Psychiatry Research 254 (2017) 40–47

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Emotion regulation as a moderator between anxiety symptoms and insomnia symptom severity

Mitchell Kirwan*, Scott M. Pickett, Nicole L. Jarrett

Department of Psychology, Oakland University, Rochester, MI, USA

ARTICLE INFO

Keywords:
Insomnia
Anxiety
Emotion regulation
Nonacceptance
Strategies

ABSTRACT

Insomnia is a common concern with many associated negative consequences. Previous research has established bivariate relationships between anxiety symptoms, emotion regulation, and insomnia symptom severity; however, limited research has examined how the interaction between emotion regulation and anxiety symptoms may be associated with insomnia symptom severity. A sample of 468 undergraduate participants and a subsample of 136 participants meeting a self-reported cutoff score for insomnia, completed questionnaires assessing anxiety, insomnia symptom severity, and emotion regulation difficulties. Among the general sample of all participants, the interaction between anxiety symptoms and both overall emotion regulation difficulties and limited access to emotion regulation strategies were associated with insomnia symptom severity. However, among the insomnia subsample, emotion regulation moderated this relationship, such that insomnia symptom severity increased as anxiety symptoms increased among those with high emotion regulation difficulties, but were unaffected by changes in anxiety symptoms among those with low emotion regulation difficulties. These findings suggest that maladaptive emotion regulation may be necessary for anxiety symptoms to have a negative influence on sleep difficulties, meaning that during treatment, it may be important to address both an individual's anxiety symptoms and emotion regulation difficulties, particularly among those with clinical levels of insomnia.

1. Introduction

Insomnia is a common health concern, in that 24–35% of adults report occasional insomnia, and 9–15% of adults report that they suffer from chronic insomnia (Benca, 2005; Ohayon, 2002). Insomnia may also be a serious health risk, as it is associated with an increased risk of a variety of medical and psychiatric conditions, including the development and maintenance of mood and anxiety disorders (Smith et al., 2005). Additionally, previous research has identified a number of risk factors for insomnia, including anxiety symptom severity (Baglioni et al., 2010; Harvey, 2002) and emotion regulation difficulties (Fernández-Mendoza et al., 2010; Gruber et al., 2008). However, only one study has examined the relationships between insomnia and anxiety and emotion regulation and anxiety simultaneously (Fairholme et al., 2013), and no known study has used moderation to examine this relationship, or examined it outside of a clinical sample. The present study aimed to examine the interaction between anxiety symptoms and emotion regulation difficulties, and their relationship with insomnia symptom severity among a sample of college students, a subsample of the population at a particularly high risk for the development of sleep problems (American College Health Association, 2013; Sexton-Radek, 2012).

1.1. Relationship between anxiety and insomnia

Harvey (2002) proposed a cognitive model for insomnia, which describes the relationship between insomnia and anxiety. According to the model, anxiety affects insomnia in that individuals with insomnia are overpowered by physiological hyperarousal, intrusive thoughts, and excessive, uncontrollable worry while trying to fall asleep (Borkovec, 1979; Harvey, 2002). Indeed, previous research has found that those with insomnia report heightened physiological arousal, intrusive thoughts, and excessive, uncontrollable worry compared to healthy sleepers (Freedman and Sattler, 1982; Harvey, 2000), supporting the assertion of the cognitive model of insomnia. Insomnia, in turn, increases anxiety, in that those with insomnia often worry about getting enough sleep, and the effect that their lack of sleep may have on their overall health. For instance, individuals with insomnia will often focus their attention towards perceived internal and external threats to sleep, which increases the probability that such a threat will

* Correspondence to: Oakland University, Department of Psychology, Room M CAS Annex Building, Rochester, MI 48309, USA.
E-mail address: mekirwa2@oakland.edu (M. Kirwan).

http://dx.doi.org/10.1016/j.psychres.2017.04.028
Received 28 August 2016; Received in revised form 20 January 2017; Accepted 16 April 2017
Available online 18 April 2017
0165-1781/

be detected, rather than left unnoticed (Clark, 1999). Additionally, previous research has found that individuals with insomnia were up to ten times more likely to report that their insomnia was due to cognitive arousal, rather than somatic arousal (Lichstein and Rosenthal, 1980), and furthermore, those with insomnia ruminate more about their sleeplessness when trying to fall asleep (Fichten et al., 1998; Harvey, 2000), make more attempts to suppress their pre-sleep thoughts (Harvey, 2001, 2003), and have more difficulties controlling their pre-sleep thoughts (Harvey, 2003) relative to healthy sleepers. Thus, those with insomnia have greater difficulties controlling excessive anxiety and rumination regarding their sleep disruption, and this serves to cyclically increase the severity of their insomnia.

The metacognitive model of insomnia (Ong et al., 2012) sought to build upon this foundation developed by Harvey (2002), by conceptualizing and distinguishing between the sleep-related cognitions which lead to primary and secondary arousal. Primary arousal consists of cognitions which are directly related to one's inability to sleep, including the physiological hyperarousal, intrusive thoughts, excessive uncontrollable worry, and concern regarding sleep-related consequences described by Harvey's model (Harvey, 2002; Ong et al., 2012). Secondary arousal, on the other hand, refers to one's thoughts about sleep, including how one relates to them, the emotional valence assigned to them, the individual's attachment to them, and the meaning of these thoughts in relation to each individual's values. As a result, when one reacts adversely to these cognitions, secondary arousal often amplifies negative valence, and increases the attention given to sleep-related primary arousal (Ong et al., 2012). Thus, the metacognitive model of insomnia builds upon the factors described in Harvey's model (2002), and includes metacognitions as a distinct contributor to an individual's insomnia (Ong et al., 2012), which may be particularly important when integrating an emotion regulation framework into these models.

