.257) = 39.09, p < .00$) included variables linked to psychopathology (previous postnatal depression, previous psychological disorders, anxious and depressive symptomatology). All but previous psychological disorders were significant predictors.

The final model explained 52% of the variance in BMS-10 scores ($F(11.190) = 20.64$; $p < 0.00$) (Table 3). Educational level, feelings of guilt regarding maternal behaviour, perceiving ones' child as 'difficult', difficulty maintaining balance between professional and family life,

Table 2. Impact of different variables on BMS-10 scores (adapted to maternal role) (χ^2 and Student *t*).

	Maternal Burn-out			<i>t</i> / χ^2	ddl	<i>P</i>
	Present (<i>n</i> = 56)	Not present (<i>n</i> = 207)				
<i>Sociodemographic variables</i>						
Age	34.14±5.83	33.78±6.50	0.38	261	0.71	
Maternal employment	40 (71.4%)	163 (78.7%)	1.34	1	0.24	
Presence of partner	53 (94.6%)	185 (89.4%)	1.42	1	0.23	
More than 1 child	28 (50.0%)	102 (50.7%)	0.01	1	0.92	
Have at least one baby	6 (21.4%)	19 (18.4%)	0.12	1	0.72	
Have at least a young child	11 (39.3%)	39 (37.9%)	0.01	1	0.89	
Have at least an adolescent	8 (28.6%)	38 (36.9%)	0.67	1	0.41	
<i>Health domain</i>						
Previous postnatal depression	28 (50%)	30 (14.5%)	32.32	1	0.00**	
Previous psychological disorders	9 (16.1%)	4 (1.9%)	18.75	1	0.00**	
Health problems	6 (10.9%)	22 (10.6%)	0.00	1	0.98	
<i>Everyday parenting difficulties</i>						
Dissatisfaction with partners' involvement in home life	20 (35.7%)	40 (19.3%)	5.67	1	0.01*	
Dissatisfaction with partners' involvement in father's role	5 (8.9%)	10 (4.8%)	1.13	1	0.28	
Perception of child as 'difficult'	16 (28.6%)	10 (4.8%)	27.89	1	0.00**	
Guilt score	7.75±3.99	4.62±2.97	5.45	261	0.00**	
Presence of financial difficulties	17 (30.4%)	57 (27.5%)	0.17	1	0.67	
Presence of other dependents in the household	5 (8.9%)	5 (2.4%)	5.11	1	0.02*	
Presence of children's handicap	8 (14.3%)	12 (5.8%)	4.52	1	0.03*	
<i>Professional domain</i>						
Full-time employment	30 (75%)	112 (68.7%)	0.60	1	0.43	
Flexible work hours	21 (52.5%)	82 (50.3%)	0.01	1	0.91	
Satisfaction with work/personal life balance	11 (27.5%)	92 (56.4%)	10.76	1	0.00**	
<i>Parental stress (PSI/s)</i>						
Parent stress (PSI/s)	43.1 ± 7.91	31.42 ± 11.94	8.68	261	0.00**	
Parent-child stress (PSI/s)	28.17 ± 12.05	21.54 ± 11.54	3.77	261	0.00**	
Child stress (PSI/s)	36.42 ± 11.64	26.03 ± 11.12	6.13	261	0.00**	
<i>Anxiety, depression, and social support</i>						
Depressive symptoms (HADS)	7.67 ± 3.96	4.01 ± 2.88	6.45	261	0.00**	
Anxiety symptoms (HADS)	11.00 ± 3.64	7.73 ± 2.92	7.00	261	0.00**	
Overall perceived support (MSPSS)	4.88 ± 1.13	5.54 ± 1.12	-3.89	261	0.00**	
From one person	5.14 ± 1.31	5.84 ± 1.24	-3.67	261	0.00**	

(Continued)

Table 2. (Continued).

