2018

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JOURNAL OF WOMEN'S HEALTH
Volume 27, Number 1, 2018

DOI: 10.1089/jwh.2016.6261

A Collaborative, Network-Based Approach to Advance Women's Depression Research in the United States: Preliminary Findings

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Abstract

Objective: Translation of women's mental health research has yet to impact overall prevalence and burden of Mood Disorders in the United States. The lack of standard measures and methodological coordination across studies has contributed to the slow impact of research on outcomes. The primary aims of this project were to demonstrate the process by which multiple investigators, sites, and settings administered a standard women's mental health questionnaire within a new Women's Depression Network. Information on the prevalence of mental health and service use across sites is provided.

Methods: A standard women's mental health questionnaire was developed and administered across seven different women's health sites in the United States. Validated measures of depression and anxiety were included (Patient Health Questionnaire Depression Scale [PHQ-9] and Generalized Anxiety Disorder Scale [GAD-7]). Administration of the questionnaire was embedded into existing clinical or research activities at each site.

Results: Data from 1,316 women were collected from seven sites over 12 months. A total of 14% and 15% of the women scored at or above the cutoff on the PHQ-9 and GAD-7 respectively. Just over half of the women screening positive for either depression or anxiety reported current treatment use.

Conclusions: Findings suggest that coordination and administration of a standard women's mental health questionnaire is feasible across multiple settings and sites. Results highlight a low percentage of treatment use across various settings. The infrastructure developed for this study sets the stage for hypothesis-driven studies that can facilitate coordinated, network-based research that has the potential to accelerate advances in the field.

Keywords: women, screening, depression, anxiety, symptoms

Introduction

Compared with other chronic medical conditions, untreated depression is associated with the largest negative impact on health worldwide.[1] For women, this finding is particularly relevant since depression is twice as common in woman as compared to men, with peak prevalence during the childbearing years.[2] Approximately 500,000 children are born each year in the United States to women with major depressive disorder (MDD), up to 75% of whom are

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untreated.[3,4] Despite the documented harms to women and children, no effective and sustainable strategies to improve depression treatment in women's healthcare settings are in use throughout the United States, a fact that is striking and unacceptable.[3] It has been argued that a lack of methodological coordination across similarly focused research studies has contributed to slow advances in women's depression research.[5] This article presents findings of an effort to coordinate methods across a network of similarly focused women's depression researchers.

The limited geographic, economic, and racial/ethnic diversity of women participating in perinatal research studies is also a considerable barrier to progress in improving outcomes. For example, implementation studies of evidence-based approaches in diverse sites, settings, and populations using standard approaches would allow for comparison of effectiveness across groups. Research results based on a single region, site, setting, or subgroup of patients may not generalize to others. The need for studies involving diverse clinical settings is particularly important. Up to 80% of individuals with mental health needs, such as depression or anxiety, present outside of specialty mental health settings. A recent review by the National Academy of Science pointed to the clear need for research studies that include assessment and intervention with diverse populations and within settings outside of psychiatry, where most women with depression present for healthcare (*e.g.*, obstetrics and gynecology or other primary healthcare settings).[3]

Another fundamental barrier in translating research to practice is the use of differing methodologies (*e.g.*, measures, timing of assessments) across individual research studies. Several national funding and policy-making bodies have recognized the need for efforts to collect and share standard mental health data.[5,6] Other fields, such as cancer and cardiovascular disease, have seen drastic improvements in understanding risk factors and effective treatments largely due to research networks that employ common data elements.[7,8] Use of standard measures across diverse sites and settings has the promise to accelerate the impact of women's depression research. Therefore, larger scale, coordinated research efforts to address key questions about depression in women must include geographically and demographically diverse populations, nonspecialty settings (such as primary care), and standard measures. There is an urgent need for researchers to collectively strategize to tackle these problems, not only to reduce the negative impact of depression on women themselves, but also the medical, developmental, and psychiatric risk to their children.[3]

In 2007, a collaborative affiliation among academic Depression Centers began, known as the National Network of Depression Centers (NNDC). The NNDC is a network of clinicians and researchers from 25 academic institutions. Their goal is to ''use the power of the network to expedite scientific discovery, to disseminate advancements in patient care, and to improve quality of life for those with depressive and bipolar illnesses'' (www.nndc.org, NNDC website). The NNDC is comprised of several national Task Groups that address key areas of Mood Disorders. The Women and Mood Disorders (W&MD) Task Group is focused on synergistically advancing the field of women's depression by capitalizing upon the power of a collaborative network. In this article, we describe a multi-institutional collaborative pilot project of this group aimed to demonstrate the initial feasibility of collecting standard data regarding women's health and mood across a variety of sites and regions affiliated with the NNDC where women receive healthcare. A single questionnaire was developed by the W&MD Task Group and administered across healthcare settings.

