**Opioid Misuse Risk Assessment:
Screening Tools when Prescribing Opioids for Adults with Chronic, Non-Malignant Pain**

Opioid Use Disorder (OUD) is a subset of Substance Use Disorders (SUD), defined as a chronic condition of compulsive, repeated opioid drug use and prolonged opioid drug self-administration (Substance Abuse and Mental Health Services Administration, 2017). There are generally two categories of patients who suffer from OUD: patients who become addicted to medical opioids and those who become addicted to non-medical opioids. A prior history of any pain disorder, psychotic, or personality disorder is known to influence OUD in patients (Klimas et al., 2015).

   There is a complex relationship between chronic pain and the potential for drug misuse and abuse. A critical subset of patients with chronic pain syndrome also suffer from SUD, while some may have a prior history of being addicted to opioids (Campbell et al., 2020). Additionally, some patients have no history of substance abuse but then develop aberrant drug-related behaviors (ADRB) or even addiction after being prescribed opioids for chronic pain. The literature is inconclusive regarding the exact risk of exacerbating SUD or developing de-novo addiction in patients who commence opioid therapy for chronic or acute pain; however, such a risk exists (Finkelman et al., 2015). The concern for increased risk of addiction with prescription opioids or in those with chronic pain is shared by patients and their families, as well as medical providers.

Although there are available guidelines and resources to assess for potential risk of opioid misuse, many practitioners fail to utilize a standardized approach. Stratification and risk assessment have become important aspects of opioid prescribing to patients with chronic pain; however, the empirical data available is limited on the specificity, sensitivity, and prevalence of the risk assessment tools commonly used (Jones et al., 2012). Additionally, many physicians rely on their subjective impressions for judging whether a patient is at a high risk of SUD (Ducharme & Moore, 2019). This practice is not validated, and reasons why it is preferred over established prescreening risk tools is unclear.

Medical professionals are encouraged to utilize a rational approach with universal precautions for pain treatment. It is vital to evaluate the risks associated with opioid misuse. Physicians should assume that all patients given an opioid prescription are at risk of ADRB and should be screened with a well-validated tool to determine if there are additional individual risk factors for misuse or possible concurrent addiction. Prescreening risk assessments that have been evaluated in literature include:

* Opioid Risk Tool (ORT)
* Screener and Opioid Assessment for Patients with Pain (SOAPP/SOAPP-Revised)
* Diagnosis, Intractability, Risk, and Efficacy Score (DIRE)
* Screening Instrument for Substance Abuse Potential (SISAP)
* Rapid Opioid Dependence Screen (RODS)
* Brief Risk Interview (BRI)

Overall, studies show that not all assessment tools for opioid misuse are equal in their prediction of ADRB or OUD. Written risk assessment tools have subtle differences that may allow them to be better suited for specific patient demographics, especially in areas that may have patients that are more likely to be less truthful in their survey responses or suffer from other medical problems (Jones et al., 2012).

This study aims to explore the differences between prescreening risk assessment tools currently available and stratify them based on criteria such as validity and ease of use. The research also seeks to determine which tools are currently used in practice, the barriers preventing widespread clinical implementation, and the factors important to medical providers when considering which assessment to use. Based on the data, this study aims to determine the best tool for assessing risk for opioid misuse in patients with chronic, non-malignant pain.

**Statement of the Problem**

Illicit use of opioids continues to increase globally and remains a threat to health, with misuse occurring in many countries. In the United States, it appears that the continued rise in illicit opioids is increasingly driven by the use of prescription synthetic opioids (Cicero et al., 2017). For the effective treatment and management of pain with prescription opioids, there needs to be a valid and reliable tool for identifying the at-risk population. Although several such tools are available, limitations have been noted (Cheatle et al., 2019).  Many are cumbersome, require too much time to administer, lack rapid scoring, or require healthcare staff to undergo extensive training and certification for administration. Additionally, some of the screening instruments are sub-components of other assessments, and some are deficient in that they fail to acknowledge SUD as chronic and relapsing, hence excluding persons who have not used opioids in the past year, such as those in recovery or detention (Wickersham et al., 2015).

**Inclusion/Exclusion Criteria**

The first part of this research study is a literature analysis to quantify and compare the screening tools currently used in clinical practice. The articles included needed to assess the sensitivity, specificity, and positive predictive value of the opioid screening tools used to estimate the risk of developing OUD and ADRB in patients being prescribed opioids for chronic, non-malignant pain. A screening tool had to be included in the assessment or comparison of the study. Articles needed to have been published after 2012, with a preference for articles published 2016 and later. Other requirements included peer-reviewed, published in English, and available via print or online sources. Patients in the studies had to be 18 years of age or older, of any gender or ethnicity, and suffering from chronic pain for more than three months, and receiving care from a primary care office or pain management practice. Articles that were excluded were those that involved patients with chronic illnesses such as cancer, or who were younger than 18 years, or suffered from pain less than three months.

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Additionally, the research also includes a qualitative aspect where physicians are requested to fill in a six-question online survey on different tools’ use and effectiveness (Table 1). The questionnaire was sent to the primary care and pain management providers working in Maryland. The eligible providers were identified through the Maryland Primary Care Program (MDPCP) and counted those who are participating in this program as of January 1, 2020. The participants have signed consent form agreeing to take part in the study. Both, the questionnaire and a consent form, were sent to the Towson University IRB. The Initial submission of protocol #XXX, "Pilot Study: Survey on the Use of Opiate-Misuse-Screening-Tools by Maryland Prescribers” was Exempt approved by the IRB Committee.

