Association between Depression and Aggression in Rural Women

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Laetitia Meyrueix , *University of New Mexico*
Gabriel Durham , *University of Houston*
Jasmine Miller , *New Mexico State University*

See next page for additional authors

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Abstract

Rural women represent approximately 20% of women living in the United States, yet research on the specific mental health needs of rural women is limited. Given the well-recognized gender-linked disparity in depression, its correlated symptoms in women still need much investigation. While emerging notions of depression in men embrace potential symptoms related to irritability and aggression, less research has focused on the potential role of aggression in depressed women. This connection may be particularly relevant for rural women who face unique mental health stressors in comparison to their urban counterparts. The purpose of this study was to examine if aggression is linked to depression for rural women in order to identify potential unique symptomatology and presentation for rural women. As part of a larger initiative, a sample of 54 participants was recruited from the patient population at a Federally Qualified Health Center (FQHC) in rural southeast Georgia to participate in a quantitative survey. The survey assessed demographics, depression, and aggressive behavior. Mean total score of aggression in depressed women was significantly higher than non-depressed women ($p < 0.001$), and within the entire sample depression scores were significantly related linearly to aggression, explaining 16% of the variance found in depression scores ($\beta = .399$, $r^2 = .159$, $p = 0.003$). This study suggests that aggressive behavior may be linked to depression for rural women, and underscores the need for future research investigating if depression presents differently for rural women.

Keywords

depression; aggression; rural; women

Cover Page Footnote

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Authors

Laetitia Meyrueix; Gabriel Durham; Jasmine Miller; K. Bryant Smalley PhD, PsyD; and Jacob C. Warren PhD

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Laetitia Meyrueix, University of New Mexico
Gabriel Durham, University of Houston
Jasmine Miller, New Mexico State University
K. Bryant Smalley PhD, PsyD, Georgia Southern University
Jacob C. Warren PhD, Mercer University School of Medicine

ABSTRACT

Rural women represent approximately 20% of women living in the United States, yet research on the specific mental health needs of rural women is limited. Given the well-recognized gender-linked disparity in depression, its correlated symptoms in women still need much investigation. While emerging notions of depression in men embrace potential symptoms related to irritability and aggression, less research has focused on the potential role of aggression in depressed women. This connection may be particularly relevant for rural women who face unique mental health stressors in comparison to their urban counterparts. The purpose of this study was to examine if aggression is linked to depression for rural women in order to identify potential unique symptomatology and presentation for rural women. As part of a larger initiative, a sample of 54 participants was recruited from the patient population at a Federally Qualified Health Center (FQHC) in rural southeast Georgia to participate in a quantitative survey. The survey assessed demographics, depression, and aggressive behavior. Mean total score of aggression in depressed women was significantly higher than non-depressed women ($p < 0.001$), and within the entire sample depression scores were significantly related linearly to aggression, explaining 16% of the variance found in depression scores ($\beta = .399$, $r^2 = .159$, $p = 0.003$). This study suggests that aggressive behavior may be linked to depression for rural women, and underscores the need for future research investigating if depression presents differently for rural women.

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INTRODUCTION

Mental disorders are widespread in both urban and rural areas and affect approximately 20 percent of the population in a given year (Gamm, Hutchison, Dabney, & Dorsey, 2003). The prevalence of mental disorders seems to be largely comparable in rural and urban areas; however, there are some major differences between the two environments that can directly

impact course, severity, and outcome. Living in a rural area, along with poverty, age, and being African American, has been associated with a lower likelihood of receiving mental health help (Gamm et al., 2003). For instance, among the 1,253 smaller rural counties in the US with populations of 2,500 to 20,000, nearly three-fourths of these rural counties lack a psychiatrist (Gamm et al., 2003). In general, living in a rural area limits access to any sort of mental health service within a cultural context that frequently stigmatizes mental illnesses and treatment of said illnesses due to a variety of factors such as traditional cultural beliefs and decreased anonymity in seeking services (Groh, 2013; Smalley, Yancey, Warren, Naufel, Ryan, & Pugh, 2010). Due to this lack of access to mental health care and its low acceptability, rural women are more likely to use primary care practitioners for their mental health needs or not seek any treatment at all (Brown, Warden, & Kotis, 2012). Patients utilizing PCPs for treatment of mental illness face many constraints, including an increased likelihood that the provider will have insufficient mental health training and will fail to detect a mental disorder (Groh, 2013). This becomes particularly troubling when considering individuals with comorbid medical diagnoses; for instance, national studies have shown that nearly half of all diabetic patients who have depression have *undiagnosed* depression (Li, Ford, Zhao, Ahluwalia, Pearson, & Mokdad, 2008).

