FROM THE FIELD

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Clusters of Behavioral Health and Psychosocial Risk for Childbearing Women in Four Virginia Communities

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Abstract

Introduction Four Virginia communities participated in a community services enhancement pilot to centralize intake and referral for childbearing women eligible for home visiting support through the Maternal, Infant and Early Childhood Home Visiting (MIECHV) program. *Methods* As an aspect of the study, project-trained intake workers administered behavioral health and psychosocial risk screening (including emotional health, substance use, interpersonal violence, and smoking) during intake eligibility assessment. Participants identified as at-risk were referred for community intervention concurrently with referral to MIECHV services. *Results* In the study sample (N = 1515), emotional health was identified as the most common single risk factor (n = 326, 21.5%) and clusters of 2 or more behavioral health risks were identified for 223 (14.7%) of women. Among those with two or more behavioral health risks, smoking was significantly related to all other areas of behavioral health risk. *Conclusion* Findings from this multi-site pilot emphasize concomitant behavioral health and psychosocial risks in childbearing women and reinforce the importance of embedding comprehensive public health interventions in community systems of care.

Keywords Behavioral health risk assessment · Home visiting · Perinatal mental health · Screening · Community practice

Significance Statement

This manuscript reports concomitant behavioral and emotional health risk factors in a diverse community sample, lending epidemiological support for community risk screening and demonstrating the importance of enhanced access to community intervention and support for pregnant and postpartum women.

Over the past decade, public health practice and policy have expanded to consider the effects of perinatal depression, substance use, interpersonal violence and smoking during and around the time of pregnancy. National efforts to enhance evidence-based care through Maternal, Infant and Early Childhood Home Visiting (MIECHV) have resulted in a comprehensive and data-driven approach to supporting healthy childhood development beginning with pregnancy. Supportive interventions through MIECHV have targeted communities with social and behavioral risks, holistically encompassing interventions that address behavioral health and lifestyle factors while revealing environmental, structural and social determinants of health which impact equity of care. Thus, home visiting programs augment support in communities at elevated risk, largely through addressing modifiable risk factors that may have an impact on the developmental health and wellness of children (Price and Cohen-Filipic 2013).

In spite of the conceptual support for enhancing psychosocial well-being of women and infants in these at risk communities, very few comprehensive psychosocial and behavioral health programs exist to routinely screen, refer and/or intervene with families who are eligible for home visiting programs (Price et al. 2014). Programs embedded within specific models of home visitation have emerged specifically addressing perinatal depression (Segre et al. 2010); interpersonal violence (Harrison et al. 2011); substance use (Forray et al. 2014) and smoking. While many maternal, infant, and

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early childhood home visiting programs screen participants for several of these specific behavioral and emotional health indicators, the interface of these concomitant risks has been less well-studied. A study by Walker et al. (2013) examined the detrimental impact of these cumulative risks among low-income women on their postpartum health at 6 weeks. Additionally, the case is made in the literature that even standard screening practices in both obstetric and pediatric care leave missed opportunities for health promotion, including early detection and identification of modifiable behavioral health risks and vital mental health treatment since risk assessment most commonly occurs during the postpartum visit (Walker et al. 2015; Kahn et al. 1999).

The four communities in our study were engaged in a pilot effort to enhance the maternal, infant and early childhood system of care in [state] through adding comprehensive behavioral health risk identification, referral, and community-based intervention to their existing community MIECHV system of care. As a component of this project, a lead agency in each community engaged prospective pregnant and postpartum women in MIECHV eligibility assessment integrated with brief psychosocial and behavioral risk screening. The conceptual objective of the demonstration project was to enhance participation in home visiting programs, simultaneously augmented with community support services. This field note highlights aggregate, community findings surrounding concomitant behavioral health risks identified in childbearing women based on their eligibility for MIECHV home visiting programs. Women in this sample were encountered during the very first potential points of entry into the maternal and child health delivery system including public health clinics, obstetric providers, community prenatal support and education programs, hospital outpatient prenatal centers, birth centers, and hospital labor and delivery units.