1.2. Relationship between emotion regulation and insomnia

Previous research has shown that poor emotion regulation can impair sleep quality by fostering the experience of sleep-incompatible emotions around bedtime or in relation to sleep (e.g., Baglioni et al., 2010). For example, Vandekerckhove et al. (2011) induced a negative mood in participants immediately before bedtime, to assess its effect on sleep quality for that night. Results of this experiment showed that participants with a negative mood had lower sleep efficiency, increased sleep latency, more awakenings from REM sleep, less total sleep time, and reduced proportion of both REM and slow-wave sleep, when compared to controls. As the onset and maintenance of negative mood is an important component of poor emotion regulation (Gruber et al., 2008), it follows that deficiencies in emotion regulation, specifically those which lead to negative mood, may also be associated with sleep problems. Other contributors to poor emotion regulation are also associated with poor sleep quality, including rumination (Fernández-Mendoza et al., 2010), worry (Harvey, 2005), and negative automatic thoughts (Harvey, 2005).

The relationship between emotion regulation and sleep is bidirectional, with sleep affecting emotion regulation just as emotion regulation affects sleep (Eisner et al., 2009). Previous research on sleep deprivation shows that sleep deprivation may impair emotion regulation, in that it is associated with increased aggression and frustration and decreased willingness to engage in prosocial behaviors (Kahn-Greene et al., 2006). Furthermore, poor sleep quality is also associated with diminished cognitive reappraisal (Mauss et al., 2013), which is the ability to cognitively reframe an emotional event and lessen its impact, and an important component in adaptive emotion regulation (Gross, 1998). Finally, poor sleep may increase negative emotions following disruptive life events, while decreasing the beneficial effects gleaned from positive life events, according to previous research (Zohar et al., 2005). These results highlight the importance of adaptive emotion regulation in order to achieve optimal sleep quality.

1.3. Relationship between anxiety, emotion regulation, and insomnia

Very few studies have been conducted on the relationship between anxiety symptoms, emotion regulation and insomnia symptom severity simultaneously. In a sample of participants recruited from a substance abuse treatment facility, Fairholme and colleagues found that sleep disturbances and emotion regulation difficulties each had a unique, direct relationship with anxiety symptom severity. Specifically, limited access to emotion regulation strategies and sleep disturbances accounted for 26.7% of the variance in anxiety symptoms (Fairholme et al., 2013). Additionally, previous research has indicated that the relationship between emotion regulation difficulties and anxiety symptoms may be stronger among those with poor sleep quality than among those with good sleep quality. One possible explanation for this is that emotion regulation difficulties may exacerbate anxiety symptoms amongst poor sleepers (Markarian et al., 2013). Finally, emotion regulation difficulties have been shown to mediate the relationship between anxiety symptoms and sleep disturbances among those who meet diagnostic criteria for Generalized Anxiety Disorder (GAD) compared to controls without GAD (Tsypes et al., 2013). However, no known study has examined the relationship between anxiety symptoms, emotion regulation, and insomnia symptom severity using moderation, which is an important step in order to pinpoint those most vulnerable, and therefore tailor insomnia treatments, such as emotion regulation techniques, with specificity for those who demonstrate need through the use of maladaptive emotion regulation.

1.4. The current study

The extant research indicates there may be a relationship between anxiety symptoms, emotion regulation, and insomnia symptom severity. However, there is a paucity of research which assesses whether the interaction between anxiety symptoms and emotion regulation difficulties is related to insomnia symptom severity. Such an interaction could help to identify differences in these constructs, and assist in tailoring future insomnia treatments for patients with specific deficiencies in emotion regulation. Furthermore, no known study examines these factors outside of the context of a substance abuse or clinical treatment sample, which may be biased towards individuals with higher emotion regulation difficulties than a more general sample (Fairholme et al., 2013). Such research is especially important, given the previously noted reciprocal relationship between increased emotion regulation difficulties and increased anxiety symptoms (Gruber et al., 2008; Mennin et al., 2005). For this reason, in the present study, separate analyses will be conducted on individuals meeting a self-reported cutoff score for insomnia, to determine whether any of these factors affect those with insomnia differently than a general sample.

According to the metacognitive model proposed by Ong et al. (2012), healthy sleepers tend to hold more objective, non-judgmental stances towards their own emotions, whereas individuals with insomnia will try to “fix” any undesirable thoughts or emotions which they may have, rather than accepting them as they are. This suggests that insomnia may be higher in those who refuse to accept their emotional responses. Furthermore, previous research indicates that individuals with insomnia tend to attend to perceived internal and external threats to sleep (Kahneman, 1973), utilize compulsive strategies in the belief that they will help them avoid sleep loss (Salkovskis, 1991), and suppress unwanted thoughts while trying to fall asleep (Gendron et al., 1998; Harvey, 2001), all of which are maladaptive strategies which contribute to insomnia, according to Harvey's cognitive model, and also indicate that the individual may be using maladaptive emotion regulation strategies. Therefore, it was hypothesized that the nonacceptance of one's emotional responses and limited access to emotion regulation strategies, as well as general emotion regulation difficulties,