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Feasibility and Preliminary Responses to a Screening and Brief Intervention Program for Maternal Mental Disorders Within the Context of Primary Care

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Abstract There is little evidence of the feasibility and acceptability of integrating screening, brief intervention and referral to treatment services that address depression and alcohol, tobacco and other drug (ATOD) use into antenatal care in South Africa. Data were extracted from program records on the number of eligible women screened and number meeting criteria for depression and self-reported ATOD use. 70 women completed a questionnaire examining their preliminary responses and five MOU personnel were interviewed to identify potential barriers to implementation. Of the 3407 eligible women, 1468 (43 %) women were screened for depression or ATOD use, of whom 302 (21.4 %) screened at risk for depression, 388 (26.4 %) disclosed smoking tobacco, and 29 (2 %)

disclosed alcohol or other drugs (AOD). Seventy participants completed the three month follow-up interview. Depression scores decreased significantly following the intervention ($t(69) = 8.51, p < 0.001$) as did self-reported tobacco use ($t(73) = 3.45, p < 0.001$), however self-reported AOD use remained unchanged.

Keywords Service delivery · Maternal mental health · Tobacco, alcohol and drug use

Background

Mental health problems such as depression and substance use disorders are highly prevalent in low and middle income countries (LMIC) such as South Africa (SA). Studies investigating the prevalence of perinatal depression in SA have yielded results ranging from 17 to 47 % during pregnancy (Rochat et al. 2011; Rotheram-Borus et al. 2011) and between 16 and 35 % in the postnatal period (Cooper et al. 1999; Ramchandani et al. 2009). Other studies have highlighted high levels of alcohol, tobacco and other drug (ATOD) use during pregnancy. For example, one study reported that 46 % of women of mixed ancestry smoked tobacco throughout pregnancy (Petersen et al. 2009). Additionally, a representative survey among pregnant women attending public sector antenatal clinics in the Cape Town area, reported that 8.8 % tested positive for at least one illicit drug with urine analysis. This is higher than the self-reported prevalence (3.6 %). In addition, 19.6 % tested positive for alcohol which is lower than the self-reported prevalence (36.9 %) (Petersen Williams et al. 2014).

Undetected and untreated mental health problems pose significant risks for maternal well-being and infant health.

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In addition to several adverse obstetric impacts for the mother (Rahman and Creed 2007), there is a growing body of literature suggesting that untreated depression during pregnancy may have adverse and long-lasting physical, cognitive, and emotional effects at every stage of childhood development. Smoking tobacco, using illicit drugs and drinking alcohol during pregnancy also leads to poor birth outcomes such as low birth weight, preterm birth, placental abruption and stillbirth (Cnattingius 2006; Paz et al. 2009). The most severe consequences of alcohol use during pregnancy are the fetal alcohol spectrum disorders (FASD), with studies conducted in the Western Cape revealing the highest ever prevalence of FASD ever reported (May et al. 2000, 2007; Viljoen et al. 2005).

The association between untreated maternal mental health problems and poor birth and infant health outcomes are of great concern in SA; a country with high neonatal mortality and infant morbidity rates. Although untreated maternal mental health disorders may make it more difficult for SA to meet its millennium development goals for maternal and child health, SA lacks a comprehensive prevention strategy for addressing the devastating consequences of common mental disorders among pregnant women. Pregnant women experience more difficulties in accessing ATOD and mental health services than non-pregnant women, largely due to a lack of programs that are tailored to meet the specific needs of pregnant women and the potential stigma associated with pregnant women's use of these services (Jones et al. 2011). For example, ATOD services are largely absent from midwife obstetric services (MOU) in SA (Everett-Murphy et al. 2010; Jones et al. 2011). As MOUs are located in primary health care clinics within impoverished communities and provide pregnant women from these communities with free, publicly funded antenatal, delivery, and postnatal services, they are an ideal point for engaging women with maternal mental health problems into care. At most, these MOUs provide pregnant women with some basic psycho-education about healthy pregnancies and advice to quit using ATODs while pregnant, and informally monitor risk for post-partum depression. With the growing concern regarding the potential impact of maternal mental disorders on pregnancy outcomes, a strong case can be made for integrating screening, brief interventions and referral to treatment (SBIRT) for common mental disorders into these MOUs so that pregnant women with these risks for poor pregnancy outcomes can be detected and immediately assisted at their usual place of care.