This article presents a preliminary demonstration project that aimed to illustrate whether and how multiple investigators may administer a standard women's mental health questionnaire across multiple sites and types of clinical settings. Specific objectives of the study were as follows: (1) to identify supports and barriers experienced by participating investigators, and (2) to explore the usefulness of the data collected across diverse sites by examining the prevalence of elevated scores on validated screening tools, the prevalence of specific symptoms of depression and anxiety, and mental health service use by the women. This pilot work serves as the foundation for larger, hypothesis-driven, multisite, collaborative projects to address the methodological limitations impeding advances in the identification of women with MDD, the development of effective treatment, and the conduct of translational research.

Methods

Procedures

This was a cross-sectional, multisite pilot study. Sites were selected based on interest of the investigators, and general feasibility of administering a standard questionnaire within the time frame of the study either through ongoing clinical or research activities. Seven clinical sites affiliated with NNDC Universities participated. Sites included outpatient obstetrics/gynecology clinics ($n=4$); reproductive psychiatry outpatient clinics ($n=2$) and a neonatal intensive care unit ($n=1$). The a priori target enrollment for each site was a minimum of 40 women. Eligible participants were English-speaking women 18 years of age or older receiving healthcare at one of the participating sites.

All procedures, processes, and identification and resolution of challenges were decided using a consensus process during regular teleconference calls with the investigators. Infrastructure determined to be key to network-based collaboration were developed and included templates for Institutional Review Board (IRB) use at each site, a standard study protocol, a Data Sharing and Use Agreement, and guidelines for data transmission, cleaning, and analyses. Each site was required to use the standard screening questionnaire, but other processes and procedures were customized to each site to maximize feasibility of questionnaire administration. Forms were self-completed by the participants either in article or electronic formats. Original forms were securely maintained at the study sites and securely transmitted using deidentified data to a data-coordinating center at the University of Michigan. The ways in which data from sites were securely transmitted to the data coordinating center was allowed to vary. Some sites preferred securely scanning and sending forms, and others preferred entering data themselves and sending an electronic database to the coordinating center.

All procedures were approved by the IRB of each participating institution. Specific data collection procedures varied based on IRB requirements and logistical considerations at

each site. For example, for certain sites an informed consent was presented to participants and signed before completion of the questionnaire. In other sites, anonymous completion of the tool was taken as consent to participate. Either study clinicians or research assistants (RAs) were present in each of the clinic sites to administer consent and questionnaires. To maximize feasibility, each site determined the most practical process for data collection and transfer at their site. Each participating investigator was responsible for creating clinician notification and risk handling procedures that was customized to their clinical site (and partners) and their IRB. In all cases, an IRB-approved suicide risk protocol was in place. All participants were provided information on depression and resources for follow-up and treatment as part of participation in the study and/or as requested. The study was completed between September 2013 and October 2014.

Although this study was not designed to provide information on effective implementation outcomes, process information was gathered from investigators at the study completion on supports and barriers to participation using both closed and open-ended questions. Specific process areas that were assessed included (1) the IRB and administrative approval process, (2) the recruitment and data collection process, and (3) utility of the screening form.

Measurement

Members of the W&MD Task Group created the Women's Health and Mood Screening Questionnaire (WHMQ) as the standard measure used in the study. The questionnaire was developed by consensus among the investigators during the regular teleconference calls. This questionnaire was designed to be brief and feasible to administer within the workflow of diverse clinical contexts and to include validated mental health measures. It consisted of demographic information (*e.g.*, age, income, education, relationship status, number of children, employment status), reproductive status (*e.g.*, menstruating regularly, pregnant, postmenopausal), validated measures of current anxiety and depressive symptoms, recent and lifetime history of mood or anxiety disorders, family history of mental health problems, and participant mental health treatment use (*e.g.*, therapy, medication, and other treatments). Although the focus of our network is depression, there was clear recognition of the need for expanding the focus to include anxiety given the comorbidity with depression, the paucity of information on perinatal anxiety screening.

