



PTSD and ADHD: underlying factors in many cases of burnout

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Summary

Objective: To analyse the extent to which traumatic life events, post-traumatic stress disorder (PTSD) and the neuropsychiatric disorder attention deficit hyperactivity disorder (ADHD) can be contributors associated with burnout and the long-term sick leave that results from it.

Subjects: Sixty-two individuals on long-term sick leave due to stress-related poor health and burnout, and 83 working individuals were screened for the presence of traumatic life events, PTSD and ADHD. Potential background factors involved in burnout were analysed using a multiple logistic regression.

Results: Fifty-two per cent of those on long-term sick leave were judged to have PTSD and 24 per cent to have ADHD. The number of suspected/possible cases was even higher—71 per cent and 56 per cent, respectively. Nineteen per cent were judged to have both PTSD and ADHD; 56 per cent were judged to have PTSD and/or ADHD. PTSD, ADHD and traumatic life events in the form of sexual assault and severe human suffering were all strongly associated with both burnout and long-term sick leave.

Conclusions: Since ADHD is almost never discussed and PTSD rarely so in the occupational rehabilitation of individuals with burnout, these results should act as a warning signal. Further studies are needed, however, including clinical examinations in order to establish with certainty if PTSD and ADHD can predict burnout followed by long-term sick leave. Copyright © 2006 John Wiley & Sons, Ltd.

Key Words

Post-traumatic stress disorder (PTSD); attention deficit hyperactivity disorder (ADHD); burnout; emotional exhaustion syndrome

Introduction

In the Swedish debate concerning the increased number of people on long-term sick leave due to

emotional exhaustion syndrome, more commonly known as burnout, the discussion centres on triggering factors and seldom on underlying factors (The National Board of Health and Welfare, 2003). Triggering factors are often related to the work situation. However, the author's more than 10 years of clinical experience with hundreds of individuals on long-term sick leave due to burnout has shown that underlying factors

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involve something entirely different, such as earlier traumatic life events with an accompanying post-traumatic stress disorder (PTSD), or an abnormally increased sensitivity to stress. The latter is observed in individuals with genetically inherited attention deficit hyperactivity disorder (ADHD). The individual is often not aware of the PTSD or ADHD problem and thus it does not show up in superficial patient interviews, where the more immediate triggering factors are the ones that take centre stage. The chronic anxiety and hyperarousal in PTSD and the persistent hyperactivity in ADHD may lead to emotional exhaustion and poor work performance. For individuals with stress-related poor health to have a sustainable life—and job—we need to focus on the underlying factors as well, which can be the source of a vulnerability to stress.

Post-traumatic stress disorder (PTSD)

An association has been found between burnout and traumatic life events (Søndergaard et al., 2004). Most people (approximately 80 per cent) have experienced a traumatic event. Of them, about 9 per cent develop PTSD (Gray, Litz, Hsu, & Lombardo, 2004). A Swedish study shows that 5.6 per cent of the population develops PTSD (Frans, Rimmö, Åberg, & Fredrikson, 2005). The risk of developing this paralysing anxiety condition is twice as great in women as in men (7.4 versus 3.6 per cent), even though men report greater exposure to trauma. The greatest risk for PTSD is in connection with physical and/or sexual assault, robbery and the occurrence of multiple traumas. Gender differences most likely stem from women experiencing a higher degree of stress (Frans et al., 2005). The occurrence of PTSD in the US population has been reported to be a bit higher: 7.8 per cent (women 10.4 per cent; men 5.0 per cent) (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Trauma that resulted in PTSD in American men was primarily related to war experiences, while in women it was rape and sexual molestation. The analysis also showed that more than a third did not recover from PTSD. In a study of teenagers and young adults with PTSD, the symptoms persisted in 48 per cent (Perkonig et al., 2005). Thus, PTSD can develop into a permanent, chronic condition that can be aggravated by additional trauma during one's life. A Dutch study has shown that there is a higher risk for PTSD after traumatic life events such as

chronic illnesses, relationship problems and unemployment than for severe trauma (accidents, robbery, physical/sexual assault, war, etc.) (Mol et al., 2005). There is also a correlation between the occurrence of PTSD and increased illness as well as the consumption of health services (Deykin et al., 2001; Kimberling & Calhoun, 1994; Koss, Koss, & Woodruff, 1991).