There is substantial literature showing that SBIRT, particularly for substance-related problems, is both effective and feasible to integrate into primary health care services (Madras et al. 2009; Bing et al. 2001; Bernstein

et al. 2005; Estee et al. 2010; Babor et al. 2007). Given the scarcity of mental health professionals working in these settings in LMICs (Lund et al. 2010), task-shifting SBIRT from health professionals to peer counsellors has been proposed as one strategy for overcoming human resource limitations in SA and other similar LMICs (Petersen et al. 2012). SBIRT for alcohol has been shown to be feasible and acceptable when delivered by peer counsellors in primary care services in SA (Peltzer et al. 2008; Myers et al. 2012), and there are some promising findings for the effectiveness of peer-delivered SBIRT for addressing smoking among pregnant women attending MOUs in the Western Cape (Everett-Murphy et al. 2010). Yet, a Cochrane review found that although the evidence from few studies available suggests that psychological and educational interventions may result in a reduction in alcohol consumption among pregnant women these results were inconsistent (Stade et al. 2009).

Therefore, little is known about the feasibility of implementing SBIRT for maternal mental health problems within MOUs in LMIC countries. This paper begins to address this gap by reporting findings from a process evaluation of an on-going SBIRT programme targeting common mental disorders among pregnant women attending an MOU located within a large disadvantaged community in Cape Town. More specifically, this paper aims to describe (1) the feasibility of integrating SBIRT among women presenting to antenatal care at this MOU, (2) women's initial responses to the SBIRT programme, and (3) healthcare providers' perceptions of barriers and facilitators to integrating SBIRT into MOU services.

Methods

Context of the Programme

In an effort to address mental health risks for poor pregnancy outcomes, several stakeholders (including the Department of Health (DoH), South African Medical Research Council and the University of Cape Town) developed a SBIRT model that targets women presenting to MOUs for their first antenatal visit, (locally referred to as the booking visit). The rationale for this programme was that mental disorders among pregnant women should be addressed at the same site where they receive antenatal care. This is because even the poorest and most vulnerable women in SA utilize the free antenatal services provided at the widely available MOUs. Also, women in the antenatal period have increased contact with health providers compared to other times in their lives.

Site and Programme Description

A large MOU located within a disadvantaged community was selected as a pilot site for this programme as it serves a patient population that reflects the socio-demographic heterogeneity (in terms of ethnicity and socio-economic status) of the region. As part of their initial first contact with antenatal care, all pregnant women attending the MOU are screened for depression by the nurse responsible for recording their medical history. Women are screened using the Edinburgh Postnatal Depression Scale (EPDS), a ten-item scale that is used to assess for depression and anxiety during pregnancy and post-partum (Cox et al. 1987). Women who score 15 or more on the EPDS are considered at risk for depression and are referred to psychiatric services for further assessment and care.

Following this initial screening, women are referred to the HIV counsellors based at the MOU who are responsible for conducting HIV testing and counselling (HCT). In addition to HCT, these counsellors use the Fagerström test for tobacco dependence (Fagerstrom et al. 1990) and the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) (WHO Assist Working Group 2002) to screen the patient for ATOD use. The ASSIST allows patients to be placed in low, moderate and high risk categories depending on the severity of their substance use. The HIV counsellors provide all women who screened positive for depression and/or any ATOD use with the 5A brief intervention.