	Maternal Burn-out		t / χ^2	ddl	<i>p</i>
	Present (<i>n</i> = 56)	Not present (<i>n</i> = 207)			
<i>Extended family</i>	4.57 ± 1.43	5.38 ± 1.48	-3.65	261	0.00**
<i>Friends</i>	4.93 ± 1.58	5.41 ± 1.36	-2.26	261	0.02*

*Results significant at $p < .05$;**Results significant at $p < .001$;

PSJ-5, Parenting Stress Index Short Form; MSPSS, Multidimensional Scale of Perceived Social Support; HADS, Hospital Anxiety and Depression Scale.

Table 3. Multiple regression predictors of BMS-10 scores.

	β	$t(190)$	p
Presence of children's handicap	0.06	1.18	0.23
Child perceived as 'difficult'	0.11	2.08	0.03*
Maternal educational level	0.13	2.53	0.01*
Dissatisfaction with work/personal life balance	0.10	2.03	0.04*
Previous postnatal depression	0.13	2.53	0.01*
Guilt score	0.19	3.59	0.00**
Parent stress (PSI/s)	0.29	4.22	0.00**
Parent-child stress (PSI/s)	-0.09	-1.21	0.22
Child stress (PSI/s)	0.13	1.74	0.08
HADS - Anxiety	0.21	3.55	0.00**
HADS - Depression	0.10	1.72	0.08

*Results significant at $p < .05$;

**Results significant at $p < .001$;

PSI-s, Parenting Stress Index Short Form; HADS, Hospital Anxiety and Depression Scale.

previous postnatal depression, parental stress subscale, as well as the presence of anxiety were all significant predictors of burn-out.

Discussion

The results of this study suggest that approximately two out of 10 mothers are suffering from maternal burn-out; and half present a high, or extremely high, level of fatigue. Although few studies have explored this phenomenon, these percentages are comparable to those found in a study by Lindström et al. (2010), who revealed that 20% of mothers of children in good health suffered from maternal burn-out.

Correlation analyses and mean comparisons provided insight in the relationship between maternal burn-out and other variables. Contrary to the findings of Auriol-Bartro (2011) but in accordance with Mikolajczak et al. (2017), the current results show that having more than one child does not appear to be linked to maternal burn-out. Conversely, having one or more children perceived as being 'difficult', having a handicapped child, or being in charge of other dependents in the household were linked to maternal burn-out. Indeed, 'difficult' children require more energy, attention and time than less-demanding children. It is likely that children with handicaps also require more from their mothers, and that these mothers devote more time to caring for and providing appropriate education to their children. Having a chronically ill child has been shown to have a serious impact on stress and maternal well-being (Karadavut & Uneri, 2011; Raina et al., 2005). That being noted, attitudes and maternal representations of their children, especially those suffering from handicaps, may influence their perception of suffering from burn-out; this is an important consideration for future studies.

In terms of sample characteristics, contrary to findings of Auriol-Bartro (2011) but in accordance with those of Lindström et al. (2011), the current study did not demonstrate any link between child age and maternal burn-out, and comparisons of primiparous mothers by age group of their child did not show significant differences. Mothers who participated in the current study all reported having children under 17, but as there was great variability in children's ages, more uniform samples would have to be investigated in future studies.

While previous studies have shown that financial difficulties and socioeconomic inequality increased anxiety and depression in mothers (Guéritault, 2004; Seymour, Giallo, Cooklin, & Dunning, 2014), financial difficulties were not linked to maternal fatigue in the results above. A weak correlation was found between educational level and maternal burn-out but this needs to be further studied.

While maternal health problems were not linked to the manifestation of burn-out, previous postnatal depression or other psychological troubles revealed a link with maternal burn-out. Indeed, previous postnatal depression was a highly significant predictor of BMS-10 scores. As found in other studies, mothers manifesting burn-out presented with more anxiety and depressive symptoms. High levels of anxiety and depression (Giallo et al., 2011) and previous and current depression (Nyklíček & Pop, 2005) have already been linked to stress or burn-out.

With regards to family life, marital status was not associated with the presence of maternal burn-out with single and partnered mothers showing comparable frequencies. These results are in accordance with other studies (Lindström et al., 2011). The majority of participants in the current study reported having a partner, thus it might be prudent to explore the specific experience of single mothers in future studies. A conflicting finding in the current study was that maternal satisfaction with shared household obligations was linked to lower levels of burn-out, which suggests that the presence of a partner is important.