Despite the fact that rural women represent nearly one in five of women living in the United States (U.S. Census Bureau, 2010), research on the specific mental health needs of rural women is limited. Due to striking and persistent gender-linked differences in depression rates, depression in women has been widely studied and discussed in the literature, but the experiences of rural women are rarely included or separately considered. This lack of acknowledgement of the different experiences that rural women face has meant that urban models of care are typically used for mental health within rural contexts without a comprehensive examination to determine if such models are appropriate. Urban models are rarely designed to recognize or integrate into care the unique barriers that rural women are more likely to face in comparison to their urban counterparts. For example, rural women are more likely to be poor, unemployed or underemployed, older, less well educated, geographically isolated, and live longer distances from treatment centers (Groh, 2013; Brossart, Wendel, Elliott, Cook, Castill, & Burdine, 2013). Additionally in rural areas, women are more likely to face stigma related to mental illness, reinforcement of traditional gender roles, and lack of independence (Groh, 2013). It is important to examine depressive symptoms within rural women in order to better understand the illness while also finding easier means for PCPs, psychologists, and psychiatrists to detect and treat depression in their patients. However, current research in this area is lacking.

Typically depressive symptoms include feelings of sadness, hopelessness, and fatigue. Depression, at face value, seems to have little resemblance to aggression; depression is more routinely characterized by notions of withdrawal, isolation, and fatigue directly tied to its diagnostic criteria (American Psychiatric Association, 2013). However, psychoanalytic theory has always considered aggression and depression to be related. Freud theorized that depression was a result of unconscious aggressive impulses that are turned against the self instead of being made conscious (Newman & Hirt, 1983). Although there are few empirical studies that exist examining a direct link between depression and aggression among women, studies among men have established such a link.

For example, irritability as a symptom of depression is common among men and its progression to a manifestation of aggression has been highly studied, particularly in relation to domestic violence (Kim & Capaldi, 2004; Vivian & Langhinrichsen-Rohling, 1994; Marshall,

Sippel, & Belleau, 2011; Graham, Bernards, Flynn, Tremblay & Wells 2012). Aggression as a manifestation of female depression has not been well investigated, with most studies focusing on adolescents or the role of romantic relationships/domestic violence (Brown & Shaw, 1997). Capaldi and Crosby (1997) found that young women's depressive symptoms predicted their psychological and physical abuse of intimate partners, and concluded that depressive symptoms and low self-esteem were much more predictive of female than male aggression. Roland (2002) found that girls with proactive aggression (or aggression actively intended to produce a desired outcome beyond the aggressive action) manifested bullying when depressive symptoms were high. Johnston, Rodgers, and Searight (1991) found a correlation in a college sample of both males and females between depression and overt hostility - that is, both physically assaultive behavior and verbal hostility. This correlation was seen as consistent with clinical descriptions of depressed patients as exhibiting outward anger and irritability. Roberts, Glod, Kim, & Hounchell (2010) found gender differences in the relationship between depression and the types of aggression demonstrated, finding that moderately depressed females were significantly more likely to report being verbally aggressive than their non-depressed female counterparts, whereas moderately depressed males were significantly more likely to report being physically aggressive (e.g., kicking and fighting) than their non-depressed male counterparts.

While these initial studies have supported a potential link between depression and aggression, they have focused almost exclusively on populations of girls or young women, and have not examined if a similar relationship is present among rural women. The current study seeks to explore the possible link between depression and aggression in rural women in order to identify potential intervention targets for rural-focused depression interventions and to examine the potential use of aggression as an indicator of depression.

METHODS

Participants

As part of a larger parent study (designing a novel behavior change intervention focused on diabetes, hypertension, and depression), a sample of 54 women was recruited, using convenience sampling, to participate in a quantitative survey from the patient population at a Federally Qualified Health Center (FQHC) in rural southeast Georgia. Participants met the following eligibility criteria: 1) aged 18 years or older; 2) have a current diagnosis of diabetes or hypertension; 3) able to understand spoken English; and 4) have not previously participated in the study. Following consent, participants completed several assessments using audio computer-assisted self-interviewing (ACASI), allowing for data collection to take place with individuals of all literacy levels. FQHC staff were available to answer questions about the data collection process as needed. Following completion of the questionnaire, participants were compensated $15 for their time and effort.

