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Personality and the opioid epidemic

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Sutin and colleagues' article, "The Prospective Association between Personality Traits and Persistent Pain and Opioid Medication Use", examines key psychological constructs that may help explain who is at risk for opioid abuse [1]. The timeliness of the article is exceptional as researchers, physicians, drug-makers, and countless families debate on how to remedy the nation's ever increasing opioid epidemic [2]. Stemming partly from a medical system push in the early-2000s to better treat pain, opioids were the go-to pain reliever. Many of these prescriptions were for legitimate pain issues and prescribers were often unaware of the potential dangers of opioids, but widespread opioid abuse and dependence quickly spread across the nation. It was estimated that over 245 million prescriptions for opioid-related medications were dispensed in 2014 with over 10 million individuals misusing their opioid prescriptions. Fast forward to 2017, and we now have over 47,000 Americans dying from an opioid-related overdose [3] and an estimated 1.7 million suffering from an opioid-prescription substance use disorder [4]. With incidence rates continuing to rise in the United States and internationally [5], a public health emergency was declared for what is now coined the *Opioid Epidemic*.

Treating chronic pain is important for improving quality of life, which is especially true in an increasingly aging population. Persistent pain is one of the most commonly reported problems older adults seek medical care for because it can have detrimental effects on mobility, sleep, and mood [6]. However, in the midst of the Opioid Epidemic, there is little agreement on how to best treat chronic pain without increasing the risk of developing a substance use disorder [7]. Some suggest the development of more effective substance abuse treatment programs, refinement of abuse-deterrent formulations, or more effective medication-assisted therapies [2]. Opponents point out that these changes do not prevent opioid addiction, they just treat the symptoms after the addiction has already occurred. Others believe the key remedy is additional training in how to effectively prescribe and use opioids. Tightening regulation around how opioids are prescribed and harsher penalties for those that disregard these guidelines is also suggested. However, the fact remains that even when prescribed properly, a significant portion of the population will abuse or become addicted to opioids. What is needed are better models to predict who is at the greatest risk for opioid misuse. Since individual differences in personality traits have emerged as robust predictors of health and behavior over the entire lifespan [8], personality assessment might be one effective way to predict abuse of opioid medications and subsequently inform evidence-based prevention and intervention strategies.

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Ample studies implicate low conscientiousness (e.g., high levels of responsibility and discipline) and high neuroticism (e.g., high depressed affect, emotional reactivity) as robust predictors of alcohol and tobacco use across the entire lifespan [9]. Fewer have explored associations between personality traits and specific misuse of prescription pain medicine, but the general pattern of findings suggests that those who are low in conscientiousness are more likely to use marijuana, cocaine, and heroin, while those higher in neuroticism are more likely to use cocaine and heroin [10]. Moreover, a few studies even show these traits are associated with opioid dependence [11] or mixed drug-related substance use disorder [12].

Personality assessment can be used in at least three distinct ways to combat opioid abuse: 1.) identifying those at risk; 2.) tailoring existing interventions; and 3.) targeting personality for change via interventions.

First, personality assessment is a quick and effective method of identifying those at risk for experiencing pain and seeking prescriptions to alleviate pain [1]. For example, a short personality assessment incorporated into a medical chart could be viewed by a prescribing doctor prior to dispensing any opioid medication. Those scoring higher in neuroticism and lower in conscientiousness are more likely to present to doctors with pain [1] so it may not be that these individuals are just engaging in drug seeking behavior. By knowing there is an increased risk of abuse by these individuals, it is possible to explore other alternatives to opioids, such as other analgesic medications with a lower abuse liability or non-pharmacological interventions such as physical therapy. To prevent stockpiles of un-used opioids, prescribers can also stop assuaging patient's fears about future pain and refrain from providing 30 days worth of pills for something that can be treated in just a few days [13].

