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Prenatal Practice Staff Perceptions of Three Substance Use Screening Tools for Pregnant Women

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Abstract

Objective: There is a need to identify an acceptable and comprehensive substance use screening tool for pregnant women in the United States. This qualitative study sought to better understand prenatal practice staff perceptions of three existing substance use screening tools for use among pregnant women in an outpatient practice setting.

Methods: Eight focus groups with 40 total participants were conducted with clinical and administrative staff of two diverse Maryland prenatal practices in order to determine the acceptability and usability of three substance use screening tools (4P's Plus, NIDA-Modified Alcohol, Smoking and Substance Involvement Screening Test, and the Substance Use Risk Profile-Pregnancy scale).. The focus groups were digitally recorded, transcribed, coded, and analyzed using thematic analysis.

Results: Participant perceptions of screening tools were dependent upon screening tool length, tone, comprehensiveness, subjectivity, time frame of questions, and scoring and clinician instructions. Most participants preferred the 4P's Plus screening tool because it is brief, comprehensive, easy for the patient to understand, and excludes judgmental language and subjective questions.

Conclusions: These results provide valuable insight into the specific needs and preferences of prenatal practice staff as it relates to prenatal substance use screening and provides evidence that the 4P's Plus may be a preferred screening tool for standardized use in prenatal care.

Keywords

pregnancy; prenatal substance use; screening; qualitative research

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Introduction

Substance use during pregnancy is linked to negative health outcomes for both the mother and baby (Chang et al., 2017; NIDA, 2017). Despite these effects, many pregnant women in the United States use substances (Center for Behavioral Health Statistics and Quality et al., 2016). According to data from the 2016 National Survey on Drug Use and Health, 20% of pregnant women aged 15 to 44 years old self-reported use of illicit drugs, tobacco products, or alcohol in the past month.

Screening is necessary to identify substance use during pregnancy and provide women appropriate and early care. Prenatal practice staff are in a unique position to screen and provide care for substance use during pregnancy due to their multiple points of contact with patients throughout the prenatal period. However, for various reasons, practices often do not consistently include substance use screening in standard prenatal care (Chasnoff et al., 2001). While the American College of Obstetricians and Gynecologists (ACOG) strongly recommends universal substance use screening among pregnant women, and validated alcohol and tobacco screening tools have been recommended by the United States Preventive Services Task Force (USPSTF), there is no screening tool for illicit drug use or prescription drug misuse that has been recommended for use with pregnant women [ACOG, 2017; USPSTF, 2008; World Health Organization (WHO), 2014].

There is a need to compare existing substance use screening tools to determine which is more accurate in identifying substance use among pregnant women in the U.S, considered acceptable among their providers, and is easily integrated into prenatal care to increase substance use screening among this population. The quantitative portion of this study that compares and validates the accuracy of the three screening tools when compared with biologic testing is detailed elsewhere (Coleman-Cowger et al., in press). The three screening tools utilized in this study – 4P's Plus, NIDA Quick Screen/ NIDA-Modified Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), and Substance Use Risk Profile-Pregnancy scale (SURP-P) (Table 1)– were chosen because they are brief and are the only ones listed by the WHO to have been validated (though the ASSIST had not been validated with a pregnant population; our quantitative study did this with results reported in Oga et al., in press elsewhere) and allow for screening of multiple substances (Chasnoff et al., 2005; Humeniuk et al., 2008; WHO, 2014; Yonkers et al., 2010). This study is intended to be a qualitative companion to the quantitative study, examining the acceptability and feasibility of the screening tools' use in clinical settings by medical providers.

Methods

Eight focus groups were conducted in two diverse, urban University practices from September to November 2017. The focus groups were part of a larger prospective, cross-sectional study in Baltimore, MD with the aim of assessing the accuracy of three screening tools compared to biologic testing in identifying illicit drug use and prescription drug misuse among a diverse sample of 500 pregnant women.