This brief intervention is based on the '5 As' Smoking Cessation Clinical Practice Guidelines, an intervention specifically adapted for use with pregnant women. The 5A's for tobacco cessation consists of the provision of a 10–15 min counselling session by a trained provider that consists of five steps: asking the patient about their tobacco use, advising every tobacco user to quit; assessing the patient's readiness to change; assisting willing patients to quit, and arranging a follow up visit to assess the patient's success in quitting. Not only is the 5As intervention regarded as the best practice for brief tobacco cessation counselling, but has been shown to be effective in the South African context (Everett-Murphy et al. 2010). At the present time, there is no evidence on the 5A's or motivational interviewing for treating alcohol and other drug use. However, since similar brief interventions based on motivational interviewing techniques have been shown to be effective in reducing hazardous and harmful drinking (Rubak et al. 2005), this intervention could be effective for reducing alcohol use. In addition, as research has shown that any psychotherapy (or talk therapy) can be effective for mild to moderate depression in pregnancy (Dennis and Hodnett

2007) this intervention may hold some benefit for women with symptoms of maternal depression. Following the brief intervention, patients who screened at high risk for substance-related health problems and who were likely to have a substance use disorder were referred for further care to specialist substance abuse treatment centres.

Process Evaluation Design and Procedures

This process evaluation employed a mixed methods design comprising three components: (1) a quantitative part that examined the feasibility of screening pregnant women for depression and ATOD use as part of routine care, (2) a quantitative aspect that assessed patients' preliminary responses to the intervention, and (3) a qualitative aspect that examined MOU personnel's preliminary responses to the intervention and their perceptions of barriers and facilitators to the effective delivery of the SBIRT programme in this setting.

For the first part of the evaluation, data were extracted from programme records on the number of women presenting to the MOU for their first booking visit, the number of women screened for depression and ATOD use, the number of women who screened at risk for a mental disorder and the number of women referred to specialized (psychiatric and substance use services). For the second part of the evaluation, women who screened at risk for depression and/or ATOD use were contacted 3 months after participating in the SBIRT programme by a research assistant and where the EPDS, the Fagerström and/or the ASSIST were re-administered as appropriate. These patients were also asked questions about the perceived usefulness and impact of the SBIRT programme.

For the third part of the evaluation, in-depth interviews, guided by a semi-structured questionnaire, were conducted with five MOU personnel involved in delivering the SBIRT programme. These interviews were audiotaped and transcribed verbatim before the textual data were analysed using qualitative techniques. Qualitative data analysis was conducted using the framework approach (familiarization, identifying a thematic framework, indexing, charting, mapping, and interpretation of the data) (Pope et al. 2000). Initially, interview transcriptions were read for emergent themes, which were then coded. Care was taken to ensure the codes accurately captured the respondent's meaning. A second researcher independently coded the interviews to ensure validity of the categories. We used NVivo 9.0, a qualitative software program for data analysis. Ethics approval for the evaluation was provided by the Research Ethics Committee from the University of Cape Town's Faculty of Health Sciences.

Results

Feasibility of Integrating SBIRT into MOU Services

Over a period of 6 months (August–January 2013) a total of 3407 women presented at the MOU for their first booking visit. Of these, 1468 (43 %) women were screened for maternal mental disorders. A majority of the women were 26 (range 16–46) years of age, of mixed ancestry ($n = 1007$, 68.6 %) and single ($n = 838$, 57.1 %).

Of the 1468 women who were screened, 302 (21.4 %) met criteria for depression according to the EPDS, 388 (26.4 %) disclosed smoking tobacco, and 29 (2 %) disclosed alcohol and other drug use. Of the 302 who met criteria for depression, only 15 (5 %) were referred for further treatment, with the majority of these women requiring immediate care due to risk of suicide. All of the 388 women who disclosed smoking tobacco received a quit newspaper (one component of the self help materials provided), while 164 (11.2 %) received a self-help quit guide. None of the women who screened positive for ATOD use were referred for specialized substance use treatment.

