

Psychosocial Predictors of Mental Health among Pregnant Women Attending Antenatal Clinics at Selected Hospitals in Akwa Ibom State: Efficacy of Meditation Therapy

Kufre Bassey Usen, Gboyega E. Abikoye, Mfon Ineme, Otu O. Essien, Aniedi Peter Etuk, James Sunday Robsin, Dorothy Okoro, Usen Essien Inyang, & Wilson Eseme Akpan.

Department of Psychology, University of Uyo, Uyo, Nigeria

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ABSTRACT

Globally, mental health conditions such as depression and anxiety are estimated to affect about 10 – 15% of pregnant women. Given the far-reaching implications of mental health issues among pregnant women and the dearth of empirical research in this line of research in Nigeria, the present study investigated possible psychosocial predictors of Mental health among pregnant women in selected hospitals in Akwa Ibom State. In this cross-sectional survey, 389 pregnant women were interviewed using standard and psychometrically robust measures (General Health Questionnaire, Alcohol Use Disorder Identification Test, Health Locus of Control Scale, Perceived Vulnerability Scale, and a sociodemographic section) to collect relevant data. Participants, pregnant women in their first trimester, were attendees of antenatal clinics at six (6) hospitals. Majority of participants (89.7%) reported poor mental health, with a mean GHQ score of 48.67 ± 7.53 while 10.3% obtained scores (0 – 18) indicating good mental health. Results also indicated that 90% of participants obtained scores (17.08 ± 3.66) indicating psychological vulnerability with a mean PVS score of (Mean = 17.08 ± 3.66). For alcohol use, 82.5% of the participants obtained scores falling under the "Likely Dependent" category (AUDIT score of 19.02 ± 4.94), 0.5% of respondents fall within the "Low-risk" drinking range (AUDIT scores of 1–7), while none of the participants were abstainers. Alcohol use significantly predicted mental health among pregnant women $F(1, 387) = 112.04$, $\beta = -0.49$, $p < .001$), indicating an association between alcohol use and worse mental health among pregnant women. Psychological vulnerability also predicted mental health $F(1, 387) = 280.76$; $\beta = -0.648$, $p < .001$). Health locus of control predicted mental health $F(1, 387) = 172.51$; $\beta = 0.56$; $p < .001$). This implies that the more external the locus of control is, the greater the likelihood of experiencing more mental health issues. It was recommended that relevant interventions should target the identified psychological predictors of mental health among pregnant women in Akwa Ibom State.

INTRODUCTION

Mental health is a state of mental wellbeing that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community (World Health Organization [WHO], 2023). It is an integral component of health and well-being that underpins our individual and collective abilities to make decisions, build relationship and shape the world we live in. Mental health is a basic human right. It is crucial to personal, community and socio-economic development. Mental health is more than the absence of mental disorders. It exists on a complex continuum, which is experienced differently from one person to the next, with varying degrees of difficulty and distress and potentially very different social and clinical outcome. Mental health is a major health issue worldwide. A 2007 study showed that mental problem account for 7.4% of global burden of disease measure (Goldman and Grob, 2007). For this reason, mental health needs to be considered a single target in the sustainable development goals (WHO, 2023).

Mental health, as defined by the Public Health Agency of Canada (PHAC, 2021) is an individual's capacity to feel, think, and act in ways to achieve a better quality of life while respecting personal, social, and cultural boundaries. Impairment of any of these are risk factors for mental disorders, or mental illnesses (Galderisi et al., 2017) which are a component of mental health. In 2019, about 970 million people worldwide suffered from a mental disorder, with anxiety and depression being the most common. The number of people suffering from

mental disorders has risen significantly throughout the years (Global Health Data Exchange {GHDx}, 2022). Mental disorders are defined as health conditions that affect and alter cognitive functioning, emotional responses, and behavior associated with distress and/or impaired functioning (Manderschied et al., 2010).

