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Shelter versus living with abusive partner: Differences among mothers and children exposed to intimate partner violence

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Abstract:	A growing body of literature has examined differences in the mental health and social support of abused women living in shelters compared to women from the community. However, less attention has been given on both mothers and children. A cross-sectional study was carried out to examine differences on cortisol awakening response (CAR), depression, anxiety and post-traumatic stress symptoms, and social support in women living in shelter compared to women living with abusive partner. They also reported on their children's internalizing and externalizing symptoms. The sample included 162 mother-child dyads, which 81 were living with abusive partner and 81 were living in shelters. Mother' ages ranged from 21 to 54 years (M = 36.39, SD = 7.64) and children' age ranged from four to 10 years old (M = 7.23, SD = 1.94), 75 (46.3%) females and 87 (53.7%) males. After adjusting for potential effects of covariates, mothers living in shelters presented better adjustment in terms of psychological, physiological and social functioning. Social support was the only variable with a large effect size, while the others showed only small effects. In the case of children, those living in shelters displayed higher levels of internalizing and externalizing symptoms compared to children living at home with their mothers and abusive partner. This study suggest that for women, shelter residence may be helpful for mental health and for significant improvements in perceived social support, but for children, the results seem to suggest that they are not benefiting from the time they spend at shelter. Future studies using samples from battered women's shelters need to evaluate if the services offered are suitable for children´s needs.
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Abstract

A growing body of literature has examined differences in the mental health and social support of abused women living in shelters compared to women from the community. However, less attention has been given on both mothers and children. A cross-sectional study was carried out to examine differences on cortisol awakening response (CAR), depression, anxiety and post-traumatic stress symptoms, and social support in women living in shelter compared to women living with abusive partner. They also reported on their children's internalizing and externalizing symptoms. The sample included 162 mother–child dyads, which 81 were living with abusive partner and 81 were living in shelters. Mother' ages ranged from 21 to 54 years (M = 36.39, SD = 7.64) and children' age ranged from four to 10 years old (M = 7.23, SD = 1.94), 75 (46.3%) females and 87 (53.7%) males. After adjusting for potential effects of covariates, mothers living in shelters presented better adjustment in terms of psychological, physiological and social functioning. Social support was the only variable with a large effect size, while the others showed only small effects. In the case of children, those living in shelters displayed higher levels of internalizing and externalizing symptoms compared to children living at home with their mothers and abusive partner. This study suggest that for women, shelter residence may be helpful for mental health and for significant improvements in perceived social support, but for children, the results seem to suggest that they are not benefiting from the time they spend at shelter. Future studies using samples from battered women's shelters need to evaluate if the services offered are suitable for children´s needs.

Keywords: intimate partner violence, children exposed to domestic violence, mothers and children, shelter residence

Shelter versus living with abusive partner: Differences among mothers and children exposed to intimate partner violence

In Portugal, crimes against persons, which mainly include intimate partner violence (IPV), have been the second most prevalent category in recent years (Portuguese Internal Security System (RASI), 2015; 2016). According to official reports, 27005 incidents of domestic violence were reported in 2016 (rate of 2.62 per 1.000) and 26595 in 2015 (rate of 2.58 per 1000) (RASI, 2015; 2016). Of these, about 80% of the incidents were reported by women due to intimate partner violence and involved children in more than 30% of the cases (Portuguese Association of Victims Support, 2015; 2016; Portuguese Child Protective Services, 2015; 2016). Thus, the effects of IPV on mothers and children is an important public health issue in Portugal, as it is in many countries (Devries et al., 2013).

The decision to leave a violent relationship often takes many years (Triantafyllou, Wang, & North, 2016), and only a small number of women seek IPV shelter services as part of their leaving process (Galano et al., 2013; Kamimura et al., 2015). In Portugal, as in other Western countries, shelters are temporary residences, whose main function is to provide a secure place for abused women and their children in crises (Correia & Sani, 2015). Shelters are the most important services for women and their children seeking support and accommodation (Logar & WAVE Team, 2016). In the North American context, the emergency shelters have stay limitations of 30-60 days, although some shelters allow women and children to stay more than 60 days (e.g., Lyon, Lane, & Menard, 2008; McNulty, Crowe, Kroening, VanLeit, & Good, 2009), and transitional housing programs allow residence for women usually for up to one year. Limitations on the period of stay are especially problematic if there are no transitional housing programs for women and children leaving shelter. However, the European countries, including Portugal, have a longer period of stay in shelter because most of them have no transitional housing programs. Overall, the period of stay varies between and

within countries, but in most European countries, women and children can stay for more than six months (Logar & WAVE Team, 2016). According to the Portuguese Law (Regulatory Law n°1/2006 of 25 January 2006), the maximum stay time at the shelter is 6 months, but this period may be extended exceptionally by a recommendation from the technical team.