Women's Preliminary Responses to the Intervention

Seventy of the 302 participants who screened at risk for depression at baseline completed the 3 month follow-up interview. EPDS scores decreased significantly following the intervention (pre-intervention mean 18.160 ± 2.5 , post-intervention mean 11.94 ± 5.78 , $t(69) = 8.51$, $p < 0.001$). Of the 388 women who scored >1 on the Fagerström test at baseline, 74 completed the 3 month follow-up interview. Results indicated that participants significantly decreased their tobacco use following receipt of the 5A's intervention and psycho-educational materials (pre-intervention mean 18.160 ± 2.5 , post-intervention mean 4.24 ± 1.75 , $t(73) = 3.45$, $p < 0.001$). Of the 29 women who disclosed alcohol and drug use, 15 completed the follow-up interview. Among these women, there was no significant reduction in alcohol and drug use following receipt of the intervention.

MOU Staff's Perceptions of Barriers and Facilitators to Deliver SBIRTs for Maternal Mental Health

Of the five MOU personnel who participated in this aspect of the evaluation, two were intake nurses, two were HIV counsellors and the remaining person was the mental health champion. Although all of the respondents were in favour of the continuation of this pilot SBIRT programme, they did identify areas in which the programme could be enhanced.

General Views of SBIRT

Overall, all of the MOU personnel felt that SBIRT was useful for increasing the quality of mental health services provided by the MOU as it provided personnel with an evidence-based intervention that could be used to assist women with these health risks and practical support materials for women attempting to change these risks. The following comment illustrate these benefits:

Previously you could just explain to somebody look here, this is what the smoking does, and this is why you should stop, but you never had any, there was nothing evidence based to say look here this is it, but with the Quit newspaper you can actually show them look here, this is what the lungs look like. And here is some help for you to stop this. This acts as support for you, the Quit guide, acts as support for you to help to enable you to stop

All of the respondents reported an increase in their workload following the implementation of SBIRT into the antenatal services. The programme did not increase the workload of all MOU staff members, only those who played an integral role in screening, providing the brief intervention and/or referral to specialised services. This was particularly the case for the mental health champion, who was solely responsible for referring patients with depression for additional care. This impacted the potential sustainability and effectiveness of SBIRT, as reflected through the following statement:

It has taken up a lot of my time. It's burdened my work load quite a bit, because the counsellors would only come to me if there was a problem or a patient that needed to be referred. It would also come back to me. And I think when I was on leave, no one was sent anywhere. There was no Edinburgh that went through the clinic, but when I got back it all started up again. Also, the counsellors work load has probably increased, but they never complained or said they didn't have time

Preparation, Training and Support for SBIRT

All of the participants felt that they were not adequately prepared and informed about the proposed SBIRT programme prior to participating in the training. Initially, they were unaware that they were expected to implement a new intervention and thought that the training was about increasing knowledge and awareness. Consequently, two participants mentioned not paying attention during the training. One nurse gave an example of this poor communication:

The training was OK. I am not sure whether I was told that I was going to be running with this at the time. So, I don't think I was paying much attention there. But, I think I regretted it afterwards, cause then I was told what my role was and then I realized I should have been paying attention.

In terms of the adequacy of the training, three of the five personnel felt that the training was sufficient enough to equip them to implement SBIRT in the MOU. To illustrate, one counsellor noted:

It was really helpful. Because I didn't know you see about all those things. I only knew that smoking was wrong for the pregnant women, but I didn't really know what the smoking can cause and how it can harm the baby and all those things. And also the drugs. It opened my eyes.

All respondents felt supported by the management in the hospital and the research and training team to implement the SBIRT programme. This is reflected in the comment below.

It has been different than other projects. I have never been in as much meetings as I was for this project. And also, there is continuous evaluation. It does help, because you (the monitoring and evaluation team) obviously call the women to check what is happening and what is going on and things. And also, what has been happening is some of the ladies would actually come back and say thank you. It has helped. Or I still need some help with this.

Perceived Barriers to the Successful Implementation of SBIRT

Despite the overall positive attitude towards SBIRT the service providers described two barriers that hindered the successful implementation of the programme. These relate mainly to a lack of referral pathways for high risk women and concerns over women's disclosure of alcohol and drug use.