Attention deficit hyperactivity disorder ADHD

Previously, it was believed that children with attention difficulties, hyperactivity and impulsivity outgrew them, which is certainly the case for some (Munoz-Millan & Casteel, 1989). In recent years, however, overwhelming evidence has emerged that these disturbances persist in many cases into adult life (Gittelman & Mannuzza, 1985; Mannuzza, Gittelman-Klein, Horowitz-Konig, & Giampino, 1989; Mannuzza, Klien, Bessler, Malloy, & LaPadula, 1998; Mannuzza, Klien, Klein, Bessler, & ShROUT, 2002; Mannuzza et al., 1991; Silver, 2000). Barkley, Fischer, Edelbrock, and Smallish (1990) determined that in 70–85 per cent of the ADHD cases, the symptoms were still present in adulthood. Other studies have demonstrated that ADHD symptoms are still present in adults in 10–60 per cent of the cases (Kooij et al., 2005; Weiss, Hechtman, & Milroy, 1985). The problems are thought to cause clinically significant impairments (The National Board of Health and Welfare, 2002). Yet, this neuropsychiatric disorder is seldom considered in connection with sick leave for burnout. ADHD is under-identified and under-treated as an underlying factor for prolonged poor health in the adult population (Biederman, Faraone, Monuteaux, Bober, & Cadogen, 2004). Wender, Wolf, and Wasserstein (2001) have concluded that ADHD is probably the most undiagnosed psychiatric disorder in adults.

The prevalence of ADHD among children in a variety of societies including Sweden is assumed to be between 2 and 5 per cent (The National Board of Health and Welfare, 2002). As yet, there are no prevalence studies of the occurrence of ADHD in Swedish adults. The prevalence of ADHD in adults in the US is estimated to be 4.4 per cent (Kessler et al., 2006). The ratio of adult men to women is judged to be 1.6:1. Only 11 per cent of the adults with diagnosed ADHD have received adequate treatment. Many are treated

for other psychiatric conditions. Several studies have shown that both children and adults underestimate their symptoms when self-reporting (Gittelman & Mannuzza, 1985; Zucker, Morris, Ingram, Morris, & Bakeman, 2002). It has been reported that ADHD in adults is associated with considerable impairments, unemployment and divorce (Barkley, Fischer, Smallish, & Fletcher, 2002; Biederman, 2004; Kessler et al., 2005a).

Purpose of the study

This study is based on the hypothesis that PTSD as well as ADHD are under-diagnosed among individuals on long-term sick leave with emotional exhaustion syndrome/burnout. Thus, the purpose of the study was, based on clinical experience, to examine the extent to which individuals on long-term sick leave due to stress-related poor health and burnout have experienced traumatic life events, PTSD and/or symptoms of ADHD, i.e. to see if these conditions are associated with burnout and are, therefore, possible underlying factors.

Material and methods

The questionnaire material used in this study was part of another study (Brattberg, in press), approved by the Ethical Review Board of Lund University, Sweden, September 2004. The additional follow-up inquiries were filled in voluntarily by the subjects on an informed basis.

Subjects

The study included two groups. (1) Sixty-two persons on long-term sick leave due to stress-related poor health. All these individuals were participating in rehabilitation groups either in real life or on the Internet. Of these 62 persons, 33 were recruited by means of local newspaper adverts for an Internet-based rehabilitation project and 29 had signed up on their own to participate in rehabilitation groups for people on long-term sick leave with chronic pain and burnout syndrome. (2) A control group consisting of 83 people with jobs, recruited from the Swedish national registration. The selection was made in such a way that they would match the other group in age, gender and socio-economic

status. Due to the dropout rate, the control group did not perfectly fit the group on long-term sick leave. There were, however, no statistical differences when it came to age and gender. In the group on sick leave, only individuals with manifest burnout (see the section on screening instruments) and at least 25 per cent reduced work capacity for a minimum of 6 months ('long-term sick leave') were included. In the control group, the only people included were those who had been working and who had no more than 14 sick days in the last year.