A total of 40 practice staff participated in the focus groups from two sites. Staff who are responsible for administering or overseeing patient screening were recruited to participate in the study. Focus groups were conducted at eight pre-selected times (four options for Practice A and four options for Practice B), with practice staff selecting a group based on their availability. Focus group size ranged from 4 to 12 participants and separate focus groups were held for Practice A and Practice B staff. Nineteen of the participants worked within a practice serving a patient population that is mostly privately insured (Practice A) and 21 worked within a practice primarily serving low-income, Medicaid-eligible patients (Practice B). The participants held a range of positions including Clinical Social Worker, Staff Nurse, Medical Assistant, Clinical Nursing Supervisor, and Director of Practice Operations. The majority of staff from both practices had been employed by their respective practice for four years or less (Table 2).

This study was approved by the Institutional Review Boards of Battelle and University of Maryland, Baltimore. Participants were provided a written informed consent statement, which they read and signed prior to participating. Participants were provided copies of the three screening tools to review several days prior to the focus group and reference during the discussion. The moderator followed a semi-structured discussion guide that asked about initial reactions to the screening tools, perceived effectiveness for the population served, concerns about the screening tools, tool comprehensiveness, and tool usability in practice. The discussion guide also included questions asking participants to compare the screening tools. The discussion guide did not include specific questions about screening tool integration into electronic health record (EHR) systems to allow for organic discussion around this topic and varying levels of EHR integration at each practice. Each focus group lasted approximately 30 minutes, which was the length of time agreed to by practice administrators. Participants were provided a \$50 gift card incentive for their participation. Focus groups were audio recorded and professionally transcribed. An experienced moderator conducted each focus group with the assistance of a notetaker; qualitative research scientists completed the coding and analysis. A codebook was developed and refined based on study objectives and to capture relevant content (Table 3). Transcripts were coded and analyzed for themes using the NVivo 11 software program. An interrater reliability analysis was conducted using the Kappa statistic and equaled 0.77, which represents a substantial level of agreement between coders.

Results

Analysis revealed that practice staff perceptions of screening tool acceptability and usability were dependent upon several important factors. These factors included length, comprehensiveness, tone, subjectivity, time frame of questions, and scoring and clinician instructions. Considering all strengths and weaknesses of each screening tool, participants preferred the 4P's Plus for standardized use with pregnant women (Table 4).

Length

Length of the screening tool was an important factor in participants' screening tool preference. Practice staff stressed that providers have limited time with each patient and it

would be difficult to ask additional questions about substance use during patient visits. Participants from Practice B, which has a higher volume of patients, were particularly concerned about how screening tool length would impact their already limited time with patients. The NIDA Quick Screen/ASSIST was considered to be too long for implementation in a busy clinical setting. Referring to the NIDA Quick Screen/ASSIST, one participant said, “[It’s] too time consuming. And considering the other things that have to be done. And we have other screening tools that are significantly shorter.” Participants thought that this screening tool was comprehensive, but possibly more comprehensive than needed even for patients with moderate drug and alcohol use. While participants generally preferred brief screeners, sometimes brevity was associated with decreased usefulness. Participants felt that the SURP-P’s brevity was a strength, but also did not think the screening tool would yield enough information to be useful. For instance, a participant from Practice A said, “*it probably could be a little bit more detailed or have more questions.*” On the other hand, the length of the 4P’s Plus screening tool was found to be adequate and participants felt that the screening tool was able to assess important aspects of potential drug and alcohol use.

