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Non-medical use of prescription stimulants for weight loss, disordered eating, and body image

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ABSTRACT

Objective: There has been minimal research on the non-medical use of prescription stimulants (NMUPS), such as Adderall and Ritalin, normally used to treat Attention Deficit Hyperactivity Disorder (ADHD) for the purpose of weight loss. The current study examined the prevalence and correlates of this use in a young adult sample.
Method: College students ($N = 707$) completed an online survey assessing NMUPS, in general and for weight loss, disordered eating behaviors and attitudes, body image, and recreational drug use.
Results: Overall, 4.4% of participants reported NMUPS for the purpose of weight loss with 56.7% reporting receiving the medication from friends. Individuals reporting NMUPS for weight loss had higher body image concerns and had higher eating disorder symptomatology. Vomiting for weight loss as well as laxative, diet pill, or diuretic use were robustly associated with NMUPS for weight loss.
Discussion: Results suggest that NMUPS for weight loss is relatively common and that this behavior is related to other harmful behaviors. Eating disorder prevention and intervention work should include this behavior when assessing unhealthy weight control behaviors.

1. Introduction

The non-medical use (i.e., without a doctor's prescription) of prescription drugs (NMUPD), particularly stimulants (NMUPS) (Arria & DuPont, 2010; Rabiner et al., 2009), is an important public health concern. A young adult is more likely to misuse a prescription drug than to use any illicit substance except marijuana (Substance Abuse and Mental Health Services Administration, 2012). Lifetime NMUPS prevalence rates are estimated as high as 34% among college students (DeSantis, Webb, & Noar, 2008). Motivations for misuse include to get high, for concentration, and for weight loss (Jeffers, Benotsch, & Koester, 2013; Teter, McCabe, LaGrange, Cranford, & Boyd, 2006).

Stimulant medications, including Adderall, used to treat Attention Deficit Hyperactivity Disorder (ADHD), have side effects of appetite suppression (Zachor, Roberts, Hodgens, Isaacs, & Merrick, 2006) and subsequent weight loss (Kent, Blader, Koplewicz, Abikoff, & Foley, 1995). Individuals may be motivated to misuse stimulants for weight loss. This motivation, however, has been studied minimally and has rarely been a focal point of research (Teter et al., 2006). To our knowledge, our 2013 study is the only one that has focused on the misuse of prescription stimulants for the purpose of weight loss (Jeffers et al., 2013).

Individuals who reported this behavior were more likely to report dieting, eating disordered behaviors, appearance-related motivations, emotion and stress-related eating, and lower self-esteem. However, limitations included not assessing whether individuals were prescribed ADHD medications for weight loss, whether the medications were prescribed to the individual (i.e., misuse) or if the individual received the medication from somebody else (i.e., non-medical use). Prior work suggested that NMUPS for weight loss was related to unhealthy behaviors and cognitions, and it is important to examine additional relations with psychosocial variables and health-jeopardizing behaviors.

Further, because dieting has predicted the onset of binge eating disorder (Goldschmidt, Wall, Loth, Le Grange, & Neumark-Sztainer, 2012), loss of control eating should be examined. Disordered eating patterns have also been associated with excessive exercise (Grandi, Clementi, Guidi, Benassi, & Tossani, 2011). Sociocultural factors (e.g., media) may also play a role as exposure to unrealistic media images is a risk factor for body dissatisfaction and eating disturbances (Stice & Shaw, 1994; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999).

Individuals who misuse prescription drugs are also more likely to report polydrug use (Benotsch, Koester, Luckman, Martin, & Cejka, 2011). When not under proper medical supervision, an individual may experience side-effects of this misuse, such as anxiety, paranoia, and cardiac irregularities (Higher Education Center, 2012). Mixing prescription stimulants with other drugs can exacerbate these side-effects (Higher Education Center, 2012). Thus, it is relevant to examine if individuals who report NMUPS for weight loss are also using other recreational drugs.

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1.1. Study hypotheses

NMUPS for weight loss is timely to examine due to the increasing prevalence among young adults and high prevalence of weight loss attempts (Bish et al., 2005). The purpose of this study was to gain further insight into this behavior in a sample of college students. We hypothesized that those reporting NMUPS for weight loss would engage in more health-jeopardizing behaviors, including disordered eating and recreational drug use, report more problematic cognitions, such as higher body image concerns compared to those who do not engage in NMUPS for weight loss, as well as report greater sensitivity to media pressures to maintain an ideal body type.

2. Method

2.1. Participants and study design

Undergraduates ($N = 799$) at a large eastern university completed an anonymous online survey in 2012. Participants were consented prior to participation and received course credit. Analyses were restricted to young adults, ages 18–25 ($N = 744$), the group most likely to engage in NMUPD (Substance Abuse and Mental Health Services Administration, 2012). Current ADHD prescription holders were also excluded because these medications are sometimes prescribed off-label for weight loss (Weight-control Information Network, 2010), and we wanted to account for this possibility ($N = 711$), in addition to focusing on non-medical users as prescription stimulant use may be especially harmful for those who do not have a prescription. Four individuals (0.6%) were eliminated for problematic responding (e.g., random responses; $N = 707$). The study was approved by the appropriate Institutional Review Board.

