Personality and prescription drug use/misuse among first year undergraduates

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HIGHLIGHTS

- Any use: AS to sedatives/tranquilizers, HOP painkillers, SS stimulants, and IMP all.
- Purely appropriate use: AS to sedatives/tranquilizers; HOP to painkillers.
- Misuse: SS to stimulants; IMP to unconstrained misuse.

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ABSTRACT

Emerging adults (18–25 year olds) endorse the highest rates of prescription drug misuse. Attending college or university may confer additional risk. Previous research suggests that personality is an important predictor of many addictive behaviours. Four traits have been consistently implicated: anxiety sensitivity, hopelessness, sensation seeking, and impulsivity. Published studies on personality as a predictor of prescription drug abuse are limited, however, by a primary focus on overall prescription drug use, inconsistent operationalisation of misuse, and failure to control for alcohol use. Sample sizes have been small and non-specific. We sought to better understand how personality predicted the overall use, the medically-sanctioned use, and the misuse of prescription sedatives/tranquilizers, opioids, and stimulants. A large (N = 1755) sample of first year Canadian undergraduate students (mean age = 18.6 years; 68.9% female) was used. We predicted that: anxiety sensitivity would be related to sedatives/tranquilizers, hopelessness to opioids, sensation seeking to stimulants, and impulsivity to all three. Save for the impulsivity to opioid use path, predictions were fully supported in our "any use" model. For medically-sanctioned use: anxiety sensitivity predicted sedative/tranquilizers, hopelessness predicted opioids, and impulsivity predicted stimulants. For misuse: anxiety sensitivity (marginally) predicted sedatives/tranquilizers, sensation seeking predicted stimulants, and impulsivity predicted all three. Our models support using personality-matched interventions. Specifically, results suggest targeting anxiety sensitivity for sedative/tranquilizer misuse, sensation seeking for stimulant misuse, and impulsivity for unconstrained prescription drug misuse. Interventions with early coping skills that pertain to all four traits might be useful for preventing prescription drug uptake and later misuse.

1. Introduction

Prescription drugs (PDs) are *misused* when they are taken without a physician's prescription, in greater amounts or more often than prescribed, via non-intended routes, for non-prescribed reasons, and/or with contraindicated substances (Haydon, Monga, Rehm, Adlah, & Fischer, 2006). Physiological harms of PD misuse include increased risk of negative drug interactions, withdrawal, physical dependence, injury related to intranasal use, organ damage, cardiovascular risk, accidental overdose, and death (Hartung et al., 2013; Holloway, Bennett, Parry, & Gorden, 2014; Teter, Falone, Cranford, Boyd, & McCabe, 2010). Psychological harms include psychological dependence, distress,

depression, and anxiety (Cohen, 1992; Holloway et al., 2014). Social harms include antisocial behaviour, academic issues, family problems, and interpersonal issues (Brandt, Taverna, & Hallock, 2014; Hartung et al., 2013; Holloway et al., 2014). Despite these consequences, young people continue to misuse PDs at an alarming rate. Reported lifetime PD misuse rates among American university students, for example, have exceeded 50% (McCabe, Teter, & Boyd, 2006).

1.1. Personality as a predictor

Pihl and Peterson (1995) developed a model, upon which Castellanos-Ryan and Conrod (2012) elaborated, that outlines four substance misuse vulnerabilities. It is well-supported in the literature (e.g., Castellanos-Ryan & Conrod, 2012; Mackinnon, Kehayes, Clark, Sherry, & Stewart, 2014). The first two traits are internalizing. They are characterized by internal processes, constraint, inhibition, and over-control. Anxiety sensitivity (AS) is the fear of anxiety-related sensations, due to the unrealistic expectation that these sensations will have catastrophic consequences (e.g., physical illness, social embarrassment, or loss of control; Reiss, 1991; Taylor, 2014). Hopelessness (HOP) is expecting aversive events, and not expecting desirable ones (Abramson, Metalsky, & Alloy, 1989). Both AS and HOP are associated with coping motives (Woicik, Stewart, Pihl, & Conrod, 2009). Undergraduates who are high in these traits tend to self-medicate with depressants (Conrod, Pihl, Stewart, & Dongier, 2000; Woicik et al., 2009). Specifically, among treatment-seeking adult substance abusers, AS predicts anxiolytic dependence and HOP predicts opioid dependence (Conrod, Pihl, et al., 2000).

The remaining two traits are externalizing. They are characterized by external actions, lack of constraint, disinhibition, and under-control. Sensation seeking (SS) is the desire for novel experiences (Zuckerman, 1994). Individuals high in SS are sensitive to the rewarding properties of substances (Castellanos-Ryan & Conrod, 2012). In undergraduates, SS is associated with illicit and prescription stimulant use (Low & Gendaszek, 2002). Impulsivity (IMP) is the tendency to act without careful deliberation (Dawe & Loxton, 2004). It is associated with a motivationally undefined pattern of substance use, whereby availability predicts misuse (Hecimovic, Barrett, Darredeau, & Stewart, 2014). Related deficits in response inhibition mean that young people who are high in IMP are more susceptible to early experimentation and to later, compulsive use (Castellanos-Ryan et al., 2014). These students tend to engage in heavier, unconstrained drug use (Woicik et al., 2009).