Comprehensiveness

Comprehensiveness was considered to be an important factor in determining a preferred screening tool. As with length, participants felt that the screening tools should strike a balance between being too simple or too in-depth. Consistently, the SURP-P was considered too simple and the NIDA Quick Screen/ASSIST was considered overly comprehensive. Focus group participants noted that the SURP-P only asks about marijuana and not other illicit or prescription drugs, which they thought was inadequate. Participants from both practices thought the 4P’s Plus was balanced in its simplicity and comprehensiveness. Participants liked that the screening tool asks about partner and family history and that it asks about the patient’s historical and current substance use. One participant from Practice A explained “*it doesn’t make the person central [...] it’s saying, ‘Well, maybe I do some of these things because of this.’ [...] To me, that makes it look like I would answer this one easier.*”

Tone

Tone was an important factor in participants’ screening tool preference. Participants viewed the use of judgmental language or tone in the screening tools as a weakness. Participants thought that judgmental language in the screening tool would lead to less honest answers from the patient and even refusals to complete the screening. While there was some consensus that the SURP-P’s first question felt nonjudgmental, some participants found the second and third question of the 3-question screening tool problematic in this area. These questions first ask if the person has ever used marijuana and then ask if the person has felt the need to cut down on their drug or alcohol use. Participants felt that these questions implied that if a patient uses, they should feel the need to cut down. Participants from both practices agreed that a strength of the 4P’s Plus was that it asks about parent and partner use first, and thus may reduce stigma or blame on the patient and encourage honest response. Judgmental language and tone were not mentioned in relation to the NIDA Quick Screen/ASSIST.

Subjectivity

The subjectivity of screening tool questions was another important topic that factored into participants' screening tool preference. Participants said that they preferred screening tools that include mostly objective questions rather than subjective questions that rely on patients' own subjective perceptions and assessment of their substance use. For example, the 4P's Plus screening tool asks, "In the past have you ever had any problems with beer/wine/liquor?" Participants felt that this question relies too heavily on the patient's own definition of "problems" to be useful in objectively assessing substance use. A practice B participant explained "*you could say, 'I may need to cut down but it's not a problem.'*" In contrast, the NIDA Quick Screen/ASSIST asks, "During the past 3 months, how often has your use of (drug name) led to health, social, legal or financial problems?" Participants thought that the later framing was more clearly defined and improved the objectivity and value of responses. Subjectivity was not discussed in reference to the SURP-P.

Time Frame of Questions

The time frame of screening questions was an important factor in participants' screening tool assessment. Each screening tool asks about substance use during varying time frames. For example, the SURP-P screening tool asks about "ever use" and "in the month before you knew you were pregnant." The NIDA Quick Screen/ASSIST uses the framing of "in the past year" for some questions, but also asks about "lifetime" use and use in the "past three months." The 4P's Plus mainly asks about "the month before you knew you were pregnant" and "in the last month." Overall, focus group participants disliked that the screening tools asked about substance use in more than one time frame. Some thought that focusing only on the month before the patient knew of her pregnancy might not detect all patients using substances since it asks about such a narrow time frame. There were also concerns that asking about lifetime use, as the SURP-P and NIDA Quick Screen/ASSIST do, particularly of marijuana which is commonly used in a lifetime among the general population, was too broad to detect problematic usage. For example, a practice B participant said "*If I am 75% of this population, I am going to be at moderate risk because 75% or more of us have tried marijuana at some point in their life*" according to the SURP-P. Asking about use over the past year, as the NIDA Quick Screen/ASSIST does, was viewed by Practice A participants as too long of a time frame for patients to accurately recall. Participants from both practices preferred when the screening tools asked about "last month" use and use during and before pregnancy. The 4P's Plus most consistently asks questions in this way.

Scoring and Clinician Instructions

Focus group participants found the scoring and provider instructions for each of the screening tools problematic. Overall, they found a lack of clear instructions for the administrator of the screening and were confused about screening tool scoring. On the NIDA-Quick Screen/ASSIST, participants from Practice B were confused by the instructions asking patients about the "first drug, second drug, etc." they reported using. Participants from both practices did not think that the skip pattern instructions on the SURP-P were logical. Furthermore, several participants found the SURP-P scoring system, which classifies patients as "low," "moderate," or "high risk," confusing. One participant stated, "*The*

wording of the scoring classification is horrendous. It is not user-friendly. I had to read it a few times to fully understand exactly what it was asking. And looking at it again, I'm actually still not sure exactly what it's asking." There were concerns that the low, moderate, and high-risk categories are not well defined and group patients into stigmatizing categories. As one participant said, *"You're kind of causing a little conflict where the ideas of racism, division, all these things are coming into play just in the way things are worded in your scoring."* Finally, participants from Practice A found the 4P's Plus instructions confusing and explained that it is unclear when providers should provide education or follow-up intervention based on the screening tool results.