International research on IPV describes a particular profile of women that make use of shelters (Galano et al., 2013). When compared with non-sheltered, abused women, women in shelters report more frequent and severe episodes of IPV (Sackett & Saunders, 1999), intensified social risk (Galano et al., 2013), higher symptoms of PTSD and psychological distress (Galano et al., 2013; Jones, Hughes, & Unterstaller, 2001) and lower perceived social support (Levendosky et al., 2004).

However, studies also find that shelter residence often is associated with a gradual improvement in women' mental health, self-esteem, and in perceived social support (e.g., Itzhaky & Ben Porat, 2005; Mertin & Mohr, 2001; Orava, McLeod, & Sharpe, 1996; Panchandadeswaran & McCloskey, 2007; Tan, Basta, Sullivan, & Davidson, 1995). These improvements highlight the importance and benefits of shelter residence, which are mostly related to the cessation of the violence cycle, the end of the relationship with the aggressive partner, positive feelings associated with being safe, and the growing perception of an effective social support environment (Blasco-Ros, Sánchez-Lorente, & Martinez, 2010).

In addition to psychological problems, research suggests that violence exposure (e.g., trauma) may be associated with dysregulation of the hypothalamic pituitary-adrenal (HPA) axis (Johnson, Delahanty, & Pinna, 2008; Pinna, Johnson, & Delahanty, 2014). The HPA axis functioning is an important stress response system, in which a cascade of physiological reactions lead to an increase in the secretion of cortisol, which provide energy and physiological resources towards addressing the stressor (Miller et al., 2007). While daily acute stressors typically leads to a normal increase in cortisol activity (Dickerson & Kemeny,

2004), exposure to severe and repeated stressful events may lead to alterations of the normal HPA-axis (Miller et al., 2007; Yehuda, 2002). One way to assess the functioning of the HPA axis is through the cortisol awakening response (CAR), which for a well-regulated functioning is expected an increase in cortisol levels immediately following awakening, peaking approximately 30/45 min after awakening (Elder et al., 2014; Hucklebridge et al., 1998; Pruessner et al., 1997; Wüst et al., 2000). This is typically studied through salivary cortisol obtained at awakening and 30-45 minutes later. It is currently unknown whether shelter residence would affect the cortisol (i.e. HPA axis functioning) in women exposed to IPV.

For children exposed to domestic violence, research finds high levels of mental health problems, such as internalizing and externalizing behaviors (e.g., Mertin & Mohr, 2001). While some early studies report that children living in shelters have higher levels of mental health problems, PTSD symptoms, and lower social functioning, than children residing in homes with their mothers and abusive partner (Fantuzzo et al., 1991; Jaffe et al., 1986), two later meta-analysis did not find support for these findings (Evans, Davies, & DiLillo, 2008; Kitzmann, Gaylord, Holt, & Kenny, 2003). There are some explanations of these conflicting findings about the impact of the type of residence on children's psychological adjustment. In one hand, shelters placement may influence children's psychological adjustment, by compromising children's sense of family emotional security (Cummings & Davies, 2011), fathers' involvement in children's life (Hunter & Graham-Bermann, 2013), the support of extended family (Holt, Buckley, & Whelan, 2008), and the acquisition of specific developmental tasks (Leslie et al., 2005). On the other hand, is clear that children living in shelters are less exposed to IPV and family violence victimization and, previous research has suggested that significant decreases on exposure to family violence are associated with lower children's psychological problems (Howell, Graham-Bermann, Czyz, & Lilly, 2010;

Martinez-Torteya, Bogat, Von Eye, & Levendosky, 2009). In addition, women living in shelters reported gradual gains in mental health, perceived social support and positive parenting practices that might also indirectly beneficiate children's psychological adjustment (Levendosky, Leahy, Bogat, Davidson, & Von Eye, 2006).

While previous studies have focused on women in shelters (e.g., Mertin & Mohr, 2001; Levendosky et al., 2004; Galano et al., 2013), or children (e.g, Evans et al., 2008; Hughes & Barad, 1983), less attention has been given to mothers and children in the same sample. The few studies who examined both mothers and children in shelter compared them with community samples (e.g., Christopoulos, et al., 1987; Holden & Ritchie, 1991) or had no comparison group (Grych, Jouriles, Swank, McDonald, & Norwood, 2000; Jarvis, Gordon, & Novaco, 2005).