Mental health is associated with a number of lifestyle factors such as diet, exercise, stress, drug abuse, social connections and interactions (American Psychological Association {APA} 2021). Psychiatrists, psychologists, licensed professional clinical counselors, social workers, nurse practitioners, and family physicians can help manage mental illness with treatments such as therapy, counseling, and medication (APA, 2021). Mental illnesses are more common than cancer, diabetes, or heart disease (WHO, 2019, 2021). As of 2021, over 22 percent of all Americans over the age of 18 meet the criteria for having a mental illness (National Institute of Mental Health {NIMH} 2023). Evidence suggests that 970 million people worldwide have a mental disorder (WHO, 2024). Major depression ranks third among the top 10 leading causes of disease worldwide. By 2030, it is predicted that depression will become the leading cause of disease worldwide (Bains and Abdijadid, 2023). Over 700 000 thousand people commit suicide every year and around 14 million attempt it (WHO, 2024). A World Health Organization (WHO) report estimates the global cost of mental illness at nearly \$2.5 trillion (two-thirds in indirect costs) in 2010, with a projected increase to over \$6 trillion by 2030. (WHO, 2024).

Evidence from WHO suggests that nearly half of the world's population is affected by mental illness with impacts on their self-esteem, relationships and ability to function in everyday life. An individual's emotional health can impact their physical health (WHO, 2024). Poor mental health can lead to problems such as the inability to make adequate decisions and substance use disorders (Richard et al., 2010). Good mental health can improve life quality whereas poor mental health can worsen it (WHO, 2024). There is growing evidence showing that emotional abilities are associated with pro-social behaviors such as stress management and physical health (Heary et al., 2017; Richards et al., 2010). Their research demonstrate that people who lack emotional expression are inclined to anti-social behaviors (e.g., substance use disorder and alcohol use disorder, physical fights, vandalism), which reflects one's mental health and suppressed emotions. (Heary et al., 2017). Adults and children who face mental illness may experience social stigma, which can exacerbate the issues (Heary et al., 2017).

Mental health can be seen as a continuum, where an individual's mental health may have many different possible values. Mental wellness is viewed as a positive attribute which highlights emotional well-being - the capacity to live a full and creative life, and the flexibility to deal with life's inevitable challenges. Some discussions are formulated in terms of contentment or happiness (Graham, 2014). Many therapeutic systems and self-help books offer methods and philosophies espousing strategies and techniques vaunted as effective for further improving the mental wellness. Positive psychology is increasingly prominent in mental health. A holistic model of mental health generally includes concepts based upon anthropological, educational, psychological, religious, and sociological perspectives. There are also theoretical perspectives from personality, social, clinical, health and developmental psychology. The tripartite model of mental well-being (Joshnanloo, 2015) views mental well-being as encompassing three components, namely emotional well-being, social well-being, and psychological well-being. Emotional well-being is defined as having high levels of positive emotions, whereas social and psychological well-being are defined as the presence of psychological and social skills and abilities that contribute to optimal functioning in daily life. The model has received empirical support across cultures (Joshnanloo, 2015). The Mental Health Continuum-Short Form (MHC-SF) is the most widely used scale to measure the tripartite model of mental well-being (Joshnanloo, 2016). Mental state is individuals' emotional, psychological, and social well-being. It reflects how people think, feel and act, and it helps determine how people handle stress, relate to others, and make healthy choices.

Mental health may include an individual's ability to enjoy life and to create a balance between life activities and efforts to achieve psychological resilience. Mental health can affect a person's day to day life, relationship and physical health. Therefore, it is the interplay between the mental and physical health that promotes a healthy living. The mental health of a pregnant woman can impact her physical health, and that of her unborn baby. Pregnant women with good mental health will know the choices to make in favor of herself and the unborn baby. She will seek knowledge and information on how to stay healthy, maintain a healthy weight, go on regular antenatal checks, keep to therapeutic instruction, keep hospital's appointments, adhere to her medications regimens, do exercises, maintain a healthy dietary regimen, maintains personal hygiene, gets adequate sleep,

reduce or avoids alcohol use, cigarette smoking, and caffeine intake. Mentally healthy pregnant women are less likely to subscribe to such myths as eating clay, paints, sand, avoiding snails, okro among others. Mental health may also help pregnant women in maintaining good interpersonal relationships.