Comparison with Current Screening Practices

Participants were asked how the screening tools compare to their current screening practices for substance use among pregnant women. Participants reported that they already screen their patients for substance use using various tools and felt that the three screening tools were similar to their current practices. At Practice A, participants explained that new prenatal patients are first screened for alcohol, smoking, and illicit drugs over the phone before their first visit as part of the ACOG Obstetric Medical History. This form asks about drug and alcohol use in the past two months and specifically about current and past tobacco use, alcohol use, and "street drug" use since last menstrual period. Patients are then screened by a Medical Assistant in person at their first prenatal visit by asking yes or no questions regarding current tobacco, alcohol and drug use during intake. At Practice B, participants said they screen all patients using the Maryland Department of Health and Mental Hygiene's Maryland Prenatal Risk Assessment, the Adult SBIRT Screening Questionnaire, and biochemical urine tests for nine different drugs. The Prenatal Risk Assessment asks generally about alcohol, tobacco, illegal drug, and prescription drug use but does not provide specified wording for the questions. The Adult SBIRT Screening Questionnaire is a self-administered screener that asks about alcohol use using visual aids and illicit and prescription drug use within the past 12 months. Staff from Practice B noted that the practice is compensated for completing the Maryland Prenatal Risk Assessment and it would therefore be disadvantageous to not use that screening tool. Participants from both practices recognized that their current screening tools are not as detailed or thoroughly focused on substance use as the three validated screening tools examined in this study and the results are not consistently followed-up with interventions or referrals. Finally, focus group participants acknowledged concerns with the use of any screening tools, including currently used tools. Participants felt that their patients may not be honest on any screening tool because they believe there will be serious consequences (i.e., children being removed from the home) if they admit substance use.

Discussion

In this study, we sought to assess prenatal practice staff perceptions of three screening tools in order to help identify an acceptable and easy-to-use substance use screener for use with pregnant women. Each of the screening tools we selected for this study have been validated, with acceptable sensitivity, specificity, and positive/negative predictive value (Coleman-Cowger et al., in press), thus understanding how clinical staff perceive each of these tools is

important for integration into clinical practice. Overall, the 4P's Plus was the preferred screening tool by the staff from both practices. There were a few participants who preferred the SURP-P because of its short length and thought that it would lead to more honest reporting as a result. In one focus group, a few participants preferred the NIDA Quick Screen/ASSIST because they felt it was the most comprehensive of the three screening tools. For most participants, the 4P's Plus achieved the right balance of length and level of detail. Additionally, participants explained that they preferred the 4P's Plus because it would be easy for patients to understand and largely includes non-judgmental language. Participants felt that through asking about parental and partner substance use and about substance use "before [the patient] knew [they] were pregnant," this screening tool may relieve stigma or patients' feelings of blame for their substance use and encourage truthful responses. Some participants also preferred the 4P's Plus because, unlike the other two screening tools, it does not include questions that rely on the patient's subjective opinion of whether substance use is a "problem" in their life.

Along with identifying a preferred screening tool among prenatal practice staff, this research also provides insights into challenges and lessons learned on substance use screening among pregnant women in outpatient settings. Focus group participants revealed that barriers to consistent and standardized screening include the lack of time that providers have with their patients and confusing screening tool instructions and scoring systems. To address these barriers, it is recommended that practices provide screening administrators detailed training on screening tools to promote consistent and effective use. Some focus group participants suggested it would be more time efficient for the instrument to be incorporated into electronic medical record systems (versus paper administration) or be self-administered by the patient. However, the instruments assessed in this study have not been validated for self-administration.

