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Effects of comorbid diagnoses on sleep disturbance in PTSD

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Abstract

Objective: Patients with post-traumatic stress disorder (PTSD) are frequently diagnosed with other psychiatric comorbid conditions. This study tested the hypothesis that PTSD patients suffer a greater proportion of sleep problems according to comorbid diagnoses. Method: National Comorbidity Survey (NCS) data from 591 individuals diagnosed with PTSD were analyzed. Revised versions of the Diagnostic Interview Schedule and Composite International Diagnostic Interview were administered to a representative sample of males and females. Groups consisted of patients diagnosed with lifetime PTSD and with current comorbid panic disorder, major depressive disorder, generalized anxiety disorder, and alcohol dependence. Results: Patients diagnosed with PTSD/panic disorder reported a significantly greater proportion of nightmare complaints (96%) and insomnia (100%) compared with the other comorbid groups. Conclusions: A greater proportion of PTSD patients with comorbid panic disorder complain of sleep-related problems than other comorbid groups. This effect appears unique to panic, rather than other general anxiety disorder or depression. Prospective sleep studies are needed to differentiate the role of sleep in PTSD and PD, as well as to examine the role of psychiatric comorbidity in worsening sleep in PTSD patients.
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Keywords: PTSD; Trauma; Sleep; Nightmares; Panic; Comorbidity

Patients diagnosed with post-traumatic stress disorder (PTSD) frequently meet criteria for other comorbid psychiatric conditions. Community studies examining PTSD have demonstrated high rates of comorbid anxiety and depressive disorders, as well as substance dependence. In the National Comorbidity Survey, Kessler et al. (1995) reported 79% of women and 88% of men with PTSD met criteria for at least one other lifetime psychiatric disorder. In addition, as many as 50% of combat veterans with PTSD report a lifetime occurrence of panic attacks (Davidson et al., 1990) and up to 44% of patients with PTSD have co-occurring panic disorder (Sierles et al., 1983; Breslau and Davis, 1987; Green et al., 1990). Major depressive disorder (MDD) also commonly co-occurs with PTSD. The lifetime prevalence rates for comorbid PTSD/MDD have reached as high as 65% (McFarlane, 1986; Kulka et al., 1990).

Several theories have been put forth to explain these high levels of comorbidity. Panic disorder (PD) and MDD may have existed prior to the individual's traumatic experience and onset of PTSD. Additionally, patients may develop comorbid disorders (i.e. substance abuse) to reduce the intense emotional affect that can accompany recall of traumatic memory (Keane and Kaloupek, 1997). Also, MDD and PD may evolve after, or represent complications of PTSD (Davidson et al., 1990; Mellman et al., 1992).

One important commonality among these psychiatric conditions is sleep complaints. Patients with PTSD, panic disorder, and major depression frequently report sleep difficulties (Ross et al., 1989: Stein et al., 1993; Mellman, 1997; Neylan et al., 1998; Kupfer, 1999). A recent epidemiological study assessed PTSD and related sleep disturbances among 1832 respondents surveyed by telephone (Ohayon and Shapiro, 2000). While 2% of the entire sample was diagnosed with current PTSD, a

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Table 1
Comparing PTSD symptoms across comorbid conditions[a]

	Nightmare complaint		Insomnia		Exaggerated startle response	
	% χ^2	OR (95% CI)	% χ^2	OR (95% CI)	% χ^2	OR (95% CI)
PTSD/PD	96 (5.8)*	9.2 (1.2–69.)	100 (5.0)*	–	88 (5.7)*	4.4 (1.3–15)
PTSD/GAD	83 (1.5)	1.9 (0.79–4.7)	83 (0.01)	1.2 (0.47–2.9)	72 (0.90)	1.5 (0.73–3.3)
PTSD/MDD	78 (0.76)	1.3 (0.77–2.3)	78 (0.40)	0.80 (0.46–1.4)	64 (0.00)	1.0 (6.2–1.6)
PTSD/ETOH	74 (0.00)	1.0 (0.69–1.5)	80 (0.01)	0.96 (0.61–1.5)	64 (0.00)	1.0 (0.69–1.4)
PTSD	71 (0.75)	0.83 (0.58–1.2)	80 (0.32)	0.87 (0.58–1.3)	61 (1.5)	0.80 (0.57–1.1)

[a] All Chi-Square values represent Yates Continuity Correction Values. OR note calculated for PTSD/PD Subjective Sleep complaint due to 100% of endorsement. Chi-square analyses based on diagnostic group vs. rest of the entire sample.
* $P<0.05$.

these three PTSD symptoms were the partial correlations. Controlling for the effects of the other diagnostic categories the correlations were as follows: insomnia [$r(572)=0.11$, $P=0.01$), nightmares ($r(572)=0.09$, $P=04$] and startle response [$r(572)=0.10$, $P=02$]. There were no significant correlations between any of the remaining diagnostic groups and these symptoms, controlling for the effects of each of the other diagnostic categories.

4. Discussion

Overall, the results of this study suggest that PTSD patients with comorbid panic disorder suffer higher proportions of insomnia, nightmares and startle responses than the other diagnostic groups studied. Further, the results of the partial correlations suggest that in the absence of all other comorbidity, there is still a strong association between the PTSD/PD group and each of these symptoms. The present findings may provide evidence for an additive effect of comorbid panic disorder. Panic disorder has been characterized by alterations in central arousal and respiratory hypersensitivity (Coplan and Lydiard, 1998; Klein, 1993). More frequent reports of insomnia, nightmares and startle among PTSD/PD patients may represent a convergence between central fear system activation characterizing PTSD and respiratory disturbance noted in panic.

Because the data used for these analyses were epidemiological, it is not possible to draw more specific conclusions about the pathophysiologies of these disorders. However, in a recent examination of sleep data of PTSD/PD patients, Woodward et al. (in press) found reductions in sleep movement time in those PTSD patients with more severe panic and those with more frequent complaints of trauma-related nightmares. Those patients with reduced sleep movement time also demonstrated frequent, but brief waking periods, suggesting states of hypervigilance during sleep. The authors surmise that PTSD and PD may compound one another leading to exacerbations of overall anxiety symptoms.

One of the main limitations of this study is the overall high endorsement of sleep disturbances across all groups. The base rate of 80% of individuals in the PTSD only group reporting insomnia is even higher than those found by Ohayon and Shapiro (2000). The rates for the comorbid groups were even higher. Another limitation is the inability to distinguish between nightmare activity and what may actually be nocturnal panic events. In the NCS, nocturnal panic events were not recorded. Further, it is possible that patients with both PTSD and panic do not distinguish between nightmare and nocturnal panic attacks during assessment protocols. That is, as the PTSD patient with panic awakes in a frightened state, sweating and gasping for breath, the event may be interpreted or reported as a nightmare rather than a nocturnal panic. Another limitation is that the self-report of prior nightmare occurrence and poor sleep is subject to distortion or diminished recall bias (Mellman et al., 2001). In addition, due to the limitations of secondary analyses of the NCS, we were unable to examine the patient's health status, presence of medical disorders, obesity or sleep related breathing problems (Krakow et al., 2001).

The empirical findings presented here suggest future research directions to better delineate the nature of sleep disorders in PTSD patients with psychiatric comorbid conditions. Specifically, future research studies using objective polysomnographic and self-report measures may help to explain the finding that PTSD/PD patients suffer more severe sleep disturbance than do individuals diagnosed with other comorbid conditions. Also, since it is uncertain to what extent panic may have been secondary to PTSD in this sample, future investigations are warranted to examine the primacy of PTSD or panic symptoms or diagnosis in relation to the development of sleep disturbance.

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