Pregnancy and childbirth are some of the most significant, exciting, and scary experiences that a woman may have in her lifetime. The experiences and mental health of the woman during pregnancy and throughout the post-pregnancy period are of utmost importance for the well-being of both mother and her child. Depression or anxiety in pregnancy has been associated with an increase in obstetric complications including stillbirth, low birth weight infants, post natal specialist care for the infants who are more susceptible to adverse neurodevelopmental outcomes including behavioural, emotional and cognitive problems (Glover 2011). Anxiety and Stress in pregnancy have been found to be associated with gestational length, with increases in stress and anxiety leading to preterm delivery and declines in Stress and Anxiety resulting in delivery at term (Schetter and Tanner 2012). Preterm birth has adverse implications for foetal Neurodevelopment and child outcomes often the leading cause of infant mortality and morbidity (Schetter and Tanner 2012). Management of anxiety in pregnant women is therefore of importance to prevent poor outcomes for both the mother and child, as untreated maternal depression can lead to illness persistence with an increase in symptoms severity (fisher et.al 2012) Pregnancy and Maternal health refers to the health of women during pregnancy, childbirth and the postnatal period. According to WHO, (2019) Report, approximately 830 women die from preventable causes related pregnancy or childbirth complications around the world every day.

A pregnant woman with poor mental health seems a disaster to herself, the unborn foetus, the community and society at large as she lacks insight into her condition where homicide and or genocide is a risk (Harvard TH Chan School of Public Health 2022), With claims that all is well and a complete neglect to self, health habits, hygiene, diet, proper exercises, sleep and rest, healthy communication and information seeking, even when coerced to the hospital, will not adhere to treatment regimen, might indulge in behaviours such as hazardous drinking, unhealthy sexual relationships, dangerous eating and smoking. All these will further worsen her condition and that of her fetus, even in future, giving rise to a fetus with higher risk of neural tube defects such as spina bifida (serious birth defects that affects the spine, spinal cord, or brain and may cause death) (National Congenital Anomaly and Rare Disease Registration Service [NCARDRS], 2024). From retarded or delayed growth and development to cleft lips and cleft palate from tobacco and nicotine, fetus movement is weaker in the uterus for at least an hour after smoking, tobacco and nicotine contain carbon-mono-oxide which displaces oxygen that supplies nutrient to the body, thereby depriving the fetus of adequate supply of nutrient (Center for Disease Control and Prevention, [CDC], 2024). Also, drinking alcohol will further compound her problem and that of the fetus as the fetus's liver is not developed to metabolized alcohol, leading to premature contractions, miscarriages and labour, if the fetus survives to term and is safely delivered, would have low birth weight with increased risk for having a child with fetal alcohol spectrum disorders (FASDs) (WHO, 2024), and poor nutrition could lead to low birth weight, anaemia from lack of micro and macro nutrients, pre-eclampsia, haemorrhage and death in mothers (United Nations International Children Emergency Fund [UNICEF], 2024).

However, more recent research shows that a mother's mental health affect her baby while she is pregnant (Traci, 2023). Stress and animal Studies shows that babies exposed to more stress hormones while they are in the womb are more likely to have a very active amygdala in the brain which predispose them to higher anxiety levels (Traci, 2023). According to a WHO (2020) report, exposure of pregnant women to unfavourable social, economic, geopolitical, and environmental circumstances - including poverty, inequality, and environmental deprivation - also increases their task of experiencing mental health conditions which will negatively affect the family financially and otherwise.

Alcohol use during pregnancy has been linked to various adverse health outcomes for both the mother and the fetus. Studies have shown that alcohol consumption during pregnancy increases the risk of maternal health complications such as anemia and gestational diabetes (Meng et al., 2020), while also significantly raising the chances of adverse fetal outcomes like low birth weight, preterm birth, and stillbirth (Jones et al., 2019).

Locus of control is crucial in influencing health behaviors and disease prevention and level of stress (Dito 2018). Locus of control is described as a psychological concept that captures a generalized attitude, belief or expectancy

regarding the nature of causal relationship between one's own behaviour and its consequences (Kesavayuth et.al 2020). Individuals hold a beliefs on whether life outcomes are as a result of fate, chance, luck, or the intervention of others that are regarded as more powerful than they are have (external locus of control). While those who believe that outcomes are due to their effort have an internal locus of control (Central office of research and Edo State Statistical Year Book, 2021). Research indicates that individuals with a strong internal locus of control are more likely to engage in health behaviors and take responsibility for their actions, leading to better adherence to medication and healthier habits (Norman and Bennett, 1996; Wallston, 1992). Moreover, internal locus of control is associated with lower levels of anxiety and neuroticism, allowing individuals to maintain a sense of control over their health-related decisions and behaviors (Roddenberry Renk, 2010; Wallston et al., 1978). Studies also highlight the predictive power of health locus of control on the intensity of health behaviors, emphasizing the need to consider these beliefs when designing preventive strategies and interventions for various health conditions (Wallston, 1992; Wallston and Wallston, 1981). Overall, fostering an internal locus of control can empower individuals to engage in behaviors that promote health and prevent diseases proactively and people with internal locus of control were healthier than those with external locus of control who relied less on both preventive and curative medical care (Kesavayuth et.al 2020). Generally, studies have described locus of control as an important predictor of different life outcomes including healthy living and wellbeing, life satisfaction, educational attainment, employment and wages and could act as a buffer against many negative life events that people may experience (Lassi et.al., 2019, Kesavayuth et.al 2020).