The National Institutes of Health Precision Medicine Initiative involves multiple national research/medical centers that aim to understand how a person's genetics, environment, and lifestyle can help determine the best approach to prevent or treat disease. Personality assessment is one means to use Precision Medicine in the fight against the Opioid Epidemic by tailoring existing treatments based on personality profiles [14]. For example, by better knowing a person's relatively enduring thoughts, behaviors, and emotions (their personality), treatment providers will better understand many factors surrounding their patients' drug use such as their strengths and weaknesses, possible triggers, their propensity to experience stress, and their typical use of coping mechanisms. All of this information can assist in developing a strong therapeutic alliance which is necessary for better treatment outcomes.

Personality assessment can also be used to monitor certain individuals after they are prescribed the medications. Since those scoring higher in neuroticism and lower in conscientiousness are more likely to use the opioids in ways not directed by their doctor [1], it would be beneficial to give very clear directions on how the medication should be taken and the possible risk factors of taking it differently (e.g., crushing pills, taking with alcohol, etc.). Most people do not read the information inserts associated with prescriptions and this might be especially true for those scoring low in conscientiousness and high in neuroticism. Other strategies could include phone-based check-ins to determine how the medication is working, ensuring the daily maximum dose is not being exceeded, what to do with left-over pills, and ensuring the risks of longer-term use are discussed before a refill is given. These

strategies are already in use to a certain degree, but integrating personality assessment into assessment of risk will allow for more tailored use. With healthcare personnel time already limited, focusing scarce resources on individuals most at-risk for prescription opioid abuse will be both time and cost effective.

Integrating personality assessment along with other standard assessments at treatment initiation can also aid in determining treatment engagement. Personality scores can identify who is less likely to engage/participate in treatment and who is more likely to drop-out of treatment and/or relapse [14]. For example, individuals in Poland with substance use disorder who remained abstinent eight weeks after treatment scored higher in agreeableness and conscientiousness, and lower in neuroticism [15]. They also had greater participation and adaptability throughout the treatment. Knowing those most likely to withdraw from treatment at the outset can help providers direct the necessary resources to keep those individuals engaged in care and reduce obstacles to treatment. There is also preliminary work being done with alcohol abuse treatment programs trying to match clients to particular therapies based on personality [16]. Such matching procedures could be done with specific opioid treatments [14] and individuals could be counseled on how their personality characteristics might influence their emotions and behaviors over the course of treatment.

A final use of personality assessment in combatting the Opioid Epidemic is the movement to therapeutically modify personality traits. Personality psychologists have compiled compelling evidence that personality traits can be modified through existing interventions/therapies for mental health or substance use disorders (e.g., cognitive behavioral therapy, spiritual therapy). Specifically, personality trait levels changed in more adaptive directions through treatment and those experiencing more optimal treatment outcomes are the ones that showed this persistent personality change [17,18]. The rationale of targeting personality with interventions is that if you modify personality as an underlying root cause for behavioral problems (e.g., the lack of self-control, negative emotionality, depressed affect, lack of responsibility and planning) there will be widespread improvements in behavior, well-being, and health [19]. One application of this would be at-risk youth being targeted for personality intervention to give them the behavioral, cognitive, and emotional skills needed to avoid opioid use. Overall, combining standard opioid dependence treatments along with targeted personality interventions may be the most effective means of combating the Opioid Epidemic.

Opioid abuse is an escalating international problem. The many complexities underlying this epidemic make it extremely difficult to combat. Personality assessment is not the ultimate key to reducing opioid abuse, but it can be one important component of future efforts to preventing and treating opioid addiction. Future work should focus on collecting data from larger and more representative samples and gathering more detailed information on the progression of opioid abuse. For example, understanding exactly how use initiated and escalated will provide better understanding of risk-factors and possible points of intervention. More research is also needed on traits such as extraversion and openness because current findings are mixed. Lastly, identifying how personality levels change during the course of opioid addiction and treatment will be key for future interventions.

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