Therefore, the present study aimed to compare maternal and child outcomes based on whether they were living in a shelter versus living at home with the abusive partner. We hypothesized that mothers living in temporary shelter would report less symptoms of depression, anxiety, PTSD symptoms, and a normal increase in cortisol response after awakening, than those living with abusive partner. We also hypothesized that children living in temporary shelter would present less internalizing and externalizing symptoms. Additionally, we examined whether or not potential differences between groups would still be significant after controlling for some important sociodemographics and characteristics of the mother, child and the violence. Specifically, in order to assess differences in mothers living in shelter vs. mothers living with abusive partner, we included age and education, history of childhood adversity, severity of the violence exposure, and child´s temperament, because they can affect the relationship between IPV and women's mental health (Capaldi, Knoble, Shortt, & Kim, 2012; Cutrona & Troutman, 1986; Dube et al., 2002; Hegarty et al., 2013; Kessler et al., 2010). Similarly, in order to assess differences in children living in

shelter vs. children living in home, we included age, severity of the violence exposure, mothers' mental health and parenting stress, and child´s temperament, because they can affect the relationship between IPV and children's internalizing and externalizing behavior problems (Emery, 2011; Huth-Bocks & Hughes, 2008; Kernic, et al., 2003; Martinez- Torteya et al., 2009).

Method

Participants

The present study is part of a larger research project funded by "*Fundação para a Ciência e Tecnologia*" (Foundation for Science and Technology—Portuguese and European funding), about the impact of IPV on women and children's health, carried in Portugal. The study was approved by the National Commission for Data Protection (NCDP; authorization nº 7005/2016) and the ethics committees of both the University of Porto and the University of Lusófona of Porto.

The sample recruitment involved previous contact with 260 institutions that provide anonymous assistance to women victims of partner violence. We selected all institutions that we found through directly contacting (by phone or email) the national and regional services of state organizations and non-profit organizations, such as Portuguese Association for Victim Support (APAV), Child Protective Services (CPS), Domestic Violence Organizations and Shelter Residences from north to south of Portugal, which gave us lists of names and contacts of local institutions that supported women and children victims of IPV. Of these 260 institutions contacted, 95 (36.5%) refused to collaborate and 48 (18.5%) did not respond. Of the 117 institutions who agreed to collaborate in the study, 13 (11.1%) institutions did not have women and children who fulfilled the inclusion criteria to participate in the study. The inclusion criteria were mothers' age equal to 18 years or older; IPV reported to authorities (e.g., law enforcement agencies/police) or to a formal service provider/institution (including

report to CPS in the case of children); were receiving services from either shelter residences or victims support agencies/institutions; and, having a child between 4 and 10 years old, living with her. We restricted to children between 4 and 10 years, since earlier studies suggested that preschool and school-aged children are more vulnerable to family violence than older children (Carpenter & Stacks, 2009). When the mother had more than one child, we opted for the oldest due to have experienced more time in the context of violence. Exclusion criteria were mothers being in psychotherapy, with apparent psychosis, intoxication or pregnancy, or with mental retardation. Were also excluded children with any pervasive developmental disorder or severe medical condition.

The first contact with participants consisted in a general explanation of the study and in obtaining their informed consent. We defined *a priori* a sample size of 160 women and children, divided into two groups of 80, which one group should include mother–child dyads living with aggressors at home and 80 with mother–child dyads living in shelters. The total number of the sample was based on medium effect size expected $d = .15$ and α error probability of 0.05, and 90% of power to detect significant results for two independent groups. When the total of 80 participants per group was reached, the data collection stopped. To reach this sample size, it was necessary to contact 352 women who were invited to participate in the study and the time taken for the data collection was about 16 months. The final sample consisted of 81 (50%) mother–child dyads living with aggressors and 81 (50%) mother–child dyads living in shelters. For sheltered women and children, time in shelter ranged from one to 12 months ($M = 3.94$; $SD = 3.76$). In the total sample, mother' ages ranged from 21 to 54 years ($M = 36.39$, $SD = 7.64$). From those, 32 (20%) were single, 57 (35.6%) married, 38 (23.8%) in civil union, 32 (20%) divorced or separated, and one (0.6%) widowed. Concerning mothers' education, 22 (13.8%) completed the basic four years of school, 63 (39.4 %%) 6 years, 58 (36.3%) 9 years, 13 (8.1%) the 12 years of compulsory

education, and four (2.5%) obtained university degrees. The majority of women were unemployed (*n* = 116, 72.5%) and five (3.1%) never worked. The mean age of children was 7.23 years (*SD* = 1.94), ranging from four to 10 years old, being 75 (46.3%) females and 87 (53.7%) males. Thirty-nine (24.1%) were kindergarten children and 123 (75.9%) attended Elementary school. The description of the sample comparing two groups is presented in Table 1.