Participants

Participants in this study include a targeted sample of 1515 childbearing women who participated in at least the initial phase of MIECHV centralized intake across four pilot communities during 18 months of demonstration and program evaluation. Participants were located within one of four participating pilot communities (two urban, two rural) and met initial criteria of affiliating with a prenatal health provider or community referral agency, delivering at a participating hospital or self-referring to the centralized intake provider located within a zip code area designated for MIECHV funding and services. All women participating in data collection were pregnant, postpartum, or in a 2-year interconceptional range as required for MIECHV service eligibility. Within the urban communities, participants equally identified as either African American or Caucasian; however, within the rural communities, the majority of the participants identified as Caucasian (78 percent), with less than 5% specifically identifying as African American, Latina, or other. All participating communities qualified as federal health shortage areas with poverty rates significantly beyond the state and national average. Individual demographic, gestational and socio-economic variables were not maintained for individuals under the research protocol to maintain confidentiality of data collected for evaluation of this routine public health enhancement; the de-identified evaluation protocol was reviewed and determined to be exempt by both [University] and [State Department of Health] Institutional Review Boards.

BH-CI Intake Process

In the overall project housing this study, community coalitions were developed to solidify relationships among home visiting, prenatal care, early childhood, health care, mental health, substance abuse treatment and other community service providers. The lead agencies in each community convened the coalitions and hired centralized intake staff to conduct outreach, screening, and referral based on criteria established by the community coalition. The objective of centralized intake itself was to enhance community collaboration, streamline processes of intake and referral and reduce redundancy in outreach and referral services among multiple providers. The research and technical assistance team worked directly with the centralized intake staff to train intake workers in behavioral health and psychosocial risk screening, motivational interviewing, and to implement the screening, brief intervention and referral to treatment (SBIRT) protocols. A computer-facilitated screening process using item response with auto-population of follow-up items was the primary mechanism for community screening. The same process of research data collection was followed whether the intake was conducted by phone or in person; interviews and instruments were available in English and Spanish as determined by locality. To safeguard confidentiality, only the de-identified psychosocial and behavioral health risk screening data and outcomes of the referral process were transferred to research staff, while other identifying elements were stripped away for use solely by community program staff. All research data were maintained, transferred, and securely housed using RedCap (supported through NIH Grant #UL1TR000058).

Screening Elements

The elements of the behavioral health and psychosocial risk screen were consistent with those established through the [state] Department of Behavioral Health and Disability

Services for women of childbearing age. The screening instrument was based on the Institute for Health and Recovery's Behavioral Health Risk Screen (BHRS); for more information on this instrument, see http://www.mhqp.org/guidelines/perinatalPDF/IHRIntegratedScreeningTool.pdf). The original BHRS was modified by [state] Department of Behavioral Health and Disability Services to encompass several additional indicators of risk which had been previously determined through statewide surveillance; for further description of the [state] instrument's development, see Price et al. (2012). The [state] BHRS was implemented as an integrated, seamless component of a larger centralized intake electronic screen, beginning with a short "yes/no" style checklist which asked participants to indicate the presence of specific risk triggers. These areas of concern, if endorsed, were programmed to auto populate the screening, brief intervention and referral to treatment (SBIRT) protocol which included the subsequent administration of empirically validated screening instruments for detecting risk of substance abuse disorder, perinatal depression, and interpersonal violence as well as documenting the extent of current tobacco use. Each intake, therefore, was a triage assessment process beginning with risk triggers and extending to more formalized and targeted screening. Designated areas of behavioral health risk were "triggered" when a potential diagnostic or practical threshold was met; however, the SBIRT protocol was used *non-diagnostically* to inform women of areas where there might be a concern for their behavioral health and to subsequently offer psychoeducational information and/or referral to further resources.

Data for this spotlight on concomitant behavioral health and psychosocial risk were drawn from the initial BHRS risk triggers and the results of subsequent screening auto-populated by the risk trigger; for example, a woman was considered to have initially met the "emotional health" risk trigger if her response on the BHRS (which used the PHQ-2 plus an additional anxiety question) endorsed any item; this response auto-populated the Edinburgh Postnatal Depression Scale (EPDS) to establish the degree of risk beyond that initial triage. Further information on the four BHRS components, their empirical validation and the subsequent screening and community referral protocols derived from the assessment have been described elsewhere (Price et al. 2017).