In the group on sick leave ($n = 62$), different validated questionnaires were filled in and for practical reasons collected over the Internet, through a postal survey, or in person at a group meeting. The study leader was well acquainted with all individuals in this group which is why the data, independent of collection method, was deemed to be of satisfying quality. Information on the control group was obtained by means of a postal survey sent out by Statistiska centralbyrån (SCB) (Statistics Sweden) with two reminders. SCB sent the questionnaire to 150 persons. Ninety-five people returned it (response rate 63 per cent). Of these, 12 people were on sick leave. The remaining 83 people were included in the study.

Group 1 consisted of three male and 59 female with a mean age of 47 [median 49, standard deviation (SD) SD 9]; group 2 consisted of seven male and 76 female with a mean age of 46 (median 46, SD 9). The dominating socio-economic status in both groups was mid-level white-collar worker. The education level was somewhat lower in the control group.

Screening instruments

Burnout. The degree of burnout was examined using the Shirom-Melamed Burnout Questionnaire (SMBQ) (Melamed, Kushnir, & Shirom, 1992; Melamed et al., 1999). This scale, which contains 17 questions graded from 1 to 7, provides a global measure (total score). Grossi, Perski, Evengård, Blomkvist, and Orth-Gomér (2003) have defined a low degree of burnout as a mean value of 2.75 on the SMBQ and a high level as a mean value of ≥ 3.75 . In the current study, individuals with a mean value of ≥ 3.75 were judged to have manifest burnout.

Traumatic life events. The Life Events Checklist (LEC) was used to elicit traumatic life events

(Deykin et al., 2001; Gray et al., 2004). The survey includes disasters, accidents, assaults (physical and sexual) and events that result in death or 'severe human suffering', a total of 17 different types of events. Only self-experienced traumas were included. The respondents in the current study reported events from their entire lives, and if the events occurred before or after they turned 18.

Post-traumatic stress disorder (PTSD). The PTSD Checklist (PCL) is a self-assessing instrument consisting of 17 questions (Wilson & Keane, 2004). Sensitivity is 94.4 per cent and specificity is 86.4 per cent (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). At the cutoff score of 44, the PCL has the best diagnostic efficacy (Blanchard et al., 1996; Ruggiero, Del Ben, Scotti, & Rabalais, 2003). The Impact of Event Scale (IES) is another self-assessing PTSD questionnaire. It has 22 questions in its revised form (IES-R) (Horowitz, Wilner, & Alvarez, 1979; Weiss & Marmar, 1996). The current study has employed the PCL as well as the IES-R. The individuals were encouraged to fill out the questionnaires with the worse trauma they had experienced in mind.

Attention deficit hyperactivity disorder (ADHD). The World Health Organization recently developed a self-reporting symptom checklist, the Adult ADHD Self-Report Scale (ASRS) (Kessler et al., 2005b). It consists of 18 questions, six of which serve as a screener. The screener has a sensitivity of 68.7 per cent and a specificity of 99.5 per cent. A diagnosis of ADHD in adults requires that at least some of the symptoms existed before the age of seven. The Wender Utah Rating Scale (WURS) is the tool that is most often used for retrospective assessment of the presence of ADHD symptoms in childhood (McCann, Scheele, Ward, & Roy-Byrne, 2000; Stein et al., 1995; Ward, Wender, & Reimherr, 1993). There is a maximum of 100 points on the questionnaire. At a cutoff score over 36, sensitivity and specificity are 96 per cent. The current study has employed the ASRS as well as the WURS.