As revealed during the focus group discussion, there is a real concern among medical staff about patients' perception of punitive approaches to substance use identified during pregnancy. Currently, 23 states and the District of Columbia consider substance use during pregnancy to be child abuse and require health care professionals to report suspected prenatal substance use (Guttmacher Institute, 2019). It will be important to mitigate these concerns in truthful and direct ways if a standardized screening tool is implemented systematically in a clinical setting. As standardized screening is adopted more broadly, these punitive approaches, which have proven largely ineffective in reducing substance use during pregnancy, should be replaced with public health strategies focused on improving access to public services, evidence-based treatment, and keeping families intact (Hui et al., 2017; Lester et al., 2004).

There are several important limitations to this study. Since this study was conducted in one geographic area with a relatively small sample, results may not be generalizable to other prenatal practices. However, the inclusion of two outpatient clinical settings in a diverse, metropolitan area that serve varied patient populations with regard to race, insurance status, and socioeconomic status allowed for the collection of a range of opinions. The fact that all participants were women limits our understanding of how results may differ by gender, although likely reflects the general make-up of obstetric practices. Furthermore, staff in

supervisor roles sometimes participated in the same focus groups as their subordinates in order to garner opinions from the administrative and management perspective and to ensure adequate attendance for the groups. This difference in status may have influenced participant responses. Finally, due to limited practice staff availability, some focus groups had fewer participants than typically preferred. However, overall, we still managed to obtain the opinions of a large proportion of practice staff and of staff in various roles. Despite these limitations, this study provides important insight into the needs and preferences of staff in an outpatient clinical setting as it relates to prenatal substance use screening and specifically identifies the 4P's Plus as a promising substance use screening tool for standardized use in prenatal care.

Conclusions

Results showed that the 4P's Plus was overall the preferred screening tool by focus group participants. Quantitative data collected and reported elsewhere¹ found that the 4P's Plus performed better than other screening tools in correctly identifying prenatal substance use. Combined with qualitative data presented herein, the 4P's Plus should be considered as both an acceptable and useful substance use screening tool during pregnancy.

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¹This paper, titled "Prenatal Screening for Substance Use: Diagnostic Validity of Three Screeners among Pregnant Women" reports overall results for the study and is currently under review.

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Table 1:Pregnancy Drug Screeners[#]

SCREENER	QUESTIONS
SURP-P ^a	1 Have you ever used marijuana?
	1 How many alcoholic drinks have you consumed in the month before knowing you were pregnant?
	1 Do you feel the need to cut down on your alcohol or drug use?
NIDA Quick Screen-ASSIST	
Quick Screen ^b	1 In the past year, how often have you used the following? <ul style="list-style-type: none"> a. Five or more alcohol drinks in a day for men or 4 or more alcohol drinks in a day for women, b. tobacco products, c. prescription drugs for non-medical reasons, and d. illegal drugs.
ASSIST ^c	1 In your lifetime, which of the following substances have you used? (response options of yes or no);
	1 In the past three months, how often have you used the substances you mentioned? (response options of never, once or twice, monthly, weekly, and daily or almost daily for items 2–5)
	1 In the past three months, how often have you had a strong desire or urge to use (each substance)?
	1 (During the past three months, how often has your use of (each substance) led to health, social, legal or financial problems?
	1 During the past three months, how often have you failed to do what was normally expected of you because of your use of (each substance)?
	1 Has a friend or relative or anyone else ever expressed concern about your use of (each substance)?
	1 Have you ever tried to control, cut down or stop using (each substance)?
	1 Have you ever used any drug by injection?

^aScoring involves classifying the number of alcoholic drinks consumed in the month before pregnancy as none versus any, and then counting the number of affirmative items. Negative responses for all items yields a low-risk individual, one affirmative response yields a moderate risk individual, and two or three affirmative responses yield a high-risk individual.

