



## The prevalence and impact of early childhood trauma in Chronic Fatigue Syndrome

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### ABSTRACT

**Background:** Although some studies have found high rates of early childhood trauma in Chronic Fatigue Syndrome (CFS), the role of early trauma in this condition remains controversial.

**Methods:** This study examined the prevalence of early childhood trauma and its impact on daily fatigue and pain levels over a 14-day period in a sample of 90 carefully screened CFS patients using a diary method approach. Data were analyzed using multilevel analysis.

**Results:** More than half of the patients (54.4%) had experienced at least one type of early trauma, with the majority of these patients reporting multiple traumas. Prevalence rates were particularly high for emotional trauma (i.e., emotional abuse and/or emotional neglect) (46.7%). Moreover, total trauma scores and emotional abuse significantly predicted higher levels of daily fatigue and pain over the 14-day period, even when controlling for demographic features and depressed mood.

**Conclusions:** This is the first study to demonstrate that early childhood trauma predicts increasing levels of core symptoms of CFS in the daily flow of life. Moreover, findings of this study suggest that emotional trauma may be particularly important in CFS.

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### 1. Introduction

Chronic Fatigue Syndrome (CFS) is part of a larger group of functional somatic syndromes (Wessely and Sharpe, 1998). It is a highly debilitating condition that is mainly characterized by medically unexplained fatigue and post-exertional malaise (Carruthers et al., 2011; Fukuda et al., 1994). Studies have found a high degree of comorbidity between CFS and other functional somatic syndromes such as Fibromyalgia (FM) and Irritable Bowel Syndrome (IBS), indicating that similar factors may be involved in the causation of these disorders (Ablin et al., 2012; Van Houdenhove, Kempke, and Luyten, 2010; Van Houdenhove and Luyten, 2009).

A growing body of research suggests that early life stress may be implicated in the development of CFS and related conditions (Van Houdenhove, Egle, and Luyten, 2005; Van Houdenhove and Egle, 2004; Van Houdenhove et al., 2010; Van Houdenhove, Luyten,

and Egle, 2009). Indeed, studies have shown elevated rates of early childhood trauma in CFS (see Table 1). In one of the first studies on the role of early trauma in CFS, Van Houdenhove et al. (2001) demonstrated significantly higher rates of victimization, and emotional trauma in particular, in a mixed sample of CFS and FM patients, as compared to normal controls and patients with a chronic disease (i.e. rheumatoid arthritis and multiple sclerosis). Subsequent studies (Clark et al., 2011; Crawley et al., 2012; Fuller-Thomson et al., 2011; Heim et al., 2006, 2009; Johnson et al., 2010; Taylor and Jason, 2001, 2002; Tietjen et al., 2010) have provided further support for an association between early childhood trauma and CFS. For instance, Heim et al. (2006, 2009), in a large population-based study in the US, showed that childhood trauma was associated with an increased risk for CFS. More recently, Crawley et al. (2012), using a population-based cohort study in the UK, demonstrated a significant relationship between early family adversity and chronic disabling fatigue in teenagers.

Assumptions about an association between early childhood trauma and chronic fatigue are reinforced by research suggesting that early trauma may explain in part the neurobiological disturbances that have been observed in at least a subset of CFS patients

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**Table 1**  
Prevalence of different types of early trauma in CFS.