Statistical analysis

A *t*-test for numerical variables and Fisher's Exact Test for dichotomized variables were used to

make comparisons between the groups of persons with and without burnout. A logistic regression analysis was used to adjust the associations between burnout and PTSD and ADHD for potential underlying variables (confounders) as well as different traumatic life events, gender and age. Variables with statistically significant univariable correlations were analysed with a multiple logistic regression. Calculated odds ratios specify the odds of meeting the criteria for burnout or not. The material in Table I has been divided: (1) with regard to work capacity; and (2) with regard to the occurrence of the burnout diagnosis. Observe that all individuals on long-term sick leave also fulfilled the criteria for the burnout diagnosis. In Tables II and III the material was analysed only with regard to diagnosed burnout.

Results

Eighteen of the 83 people who were working also met the criteria for the burnout diagnosis. The purpose of this study was to analyse underlying factors that contribute to burnout and secondarily to long-term sick leave. In the analysis regarding burnout, all the subjects in the study groups ($n = 145$) were divided into those who fulfilled the criteria for the burnout diagnosis and those who did not, regardless of whether they were working or on long-term sick leave.

Presence of PTSD and ADHD

In some cases, the screening instruments used produced borderline values for the diagnoses of PTSD and ADHD. In determining the accuracy of the diagnoses, two levels have thus been stipulated: possible diagnosis versus probable diagnosis (Table I). Possible PTSD and/or possible ADHD were assessed in 87 per cent of the people on long-term sick leave, while 56 per cent were assessed to have probable PTSD and/or probable ADHD. Of those who did not meet the criteria for burnout, only three individuals had signs of PTSD. None had signs of ADHD.

Traumatic life events

The differences in the presence of traumatic life events between persons who have the burnout

Underlying factors in many cases of burnout

Table I. Associations between ADHD/PTSD and sick leave/burnout (number of individuals, percentages in parentheses, Fisher's Exact Test).

	Individuals on long-term sick leave (n = 62)	Individuals at work (n = 83)	p	Individuals with burnout (n = 80)	Individuals without burnout (n = 65)	p
Neither PTSD nor ADHD	8 (13)	70 (84)	<0.001	16 (20)	62 (95)	<0.001
Possible PTSD	44 (71)	7 (8)	<0.001	48 (61)	3 (5)	<0.001
Probable PTSD	32 (52)	1 (1)	<0.001	33 (42)	0	<0.001
Possible ADHD	35 (56)	8 (10)	<0.001	43 (54)	0	<0.001
Probable ADHD	15 (24)	3 (4)	<0.001	18 (23)	0	<0.001
Probable PTSD + probable ADHD	12 (19)	1 (1)	<0.001	13 (16)	0	<0.001

Table II. Associations between traumatic life events and burnout (number of individuals, percentages in parentheses, Fisher's Exact Test).

Potentially traumatic life events*	Individuals with burnout (n = 80)	Individuals without burnout (n = 65)	p
Accident <18	38 (48)	22 (34)	0.1
Accident >18	48 (60)	29 (45)	0.07
Physical assault <18	22 (28)	3 (5)	<0.001
Physical assault >18	23 (29)	6 (9)	0.004
Sexual assault <18	12 (15)	1 (2)	0.006
Sexual assault >18	10 (13)	0	0.002
Unwanted/uncomfortable sexual experience <18	21 (27)	5 (8)	0.004
Unwanted/uncomfortable sexual experience >18	17 (22)	5 (8)	0.03
Combat or exposure to a war zone <18	2 (3)	2 (3)	0.9
Combat or exposure to a war zone >18	1 (1)	1 (2)	0.9
Life-threatening illness or injury <18	6 (8)	0	0.03
Life-threatening illness or injury >18	18 (23)	6 (9)	0.04
Severe human suffering <18	17 (21)	2 (3)	0.001
Severe human suffering >18	32 (40)	3 (5)	<0.001
Other very stressful event or experience <18	37 (46)	20 (31)	0.06
Other very stressful event or experience >18	65 (81)	44 (68)	0.08
Experience of multiple traumas	57 (71)	5 (8)	<0.001
Experience of trauma <18	61 (76)	22 (34)	<0.001

* Before 18 years of age (<18) or after 18 years of age (>18).

diagnosis versus those who do not are presented in Table II.