Single Risk Factors

The purpose of behavioral health and psychosocial risk screening was programmatic linkage rather than epidemiological surveillance, resulting in a broad approach to risk identification. Of the 1,515 women included in the pilot study, a total of 1378 (91%) completed the behavioral health

risk screening components of the intake. The most common initial risk trigger, emotional health, led directly to the questions for the Edinburgh Perinatal Depression Scale (EPDS). Of the 330 women meeting the initial risk trigger for emotional health, 310 (94%) completed the full EPDS screening. In that screening, the mean EPDS score was 11.22 (SD 5.8) with a range of scores from 1 to 28. Using two different cut-off score ranges for emotional health, 182 (12%) met the project defined cut-off score for psychosocial distress (at or above 10) and 113 (7.4%) met the published empirical risk for perinatal depression with a cut-off score at or above 13 (Matthey et al. 2006). The [state] BHRS included a question for anxiety as an emotional health trigger ("In the past 7 days, I have felt scared or panicky for no good reason"). In addition to the above depression symptom triggers, 150 women (10%) endorsed this single anxiety symptom item. All of these indications of risk were retained for this study as indicating potential psychosocial risk in the category of emotional health (n = 310).

Women were considered to be at risk for substance use if they reported current use of drugs other than alcohol; if their own reported current use of drugs or alcohol (not a family member's use) occurred at all during pregnancy, if there was any time in the past month where greater than 4 alcoholic drinks per day were consumed, and/or if the participant reported regularly drinking more than one alcoholic drink per day. For this item, a total of 107 (7.1.) met risk criteria. We chose a conservative risk assessment for interpersonal violence and considered any endorsement of "are you currently, or have you ever been in a relationship where you were physically hurt, choked, threatened, controlled, or made to feel afraid?" as a risk criterion for IPV. The only decisional response for the centralized intake coordinators rested in the type of intervention and/or referral provided which was determined in large part by whether past or current IPV was indicated. All risk moved the participant forward to further assessment, and all who indicated past or present risk received psychoeducation, support, and information and referral resources. A total of 154 (10.2%) of all participants met this risk criteria for interpersonal violence. Finally, current smoking risk was assessed with the simple question, "Have you smoked any cigarettes in the past 3 months?" and a total of 273 (18%) of the sample met this risk criteria which was addressed via health information and referral to the statewide QuitLine.

Clusters of Concomitant Risk

Although individual levels of risk were important for identification of referral needs, the clustering of risk factors demonstrated added complexity regarding the interplay of behavioral health risks experienced by home-visiting

eligible women in our study. Among women for whom two or more risk factors were identified (n = 223, 14.7% of the overall sample), smoking consistently emerged as a significant correlate accompanying risk for emotional health ($\chi^2 = 56.44$, p < .0005); interpersonal violence ($\chi^2 = 11.16$, p = .001) and substance use ($\chi^2 = 14.70$, p < .0005). However, when examining these psychosocial factors as potential predictors of smoking as a health behavior of concern, the data suggest that both emotional health (OR = 1.71) and interpersonal violence risk (OR = 1.59) were significant predictors of current smoking whereas current substance use predicted a lower likelihood of current smoking (OR = .50) for those with two or more risk factors. The odds ratios and 95% confidence intervals are shown in Table 1.

For women with 3 or more risk factors (n = 73, 4.81% of the overall sample) both emotional health risk (n = 69, 94.5%) and smoking (n = 68, 93.2%) were endorsed by the overwhelming majority of participants (n = 63, 87.7%) along with one other risk factor of either IPV or substance use. A total of 19 (3.5%) endorsed all four areas of behavioral health risk. In the overarching study, greater psychosocial risk was a significant predictor of successful home visiting referral, and women in this high-risk group with three or more risk factors were the most likely to be successfully referred to home visiting (Price et al. 2017). The overwhelming overlap (and therefore, lack of variability) between emotional health and smoking in the small sub-sample of women with 3 or 4 risk factors precluded a more detailed multivariate sub-analysis.