Study	Sample	Early trauma measure	Distribution of early trauma
Van Houdenhove et al. (2001)	Mixed sample of clinically confirmed CFS/FM patients ( $N = 95$ ) recruited from a tertiary care setting	Traumatic Experiences Checklist (TEC; Nijenhuis et al., 2002)	At least one type of trauma: 64.1% Emotional abuse: 37.9% Emotional neglect: 48.4% Physical abuse: 23.2% Sexual harassment: 20% Sexual abuse: 9.5%
Taylor and Jason (2001)	Community-based sample of clinically confirmed CFS cases ( $N = 32$ )/idiopathic chronic fatigue ( $N = 45$ )	Sexual-Physical Abuse History Questionnaire (Leserman et al., 1995)	Sexual abuse: 16.1%/34.1% Physical abuse: 29%/25% Death threat: 6.5%/9.3%
Taylor and Jason (2002)	Community-based sample of self-reported CFS ( $N = 225$ )	Sexual-Physical Abuse History Questionnaire (Leserman et al., 1995)	Sexual abuse: 26.2% Physical abuse: 21.2% Death threat: 7.4%
Heim et al. (2006)	Population-based sample of clinically confirmed CFS cases ( $N = 43$ )	Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003)	At least one type of trauma: 63% Emotional abuse: 42% Emotional neglect: 60% Physical neglect: 16% Physical abuse: 28% Sexual abuse: 28%
Heim et al. (2009)	Population-based sample of clinically confirmed CFS cases ( $N = 106$ )	Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003)	At least one type of trauma: 62.3% Emotional abuse: 33% Emotional neglect: 25.5% Physical neglect: 24.5% Physical abuse: 33% Sexual abuse: 33%
Tietjen et al. (2010)	Patients from a headache clinic who fulfilled CDC-criteria for CFS ( $N = 219$ )	Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003)	Emotional abuse: 23% Emotional neglect: 20% Physical neglect: 24% Physical abuse: 21% Sexual abuse: 22%
Johnson et al. (2010)	Clinically confirmed CFS patients ( $N = 93$ ) recruited from a tertiary care clinic	Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003)	At least one type of trauma: 45.7% Emotional abuse: 24.7% Emotional neglect: 31.2% Physical neglect: 14% Physical abuse: 24.7% Sexual abuse: 29%
Clark et al. (2011)	Cohort study with outcomes of self-reported CFS/ME ( $N = 127$ )/operationally defined CFS-like illness ( $N = 241$ )	Self-reported parental abuse and doctor-reported physical neglect	Neglected/underfed appearance: 11%/15.4% Parental physical abuse: 16.5%/16.2% Parental sexual abuse: 6.3%/6.6%

(Heim et al., 2009). Indeed, both animal and human studies suggest that early exposure to adverse experiences, especially during critical periods of brain development, is associated with hypothalamic-pituitary-adrenal (HPA) axis hyperactivity (Gunnar and Quevedo, 2007; Heim and Nemeroff, 2002; Lupien et al., 2009), which, in conjunction with chronic physical and/or mental stress, may eventually result in hypocortisolism and abnormal downregulation of the stress system (Fries et al., 2005; Luyten et al., 2011; Miller et al., 2007; Van Houdenhove and Luyten, 2009; Van Houdenhove, Van Den Eede, and Luyten, 2009). Moreover, early childhood trauma has been related to inflammation (Silverman et al., 2010) and epigenetic alterations of genes (e.g., *glucocorticoid receptor gene*) involved in HPA-axis regulation (Claes, 2009; Tyrka, Price, Marsit, Walters, and Carpenter, in press).

Yet, only a handful of studies exist that have investigated the prevalence of early trauma in a sample of well-screened CFS patients (see Table 1), and the assumption that early trauma may play a role in CFS continues to be contested by proponents of purely biological theories of CFS (Van Houdenhove and Luyten, 2011). Regardless of whether early trauma increases the risk for CFS, if early trauma influences the course of CFS, such findings may directly inform treatment. Indeed, several authors have called attention to the need to address the potential role of early childhood adversities in the treatment of CFS and FM, and the need to tailor interventions for these patients (Lumley, 2011; Van Houdenhove et al., 2008). In the present study, we therefore investigated the prevalence of different types of self-reported early

childhood trauma and its impact on core symptoms (i.e., fatigue and pain) in CFS in the natural flow of everyday life using daily diary methodology. Compared to traditional questionnaire research, diary methodology provides a more valid measurement of symptom severity as it is less prone to recall bias (Bolger et al., 2003; Kempke et al., in press). Moreover, we examined the relationship between childhood trauma and subsequent symptoms after taking into account the effects of depressed mood. Indeed, studies have amply demonstrated that early childhood trauma is associated with increased vulnerability to depression (Luyten et al., 2006), even in the daily flow of life (Glaser, van Os, Portegijs, and Myin-Germeys, 2006). Based on clinical observations and our previous findings (Van Houdenhove et al., 2001), we expected a high prevalence of early trauma and emotional trauma in particular in CFS. Moreover, and most importantly, we hypothesized that a history of early childhood trauma would be associated with higher levels of CFS symptoms over time even when controlling for depressed mood.

## 2. Method

### 2.1. Participants

Participants were 144 consecutive patients who were attending a multidisciplinary treatment program at the Chronic Fatigue Syndrome Reference Center Pellenberg of the University Hospitals of Leuven (Belgium). Patients were carefully screened according to

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