^bResponse options for each substance are: never, once or twice, monthly, weekly, and daily or almost daily. For purposes of validation, both the Quick Screen and ASSIST were given to all participants to complete.

^cSubstances assessed are: tobacco products; alcohol; cannabis; cocaine; amphetamine-type stimulants (ATS); sedatives and sleeping pills (benzodiazepines); hallucinogens; inhalants; opioids; and “other” drugs.

[#]4P’s Plus questionnaire not included because it is covered by copyright. The researchers purchased a license to administer to participants.

Table 2.

Participant Characteristics

Characteristic	Practice A [*] % (n=19)	Practice B % (n=21)
Position/Job Title		
Manager/Director	11% (2)	10% (2)
Nurse	11% (2)	14% (3)
Certified Medical Assistant	26% (5)	29% (6)
Other [†]	53% (10)	48% (10)
Duration of Employment at Practice		
0–4 years	67% (12)	62% (13)
5–10 years	0% (0)	33% (7)
>10 years	33% (6)	5% (1)

* One participant from Practice A did not provide information about duration of employment at the practice, therefore n=18 for this variable.

[†] Positions grouped under “Other” include Medical Representative, Clinical Scheduler, Surgical Scheduler, Medical Records Clerk, Generalist Assistant, Referral Coordinator, Clinical Social Worker, and Phlebotomist.

Note: Percentages may not total 100% due to rounding.

Table 3.

Codebook

Category/Code	Description
Screening tool	Coding category to identify comments about specific screening tools
4 P's Plus	All comments related to 4P's Plus screening tool
NIDA Quick Screen/ASSIST ¹	All comments related to NIDA Quick Screen screening tool
SURP-P ²	All comments related to SURP-P screening tool
Why preferred	Comments related to why the participant prefers a specific screening tool, including positive and negative comments or why the participant did not prefer other screening tools
Screening tool strengths	Coding category to identify comments about screening tool strengths
Implementation strengths	Comments related to how a screening tool could work well in a practice setting
All other strengths	Comments related to screening tool strengths, unrelated to implementation
Screening tool weaknesses	Coding category to identify comments about screening tool weaknesses
Implementation weaknesses	Comments related to how a screening tool would not work well in a practice setting
All other weaknesses	Comments related to screening tool weaknesses, unrelated to implementation
Current screening tools/processes	Comments related to current screening tools being used to detect alcohol and drugs (including prescription drugs); comments related to who conducts screenings and when patients are screened
Issues related to population served	Comments related to screening tool appropriateness for a specific population
Comparison of screeners	Comments related to why a screening tool is better/worse than others
Suggested changes	Comments related to suggested changes for administering a screening tool, the screening tool itself, or any other comments about how a screening tool could be implemented in a practice setting

¹NIDA-Modified Alcohol, Smoking and Substance Involvement Screening Test²Substance Use Risk Profile-Pregnancy Scale

Table 4.

Screening Tool Perceived Strengths and Weaknesses

Screening tool	Strengths	Weaknesses
4P's Plus	<ul style="list-style-type: none"> • Brief • Comprehensive • Nonjudgmental language and tone 	<ul style="list-style-type: none"> • Some subjective questions • Asks about substance use in a narrow time frame • Some confusing instructions
NIDA Quick Screen/ ASSIST ¹	<ul style="list-style-type: none"> • Comprehensive • Excludes subjective questions 	<ul style="list-style-type: none"> • Too long • Asks about substance use in a broad time frame • Some confusing instructions
SURP-P ²	<ul style="list-style-type: none"> • Brief 	<ul style="list-style-type: none"> • Not comprehensive • Asks about substance use in a broad time frame • Some judgmental language and tone • Some confusing instructions

¹NIDA-Modified Alcohol, Smoking and Substance Involvement Screening Test²Substance Use Risk Profile-Pregnancy Scale