Whereas some studies have shown that mothers working outside of the home, particularly those who work full-time, show higher levels of anxiety (Royer, Provost, & Coutu, 2000), the current study found that full-time maternal employment was not linked with maternal burn-out. Rather than representing an additional obligation, it is possible that working outside the home allows these mothers to fulfil themselves in other ways. Indeed, managing professional and personal obligations in addition to different social roles is not necessarily negative for mental health (Oomens, Geurts, & Scheepers, 2007). The current results showed, however, that difficulty in finding a balance between personal and professional commitments was linked to maternal burn-out. Other studies have shown that conflicting demands between work and family has a negative impact on parents (Cooklin et al., 2016).

The current results underlined a link between parental stress and maternal burn-out. These results are in keeping with other studies that maternal fatigue is associated with higher levels of parental stress (Cooklin et al., 2012). Moreover, as pointed out earlier in professional burn-out (Gil-Monte, 2012), feelings of guilt regarding parental behaviours was also linked to maternal fatigue. It is well known that fatigue has a negative impact on mood, cognitive functioning, patience and stress resistance, often resulting in maladaptive thoughts or behaviours towards the child (Guéritault, 2004). These thoughts, along with potential negative behaviour, will result in feelings of guilt, shame and invalidation which are all linked to the third dimension of burn-out as originally described by Maslach et al. (2001). Although the BMS-10 does not measure personal achievement, it may be that guilt feelings alter maternal perceptions of their self-image and thus result in resignation and fatigue.

In the current study perceived social support did not appear to be linked with maternal fatigue, although mothers suffering from burn-out reported less social support than other mothers, regardless of their source of support. Lack of support has previously been linked to maternal anxiety (Capponi, Bacro, & Boudoukha, 2013; Guéritault, 2004).

A major limit of the current study is the adaptation of the BMS-10 for measuring maternal burn-out. Although this questionnaire has already been used with mothers (Auriol-Bartro,

2011), it has not been validated on this population. The recent validation of a questionnaire specific to the evaluation of parental burn-out opens horizons particularly interesting for this new field of study (Roskam, Raes, & Mikolajczak, 2017). Many of the measured variables were of a self-report nature and could be subject to bias. Thus, guilt feelings were measured with questions that had not been previously validated. Moreover, the data collection in one setting may have resulted in some cross-influence between measures, particularly with regards to anxiety, depression and fatigue. One of the major limitations of the current study is its transversal approach which does not allow for understanding clear predictors of maternal burn-out. Future studies could benefit from a longitudinal approach to better understand these relationships. It may be that the data-collection method constitutes another limit in that more mothers completing the questionnaires online showed higher burn-out scores than those completing a paper version. This is not surprising as respondents from the online version were recruited from sites related to parenting and were certainly more concerned with the research topic. Moreover, probably due to the presence of an experimenter, women who completed the paper version of the study have a higher completion rate. The dropout rate suggests that the length of the questionnaire may have been problematic for some people. In addition, analyses showed that mothers who did not complete the entire questionnaire were more likely to be alone and experiencing more guilt than others. Incomplete data could not be integrated into the study, but it is possible that these mothers experience more difficulties and a higher burn-out than the others. A final limitation concerns the heterogeneous nature of the sample, with particular respect to personal variables and children's ages. Conversely, the sample appears to be fairly homogeneous in terms of social class and is not representative of the general population. It is indeed possible that mothers from the middle class who participated in the study enjoy conditions sufficiently stable and secure to mitigate some factors linked to the number or the age of children. It would be interesting to question women from different backgrounds to better take into account psychosocial variables related to maternal burn-out.

In conclusion, despite these limitations and the fact that the results presented above should be interpreted with caution, the current study provides data regarding the frequency of maternal burn-out in a general sample, underlining many factors which appear to be associated with this phenomenon. The data presented demonstrated a clear relationship between maternal burn-out and anxiety and depressive symptoms as well as parental stress. These results point to the need to provide interventions for mothers who may be susceptible to burn-out.

Disclosure statement

The authors declare no conflict of interest.

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