(Insert Table 1 here)

Procedure

Recruitments of women took place in the Portuguese Association for Victim Support (APAV), Child Protective Services (CPS), Domestic Violence Organizations and Shelter Residences from north to south of Portugal. The initial contact with the institutions was made by email and then followed by telephone, where a face-to-face meeting was scheduled to present the study. The first contact with the participants was made by the professionals of the institutions and a general explanation of the purposes of the study, methods, and procedures was provided to them. After the participants agreed to participate, the researchers scheduled the interviews, in which more detail information about the study and the informed consent was given. Regarding the ethical issues, the research team utilized some procedures that would minimize the risk of participation for women and children, especially for those mothers and children living with the abuser. Regarding confidentiality and safety, the participants gave their consent verbally instead of writing their names. This consent included the participation of their children. With particular concern for women living with the abuser, the two text messages sent to remind the saliva collection did not reveal the objective of the study, which only mentioned the collection of samples for laboratory examination. Considering privacy, the questionnaires were administered by trained female psychologists with clinical experience, either in the institutions facilities or in the shelters in a calm and

private room. The mothers and child's assessment were performed separately to avoid potential bias of the findings. To avoid doing harm, the women were informed of the possibility of experiencing some adverse reactions in the following days after being interviewed. Then, the researchers gave a telephone or email contact to be used in case of need. In case of distress after the interview, participants were referred to community health services, including the psychology service at the university. Considering the mandatory report of the violence, all cases of IPV, including women living with the abuser, had open files of IPV on courts, police departments, APAV, and Domestic Violence Organizations. Additionally, all children who participated in this study were identified by CPS. Finally, as a courtesy for participating in the study, the mothers received vouchers from a local department store. Expressing appreciation to participants "can help them feel more positively about the relationship with the researcher and less exploited" (Fontes, 2004, p. 149).

Measures

Mother's Outcomes

Cortisol Awakening Response (CAR). Participants collected early morning saliva samples at home or in shelters. To remind women to do the saliva collection, participants received two text messages, one in the previous day and the other in the early morning of the collecting day. Using Salivette sampling device without citric acid (Sarstedt, Rommelsdorf, Germany), participants obtained saliva samples immediately upon awakening (baseline) and 30 minutes later, on a single day. These two sampling collection times are necessary because in normal conditions it is expected an increase in cortisol levels immediately following awakening, peaking approximately 30/45 min after awakening (Elder et al., 2014; Hucklebridge et al., 1998; Pruessner et al., 1997; Wüst et al., 2000). Then, the CAR is obtained by subtracting the 30 min post-awakening sample from the baseline sample. Additionally, we used self-report sampling method of recording awaking and sampling

collection times. To identify the extent of inaccurate data, we calculated the discrepancy between the reported awakening time and the first sample collection. When the discrepancy exceeded the margin of 15 min, in order to prevent the reduction of the CAR magnitude (Smyth, Clow, Thorn, Hucklebridge, & Evans, 2013; Smyth, Thorn, Hucklebridge, Evans, & Clow, 2015), we excluded the respective data from the subsequent analyses. The time of the first sample collection after awakening ranged from zero to 15 min (M = 1; SD = 3). The total sampling error was not significantly correlated to the CAR, $F(1, 147) = 1.21$, $p = .26$.

The Brief Symptom Inventory (BSI) (Derogatis, 1982; Portuguese version of Canavarro, 1999) is a well-established self-report instrument to assess psychological distress. Subjects describe whether they have experienced any distress symptoms over the past seven days on a five-point scale (0 = *not at all*, to 4 = *extremely*). The inventory includes nine symptom dimensions: somatization, obsessive compulsivity, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. For the purposes of the present study, we only used the depression and anxiety subscales. Example of items are "Feeling no interest in things" and "Feeling tense or keyed up". Higher scores reflect higher depression and anxiety symptoms. The studies of the original scale have demonstrated good internal consistency for each of the scales. The internal consistency of the present sample was .86 for depression and .85 for anxiety.

The PTSD Checklist–Civilian Version (PCL-C) (Weathers et al., 1994; Portuguese version of Marcelino and Gonçalves, 2012) is a Checklist that includes 17 self-report items of symptoms of post-traumatic stress disorder based on DSM-IV B, C, and D criteria. It requires participants to rate the severity of each symptom during the previous 30 days on a Likert-type scale ranging from 1 (*not at all*) to 5 (*extremely*). Participants met DSM-IV criteria for PTSD when they reported a moderate or higher level of at least one intrusion symptom, three avoidance symptoms, and two hyperarousal symptoms. To meet DSM-IV A1 and A2 criteria

we instructed participants to respond while thinking about the exposure to actual or threatened death or serious injury, and also by asking if they recalled feeling terrified or helpless at the time of exposure. We used the PTSD total score (α = .89) based on the sum of all symptoms.

Social Provisions Scale (Cutrona & Russell, 1987; Portuguese version of Moreira & Canaipa, 2007) is a scale that includes 24 self-report items to assess the degree to which respondent's social relationships provide various dimensions of social support. The respondent indicates on a 4-point scale (1 = *strongly disagree,* to 4 = *strongly agree*) the extent to which each statement describes her current social network. The instrument contains six subscales as following: attachment, social integration, reassurance of worth, reliable alliance, guidance, and opportunity for nurturance. After reversal of negatively worded items, a total score may be computed by summing all items, ranging from 0 to 96. A high score indicates a greater degree of social support. The internal consistency for the overall items in the present sample was .95.