Discussion

Health interventions focused on areas such as perinatal depression, interpersonal violence, substance usage, and smoking cessation during and around the time of pregnancy have provided exponential evidence-based knowledge for public health practice. Though there has been an expansion of research in the area of psychosocial assessment of women during and around the time of pregnancy, there is a considerable amount of work needed in the development of successful strategies for engaging women in the screening process. Our findings from the field add to this knowledge base through a system of assessment which engaged women with high levels of response at their first point of entry. The concomitant risks noted, even at first assessment, demonstrate that the addition of training and integrated, comprehensive behavioral risk screening into MIECHV eligible communities highlighted the complex needs of women and families, and guided referral into home visiting and community service systems of care.

This study emerged from within the pilot testing of a public health practice innovation, and was neither designed nor collected with epidemiological intention. Thus, the study lacks the empirical rigor needed to draw generalized conclusions about prevalence. Following the HRSA guidelines, we engaged participatory research methods and documented processes of centralized intake and behavioral and psychosocial risk-screen to insure the study's parameters were transferable. The data obtained from this study were intended to show clusters of risk within the context of public health service delivery in our specific pilot communities in planning future research and practice. Thus, study findings (particularly of community prevalence) should be interpreted contextually rather than generalizably. We highly support future research and statewide data collection efforts targeting concomitant behavioral health and psychosocial risk.

While our public health approaches continue to emphasize single-factor risk screening, this study suggests that women are facing struggles with emotional health and other behavioral health risks singly and concurrently. Smoking was significantly related to all other areas of behavioral health and psychosocial risk, which is a potential indicator that women may be adopting smoking and tobacco use as short-term coping mechanisms for unmet psychosocial needs. Thus, our findings emphasize the value in concurrently assessing the behavioral health risks that women may be facing in order to maximize the effectiveness of public health practice in community settings. Utilization of this early and comprehensive screening approach provided knowledge regarding risk triggers across multiple domains of behavioral health and psychosocial well-being and increased the likelihood of women being connected to supportive in-home services that better fit the breadth of their psychosocial health needs at an earlier point prenatally or antenatally than had been prevailing practice.

Table 1 Concomitant risk for women with 2 or more risk factors (N = 223)

Risk #1 (DV)	Risk #2 (IV)	N	X^2	P value	OR	95% CI (lower, upper)	
Smoking	Substance	71	14.70	< .0005	.503	.348	.722
Smoking	IPV	59	11.16	.001	1.593	1.206	2.104
Smoking	Depression	121	56.44	< .0005	1.708	1.472	1.983
Depression	IPV	72	15.92	< .0005	1.716	1.315	2.240

Conclusion

With the sustained focus on behavioral health and psychosocial well-being within maternal and child health, the drive to link women to supportive community resources has become a necessity. The old paradigm of screen-and-refer for individual psychosocial risks fails to meet the complexity of psychosocial needs in the lived experiences of many women and families. Thus, knowledge regarding the concomitant behavioral health risks in this population of women during and around the time of pregnancy is essential, and screening programs such as this are easily replicable within public health systems of care. Utilization of existing community health practice models, such as centralized intake, as conduits for comprehensive behavioral health and psychosocial risk screening increase the likelihood of early intervention and support. Knowledge of the multi-faceted nature of behavioral health risks allows for expansion and cooperation within community service providers that can be tailored to fit the individual needs of women, while also providing opportunities to enhance joint training and community partnership. Comprehensive behavioral health risk screening protocols advance practice-relevant understanding of the complexity of women's lived experience and psychosocial needs. As a result, prenatal and antenatal health screenings should be inclusive of assessment of concurrent behavioral health and psychosocial risks, which can be used to inform contextually specific protocols connecting maternal and child health providers with community resources and support linkages for women which augment, rather than replace, our home visiting systems of care.

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