Psychological vulnerability among pregnant women is increasing due to low psychosocial resources, with more alcohol use, reduced locus of control and mental health issues which most times are undetected. Pregnancy is a unique and transformative period in a woman's life, characterized by significant physical, emotional and psychological changes. It can also increase susceptibility to psychological vulnerability due to a combination of hormonal fluctuations, personal expectations, social pressure, and environmental stressors (Howard et.al 2018). Psychological vulnerability refers to an increased sensitivity to stress and a reduced ability to cope with mental and emotional changes. Among pregnant women, this vulnerability may manifest as heightened anxiety, depression, mood swings, or increased emotional reactivity (Lebel et.al 2020). The mental health of expectant mother can be influenced by several factors such as: Hormonal changes, which can affect brain chemistry and mood regulation, pre-existing mental health condition such as anxiety or depression, social and economic challenges, including lack of social support, unemployment or relationship issues, fear and uncertainty about child birth, parenting and the baby's health, and history of trauma or abuse, which may resurface during pregnancy as post traumatic stress disorder (Field T, 2018). Psychological vulnerability may not only affect the wellbeing of the mother but also has potential consequences for fetal development, birth outcomes, and the long term emotional health of the child. Therefore, early diagnosis and support for vulnerable pregnant women are critical in promoting healthier pregnancies and positive maternal and infant outcomes (Howard et.al 2018; Sundhedsstyrelsen 2018). Psychological Vulnerability in Pregnancy could be associated with Psychosocial concerns such as history of anxiety or depression before or during pregnancy or social problems like young age, lack of social support, being single, unemployed, low educational level, history of adverse childhood experiences, poor socioeconomic status, stressful life event during pregnancy or a history of domestic violence or abuse (Kettunen et.al 2018). Psychological vulnerability among pregnant women is associated with various adverse health outcomes, including depressive symptoms, irritability, relationship problems, and psychosomatic symptoms. It is also significantly associated with negative birth outcomes, such as; preterm birth, low birth weight, low Appearance, pause, grimacing, activity and response (APGAR) scores with subsequent adverse outcomes in childhood ie disturbed mother-child relation with risk of child neglect, emotional problems and symptoms of attention deficit hyperactive disorder (Mongan et.al., 2019). Psychological vulnerability among pregnant women is associated with various adverse health outcomes, including depressive symptoms, irritability, relationship problems, and psychosomatic symptoms (Curry et al., 2003). This vulnerability can be mitigated through personalized prenatal care approaches that acknowledge women strengths and challenges, fostering a deeper connection and enhancing the quality of care (Bergman et al., 2008). Implementing routine psychosocial assessments using conversational tools can aid in the early identification of vulnerability among expectant parents, enabling timely interventions and support (Evans et al., 2015). Additionally, providing prenatal primary nursing care that fulfills the needs and expectations of pregnant women in vulnerable contexts, considering factors such as the nurse approach, interventions, and organizational aspects, can contribute to a positive care experience and improved health outcomes for both mothers and babies (Sword et al., 2012).

While motherhood is expected to be a positive and joyful experience, for too many women it is often associated with suffering, disabilities, and even death. Everyday, about 800 women die from conditions associated with pregnancy and child birth resulting in an estimated 300,000 maternal deaths worldwide per year and about 10% of pregnant women and 13% of post-partum women experience a mental disorder (WHO, 2019). Over 9% of all cases of these maternal impairments and subsequent deaths occur in lower –middle income countries with more than half of them occurring in Sub-Saharan Africa (WHO, 2018). According to Stanford Center for Neuroscience in Women's Health (SCNWH), up to 20% of women suffer from mood or anxiety disorders during gestation and post-partum periods (SCNWH, 2024). Worldwide, about 10% of pregnant women and 13% of women who have just given birth experience a mental disorder, primarily depression.