Predisposing factors of burnout

The presence of PTSD or ADHD and traumatic life events that had statistically significant associations with the presence of burnout (Table II) were analysed with multivariable logistic regression (Table III). To have a sufficient number of individuals in each group, no division was made between traumas incurred before or after 18 years of age. In the multivariable analysis, only the variables that were statistically significant in the

univariable analysis were included. The multiple trauma variable was deleted so that the same observations would not be used several times. The results were controlled for age and gender. It was not possible to calculate odds ratio or to carry out a multivariable logistic regression for PTSD and ADHD because there were no cases in the cell designating subjects without burnout who had met the diagnostic criteria for PTSD or ADHD.

Discussion

Slightly more than half (52 per cent) of those on long-term sick leave with burnout were judged to

Table III. Associations between possible predisposing factors and burnout [odds ratio (OR) with 95 per cent confidence interval (95% CI)].

		Burnout (<i>n</i> = 80)				
		Burnout/total	Univariable		Multivariable	
			OR	95%CI	OR	95%CI
Potentially traumatic events						
Physical assault	Yes	31/40	3.9**	(1.7–9.1)	2.0	(0.8–5.3)
	No	49/105	Reference			
Sexual assault	Yes	18/19	18.6***	(2.4–143.4)	18.0***	(2.2–144.6)
	No	62/126	Reference			
Uncomfortable sexual experience	Yes	25/33	3.2**	(1.4–7.9)	1.0	(0.3–3.0)
	No	54/111	Reference			
Life-threatening illness or injury	Yes	20/26	3.3*	(1.2–8.7)	2.5	(0.8–7.4)
	No	60/119	Reference			
Severe human suffering	Yes	34/39	8.9***	(3.2–24.5)	8.5***	(3.0–24.1)
	No	46/106	Reference			
PTSD (probable)	Yes	33/33	— [†]	—	— [‡]	—
	No	46/111	Reference			
ADHD (probable)	Yes	18/18	— [†]	—	— [‡]	—
	No	62/127	Reference			
Sex	Male	6/10	0.8	(0.2–2.9)	0.5	(0.1–2.1)
	Female	74/135	Reference			
Age (year)			1.0	(0.9–1.0)	1.0	(0.9–1.0)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[†]Impossible to calculate odds ratio (OR) because no individual without burnout fulfilled the criteria for PTSD or ADHD.

[‡]Multivariable analysis impossible.

have PTSD with relatively great probability. The data also show that there is a great probability that trauma, particularly sexual assault and 'severe human suffering' (a term used in the LEC, Deykin et al., 2001) in some cases with accompanying PTSD, is an underlying factor of burnout. Close to one fourth (24 per cent) of those on long-term sick leave with burnout were judged to have ADHD with relatively high probability. The study demonstrates that ADHD with high probability is also an underlying factor of emotional exhaustion syndrome/burnout. In fact, PTSD and ADHD were not diagnosed in any case without burnout. Before participation in the rehabilitation groups, none of the individuals studied were diagnosed as having PTSD or ADHD. These findings confirm the hypothesis that PTSD and ADHD are under-diagnosed among individuals on long-term sick leave with emotional exhaustion syndrome/burnout. Clinical experience from the group discussions, both over the Internet and in person, further support the questionnaire results. The fact that a part of the survey was Internet based has thus had little or no influence on the prevalence rates of PTSD or ADHD. The fact that individuals with burnout have often experienced traumatic life events has been dis-

cussed in a variety of contexts. However, seldom or never has the discussion included the hyperactivity syndrome ADHD as an underlying factor, despite the research findings that ADHD persists into adulthood and the clinical experience that many adults with the diagnosis end up with a burnout syndrome. Even though some individuals with probable PTSD or ADHD were working full-time, the majority were on sick leave. In the cases with the additional diagnosis of burnout, none was at work. Thus comorbidity (PTSD/ADHD and burnout) to a high extent seems to result in long-term sick leave.