All of the providers reported that SBIRT was very challenging to implement without a sustainable referral pathway in place, particularly for women who screened at high risk for depression. Although the protocol highlighted that all women who screened positive for depression should be referred for further assessment and care, it appears that only women who disclosed suicide ideation when the EPDS was administered and required immediate attention, were referred for specialized psychiatric services. According to respondents, the main reasons for this was a lack of specialist psychiatric services in the area, including

within the primary health centre and nongovernment organisations (NGOs) serving the local community.

Patient reluctance to disclose alcohol and drug use was another barrier to the effective delivery of SBIRT in antenatal care. Although in a few cases, the counsellors felt that the patients were comfortable disclosing their alcohol and drug use, there were times where it was obvious that the patient was withholding information. One counsellor thought that patients might be concerned that disclosing illicit drug use could result in their baby being removed from their care. This is conveyed through the following statement:

With the smoking they are more open because that is the normal thing for them, but with the other their first question usually, the ones that are open about tik (methamphetamine), they are scared that their babies are going to be taken away from them. So, I think the others, that don't disclose they are scared that their babies are going to be taken away from them because somewhere they heard that they will be taken away.

Discussion

This paper is among the first to examine the feasibility and acceptability of integrating SBIRT for depression and ATOD use within publicly funded antenatal services in a LMIC. Findings reveal that it is feasible to deliver SBIRT within antenatal services without requiring additional human resources, that these services have promising outcomes for tobacco use and depression among pregnant women, and that the programme is acceptable to service providers. All of the service providers who were responsible for integrating SBIRT into the MOU service reported that the programme has the potential to provide essential mental health services for high risk pregnant women.

More specifically, findings from this process evaluation revealed that this SBIRT programme had promising outcomes for women who screened positive for depression and tobacco use. Depressive symptomatology decreased significantly among women at high risk for depression after receipt of the intervention, even though this group of women generally did not obtain additional mental health services. This finding support claims from other contexts that any form of supportive psychotherapy can be effective for mild to moderate depression during pregnancy (Dennis and Hodnett 2007). Furthermore and in keeping with findings from previous studies conducted both internationally and in South Africa (Everett-Murphy et al. 2010), the present study found that the 5As intervention and psycho-educational materials significantly reduced self-reported tobacco use. However, participants who self-

disclosed alcohol or drug use did not significantly reduce their use of these substances from baseline to follow-up. Failure to find a significant intervention effect does not suggest that further efforts to develop and implement this SBIRT programme should be abandoned, as the sample sizes were simply too small to detect a significant effect. Future studies should consider examining the effectiveness of this intervention for alcohol and drug use in a fully powered trial. Related to this, as previous evaluations of brief time-limited interventions in antenatal care settings have produced equivocal findings (Stade et al. 2009), future studies should consider comparing the effectiveness of the time-limited 5As for ATOD use against multiple session brief interventions tailored to address alcohol and drug use during pregnancy.

While this evaluation highlighted several promising outcomes it also identified a number of concerns related to the uptake and coverage of this SBIRT programme that need to be addressed in order to ensure that this programme is able to realize its promise of expanding access to mental health care for pregnant women. First, only 43 % of women presenting for their first antenatal visit were screened for depression and ATOD use. This is cause for concern as the programme stipulates universal screening of pregnant women for maternal mental disorders and it is quite likely that a significant amount of women who may have benefitted from these interventions and additional linkage to care remained undetected due to low screening coverage. Efforts to improve the implementation of this SBIRT programme for pregnant women should therefore focus on improving screening coverage so that this programme is able to reach women most in need of the intervention. Perhaps shorter screening tools for depression should be introduced in order to lessen the burden on the nurses screening women.