Children´s Outcomes

Strengths and Difficulties Questionnaire–Parent Version (SDQ) (Goodman, 1997; Portuguese version of Fleitlich, Loureiro, Fonseca, & Gaspar, 2005; Marzocchi et al., 2004) assesses mothers' perspective of children's behaviors. The SDQ is a 25-item behavioral screening questionnaire that is effective in detecting mental health problems in children (4 to 16 years old), with a 3-point response scale (from ''not true'' to ''certainly true''), including emotional symptoms, conduct problems, hyperactivity/inattention, as well as peer relationship problems and prosocial behaviors. For this study, a total score was computed by summing the scores of emotional and peer items which reflect the internalizing problems and behavioral and hyperactivity items which reflect the externalizing problems. The internal consistency for externalizing subscale was .73 and internalizing subscale was .68.

Mother´s Covariates

Adverse Childhood Experiences Study Questionnaire (ACE: Felitti et al., 1998; Portuguese version of Pinto et al., 2014). The questionnaire included detailed information on 10 adverse childhood experiences, organized into two areas: children's experiences and household dysfunction. The five categories of children's experiences included emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect. Responses range from 0 (*never*) to 5 (*very often*), with the exception of sexual abuse, for which a dichotomous response (*yes or no*) was given. Responses of mother treated violently range from 0 (*never*) to 5 (*very often*), and (*yes or no*) for household substance abuse, mental illness or suicide in the family, parental separation or divorce and incarcerated household members. All items for the 10 different childhood adversities were dichotomized (yes or no) based on how often the experiences occurred: A response of often or very often for at least one item was defined as positive for emotional and physical abuse; A yes response to any of the four items defined sexual abuse; for emotional neglect, a response of never or once in response to at least one of the five items; and physical neglect, a response of never or once in response to at least one of the two reverse-scored items; and often or very often to at least one of the three items. Regarding the household dysfunction, the participants were considered to have been exposed to each category when the response was yes. The only exception was whether the mother was treated violently, for which a response of sometimes, often, or very often to one of the items defined a respondent as having been exposed. Then, we computed a total score of the dichotomized variables ranging from zero to 10.

Children´s Covariates

Parenting Stress Index (PSI) (Abidin, 1990; Portuguese version of Santos, 1997) assesses stress in the parent-child system in two domains, the Child Domain (reflecting child characteristics that make it difficult to fulfill the parenting role) and the Parent Domain

(consequence of parental functioning). For this study, we calculated maternal parenting stress from the scores on the two following subscales: role restriction of parent domain (α = .74) and demandingness of the child domain (α = .74), both ranging from zero to 75. Higher scores reflect higher levels of parenting stress.

Mothers' and Children's Covariates

Sociodemographics. We used a questionnaire to collect information about participants' sociodemographic and professional characteristics (e.g., age, gender, marital status, employment status, education, and time in shelter).

The Revised Conflict Tactics Scales (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996; Portuguese version by Paiva & Figueiredo, 2006) was used to measure the chronicity of women's physical assault and psychological aggression. Respondents reported on the frequency of abusive behaviors perpetrated by their current or most recent abusive partner within the previous 12 months on an eight-point scale (0 = *this has never happened* to 7 = *More than 20 times in the past year*). For the purposes of the current study, we used the chronicity score (continuous variable) that was calculated by determining the midpoint of the items as follows: 0 (This has never happened); 1 (Once in the past year); 2 (Twice in the past year); 4 (3-5 times in the past year); 8 (6-10 times in the past year); 15 (11-20 times in the past year); 25 (More than 20 times in the past year). These mid-points of each item were then summed to obtain psychological aggression (8 items) and physical assault (12 items) (Straus, 2001). Higher scores reflect higher frequency of the acts in each subscale. In the present study, the subscales presented good reliability: psychological aggression (α=.78) and physical assault (α=.89).

The very short form of the Children's Behavior Questionnaire (CBQ-VSF) (Putnam & Rothbart, 2006; Portuguese version of Melo, 2005) is a 36-item informant-report questionnaire that assesses child´s temperament (ages 3 – 8). In this study, the mother was

asked to indicate how typical a given behavior of their child is, using a 7-point scale (*1 = extremely untrue of your child, to 7 = extremely true of your child*). Although the CBQ-VSF is suitable to evaluate temperament of children 4–8 years old, our sample included mothers of children up to 10 years old. We used this measure because previous findings showed no differences in means, variances, or factor structures between younger (4- to 7-year-old) and older children (8- to 9-year-old) (Mullineaux et al. 2009). Child´s temperament was assessed through three subscales of the CBQ-VSF, namely surgency that reflects impulsivity, approach, activity level, and high-intensity pleasure; negative affect that reflects sadness, anger, fear, and discomfort; and effortful control that reflects inhibitory control, low-intensity pleasure, attentional control, and perceptual sensitivity. The internal consistency for surgency/extraversion was .64, negative affectivity .69, and effortful control .78.