Depression was measured using the Patient Health Questionnaire Depression Scale (PHQ-9)[9] a nine-item self-report questionnaire based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria for major depression.[9] Scores range from 0 to 27, with higher scores indicating more severe depression. Based on research to date, a score of 10 or greater is used as a cutoff for clinical depression.[9] Meta-analyses of the PHQ-9 have concluded that its validity is equal or superior to other established depression measures. Anxiety was measured with the Generalized Anxiety Disorder Scale (GAD-7),[10] a 7-item scale, with scores ranging from 0 to 27 and different cut-points to indicate mild to severe anxiety. Sensitivities for the GAD-7 (using a cut-point of 10 as indicating anxiety disorder) range from 0.66 to 0.89 and specificities range from 0.80 to 0.82. Higher scores indicate greater anxiety.

Basic demographic information was collected in addition to a woman's reproductive health status and history. Mental health treatment use was also assessed, specifically counseling, medication, or other treatment for depression, anxiety, or any other emotional difficulties in the past 2 years and over the lifetime. Women were asked about their history of MDD using a one-item, validated question.[11] The entire questionnaire took $\sim$10 minutes or less to complete.

Data analysis

Given the pilot nature of the study, no a priori sample size calculations were performed. Our feasibility goal was to recruit a minimum of 40 women within the 1-year recruitment period at each of the different sites using the same tool. This number of subjects was large enough to ensure a relatively small standard error of the proportion of women who would report health and mood characteristics. Based on the binomial distribution, the most conservative estimate of the standard error is when this proportion is 50%. With 500 subjects, this would yield a standard error not exceeding 2.2%.

Descriptive statistics were used to summarize the proportion of subjects who completed the questionnaire and reported depression, anxiety, and treatment use. A positive screen for depression or anxiety was operationally defined as being at or above the cutoff of 10 for either the PHQ-9 or GAD-7, respectively. Pearson correlation coefficients and 95% confidence intervals were used to assess the relationship between depression and anxiety.

Results

Investigator feasibility and process

Sample IRB wording that was provided to all site investigators was identified as extremely useful in developing applications to the IRB. However, the lengthy IRB approval process was described as a barrier. Once approvals were obtained, most of the sites were able to initiate data collection within a week. Previously established relationships with clinical staff were seen as a major support in feasibility. There was variation in agreement rates. Three of the sites indicated that 76%–100% of women who were approached to participate agreed to complete the screening form; three sites reported rates ranging from 50% to 75%, and one site reported 26%–50% agreement. Therefore, most sites found the data collection to be feasible. Five sites reported that conducting the study within the constraints of other clinical or research activities was easy or very easy, but two sites found these constraints to pose challenges. Because the study was largely unfunded, project cost was identified as the biggest challenge across sites, and was reported as difficult for four of the seven sites.

Responses to open-ended questions posed to the investigators indicated a number of supports that were key to success of the project at sites: involving students as recruiters and data collectors, having a ''patient services representative'' who approached women and explained the study, incorporating the forms into an ongoing study or as part of standard clinical care, having funding available for RAs, and getting referrals from research coordinators at the clinical site. The centralized infrastructure for the overall project was also identified as very helpful, including troubleshooting by

the study's Principal Investigators, the detailed procedural manual provided to each site, and the flexibility and ease with which data could be transferred to the central coordinating center. Barriers included reliance on busy clinic staff to engage women and distribute questionnaires, lack of resources to pay clinical research coordinators and RAs for recruitment and data entry, lack of resources to reimburse women for their time in completing forms, competition with other ongoing studies for women's participation, and the inability to upload data automatically using electronic data capture.

Suggestions to improve relevance for the women were to (1) add a section to the form where women can identify specific needs or challenges they are facing and a checklist of services or referrals they would find useful, (2) assure that terms used are culturally sensitive and that the form is available in languages other than English, (3) shorten the form so that it is more feasible for completion by women in the clinic waiting room, and (4) integrate the form with a package that includes a physical health questionnaire to soften the potentially ''uncomfortable'' focus on strictly psychiatric symptoms and history.

