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Emotion regulation in pathological skin picking: Findings from a non-treatment seeking sample

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ABSTRACT

Pathological skin picking (PSP) is characterized by excessive picking of the skin, resulting in significant distress or functional impairment. The aim of the present study was to investigate the emotion regulation hypothesis of PSP. University students with PSP ($n = 55$) and without history of PSP ($n = 55$) were asked to retrospectively rate the intensity of affective states before, during, and after skin picking episodes. The results showed that for a majority of the PSP sufferers, intensity of certain negative affective states (i.e. anxiety, tension or boredom) was pronounced just before picking, and diminished significantly in the period from before to after picking. Relief and gratification increased during picking whereas guilt increased afterwards. A similar pattern emerged in the control group, although a much lower level of intensity was reported. Participants were also asked to fill out questionnaires concerning emotion regulation difficulties, emotion reactivity, depression, anxiety and worry. Hierarchical logistic regressions demonstrated that emotion regulation difficulties as well as emotion reactivity predicted PSP diagnosis after depression, anxiety and worry were controlled for. Furthermore, emotion regulation difficulties statistically mediated the relationship between emotion reactivity and PSP. Overall, the findings support an emotion regulation model of PSP.

1. Introduction

Pathological skin picking (PSP) is characterized by excessive and repetitive picking of the skin, which is not accounted for by an underlying dermatologic problem. People with this condition will typically pick at minor irregularities of the skin or skin lesions such as pimples, calluses, scars or scabs from previous picking. This behavior can become extremely habitual and chronic, usually persisting for years. In severe cases, PSP can develop into a serious psychiatric problem resulting in significant distress, functional impairment and disfigurement (Flessner & Woods, 2006; Odlaug & Grant, 2008a). Surveys among university students indicate a 2.2–3.8% prevalence of PSP (Bohne, Wilhelm, Keuthen, Baer, & Jenike, 2002; Keuthen et al., 2000) and a recent study in a general adult population found a lifetime prevalence rate of 1.4% (Keuthen, Koran, Aboujaoude, Large, & Serpe, in press).

PSP has received surprisingly little research attention and there is a lack of consensus about how to conceptualize it. This behavior is often found in body dysmorphic disorder (Grant, Menard, & Phillips, 2006; Phillips & Taub, 1995) and it is sometimes thought to be related to obsessive-compulsive disorder (Stein, Hutt, Spitz, & Hollander, 1993) or belong to the putative obsessive-compulsive spectrum (Arnold, Auchenbach, & McElroy, 2001). PSP appears to be closely related to trichotillomania (TTM) as the two disorders often co-occur and show many similarities in symptom presentation and clinical characteristics (Lochner, Simeon, Niehaus, & Stein, 2002; Odlaug & Grant, 2008b; Stein et al., 2008). Both PSP and TTM have been recognized as body focused repetitive behaviors (BFRB), a proposed class of topographically different behaviors (e.g. excessive nail biting and mouth/lip chewing) thought to serve similar functions (Bohne, Keuthen, & Wilhelm, 2005; Stein et al., 2008; Teng, Woods, Twohig, & Marcks, 2002). TTM is classified as an impulse control disorder in the *fourth edition of the Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; APA, 2000), and although PSP has yet to be included in the DSM, it can be categorized as an impulse control disorder, not otherwise specified. This classification is in part based on research showing that a majority of subjects with PSP have symptoms of impulse control disorder, in that they experience increased tension prior to picking and relief or gratification during the act (Arnold et al., 1998; Phillips & Taub, 1995; Wilhelm et al., 1999).

Abramowitz and Berenbaum (2007) suggested that an emotion regulation framework might be particularly useful for conceptualizing impulsive and compulsive psychopathology such as PSP. An

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emotion regulation model of PSP would posit that skin picking persists, despite its negative consequences, because the behavior provides relief from aversive emotional states, and is therefore negatively reinforced. More specifically, Penzel (2003) has proposed that skin picking and other BFRB serve to regulate high-arousal (e.g. tension, anxiety) and low-arousal (e.g. boredom) states, rather than negative affect in general.

Although some support has been found for these hypotheses with regard to TTM (Diefenbach, Tolin, Meunier, & Worhunsky, 2008; Shusterman, Feld, Baer, & Keuthen, 2009), empirical data concerning emotion regulation in PSP are scarce. Studies on impulsive features of PSP have shown that people with PSP report a significant reduction in tension from before to after picking skin, in addition to relief or gratification during picking (Arnold et al., 1998; Phillips & Taub, 1995; Wilhelm et al., 1999). While an increase in relief and gratification during picking is consistent with the notion that skin picking is positively reinforced impulsive behavior, a reduction in tension during picking suggests that the behavior may also be negatively reinforced. However, in a recent study (Neziroglu, Rabinowitz, Breytman, & Jacofsky, 2008) it was found that PSP subjects reported only a small decrease in tension from pre to post picking, and an increase, not a decrease, in "general negative feelings". Furthermore, when the subjects were asked specifically whether picking skin provided relief from "negative emotions", less than a third (28%) reported that they always or most of the time gained substantial relief. The same proportion (28%) reported experiencing no relief and the rest (44%) admitted to relief only half of the time or less. Although these findings may at first glance seem to suggest that affect regulation plays a major role in the disorder for only a minority of PSP sufferers, this conclusion might be premature.