Data Analysis

Data analyses were carried out using the SPSS version 20 for Windows (United States, New York, IBM Corporation). We used one-way analysis of covariance (ANCOVA) and multivariate analysis of covariance (MANCOVA) to compare mothers and children living with the aggressor and those living in shelter, in terms of cortisol, social support, anxiety and depression symptoms, PTSD symptoms (mother´s variables) and, externalizing and internalizing symptoms (child´s variables). We used analysis of covariance in order to test whether or not these effects were significant after adjusted for covariates. The covariates for mothers´ analysis included sociodemographic variables (age and education), childhood adversity, minor and severe violence exposure, and child´s temperament (surgency, negative affect, and effortful control). In the case of cortisol analysis, we also included the PTSD symptoms as covariate. The covariates for children's analysis included child´s age, minor and severe violence exposure, child´s temperament (surgency, negative affect, and effortful control), and mother´s variables (e.g., anxiety, depression, PTSD symptoms, social support

perception and parenting stress). Missing data occurred for CAR in 17 cases, from which nine did not complete the sampling collection and eight involved inaccurate data. Missing data for other variables did not exceed 2.5% of the cases throughout all analyzes carried out.

Results

Descriptive Information on IPV and other Study Measures

Table 2 provides the descriptive statistics of the key variables.

(Insert Table 2 here)

Mother´s Outcomes

We found significant differences in cortisol between groups, Pillai's Trace = .054, $F(2,130) = 3.68$, $p = .028$, partial $\eta^2 = .054$, after adjusted for covariates. The univariate F tests showed there was a significant main effect for cortisol T30, $F(1,131) = 6.43$, $p = .012$, partial $\eta^2 = .047$. Women living in shelter showed higher levels of cortisol than women living with the partner (see Table 3). Additionally, we found differences between groups on the CAR, $F(1,131) = 4.79$, $p = .030$, partial $\eta^2 = 0.035$, after adjusting for covariates. Women living in shelter showed higher CAR than women living with partner (see Table 3).

We found significant differences between groups on social support, $F(1,154) = 32.72$, $p < .001$, partial $\eta^2 = 0.175$, after adjusting for covariates. Women living in shelter reported more social support than women living with partner did. Further, we observed significant differences between groups in terms of depression and anxiety, Pillai's Trace = .043, $F(2,150) = 3.35$, $p = .038$, partial $\eta^2 = .043$, after adjusted for covariates. The univariate F tests showed there was a significant main effect for depression, $F(1,151) = 6.40$, $p = .012$, partial $\eta^2 = .041$, and anxiety, $F(1,151) = 4.71$, $p = .032$, partial $\eta^2 = .030$. Women living with intimate partner reported more depression and anxiety symptoms than women living in shelter (see table 3). Finally, we found no differences between groups on PTSD symptoms, $F(1,149) = 0.929$, $p = .337$, partial $\eta^2 = 0.006$, after adjusted for covariates (table 3).

Children´s Outcomes

We found significant differences between groups in terms of externalizing and internalizing symptoms, Pillai's Trace = .069, $F(2,147) = 5.43$, $p = .005$, partial $\eta^2 = .069$, after adjusting for covariates. The univariate F tests showed a significant main effect for externalizing symptoms, $F(1,148) = 7.54$, $p = .007$, partial $\eta^2 = .048$, and for internalizing symptoms, $F(1,148) = 8.31$, $p = .005$, partial $\eta^2 = .053$. Children living in shelter presented more externalizing and internalizing symptoms than children living at home (Table 3).

(Insert Table 3 here)

Discussion

The main aim of this study was to examine differences between women and children living in shelter residence and women and children living in home with abusive partner on mental health adjustment. We found significant differences between mothers living in shelters to mothers living with abusive partner in terms of psychological, physiological and social outcomes, after controlling for potential effects of covariates. These findings suggest that women living in shelters seem to have better mental health outcomes than those living with abusive partner. In fact, the results of cortisol are consistent with this conclusion because mothers living in shelter showed higher levels of CAR compared to mothers living with the aggressor, suggesting a better regulated functioning of the HPA. In healthy adults, the cortisol increase by between 50 and 160% in the first 30 min immediately post-awakening (Clow et al., 2004; Wüst et al. 2000).

However, when considering the magnitude of the differences between two groups, social support was the only variable with a large effect size, while the others showed only small effect sizes. This suggests that while shelters are helpful, their contribution to better mental health in women exposed to IPV is small due to the complexity of the co-morbid issues that

occur in this population, including poverty, and other stressors (Bennett, Riger, Schewe, Howard, & Wasco, 2004).