Measures

As part of the parent study, participants completed an assessment of general demographic characteristics and the Health Risk Questionnaire (HRQ), a behavioral inventory designed by the senior investigators specifically for use within rural populations (Smalley, Warren, & Klibert, 2012). The HRQ focuses on a variety of health behaviors, including four aggression-specific questions rated on a five-point Likert-type scale ranging from "never" to "always or almost always" (i.e., "How often do you yell at other people?" ; "How often do you physically hurt others?"; "How often do you physically hurt yourself?" ; and "How often do you act out of anger

(for example, punching a wall or throwing an object)?"). Participants also completed the Center for Epidemiologic Studies Depression Scale (CES-D) to estimate their level of depression (Radloff, 1977). The CES-D is a 20-item inventory that has been widely used throughout health research for nearly forty years, with extensive validation across multiple populations (e.g., Radloff, 1977). Scores of 16 or greater are indicative of potential depression. In order to quantify overall aggressive tendencies, an index was created by summing the responses to the four aggression questions, yielding an aggression score ranging from 4 to 20, with higher scores indicative of higher levels of aggression.

Data were analyzed using SPSS version 21. Descriptive statistics were calculated to describe the demographic profile of the sample, and t-test analysis was used to compare the total aggression scores between depressed (i.e., CES-D $\geq$ 16) and non-depressed women. A linear regression was also conducted in all women to examine the magnitude of the potential connection between aggression and depression.

RESULTS

Participant had to be excluded from analysis due to having failed to complete the full CES-D assessment. Our analytic sample was therefore N= 54. Table 1 presents the demographics of the sample. Average age was 51.8 (sd = 14.2). Education levels varied The total sample size of women collected was N = 55; however, one, with less than half of women (41.8%) having greater than a high school education. Nearly one-third of the sample (32.7%) was unemployed, with only 20.0% of women employed full-time. The majority of women (60.0%) reported their household income to be $20,000 a year or less.

Table 2 shows the frequency of aggressive behaviors found in non-depressed participants (CESD < 16), and Table 3 contains the frequencies among depressed participants (CESD $\geq$ 16). The tables show differences between the two groups, indicating a higher level of engagement in aggressive behaviors among depressed women. Of the non-depressed women 34.8% reported yelling at others sometimes or more frequently, contrasted with 62% of depressed women. Similarly, while only 4.3% of non-depressed women indicated they sometimes or more often physically hurt others, 12.9% of depressed women stated the same, and while none of the non-depressed women stated that they ever harm themselves, 13% of depressed women stated they at least sometimes do. Finally, when considering acting out anger, while none of non-depressed women indicated they ever act out anger, 32.2% of depressed women stated they at least sometimes do.

When taken in summation, t-test analysis showed a significant difference in total aggression score between non-depressed and depressed women (mean = 5.30, sd = 1.18 and mean = 7.55, sd = 2.91, respectively; $p < 0.001$). Linear regression indicated that aggression was significantly associated with depression, with aggression explaining 16% of variance in depression ($\beta = .399$, $r^2 = .159$, $p = 0.003$).

Table 1: Demographic Characteristics

Characteristic (n = 55)	
Age	51.8 (SD = 14.2)
Race	
African-American	41.8%
Caucasian	34.5%
Asian	1.8%
Native American	1.8%
Indian	1.8%
Other/Not Answered	18.3%
Ethnicity	
Hispanic	7.3%
Non-Hispanic	92.7%
Education Level	
Less than High School	5.5%
Some High School	23.6%
High School Graduate	27.3%
Greater than High School	41.8%
Other	1.8%
Employment Status	
Full-Time	20.0%
Part-Time	5.5%
Unemployed/Looking	14.5%
Unemployed/Not Looking	18.2%
Disability	23.6%
Retired	12.7%
Other	5.5%
Household Income	
Under $20,000	60.0%
$20,000 to $39,999	18.2%
$40,000 to $59,999	7.3%
$60,000 to $79,999	0.0%
$80,000 to $99,999	5.5%
$100,000 or over	0.0%
I'm not sure	9.1%
Long-Term Relationship	67.3%
Uninsured	60.0%
Hypertension	85.5%
Diabetes	36.4%

Table 2: Frequency of Aggressive Behavior in the Non-Depressive Female Sample Group (CESD Score < 16; n = 23)

Questions	Never	Rarely	Sometimes	Most of the Time	Always or Almost Always
How often do you yell at other people?	30.4%	34.8%	21.7%	8.7%	4.3%
How often do you physically hurt others?	95.7%	0%	4.3%	0%	0%
How often do you physically hurt yourself?	100%	0%	0%	0%	0%
How often do you act out in anger (for example, punching a wall or throwing an object)?	100%	0%	0%	0%	0%

Table 3: Frequency of Aggressive Behavior in the Depressive Female Sample Group (CESD Score ≥ 16; n = 31)