2.2. Measures

2.2.1. Demographics

Demographics included gender, age, and if participants were currently being prescribed a stimulant medication to treat ADHD. Body mass index (BMI) was calculated using self-reported height and weight.

2.2.2. NMUPS for weight loss

As with prior research (Jeffers et al., 2013), participants reported the frequency that they had utilized a prescription stimulant normally used to treat ADHD for weight loss.

2.2.3. Recreational drugs

Participants reported the frequency with which they had used recreational drugs in the past 3 months from "None (1)" to "At least every week (4)." Similar items have shown utility in prior work (Benotsch, Perschbacher Lance, Nettles, & Koester, 2012).

2.2.4. Stimulant source

Participants who engaged in NMUPS also reported the source (e.g., friends).

2.2.5. Perceived effectiveness

Participants reported perceived effectiveness of NMUPS for weight loss from "N/A (0)" to "Very effective (4)."

2.2.6. Eating Attitudes Test-26 (EAT-26) (Garner, Olmsted, Bohr, & Garfinkel, 1982)

To assess concerns and symptoms characteristic of eating disorders, the EAT-26 ($\alpha = .90$), which has been used with both women and men, was administered (King, 1989; Reyes-Rodriguez, Sala, Von Holle, et al., 2011). This is a widely used measure that has been found to be reliable and valid (Garner et al., 1982). Response choices ranged from "Never (0)" to "Always (3)." A score of 20 or higher indicates a high level of concern regarding dieting, weight, or problematic eating behaviors. Participants also report on weight-related behavioral questions within the last 6 months on a scale from "Never" to "Once a day or more." For the behavioral questions, participants were dichotomized into "At risk" versus "Not at risk" for an eating disorder (ED) based on the EAT-26 scoring guidelines.

2.2.7. The Sociocultural Attitudes Towards Appearance Scale-3 (SATAQ-3) (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004)

The SATAQ-3 assessed sociocultural influences on body image and eating disturbances, and has demonstrated both reliability and validity (Karazsia & Crowther, 2008). This measure has four subscales: the internalization of media, both generally ($\alpha = .91$) and related to athleticism ($\alpha = .82$); pressures ($\alpha = .92$); and information ($\alpha = .90$). Participants rated statements from "Definitely disagree (1)" to "Definitely agree (5)."

2.2.8. Body Appreciation Scale (BAS) (Avalos, Tylka, & Wood-Barcalow, 2005)

To assess positive body image, the BAS, a well-validated measure was used ($\alpha = .94$). Participants rated statements from "Never (1)" to "Always (5)."

3. Results

The mean age of the participants was 18.84 years ($SD = 1.40$) and the majority were women (69.8%). The sample consisted largely of White participants (47.9%), followed by African-American (24.2%), Asian-American (14.3%), Other (6.7%), Hispanic/Latino (5.8%), and Native American (0.6%). The mean BMI was 23.57 ($SD = 4.47$). Around 14.9% of participants reported NMUPS in their lifetime, and 4.4% reported using the medication for the purpose of weight loss.

3.1. NMUPS for weight loss and demographics

NMUPS for weight loss was comparable across genders with 3.5% of females reporting use and 6.7% of males reporting use, $\chi^2(1) = 3.63$, $p = .070$. There were significant differences in BMI between participants reporting NMUPS for weight loss ($M = 22.07$, $SD = 2.72$) and those who did not ($M = 23.62$, $SD = 4.53$), $t(35.43) = 2.90$, $p = .006$. NMUPS for weight loss was unrelated to age, race/ethnicity, and GPA.

3.1.1. NMUPS for weight loss, source, and effectiveness

Of those reporting NMUPS for weight loss, 56.7% reported receiving the medication from friends; 13.3% from family; 10.0% from a stranger; and 3.3% from the Internet. About a third (35.7%) responded that this weight loss strategy was "Mildly effective," 21.4% "Not at all effective," 21.4% "Somewhat effective," and 21.4% "Very effective."

3.1.2. NMUPS for weight loss and disordered eating

Individuals reporting NMUPS for weight loss showed higher ED symptomatology according to the EAT-26 ($M = 23.14$, $SD = 18.77$) than those who did not ($M = 8.60$, $SD = 9.56$), $t(28.63) = -4.15$, $p < .001$. Misusers also had greater reporting of binge eating, vomiting, and laxative/diet pill/diuretic use to control weight or shape. Groups were comparable regarding excessive exercise (more than 60 min a day) and excessive weight loss (20 lb or more in the past 6 months). See Table 1.

3.1.3. NMUPS for weight loss and body image

Individuals reporting NMUPS for weight loss had lower body appreciation and higher body image concerns, specifically related to the media. Individuals scored higher on three of the four SATAQ-3 subscales: internalization-general, pressures, and information.