1.2. Student misusers

Emerging adults (Arnett, 2000) endorse the highest PD misuse rates. Nearly 15% of 18–25 year old undergraduates report past-year PD abuse (Silvestri, Knight, Britt, & Correia, 2015). Between 1989 and 2002, these rates increased from 7% to 22% (SAMHSA, 2003). Further, most North American emerging adults are enrolled in university. By age 26–28, for example, 81% of Canadians have attended a post-secondary institution (Shaienks & Gluszynski, 2009). This is important, as university represents a time of heightened risk for PD misuse. Students are under academic strain and are facing multiple simultaneous stressors (e.g., pressure to succeed, competition with peers, financial strain, concerns about the future). They are nearing the age of onset for use of many drugs of abuse (Holloway et al., 2014; Tavolacci et al., 2013). McCabe, West, Morales, Cranford, and Boyd (2007), for example, identified the following as the mean age of onset for lifetime misuse: 18.9 for stimulants (Mdn = 18, SE = 0.1); 22.7 for tranquilizers (Mdn = 20, SE = 0.3); 23.1 for sedatives (Mdn = 30, SE = 0.4); and 23.2 for opioids (Mdn = 20, SE = 0.3).

Quintero, Peterson, and Young (2006) interviewed 52 PD misusers. Many associated studenthood with drug abuse; they acknowledged that they could not misuse PDs in the same way/at the same rate post-graduation. Thus, university may represent a "time-out period", in which

responsibility is suspended and experimentation encouraged (Côté & Allahar, 1996). Respondents further indicated that PD misuse was socially acceptable. Unlike illicit drugs, they noted that PDs were government-approved, subjected to extensive laboratory testing, manufactured by professionals, advertised, known to produce dose-dependent effects, and associated with listed side effects. They categorized PDs as "soft" drugs (i.e., those facilitating pleasure and performance).

Quintero et al.'s students (2006) endorsed three PD misuse motives. First, they used PDs to self-medicate affective states and physical conditions (e.g., stress, pain, and being overweight). Second, they took PDs recreationally (e.g., to have fun or get high). Third, they used PDs to more effectively fulfill role demands (e.g., to study, focus, or concentrate). Brandt et al. (2014) linked these motives to specific PD classes. Sedatives/tranquilizers are misused to relax, decrease another drug's side effects, or increase its high. Opioids are misused to self-medicate pain or get high. Stimulants are misused to get high or as a study aid. A systematic review (Holloway et al., 2014) listed undergraduate lifetime misuse rates as: 4–9% for sedatives/tranquilizers, 12–22% for opioids, and 2–17% for stimulants. Compared to pre-university, by second year university, lifetime misuse rises 102.9% for sedatives/tranquilizers, 85.7% for opioids, and 318.5% for stimulants (Arria et al., 2008).

1.3. The present study

The only study to examine how the four-factor personality model (Castellanos-Ryan & Conrod, 2012; Pihl & Peterson, 1995) predicted undergraduate PD use was conducted by Woicik et al. (2009). AS was associated with depressant use, SS with stimulant and polysubstance use, and IMP with stimulant use. The present study extends Woicik et al.'s (2009) in several ways.

First, Woicik et al. (2009) broadly examined any PD "use". To address this limitation, we examined relations between personality and: (1) any PD use, (2) medically-sanctioned use, and (3) misuse. Students most commonly misuse sedatives/tranquilizers, opioids, and stimulants (Colliver, Kroutil, Dai, & Gfroerer, 2006). Personality may differentially predispose a student to either take or misuse a given PD class. As such, we also compared these three drug classes. Second, Woicik et al. (2009) failed to include an important covariate: alcohol use. University students tend to use alcohol with other substances, including PDs (McCabe, West, Schepis, & Teter, 2015). To address this limitation, our models control for alcohol dependence. Third, Woicik et al.'s (2009) study was underpowered (N = 162). They had to combine sedatives, tranquilizers, and opioids to form a single depressant drug category. This may be have obscured specific, theorized personality-to-PD paths. For example, Woicik et al. (2009) found that AS predicted depressant use but HOP did not. However, using a clinical sample of 293 substance misusers, Conrod, Pihl et al., (2000) substantiated the specific AS-to-anxiolytic dependence and HOP-to-opioid dependence pathways. Using a sample of 22,783 undergraduates, Zullig and Divin (2012) further concluded that high-HOP students were 1.18–1.43 times more likely than others to use prescription opioids. To address this limitation of Woicik et al.'s (2009; i.e., to increase power), we used a large sample of undergraduates. Finally, Woicik et al. (2009) sampled all undergraduates, regardless of year of study. First year represents a time of particular vulnerability. Freshmen have moved away from home, have lost important social networks, and are under new academic strain (Holloway et al., 2014). Compared to freshmen, upper-class students have lower odds of past-year non-medical PD use (Lanier & Farley, 2011). To address this limitation, our sample was restricted to freshmen.

1.4. Hypotheses

The current study predicted that: AS would be related to sedative/