Questions	Never	Rarely	Sometimes	Most of the Time	Always or Almost Always
How often do you yell at other people?	19.4%	19.4%	35.5%	19.4%	6.5%
How often do you physically hurt others?	71%	16.1%	9.7%	0%	3.2%
How often do you physically hurt yourself?	67.7%	19.4%	6.5%	6.5%	0%
How often do you act out in anger (for example, punching a wall or throwing an object)?	61.3%	6.5%	25.8%	3.2%	3.2%

DISCUSSION

The results of this study suggest that, particularly in rural areas, there may be a currently under-recognized link between depression and aggression among women. This could be leading primary care physicians to incompletely assess for depressive symptomatology, as aggression is not a standard diagnostic criterion (despite our study's findings that suggest it could be an important consideration). As mentioned previously, society has a tendency to see depressed

women as being reserved, sad, and not very interactive; therefore, clinicians practicing in rural settings may be mis-interpreting aggressive symptomatology or mis-attributing it to another underlying psychological concern. While we were unable to assess this in the current study, future research should investigate if the use of aggression as a diagnostic indicator would increase identification of depressed women. Given that aggression accounted for 16% of variance in depression, it is important for rural practitioners to consider the potential role of aggression in the diagnostic stage, even if it is not formally recognized within diagnostic criteria.

This study's findings become particularly important given the potential perceived "mismatch" between aggressive and depressive symptoms among women. While mental health practitioners may be aware of the potential link between the two, as mentioned previously much mental health treatment in rural settings takes place within the context of primary care; physicians who are not routinely engaged in psychological training may not be aware of the potential role of aggression. Therefore, it may be important to incorporate information regarding the potential role of aggression in rural women's depression in continuing education and other training opportunities for providers. Second, given aggression's standing overall as less consistent with traditional notions of female gender roles, aggression may be particularly well suited for identifying potential depression because it will "stand out" more as a behavior to clinicians (e.g., a practitioner is more likely to take notice of aggressive behavior from a female patient than to take notice of crying behaviors). To maximize the clinical impact of such a relationship, screening methods may need to assess for aggressive behaviors in addition to more traditional behaviors of depression.

Interestingly, the difference between depressed and non-depressed women extended throughout all four aggressive behaviors assessed. For each question asked relating to aggressive behaviors, depressed women not only showed higher levels of aggressive behavior, they also showed apparent increased variance in frequency of those behaviors (the small sample size precluded statistical assessment). Overall, depressed participants demonstrated more verbal than physical aggression, suggesting that depressed women are more likely to be verbally aggressive than to be physically aggressive. While the most endorsed type of aggression centered on "acting out" aggression, the question did not differentiate between verbal and physical acting out and it is unclear which type of aggression is most indicated by this item. Future research should better research this area given its high level of endorsement by depressed women.

Future studies could expand on these results in several ways. A larger sample size would permit more rigorous analyses, allowing for statistical examination of differences within each individual behavior, as well as potential covariates in the process. To further expand the implications of this study it would be important to examine both genders to see if similar differences also emerge for rural men or if there are differences in the types of aggression demonstrated between depressed women and depressed men. In addition, future studies with more power could also examine to what extent aggression can be used as a diagnostic indicator for depression, as well as the potential role of covariates such as education level and other socioeconomic indicators. Interpretation of the study's findings is also limited by the single geographic region in which data were collected, and the fact that all participants were active patients receiving care for an underlying chronic disease. Future research should investigate if these differences hold for non-clinical samples; however, given the importance of detecting depression within a rural primary care context, the findings do indicate that future research

should continue to focus on the role that aggression can play in screening for depression in primary care.

CONCLUSION

In summary, we found significant associations between aggression and depression in our sample of rural women that underscore the importance for continued examination of this connection both from a diagnostic and intervention standpoint. Given the unique cultural climate of rural areas, aggressive behaviors may be culturally-linked and therefore present unique opportunities for diagnosis and intervention within the rural context. This is particularly true given the growing body of evidence linking depression and aggression in men, which has already begun to inform both diagnosis and practice. While it is unclear what the mechanism is that underlies this association in women, future research should further examine the source of aggressive tendencies in depressed rural women, its utility as a potential diagnostic consideration, and its potential for informing treatment priorities.

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This project was supported by Grant P20MD006901 (Principal Investigators K. Bryant Smalley and Jacob C. Warren) through the National Institutes of Health / National Institute on Minority Health and Health Disparities and was completed as part of the Disparities Elimination Summer Research Experience (DESRE) program. The views expressed in the paper are those of the authors and do not necessarily represent the view of DHHS, NIH, or NIMHD.

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