From a practical perspective, this finding suggest that the benefits of entering in a shelter residence are mostly the improvement in social support, which is provided by staff, other residents, and the shelter facility itself. Staff members typically provide a secure environment, and shelter residents usually describe them as caring and supportive, non-judgmental listeners, who treated residents with respect (Tutty, Weaver, & Rothery, 1999), and helpful in dealing with all types of abuse (Gordon, 1996). Nevertheless, we expected that the cessation of the violence would have a strong positive impact on women's mental health but our findings shown that these effects are small when compared to women who still living with the aggressor. This can be explained by the relatively short time since they leave the abusive partners, considering that a previous longitudinal study found that mental health consequences can persist for several years after IPV exposure (Lindhorst & Beadnell, 2011). This is coherent with the absence of significant differences between groups in terms of PTSD. The recovery from trauma is often difficult, with PTSD symptoms persisting for a long time after the critical event (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), even in sheltered women (Mertin & Mohr, 2001).

In terms of practical implications, it is important for policy makers and practitioners to recognize that mental health consequences of women related to IPV can persist after IPV exposure. The major positive effect after women entering in shelter was the increase of social support perception. However, it is more difficult for women to continue obtaining social support and other services after leaving the shelter (Grossman, Lundy, George, & Crabtree-Nelson, 2010). Future research should conduct follow-up studies after the women leave the shelters to examine the long-term impact of shelter residence on social support and mental health.

Turning to the children, we hypothesized those children living in temporary shelter would report better adjustment that those living with abusive partner. However, we did not find support for this hypothesis. We found that children living in shelters displayed higher levels of internalizing and externalizing symptoms, compared to children living at home with their mothers and abusive partner, after adjusting for potential effects of covariates. These results are in accordance with some early studies, demonstrating that children exposed to IPV and living in shelters exhibited heightened externalizing and internalizing symptoms (Fantuzzo et al., 1991; Jaffe et al., 1986). In the case of children, compared with mothers, it is possible that shelter experience may be a stressful influence on children´s mental health, and not necessarily an accurate representation of their mental health in the long term (Edleson, 1999, p. 845). We speculate that the transition to the shelter from home may have contributed to more distress, leading to higher levels of externalizing and internalizing behaviors. Most of the children moved to shelters far from their home and thus lost their social networks, start attending new schools and lost contact with peers, their father and other relatives. These major changes in child´s life may inhibit a positive effect of the shelter from occurring in the short term. However, these are only speculations to explain our findings. Our cross-sectional research design does not allow examining the long-term effect of the shelter on children's mental health. Lacking a pre-test measure (before children have entered in shelter) does not permit examining whether the differences between children living in shelter and those living in the community are actually attributable to shelter residence. Alternatively, mothers who had children in more distress might have made the decision to go to the shelters to help their children get away from the IPV, thus the difference was prior to shelter residence. We do not have prior data about the group before entering in shelter, and although we have adjusted the analyses for some confounding variables, such as prior violence exposure, these data relies only on retrospective reports of the mothers. It may be also possible that mothers who have

children who have more behavioral problems may be less able to secure alternative housing with friends and family members and thus may be more likely to use shelter services.

However, despite these limitations, this study leads to some important questions for the field. For example, shelters serve an important public health need for women escaping violent partners, but what is the efficacy of these shelters in reducing mental health problems? This study provides initial indications that for women, shelter residence may be helpful for mental health and social support, but for children, it may not be. Thus, further research is needed to increase our understanding of their different needs in order to increase and adjust the services in an appropriate way. Future research also should examine additional variables, already tested in community samples, in a shelter sample, such family emotional security, the child-father relationship, children's social network, and community support and services (Cummings & Davies, 2011; Evans et al., 2008).

Considering the limitations of the study, the findings should be interpreted with some caution. As mentioned above, this is a cross-sectional study, which compromises the determination of a causality relationship between variables and the comparisons between groups. The absence of a pre-test measures compromises solid conclusions about differences that were obtained between groups, especially related to children, which cannot be attributable with residing in a shelter but other suppositions can be explored. Additionally, the scales for PTSD, depression and anxiety are symptom checklists, rather than diagnostic measures. Therefore, conclusions about diagnoses of mental disorders and comorbidity cannot be drawn. Finally, the high missing data of CAR is another limitation, especially considering that it was imbalanced between groups. Additionally, it is recommended for CAR research on adult populations the use of protocols with four-five sampling points over two sampling days (Stalder et al., 2016), and we used two-sample protocol in only a single day. Although the use of a two-sample protocol (0 min and 30 min) may be justifiable considering

the high-risk sample, the data may be difficult to interpret as it remains unknown whether potential relationships are seen with CAR magnitude or differential CAR peak timing (Stalder et al., 2016).