Sample characteristics

The total number of questionnaires completed across the seven sites was 1,316. Table 1 shows the characteristics of study sites, including institution, type of setting, method of data collection, and the number of questionnaires collected at each site. All sites achieved the goal of collecting at least 40 screening tools. Most of the sample was acquired from obstetric and gynecology clinics. Table 2 displays the characteristics of the total sample including demographics, reproductive health status, mental health status and severity, and service use. The average age was 31 years. Approximately 63% self-reported as White or European American and 30% as Black or African American. About 20.6% of women had a high school diploma or less education, 34.5% reported some college, and 43.7% had a baccalaureate education or greater. The average annual household income of the sample was in the $30,000–$50,000 range. However, income was widely distributed, with 24.8% reporting <$15,000 and 6.7% reporting $150,000 or more. Approximately 68% of the women were married or in a committed relationship. Almost half of the women worked full time (48%). The largest proportion of women (65%) were pregnant, and only 6% were postmenopausal. The mean score on the PHQ-9 was 4.3 and the mean on the GAD-7 was 4.4.

Prevalence of depression, anxiety, and mental health service use

Self-reported risk factors for current depression were prevalent in this sample. Nearly half of the sample reported symptoms of depression that would indicate a likely history of having major depression during their lifetime (45.5%). A total of 31.2% reported having received a diagnosis of depression and 24.1% had been diagnosed with an anxiety disorder, and 38.2% indicated that someone in their immediate biological family had been diagnosed with a mental disorder.

Approximately 14% of the women scored at or above the cutoff of 10 for depression on the PHQ-9 and 15% for the cutoff of 10 for anxiety on the GAD-7. Close to 10.4% of women screened positive for both depression and anxiety (*i.e.*, scores >10) while another 7.2% screened positive for one or the other. Roughly 74.7% of women scored negative for both depression and anxiety. The prevalence of specific symptoms reported on both the PHQ-9 and GAD-7 is shown in Table 3. The three most commonly reported depression symptoms were as follows: tired/little energy, trouble sleeping, and poor appetite/overeating. In terms of anxiety, the most commonly reported symptoms in order of frequency were becoming easily annoyed/irritable, worrying too much, and feeling nervous or on edge. Scores for depression and anxiety were significantly correlated ($r = 0.80$, $p < 0.001$).

Most women reported no use of counseling or medications for treatment of mental health problems over the course of their life (62% and 61%, respectively). However, for those who had received a diagnosis of depression at some point in their lives, 88% had received counseling or psychotherapy and 93% had taken prescription medications for their illness. Similarly, for women previously diagnosed with an anxiety disorder, 87% had received counseling or psychotherapy and 92.5% had taken medication. Just over half of the women with a PHQ-9 score ≥10 on our screening questionnaire reported current use of medications (58%) or counseling (57%) for depression. Similar rates of medication use (50%) and counseling (50%) were found among women who scored at or above a cutoff of 10 on the GAD-7. For women who met the cutoff for depression and were being seen in psychiatric

Table 1. Characteristics of Sites Participating in Women and Mood Disorder Task Group Pilot Study (Total $N = 1,316$)

Institution	*Setting*	*Data collection process*	*Sample size*
University of Michigan	Obstetrics	Obstetrics staff administered as part of ongoing registry	66
University of Massachusetts	Reproductive Psychiatry Clinic	Clinicians administered	159
University of Pennsylvania	Reproductive Psychiatry Clinic	Clinicians administered	46
Florida State University	Obstetrics and Gynecology Clinic	Research staff administered	593
Medical University of South Carolina	Obstetrics and Gynecology Clinic	Clinicians and research staff administered	344
University of Illinois, Chicago	Women's Health Outpatient Clinic	Research staff administered	49
University of California, San Francisco	Neonatal Intensive Care/Obstetrics	Research staff administered	59

Table 2. Characteristics of the Total Sample (N=1,316)