Selection

The control group consisted of a random sample of the population. The group of long-term sick leave individuals, however, was not randomly selected because the Swedish social insurance records do not permit retrieval of data on the basis of diagnosis. The group members had all enrolled voluntarily in different programmes. This means that they are able to take a certain amount of initiative, which may explain why the groups consist of relatively well-educated people.

But it can also be the case that well-educated people have been diagnosed with burnout to a greater extent.

Certainty of the PTSD diagnosis

There are difficulties in determining where the threshold for the PTSD diagnosis should be set. One of the first conditions for being given the diagnosis is the existence of one or more stressful life events. Isolated individuals in the study with experience of traumatic life events had high values on the PCL but low ones on the IES. In these cases, the PCL cutoff score was the factor determining the PTSD diagnosis. The distribution of positive answers to questions B–D [according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)] was also considered. Only those persons who fulfilled the criteria for PTSD according to DSM-IV were assigned this diagnosis.

Certainty of the ADHD diagnosis

Burnout includes a hyperactive phase which can be difficult to differentiate from the hyperactivity due to ADHD. In order to establish the ADHD diagnosis, the individual should have exhibited hyperactivity and concentration difficulties as a child. It can be difficult for older persons to remember how things were in their childhood. As a result, the number of individuals with ADHD can have been underestimated. But since hyperactivity and concentration difficulties are symptoms of burnout as well, the number of individuals with ADHD can have been overestimated. Whether it has to do with one or the other, the observations are still very interesting. ADHD in childhood often stays with the individual into adulthood and makes her/him extra vulnerable to stress, which can result in burnout. For three individuals in group 1, extensive psychometric testing strengthened the ADHD diagnoses. In addition, two have been confirmed as having ADHD as the result of a clinical evaluation.

The significance of stressful life events

Stressful life events were strongly correlated with both burnout and long-term sick leave. In the multivariable logistic regression, experiences of

sexual assault and 'severe human suffering' proved to be underlying factors contributing to burnout. Today, with cognitive behaviour therapy (CBT) as the predominant psychotherapeutic method, previous traumas are not always identified, much less treated. Partially or entirely suppressed previous trauma can consume energy throughout one's life, making the individual extra vulnerable to stress.

Rehabilitation

Rehabilitation programmes for people on long-term sick leave vary in scope and content. Treatment with a focus on PTSD can be found in a few cases, but assessment and treatment focused on ADHD are probably rare. Considering that 56 per cent of the people on long-term sick leave due to stress-related poor health are likely to have PTSD and/or ADHD, evaluation and treatment for these conditions should be provided. Many on long-term sick leave continue living with PTSD and have great difficulties returning to work. They seldom have access to modern PTSD treatment, such as CBT with exposure (Von Knorring, Thelander, & Pettersson, 2005) or Eye Movement Desensitization and Reprocessing (EMDR) in combination with behaviour therapy (Parnell, 1997; Shapiro & Silk Forrest, 1997).

It is probably quite rare that people on long-term sick leave with emotional exhaustion syndrome/burnout are diagnosed as having ADHD, at least when it comes to people who are treated outside of neuropsychiatric units. Since people with ADHD lack an internal brake mechanism (Barkley, 1997, 1998), they are unable to maintain a balance in stressful settings. Adequate treatment with central nervous system stimulation medication, for example, can, increase the ability to work under pressure to a certain degree, but what they really need is a job with a low level of stress, something hard to find in today's world.

Conclusions

The current study shows that the following underlying, background factors have a strong association with the existence of burnout: PTSD, ADHD and experience of stressful life events in the form of sexual assault and 'severe human suffering'. Since ADHD is almost never considered or discussed and PTSD rarely so in the

occupational rehabilitation of individuals with burnout, these results should act as a warning signal. Further studies are needed, however, including clinical examinations, in order to establish with certainty if PTSD and ADHD can predict burnout and long-term sick leave.

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