Despite the limitations of the study, the findings seem to show that mothers exposed to IPV can benefit from significant improvements in perceived social support during shelter residence, but the other mental health improvements were small, when compared with mothers living with abuser. This result seems to suggest that women may gain benefits by staying longer at shelter, or in case of some European countries, including Portugal, the develop of transitional housing programs may be useful by extending services and support to women beyond shelter stay. In the case of children, the results seem to suggest that they are not benefiting from the time they spend at shelter. Services offered by shelters need to be evaluated if they are suitable for children´s needs. However, in Portugal, as in the United States, evaluations of shelter programs have been limited, especially shelter programs for children, lacking empirical evidence about their efficacy (Poole, Beran, & Thurston, 2008). Future studies using samples from battered women's shelters need to ask children directly to describe how they view services they receive (Chanmugam, 2011), and how their needs can be addressed, as well as evaluation of the efficacy on improving the children's mental health.

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Table 1

Demographic Characteristics of Women in Portugal who Experienced Intimate Partner Violence and who Live in a Shelter Versus Women Living at Home with an Abusive Partner.

	Shelter		Home		
	n = 81		*n = 81*		*p*
Sociodemographics	*M*	*(SD)*	*M*	*(SD)*	
Age					
Women	35.38	(7.30)	37.56	(7.84)	.07
Children	7.05	(1.99)	7.41	(1.87)	.24
Marital status	*n*	*(%)*	*n*	*(%)*	.001
Single	29	(35.8)	3	(3.7)	
Married	16	(19.8)	43	(53.1)	
Civil union	10	(12.3)	35	(43.2)	
Divorced or separated	25	(30.9)	0	0	
Widowed	1	(1.2)	0	0	
Mother´s education					.88
University degree	0		4	(4.9)	

Compulsory education	8 (9.9)	5 (6.2)	
9 years	30 (37.0)	28 (34.6)	
6 years	32 (39.5)	33 (40.7)	
4 years	11 (13.6)	11 (13.6)	
Employment status			.87
Working	19 (23.5)	20 (24.7)	
Unemployed	60 (74.1)	58 (71.6)	
Never worked	2 (2.5)	3 (3.7)	

Note: The independent-samples t-test compared groups in terms of age and education (number of years); chi-squared test examined associations for marital and employment status.

Table 2

Means and Standard Deviations of Mothers' and Children's Variables

Variables	*n*	*M*	*SD*	*Min*	*Max*
Mother					
Depression symptoms	162	11.30	5.78	0	22
Anxiety symptoms	162	10.83	5.86	0	24
Parenting stress	162	43.46	8.46	19	67
PTSD symptoms	160	51.81	12.91	17	70
Cortisol T0	146	17.76	6.63	4.97	36.97
Cortisol T1	145	19.31	8.58	3.86	51.87
CAR	145	1.59	6.17	-16.28	23.18
Adverse childhood experiences	161	4.60	2.41	0	10
Minor violence	162	138.67	67.51	0	225
Severe violence	162	106.58	69.78	0	240
Social support	162	66.50	11.59	30	94
Child					
Negative Affectivity	162	4.95	0.72	2.75	6.33
Surgency Extraversion	162	5.11	0.89	2.92	7
Effortful Control	162	4.99	1.10	2.58	7
Internalizing symptoms	162	6.38	3.65	0	18
Externalizing symptoms	162	9.73	4.27	1	20

Note: PTSD = posttraumatic stress disorder. Cortisol = Total post-awakening cortisol levels - nmol/l. Physical and psychological aggression = chronicity of the violence exposure.

Table 3

Differences of Women and Children in Portugal who Experienced Intimate Partner Violence and who Live in a Shelter Versus Women and Children Living at Home with an Abusive Partner

	Adjusted for covariates[a]					
	Home		Shelter			
Variables	*M*	*SD*	*M*	*SD*	*F*	η_p^2
Mother						
Cortisol T0	16.89	6.88	18.36	6.26	1.22	.01
Cortisol T1	17.52	8.03	20.63	8.06	6.43*	.05
CAR	0.64	5.63	2.27	6.15	4.79*	.04
Social Support	63.06	11.92	69.98	10.26	32.72***	.18
Depression symptoms	11.84	5.94	10.64	5.53	6.40*	.04
Anxiety symptoms	11.23	6.03	10.41	5.73	4.71*	.03
PTSD symptoms	51.32	13.53	52.29	12.41	0.93	.00
Child						
Internalizing symptoms	5.48	2.92	7.28	4.07	11.47**	.05
Externalizing symptoms	8.89	3.99	10.57	4.39	12.44**	.05

Note: [a] Mothers' covariates were age, education, childhood adversity, minor and severe violence exposure, and child´s temperament (surgency, negative affect, and effortful control); cortisol analysis only included the PTSD symptoms as covariate. Children's covariates

included child´s age, minor and severe violence exposure, child´s temperament (surgency, negative affect, and effortful control), and mother´s variables (e.g., anxiety, depression, PTSD symptoms, social support perception and parenting stress).

$^{*}p$ <.05. $^{**}p$ < .01. $^{***}p$ <.001