Variable	*% or mean (SD)*
Age	31 (9.7)
Race	
White	63 (824)
Black	30 (413)
Other	6 (85)
Ethnicity	
Non-Hispanic	77 (1,026)
Hispanic	18 (235)
Income	
<$15,000	25 (326)
$15,000–$20,999	9 (120)
$21,000–$30,999	11 (140)
$31,000–$50,999	12 (164)
$51,000–$75,999	13 (169)
$76,000–$100,999	9 (118)
$101,000–$149,999	10 (130)
$150,000 or more	7 (88)
Relationship status	
Never married	25 (325)
Married	52 (680)
Committed relationship	16 (214)
Separated	2 (29)
Widowed	1 (7)
Divorced	4 (47)
Education	
<HS	1 (21)
HS or GED	19 (250)
Some college	35 (454)
4 year college	25 (325)
Masters degree	13 (174)
Professional or doctorate	6 (76)
Employment status	
Homemaker	14 (187)
Unemployed	21 (279)
Part time or occasional	16 (204)
Full time	48 (628)
Reproductive status	
Monthly menstrual period	14 (182)
Pregnant	65 (850)
Postpartum	8 (104)
Irregular menstrual period	4 (49)
Past menopause	6 (74)
Lifetime MDD reported	
No	53 (701)
Yes	46 (599)
Counseling for mental health	
Never	62 (811)
Yes, but not past 2 years	14 (182)
Yes, past 2 years but not currently	6 (85)
Yes, currently	16 (216)
Medications for mental health	
Never	61 (805)
Yes, but not past 2 years	11 (143)
Yes, past 2 years but not currently	8 (108)
Yes, currently	18 (241)
Depression diagnosis	
No	68 (895)
Yes	31 (411)
If yes, was it postpartum or peripartum depression?	26 (106)
Anxiety diagnosis	
No	75 (990)
Yes	24 (317)
Family history	
No	59 (773)
Yes	38 (502)
PHQ-9 score	4.3 (5.2)
GAD-7 score	4.4 (5.2)

GAD-7, Generalized Anxiety Disorder Scale; GED, general equivalency diploma; HS, high school; MDD, major depressive disorder; PHQ-9, Patient Health Questionnaire Depression Scale; SD, standard deviation.

settings, 66.7% were receiving therapy/counseling and 44.4% were receiving medications. Nearly 69.2% of women meeting the cutoff for anxiety in psychiatric settings were in therapy and 61.5% were taking prescribed medications.

Discussion

Supports and barriers

The establishment and use of a centralized infrastructure to support site investigators was viewed as critical to the success of the project, particularly for assisting with IRB protocols and troubleshooting issues related to data collection and

Table 3. Prevalence of Depression and Anxiety Symptoms (N=1,316)

Percent having elevated PHQ-9 scores, GAD-7 scores, and comorbid elevation	
PHQ-9 (≥10)	13.8%
GAD-7 (≥10)	15.1%
Comorbid PHQ-9 (≥10) and GAD-7 (≥10)	10.4%
Percent reporting several days or more per week over past week on PHQ-9 symptoms	
Tired/little energy	68% (899)
Trouble sleeping	50% (661)
Poor appetite or overeating	38% (494)
Little interest or pleasure	29% (375)
Down, depressed, hopeless	28% (363)
Feeling bad about self or failure	23% (306)
Trouble concentrating	22% (283)
Moving or speaking slowly	12% (157)
Thoughts of suicide	6% (82)
Percent reporting several days or more per week over last 2 weeks of GAD-7 symptoms	
Becoming easily annoyed or irritable	54% (715)
Worrying too much about different things	48% (627)
Feeling, or on nervous, anxious edge	47% (616)
Trouble relaxing	44% (570)
Not being able to stop or control worrying	37% (488)
Feeling afraid something awful might happen	29% (385)
Being so restless it is hard to sit still	25% (326)

entry. The primary barrier for some sites was lack of resources to enable adequate staffing for the project. This finding indicates a need to identify innovative approaches for integrating the assessment into other ongoing research initiatives or including the assessment as part of standard clinical care. Other suggestions for improving feasibility include lobbying third party payers to reimburse clinician time for screening efforts and shortening the form to reduce the burden for clinicians and patients.

Usefulness of the data acquired

Results indicate that administration of a standard screening questionnaire was feasible across multiple sites and research groups. All sites reached the minimal target sample size, and in some cases greatly exceeded that target. We were able to screen 1,316 women over a 12-month period using a standard questionnaire. The study was also successful in using the questionnaire across the different settings where women presented for care, including psychiatry, obstetrics/gynecology, and neonatal intensive care settings. Collectively, we recruited a diverse sample in terms of race, ethnicity, socioeconomic status, and healthcare setting. The achievement of this preliminary coordination and feasibility is promising in terms of expanding the potential for advancing coordinated methodology across diverse sites and settings, especially in light of the lack of study funding.

