

Original article

Bummed Out Now, Feeling Sick Later: Weekday versus Weekend Negative Affect and Physical Symptom Reports in High School Freshmen

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Abstract

Purpose: This study examined adolescent negative affect (NA) in daily life on school days and weekend days during the spring and associations with physical symptoms during the following summer.

Methods: Using experience sampling methodology (ESM), participants provided electronic diary (eDiary) reports of NA on weekdays (Thursday and Friday) and weekend days during their 9th grade year. In telephone interviews during the winter and summer months they reported physical symptoms. Multiple regression analyses were conducted to examine associations between weekday NA, weekend NA, and their interaction and four constellations of physical symptoms reported in summer (pain, respiratory, gastrointestinal, and immune symptoms).

Results: Findings indicated that weekend NA was associated with later reports of pain, respiratory, and immune symptoms. For gastrointestinal symptoms only adolescents who reported low NA on both weekend and school days reported fewer gastric symptoms than other adolescents.

Conclusions: Mapping the predictors and correlates of weekend NA may be important not only for understanding teenage mood patterns but also for enhancing the interpretation of physical symptom reporting by adolescents © 2009 Society for Adolescent Medicine. All rights reserved.

Keywords:

Negative affect; Daily diary; Physical symptoms; School days; Weekend days; High school

Negative affect (NA), characterized by negative emotions such as sadness and anxiety, is associated with poor health and somatic complaints [1,2]. The majority of studies of NA and symptoms focus on adults or clinically depressed adolescents [3]. Minimal attention has been paid to NA and its association with physical symptoms in healthy adolescents from the community. The current study focuses on NA measured frequently during a slice of adolescent daily life and the associations between both school day and weekend NA and later physical symptom reports.

Prior work investigating affect and physical symptoms in adults has measured NA at state levels (e.g., momentary experience), trait levels (e.g., the “typical” amount of NA experienced), or in combination. There are indications, at least for adults, that both trait and state NA are associated with vulnerability to illness. In a well-known prospective study, healthy adults completed measures of trait and state NA

before exposure to a respiratory virus [1]. Mood descriptors were rated both for how accurately the adjective described the participant over the preceding 24 hours (state NA) and how accurately the adjective described him or her usually (trait NA). Both trait and state NA were associated with increased symptom reports after exposure. The symptom reports for the participants who were high in state NA were associated with objective indices of illness severity, whereas the reports of participants who were high in trait NA were unrelated to illness severity [1]. This finding suggests the possibility that state NA may be more closely tied to objective indicators of disease than trait NA.

NA is also associated with physical symptoms during adolescence. Williams *et al.* [4] found that depressive symptoms were associated concurrently and longitudinally with physical symptom reports in a sample of healthy adolescents. In another study a specific source of NA, test anxiety, was associated with an increase in reports of physical symptoms during the school year [5]. Depressed mood was correlated with the number of physical symptoms reported in a sample of incarcerated female adolescents [6]. None of these studies

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addressed daily levels of NA in relation to physical symptoms in adolescents, leaving this area in need of further exploration.

Studies with adult populations suggest that particular constellations of physical symptoms may relate to NA in unique ways. Charles and Almeida [7] investigated adult reports of NA in association with three constellations of physical symptoms: pain, gastrointestinal illness, and respiratory/flu symptoms. The authors defined trait NA as the average of state NA scores within-person across an 8-day daily diary. The authors' separation of physical symptoms into distinct constellations allowed the relationship with affect to be examined separately for respiratory/flu symptoms, which are directly observable, in comparison to pain and gastrointestinal symptoms, which cannot be measured objectively. Results indicated that trait NA and state NA were concurrently associated with symptoms of pain, gastrointestinal illness, and respiratory/flu infection and state NA was also associated with pain and gastrointestinal symptoms one day later. The lagged relationship between state NA and gastrointestinal symptoms was stronger for individuals high in trait NA. Although it is important to acknowledge that the distinction between trait NA and state NA may be overly simplified, the pattern of findings suggest that state NA is an important predictor of concomitant and at least some short-term future somatic complaints (in this case, the more covert constellations of gastrointestinal and pain symptoms), and particularly in concert with trait NA.

The relationship between affect states and physical symptoms may vary by context, such as the different context experienced by adolescents on weekdays and weekend days. In adults, nonwork hassles on the weekends were associated with psychosomatic complaints on subsequent workdays, whereas positive social experiences were associated with fewer complaints [8]. This suggests that weekend recovery provided a subsequent reduction in health complaints, whereas difficult weekend experiences were detrimental. Very little is known about adolescents' weekday versus weekend experiences and their subsequent health reports. Weekday activities are more structured than weekend activities, and the ability to manage NA during less structured times may be important for avoiding illness or overly vigilant attendance to physical symptoms.

Affect states are presumed to be transient, yet it is likely that the variability in an individual's mood hovers about a mean influenced by trait-like characteristics [9,10]. That is, on a given day the sadness a person feels is influenced by that person's dispositional tendency to experience and to report sadness, as well as by transient events of the day. In the unique approach used in the current study, frequent mood reports logged over many days likely reflect trait-like characteristics in addition to more transient and specific affect states in adolescent daily life. To investigate trait-influenced state NA across contexts that have been found to influence physical health complaints in adults, this study centered on differential associations between physical symptoms and school day versus weekend NA.

The aims of the present study were to examine: (1) whether experience sampling reports of NA are associated with later physical symptoms in adolescents; and (2) whether this relationship varies by when NA occurs (school days versus weekend days or an interactive combination) and by constellation of symptoms (pain, respiratory, gastrointestinal, and immune). Based on previous research, we hypothesized that NA on school days and weekend days would be associated interactively, as adolescents reporting higher levels of NA during both time periods are likely higher in trait NA. In addition, given the relationship in adults between state NA and covert (but not overt) symptoms documented by Charles and Almeida [7] we predicted that the association between diary NA and physical symptoms would be stronger for covert physical symptoms (e.g., pain and gastrointestinal symptoms) compared to overt, easily observable symptoms (e.g., respiratory and immune problems).

Methods

The data for this study are from a study of adolescent health behaviors and susceptibility to tobacco use called Project MASH (Monitoring Adolescent Stress and Health). For a full description of methods and procedures see Whalen *et al.* [11]. All procedures were approved by the Institutional Review Board of the University of California at Irvine.

Participants and procedures

Incoming 9th-grade students from five high schools were recruited for participation. The students completed a health screening questionnaire at their high school about their everyday health behaviors and smoking history. A random sample of nonsmoking students, and all students with a history of smoking (oversampled because the larger study was focused on adolescent smoking vulnerability) were invited to attend an orientation session with their parents. Of those who attended, 90% (474) agreed to participate.

The inclusion criteria for the current study were completion of spring eDiary recordings of NA and physical symptom telephone interviews in the winter and summer. These criteria were met by 330 of the participants who had enrolled in the larger study (51% female; average age at enrollment 14.46, SD = .48). Half reported some history of smoking, with 20% reporting more than one or two smoking experiences. The ethnic breakdown was 56% European American, 19% Asian American, 2% African American, and 23% Latino or other. Most parents, 75%, had attended college, with 63% having earned a B.A. or advanced degree. There were no differences in age, reports of a chronic health condition, aggregated levels of weekend or weekday NA, or number of physical symptoms reported between participants who completed all phases of the current study and those who did not. Noncompleters were slightly more likely to be male (56%).

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