Reviewer’s report

Title: Testing a novel, computerized screening and brief intervention for alcohol and sweetened beverage use in pregnancy

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Reviewer: D Paul Moberg

Reviewer’s report:

This article addresses the design, feasibility, acceptability and validity of a very brief computerized “screening and brief intervention” (SBI) program targeting pregnant women participating in a WIC clinic. SBI services in primary care and public health settings have been demonstrated to be effective in reducing levels of risky drinking, although most SBI studies have been conducted using clinicians to conduct brief interventions. In addition, most studies have also included “referral to treatment” (hence SBIRT) for individuals whose screening results suggest diagnosable substance use disorders. The demands on clinical staff and the disruption of routine procedures have hampered the sustainability of universal SBIRT models in primary care settings, so effective non-intrusive computerized models are an important option for testing. Avoidance of alcohol use is particularly important for pregnant women, given the potential teratogenic role of alcohol as a cause of developmental disability (fetal alcohol effects, fetal alcohol syndrome disorders, and full-blown fetal alcohol syndrome).

The authors designed and pilot tested a computerized system to obtain self reports of alcohol consumption during and before pregnancy, assess quantity (via size of vessel) and frequency of alcohol consumption, and provide normative feedback on use patterns and goal setting. (Presumably the feedback provided by the computer system serves as a brief intervention, intended to reduce or eliminate use, at least while pregnant.) There was also a branch of the program to assess sugar sweetened drink intake (to reduce gestational diabetes and excessive weight gain), and apparently a branch on drug use which is not discussed in the paper.

Feedback on the program itself was also obtained from women completing the sequence of the screener. The computer was available in a kiosk in the waiting room of the clinic.

Results in the form of feedback on acceptability, ease of use, and learning provided by the women who completed the SBI program were quite favorable. A higher rate of alcohol use while pregnant was reported by the women using the SBI program (21%) than was recorded by WIC staff in records of similar patients (13%), suggesting “validity” of results. However, these data are provided dichotomously so no comparison of quantity or frequency of use (beyond a few who had just a sip) is possible.
Critique:

This is an important topic of major public health significance. Building efficient mechanisms for universal and targeted screening for risky substance use, as well as for risky nutritional behaviors (as well as mental health issues, tobacco use, and obesity), can have a significant impact if the screening is followed by effective brief intervention which leads to even small behavioral changes. However, for SBI(&RT) to be productive, there needs to be a fairly high penetration (reach) of the target population, an effective brief intervention, and follow-up care to monitor and support behavior change. My concern is that the authors fail to address these issues and fail to discuss them as limitations or even as necessary next steps for their research.

This is a very interesting and important pilot effort, but much more information is needed before it should be replicated and broadly disseminated. Some of the needed information may be available but not reported in the present manuscript; other data needs to be generated in future studies. The danger is that easy to use and implement programs such as this one could substitute for possibly more effective approaches to providing SBI (&RT), setting a very low bar for what is increasingly recognized as a critical healthcare practice.

Major Compulsory Revisions

1. Reach: It is not clear how many of the eligible women in the clinic actually used the SBI program. My inference from data provided in the text and tables is that it is very low. About 800 women per month use the clinic; the intervention was available for 7 months and completed by 251 women. Thus reach may be as low as 251 of 5600 = 4.5%. This issue of penetration of the target population is essential to address in a revision by the authors. Figure 1 should include this entire eligible target population as the first entry to provide a true picture of reach. Informed consent only occurred after an individual chose to use the system, as I understand the study. For SBI, fairly large reach of the target population is essential.

2. Brief Intervention: More detail is needed on the “personalized plan” for reducing consumption. This is the critical brief intervention component. More detail on how it was individualized and what was included would be helpful in assessing likely effectiveness. Did the intervention differ for women who only report pre-pregnancy alcohol use versus those who report use while pregnant? What sort of advice was provided, and how much of it was individualized to individual circumstances?

3. Behavioral outcome: It is important to include in the limitations section a lack of any real outcome data, which is critical to any assessment of this approach. While beyond the scope or intent of the present paper, it is important to suggest and plan for future outcome assessment for this program.

4. Validity: Even if more alcohol use is detected in the sample of users of the SBI program than in the general WIC population (considered by the authors to be a
validity measure), a number of alternative explanations for this result are available. I am not convinced that the detection rate is a good measure of validity, since it may reflect just an under-recording in the WIC records and/or hesitance to admit alcohol use by this population in face to face situations with a power figure.

There is also a potential of selection bias, particularly since women with higher education attainment are more likely than those with less education to use alcohol, and the users of the SBI were of higher educational attainment that the general population of WIC clients.

Discretionary Revisions:

5. I am curious why the size of the beverage container is considered relevant for this screening given the general agreement that any alcohol use by pregnant women is to be avoided. It would seem that a simple estimate of any drinking, and for women who drink the number of drinking occasions and an estimate of the number of drinks would be more than adequate. For the professed screening purposes with pregnant women, details on the size of serving seem to be more precision than is necessary. Assessing whether an individual’s drinking reaches risky levels among those who drank before pregnancy may warrant the additional precision, but it does not seem that that was done in this program. Data were collected on number of drinking occasions and number of drinks by size of drink and type of beverage, but not reported in the manuscript. There apparently was also data on drug use which is not reported. These data would be of interest from an epidemiological perspective—if the sample size were larger. The tables all treat alcohol use as a dichotomy.

6. Tables do not need to include both the percent and the n in each cell. If there is an n at the head of the column, the reader could calculate the n for each cell based on the percent entered. This would make the tables easier to follow.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.