Pain-related Anxiety and Smoking Processes: The Explanatory Role of Dysphoria

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Overview & Objectives

- Evidence suggests that pain-related anxiety may contribute to the maintenance of tobacco addiction among smokers with varying levels of pain.
- Dysphoria may explain the relation between pain-related anxiety and cigarette smoking, as it is a construct that is related to both pain and smoking outcomes.
- The current study examined the indirect effect of pain-related anxiety (PASS) and three clinically significant smoking processes: perceived barriers to cessation (BCS), negative affect reduction motives (WISDM-NR), and negative mood abstinence expectancies (SAEQ-NM) via dysphoria (IDAS-DYS).

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Hypothesis

It was hypothesized that smokers with elevated pain-related anxiety would experience greater barriers to cessation, endorse more motivation to smoke to relieve negative internal states, and expect higher levels of negative mood during periods of negative mood through dysphoria.

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Methods

- Participants: 101 adult daily smokers (M_{age} = 32.74 years, SD = 13.60; 35.6% female).
- Procedures: Participants were recruited from the community to participant in a self-guided quit attempt and after giving written informed consent, were given a diagnostic interview to determine current mental health diagnoses after which they completed a computerized self-report battery of questionnaires.
- Measures: PASS (McCracken et al., 1992), IDAS (Watson et al., 2007), BCS (Macnee & Talsma, 1995), al., 2004), WISDM (Piper et al., 2004), SAEQ (Abrams et. al., 2011), (First et al., 1994), FTCD (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991), SF-20 (Stewart, Hays, & Ware, 1988).
- Analyses: Regression analyses were conducted using bootstrapping techniques through PROCESS, a conditional modeling program that utilizes an ordinary least squares-based path analytical framework to test for both direct and indirect effects (Hayes, 2013). All models were subjected to 10,000 bootstrap re-samplings and 95-percent CIs were estimated (Hayes, 2009; Preacher & Hayes, 2004; Preacher & Hayes, 2008). Covariates in all models included gender, presence of a current mental health diagnosis, cigarette dependence, and severity of experienced pain.

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Results

- For BCS, regression analyses showed that without controlling for IDAS-DYS, PASS was significantly and positively associated with BCS. PASS was significantly associated with IDAS-DYS and IDAS-DYS was significantly associated with BCS. The indirect effect of PASS on BCS through IDAS-DYS was significant.
- For WISDM-NR, regression analyses showed that without controlling for IDAS-DYS, PASS was significantly and positively associated with WISDM-NR. PASS was significantly associated with IDAS-DYS and IDAS-DYS was significantly associated with WISDM-NR. The indirect effect of PASS on BCS through IDAS-DYS was significant.
- For SAEQ-NM, regression analyses showed that without controlling for IDAS-DYS, the association between PASS and SAEQ-NM was marginally significant and positive. PASS was significantly associated with IDAS-DYS and IDAS-DYS was significantly associated with SAEQ-NM. The indirect effect of PASS on SAEQ-NM through IDAS-DYS was significant.

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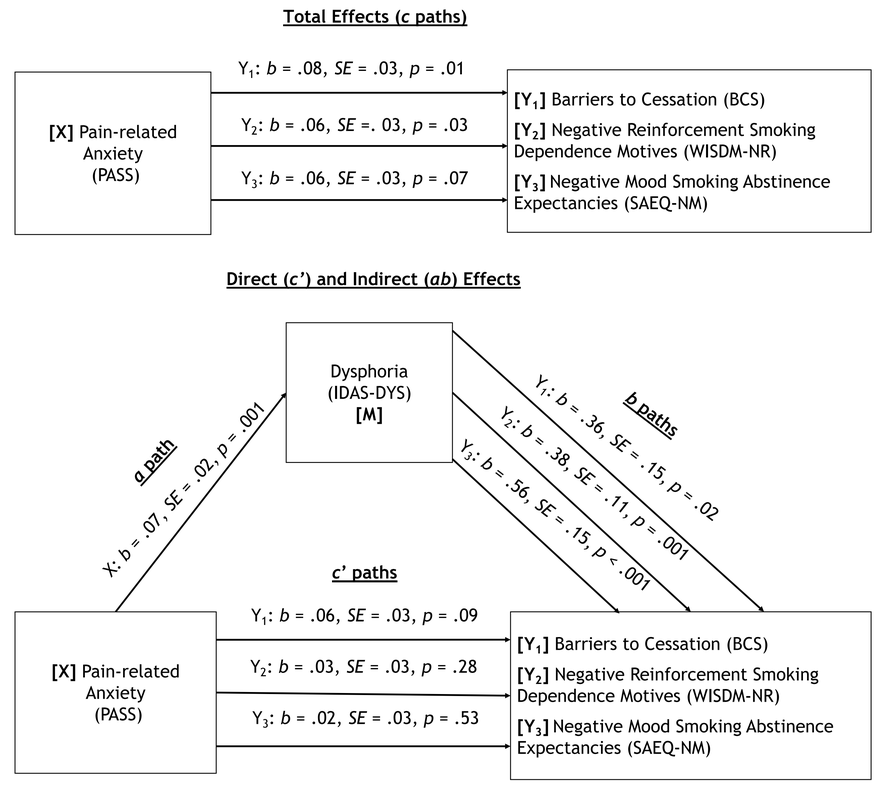
Figure

Conceptual model of the indirect effect (*ab*) of pain anxiety on barriers to cessation, negative reinforcement smoking dependence motives, and smoking abstinence-negative mood expectancies.



Indirect Effects: *ab* products

Y_1 : *ab* = .03, *SE* = .01, $CI_{95\%}$ = **.007, .060**
Y_2 : *ab* = .03, *SE* = .01, $CI_{95\%}$ = **.009, .063**
Y_3 : *ab* = .04, *SE* = .02, $CI_{95\%}$ = **.015, .080**

Note: N = 101; * p < .05. a path = Effect of X on M; b paths = Effect of M on Y_i; c paths = Total effect of X on Y_i; c' paths = Direct effect of X on Y_i controlling for M. Three separate paths were conducted ($Y_{1\text{-}3}$) with the predictor (X). Covariates included in the establishment of paths included: Gender, Mental Health Diagnosis, FTCD = Fagerström Test for Cigarette Dependence (Heatherton et al., 1991), SFHS = Short Form Health Survey: Pain Item (Ware, Sherbourne, & Davies, 1992).

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Conclusion

- Greater pain-related anxiety was significantly associated with increased dysphoric symptoms, which was subsequently associated with expecting higher levels of negative mood during periods of smoking abstinence.
- The current findings provide evidence for a conceptual model in which smokers with elevated pain-related anxiety endorse greater dysphoric symptoms and use smoking to reduce or escape symptoms of their pain-related anxiety and dysphoria.
- Clinically, these findings provide empirical evidence for the importance of targeting dysphoria in smokers with elevated of pain-related anxiety.
- Dysphoria aids in understanding the link between pain-related anxiety and maladaptive smoking patterns and has the potential to further inform evolving models of pain and tobacco dependence.

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