**Discussion**

The literature review examined the characteristics and efficacy of nine screening tools: BRI, BRQ, DIRE, ORT, ORT-OUD, PMQ, SISAP, SOAPP v.1, and SOAPP-R. While the results did not identify any single screening tool as being superior, several of the screening tools did show promise. The BRI had a high predictive value and the highest AUC among all nine tools with a modestly high sensitivity (Table 2) (Jones et al., 2014; Jones, Lookatch, & Moore, 2015; Jones, Schmidt, & Moore, 2015). The BRQ, on the other hand, had a high sensitivity, but the lowest specificity of all the tools (Jones, Lookatch, & Moore, 2015). While the ORT was found to be lacking in specificity and sensitivity, the revised ORT-OUD had a high overall sensitivity and specificity (Table 2) (Cheatle et al., 2019). The PMQ had the highest specificity as well as a high AUC, which makes it useful for confirming those not at risk of addiction, but has a low sensitivity, and thus cannot accurately predict those who will develop opioid misuse or abuse (Table 2) (Jones et al., 2012; Lawrence, Mogford, & Colvin, 2017). The purpose of the SISAP is to evaluate an individual’s history of abuse. While it has a high sensitivity and specificity, it does not assess the risk of opioid misuse and abuse in those without a prior history of abuse (Coambs et al., 1996). The SOAPP v.1 and its replacement the SOAPP-R, in addition to the DIRE and the ORT, were found to be inferior to the other screening tools in terms of predictive capabilities and overall value (Butler et al., 2009; Cheatle et al., 2019; Jones et al., 2012; Jones et al., 2015; Jones, Lookatch, & Moore, 2015; Moore et al., 2009).

**Literature Review Comparison**

Most studies defined opioid misuse as displaying ADRB, failing a drug urine test, or failing a pill count. However, while many of the studies had similar behaviors listed as ADRB, for example, a patient claiming that his medication was stolen or lost is commonly used, definitions for aberrant drug-related behaviors were not standardized across studies and as such can vary.  Additionally, it is important to note that while the listed behaviors often indicate drug misuse, no reliable evidence exists on accuracy of urine drug screening, pill counts, or [prescription drug monitoring programs](https://www-sciencedirect-com.proxy-tu.researchport.umd.edu/topics/medicine-and-dentistry/prescription-drug-monitoring-program). There is also little evidence on clinical outcomes associated with different assessment or monitoring strategies (Chou et al., 2009).

**Literature Review Limitations**

 The biggest limitation of our literature review was the lack of quality studies on opioid assessment tools. For several of the prescreening tools, we were only able to find one or two studies which evaluated their efficacy, and even among those studies we could find, the quality was not always ideal. As mentioned, defining aberrant drug behavior is subjective and was often unique to each study, which contributed to the variable results. Additionally, the populations evaluated within these studies were typically not diverse and were often taken from a convenience sample. For example, Cheatle et al. (2019) performed a study with patients from all around the country; however, it only allowed participants who were Caucasians of European descent. Several of our studies were from a single pain clinic in Tennessee conducted by similar groups of researchers (Jones, 2012; Jones, Schmidt, & Moore, 2015; Jones, Lookatch, & Moore, 2015). It therefore calls into question whether the results are generalizable to the public, or even comparable to results of other studies. This lack of quality may have contributed to the variable findings of the same assessment tools in different studies.

**Survey Summary**

The purpose of our survey was twofold: to reveal current trends in clinical practice and determine what characteristics providers would like to see in a screening tool. The survey revealed that while 89% of practitioners have some form of strategy to try to minimize opioid misuse, only 17% utilize opioid screening tools. The major reason providers gave for not using prescreening tools was their unfamiliarity with them. Surprisingly, only 43% of the responders were familiar with opioid misuse prescreening tools. Other reasons given were time constraints and uncertainty about the tools’ efficacy. Of the minority of providers who did use screening tools, the ORT and BRI were the most common; the SISAP and SOAPP were used as well. This corresponded with the greater amount of supporting literature for the ORT and BRI; however, data on the SISAP was lacking and out of date, and we were thus expecting it not to be used in modern practice. Additionally, we would have expected the updated SOAPP-R to be used over the SOAPP; however, the respondent specified that they used the original version.

Brevity was the number one feature providers indicated that they wanted in a prescreening tool. Other major desired features were that the tools be easy to remember, have high clinical efficacy, and be widely used in clinical practice.  The best screening assessment is the one that gets used, and given these results, we believe providers want something quick and easy to recall. If a screening assessment can meet these requirements, and have an adequate level of clinical accuracy, it would have a greater likelihood of being accepted into practice.

**Survey Limitations**

 When composing our survey, it was important that it be completely anonymous and confidential. Unfortunately, this emphasis on confidentiality had several drawbacks.  The results were given to us through a third-party software (Qualtrics XM), which only gave us aggregate results for each question without the ability to connect answers from the same respondent.  We were therefore unable to determine if there was any correlation between specialties and particular responses.

Additionally, we believe that the survey we sent out was further distributed among colleagues. Our research was intended to focus solely on primary care providers and pain management specialists, but we received several responses which seemed to come from Emergency Department and surgical practitioners, despite not reaching out to these specialties.

**Implications for Clinical Practice**

In this pilot study, 38 of 58 providers (56.9%) were unsure or unfamiliar with opioid risk screening tools. This finding was alarming to our group considering the magnitude of the problem. Steps must be taken to spread awareness of the tools and educate providers about their value in allowing clinicians to prescribe opioids with a greater degree of confidence.  Although each provider has individual needs and preferences, our survey elucidated general features that are commonly desired in a prescreening risk assessment tool.