First, even though PSP sufferers report that they do not gain relief from negative emotions by picking, the behavior may still be a failed attempt to regulate emotions. Second, Neziroglu et al. used a rather general term (i.e. "negative emotions") that may not capture certain features of negative affect possibly associated with PSP (e.g. boredom). Thus, it may be that affect regulation function of skin picking characterizes a larger proportion of sufferers than reported in the study. Finally, the authors did only examine affective states before and after picking, and not during picking. Therefore, it cannot be ruled out that the increase in "general negative feelings" emerged only afterwards. This would suggest that the increase reflected negative self-evaluative emotions that concern the consequences of the behavior (e.g. social embarrassment due to the damage on the skin). In fact, Wilhelm et al. (1999) examined affective states in PSP patients before, during, and after picking, and found that guilt and shame typically emerged only afterwards. It is thus possible that skin picking reduces aversive emotional states even though the behavior also results in negative self-evaluative emotions.

Taken together, the few existing studies are somewhat mixed as to whether skin picking serves to modulate aversive emotions, and they are limited in that they only examined narrow aspect of negative affect (i.e. tension) or used a term (i.e. "negative emotions") that may not capture all relevant affective experiences. In order to test the emotion regulation hypothesis further, it is important to examine more aspects of aversive affect and specify distinct affective states. Given that people with PSP frequently have comorbid anxiety or depressive disorders (Arnold et al., 1998; Odlaug & Grant, 2008a; Wilhelm et al., 1999), it might be that skin picking serves to modulate anxiety or sadness. Also, research suggests that boredom plays a role in TTM (e.g. Diefenbach, Mouton-Odum, & Stanley, 2002; Diefenbach et al., 2008; Shusterman et al., 2009) and experimental manipulation of boredom has been shown to increase the frequency of both skin picking and nail biting in individuals prone to these behaviors (Teng, Woods, Marcks, & Twohig, 2004; Williams, Rose, & Chisholm, 2006). Thus, picking skin may serve to alleviate boredom at least for some individuals with PSP.

The emotion regulation model of PSP also implies that PSP sufferers are characterized by a general emotion dysregulation that leads them to this dysfunctional way of coping (i.e. pick skin). In this context, it can be useful to distinguish between emotion regulation difficulties and emotion reactivity. Difficulties in regulating emotions can result from many factors, including impulse control problems, lack of emotional awareness, and difficulties accepting or understanding emotions (Gratz & Roemer, 2004). Emotion reactivity, on the other hand, refers to the tendency to experience emotions often, intensely, and persistently (Nock, Wedig, Holmberg, & Hooley, 2008).

Thus, at least two aspects of emotion dysregulation may relate to PSP. First, people with PSP may have a fundamental difficulty regulating emotions that leads to the development of abnormal regulation strategies, such as skin picking. Second, PSP sufferers may pick skin in order to modulate chronic high levels of emotional arousal, rather than to compensate for poor regulation ability. These two possibilities are not mutually exclusive and people with PSP could have both difficulties regulating emotions and enhanced emotion reactivity. In fact, emotion reactivity is likely to cause emotion regulation difficulties (Nock et al., 2008) and it is perhaps more plausible that intensity of emotions relates to PSP indirectly by causing difficulties in regulating emotions. In other words, it could be that emotion regulation difficulties mediate the relationship between emotion reactivity and PSP. Yet another possibility is that difficulties in emotion regulation serve as a moderator in the relationship where emotion reactivity influences PSP more at higher levels of emotion regulation difficulties.

The current study had two general aims. The first aim was to investigate affective states associated with the act of picking skin. Individuals with PSP and healthy control subjects were asked to retrospectively rate the intensity of various affective states before, during and after picking episodes. We predicted that the PSP subjects would report (a) decrease in tension, anxiety, sadness and boredom from before to after picking, (b) increase in relief and gratification from before to during picking, and (c) increase in guilt and shame from during to afterwards. We also predicted that participants in the PSP group would endorse more intense affective states associated with picking relative to the control group.

The second aim was to investigate emotion regulation difficulties and emotion reactivity in PSP. Research show that emotion regulation difficulties and emotion reactivity are associated with negative affect such as depression, anxiety and worry (e.g. Mennin, Heimberg, Turk, & Fresco, 2005; Nock et al., 2008), and as noted earlier people with PSP often have anxiety and depressive disorders (e.g. Wilhelm et al., 1999). Therefore, we examined the association between emotion regulation/emotion reactivity and PSP after statistically controlling for anxiety, depression and worry. We predicted that PSP would have unique relationship with emotion regulation difficulties/emotion reactivity, over and above its relation with negative affect. Finally, we examined whether emotion regulation difficulties mediated and/or moderated the relationship between emotion reactivity and PSP.

2. Method

2.1. Participants

Participants were 55 university students meeting criteria for current PSP and 55 university students without a history of PSP. The PSP group included 51 women and four men (mean age = 26.33