Second, only a relatively small proportion of women who screened positive for depression and none of the women who screened positive for alcohol and drug use were referred for further mental health or substance abuse services; even though the programme specified that all women who screened at high risk for these problems should be referred for additional care. MOU personnel noted that only women who self-disclosed suicidal ideation and were in need of immediate attention were referred for further psychiatric care. While it is encouraging that women most in need of additional care were indeed linked to these services, it is concerning that maternal depression was detected among many pregnant women but remained untreated. One explanation for this lies in the finding that the proper implementation of the SBIRT programme relied heavily on the mental health champion in the MOU. When this person was absent or not available, referral pathways for women with depression broke down. In the long term and to ensure the

sustainability of this programme, accountability for the provision of SBIRT for maternal mental disorders should be the business of all MOU personnel and not just the responsibility of the mental health champion. Another contributing factor to these poor linkages to additional mental health care is the limited availability of publicly funded mental health services in South Africa (Lund et al. 2010). As such, public health systems are unlikely to be able to provide mental health assessment and treatment services to all people who screen at risk for mental disorders (Petersen et al. 2012). Task-shifting from health professionals to peer counsellors has been proposed as one strategy for overcoming these resource limitations in LMICs (Tsai and Tomlinson 2012), in addition to away of not overburdening the already burdened healthcare system. In South Africa the concept of trained non-specialist mental health professionals such as Registered Counsellors have been advocated as a potentially viable option for closing the treatment gap (Petersen 2004). Perhaps the inclusion of a mid-level counsellor into the SBIRT model may be an ideal to way to address this gap in mental health service provision.

Third, findings from this feasibility study highlight the urgent need to improve rates of disclosure of alcohol and drug use among pregnant women accessing antenatal services. In the present study only 1.2 % of women self-reported alcohol, and 1 % self-reported illicit drug use. These low rates of alcohol and drug use are likely to reflect gross under-reporting of alcohol and drug use during pregnancy, particularly as the prevalence rates for alcohol and illicit drug use reported by a recent representative survey of pregnant women attending MOUs were 11.9 and 49.8 % for drugs and alcohol respectively (Petersen Williams et al. 2014). The low rates of disclosure may be because screening was conducted by MOU personnel (rather than researchers). The stigmatizing and negative attitudes of the MOU staff towards pregnant women with substance use disorders, combined with pregnant women who are self-critical, oversensitive and fearful of the consequences of self-disclosing alcohol use and illicit behaviours, such as being mistreated or denied services if alcohol or drug use could be affecting disclosure. This explanation is supported by findings from prior research that have described stigmatizing and negative attitudes of South African midwives towards pregnant women suspected of alcohol and drug use (Abrahams et al. 2001; Everett-Murphy et al. 2011). If SBIRT is to be effectively integrated into MOU services, future studies should consider testing interventions, tools, and attempts to create a safe environment where women feel comfortable disclosing their AOD use in order improve the self-disclosure of alcohol and drug use during pregnancy and the full integration of routine screening into antenatal care.

Findings from this study should be considered in the light of several limitations. The main limitation of this study is its uncontrolled design. Given the lack of a comparison group, the role of chance and non-specific treatment factors (such as gestational age at delivery or counsellor-patient therapeutic alliance), cannot be ruled out as potential mechanisms for changes in depression and tobacco use. Secondly, as mentioned, the small sample size of those with alcohol and drug use limited our power to detect change in this group. Finally, our sample of women accessing MOU services and of MOU personnel is not representative of all MOUs in the province and the degree to which these findings can be generalised to MOUs in other settings is unclear. Therefore the results of the present study should be interpreted with caution, pending replication in a larger randomised controlled trial.

Conclusion

Despite these limitations, our findings provide preliminary evidence that with minimal additional health resources, a SBIRT programme integrated into antenatal care holds promise for facilitating positive improvements in maternal mental health. Although larger studies are needed to test the effectiveness of SBIRT, findings from this evaluation suggest that SBIRT is feasible to implement in MOU services, has promising outcomes for depression and tobacco use, and is acceptable to MOU service providers. However, in order to realise the promise of this SBIRT programme, efforts are needed to ensure the universal screening of women attending these antenatal services; strengthening referral to specialised treatment for women at high risk for depression and other maternal mental disorders, and innovations to improve the detection of alcohol and drug use in this high risk population.

Conflict of interest The authors declare that they have no conflict of interest.

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