Rates of depression and anxiety were 13.8% and 15.1% respectively, based upon established cutoff scores from PHQ-9 and GAD-7. Our results are in the expected range, comparable to the prevalence rates for depression in women reported in other studies.[12–14] Given the diversity in sites and settings, we were interested in the prevalence of individual symptoms of depression and anxiety. Surprisingly, ''depressed mood'' was not a commonly endorsed symptom on the PHQ-9, but rather somatic symptoms were much more commonly reported (sleep, appetite, and energy). Less than a third of women endorsed depressed mood or anhedonia. A recent study of presenting complaints in obstetric/gynecology settings among women with depression similarly found that only 11% presented with depressed mood, and the majority presented with a physical complaint.[15] However, because the majority of women in our study were pregnant, we cannot rule out the possibility that somatic symptoms were linked to their pregnancy rather than depression. Also of interest was the finding that the most commonly reported symptom on GAD-7 was ''feeling easily annoyed or irritable'' rather than more obvious symptoms of nervousness or anxiety. These findings have implications for clinicians in settings that rely on a presenting complaint of depressed mood or anxious feelings as opposed to validated screening tools to detect depression or anxiety. Similarly, clinicians and service providers who ask only about symptoms of depressed or anxious mood may miss identifying women with different symptom expressions.

Depression and anxiety were highly correlated with each other, a finding also shown in previous research.[2,16] Their strong relationship suggests a common internalizing phenotype and may explain why essentially the same variables predicted the likelihood of a woman screening positive for both depression and anxiety. About half of the sample with clear risk for depression and anxiety was not receiving any mental health services, a finding that is in line with estimates from other studies.[17] However, given that a subsample of women was recruited from psychiatry settings, this rate is surprisingly low. It is possible that some of the women who completed the screening tool in psychiatric settings had just been referred for assessment, with no treatment plan yet identified. Overall, our findings suggest that women with mental health problems across different settings are likely undertreated. The study could not determine whether women were not being identified within their settings as needing treatment, that resources were not be available for treatment, or that they were not choosing treatment as a way to manage the symptoms. Moreover, depression and anxiety severity were higher among those individuals indicating that they were utilizing psychotherapy or pharmacotherapy. It is possible that they were simply early in their treatment and were not yet in remission, and that more severe patients were more likely to receive treatment. However, this finding raises the concern that even women who are actively utilizing mental healthcare are not being optimally treated. Further research is needed to understand these issues and to better address the mental health needs of women. Because untreated depression and anxiety have numerous adverse effects,[18–20] the lack of intervention is concerning.

Limitations

A number of limitations should be noted when considering the findings. The multisite investigators responded to closed and open-ended questions about the processes used in this study, and their responses revealed some key facilitators and barriers to administering the screening tool in these practices. However, this study was not designed as an implementation science study and did not aim to investigate key implementation outcomes such as those related to incorporation of screening procedures into clinical practice versus another ongoing research study. Such questions will be specific aims of a follow-up implementation science study. Other studies that have implemented depression screening in women's health sites as part of research have found that flexibility, clear staff engagement, and briefer screening tools and consents increased feasibility.[21] The sample was strategically recruited from different types of settings, which introduces sources of systematic bias in some key outcomes (such as illness severity and treatment use). In addition, one site had substantially more women enrolled than other sites, influencing the overall generalizability across geographic areas. Similarly, variations in sample size across sites precluded our ability to examine potential differences within types of settings. These limitations are the precise methodological challenges that must be addressed in moving forward with larger scale, hypothesis-driven, and network-based studies that aim to include diverse samples. Greater statistical power and advanced statistical methods (such a meta-analytic approaches) may address these limitations in a way that harnesses the power of collaborative research, especially with the use of standard data collection instruments.

Conclusions

This pilot project effectively demonstrated the feasibility of administering a standard mental health screening questionnaire among women across multiple clinical sites and

settings in the United States. Network-based studies of this nature require strong collaboration among multiple investigators. The study also provided a preliminary profile of the prevalence of depression and anxiety among these women and the potential services they are receiving. The infrastructure we have developed sets the stage for hypothesis-driven studies to build knowledge in these areas by capitalizing on a standardized, network approach. Such an approach can facilitate scientific development in women's mental health and more rapid identification of effective prevention and treatment approaches.

Acknowledgments

This work was supported by a grant from the Michigan Institute for Clinical and Health Research through a Clinical and Translational Science Award from the National Institutes of health (UL1TR000433 and UL1TR002240). We wish to thank the National Network of Depression Centers.

Author Disclosure Statement

No competing financial interests exist.

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