The objective of this study was to investigate alcohol use, locus of control, psychological Vulnerability and mental health among pregnant women basically in their first trimester. Specifically, the study investigated whether alcohol use will predict mental health of pregnant women, if locus of control will predict the mental health of pregnant women and if psychological vulnerability will predict mental health of pregnant women in Akwa Ibom state. The study has the potential to inform evidence-based practices in antenatal care, guiding healthcare providers in identifying and supporting at-risk women. Moreover, it may contribute to the development of targeted public health policies and preventive strategies.

METHOD

Design and Setting

The study was a cross-sectional survey aimed at exploring some psychological predictors of mental health among pregnant women attending antenatal clinics at selected hospitals in Akwa Ibom State. The study was carried out at selected hospitals in Akwa Ibom state, in South-South Geo-political zone of Nigeria. With an estimated population of about 5.5 million (National Bureau of Statistics, NBS, 2021), Akwa Ibom is one of the fastest growing states in Nigeria. Settings for this study were six health facilities randomly selected, using simple balloting method, from the three senatorial districts of the state: General Hospital Ikot Ekpene and General Hospital Ukpom, from Akwa Ibom North West Senatorial District; General Hospital, Ituk Mbang and St Lukes Hospital, Anua, from Akwa Ibom North East Senatorial District; and, General Hospital Equita, Oron and Immanuel Hospital, Eket, from Akwa Ibom South Senatorial District.

This study explored the relationship between alcohol use, locus of control, psychological vulnerability, and mental health among pregnant women aged 18-45 during their first trimester. Inclusion criteria for the study were: (1) pregnant women aged 18-45 years, (2) pregnant women who satisfied the first criterion and were in their first trimester, (3) those who attend the selected healthcare facilities and, (4) consented to participate in the study. The estimated population of pregnant women in Akwa Ibom State was 14,623 out of which 389 pregnant women were selected as the study sample. The sample size was determined based on the total number of pregnant women attending antenatal clinics in Akwa Ibom State as published in the state bulletin last (2012) and estimated to span through to the study period, using Slovin's statistical formula for calculating sample size. The facilities chosen are typically the first point of contact for pregnant women in their locality in urban centres, providing routine check-ups, nutritional advice, and basic medical care. At each selected healthcare facility, pregnant women were purposively selected from the list of pregnant women attending antenatal clinics based on already established criteria. Using purposive sampling, every pregnant woman on the list in their first trimester were selected to participate in the study after obtaining an informed consent. The sampling interval was determined by dividing the total number of women in their first trimester on the list by the desired sample size for that facility.

Measures

Data was collected using a structured questionnaire with five sections. Section A, included demographic variables, such as age, gender, education level, and occupation, which provided background information about the participants.

The Alcohol Use Disorder Identification Test (AUDIT) was used to assess alcohol use. This instrument was developed by the World Health Organization (WHO) in 1989. It consists of 10 items that covers three domains

such as hazardous alcohol use, dependence Symptoms, and harmful use. Each question on the AUDIT is scored from 0 to 4, on a Likert response format with a total scores ranging from 0 to 40. Higher scores indicates greater likelihood of hazardous and harmful drinking as well as problem with dependence. The WHO recommends different cut-off scores for various populations with a score of 8 or more generally indicating hazardous and harmful alcohol use (Babor et al., 2021). Any score by pregnant women from 0 to 7 indicates low risk, 8 to 15 indicate increasing risk, 16 to 19 indicate higher risk and 20 or more indicates possible dependence. In term of psychometric properties, the AUDIT has demonstrated good reliability and validity across various studies. For instance, in a systematic review by Reinert and Allen (2007), the authors found that the AUDIT showed high internal consistency, with a Cronbach alpha of 0.83. The validity of the scale is supported by robust content validity and item-total correlation values for ranging from 0.31 to 0.43, showing a moderate to strong connection between each item and the overall score.

Health Locus of Control (HLOC) was assessed using The Health Locus of Control scale (HLCS) developed by Crowne and Marlowe (1964). Locus of control is a psychological concept that refers to how strongly people believe they have control over the situations and experiences that affect their lives. Rotter (1966) referred to it as the belief whether life events are the result of one's own actions or of external factors. The HLOCS accesses the kind and extents of control a person thinks they have over their own state of health. This self-administered instrument consists of 11 statements that are designed to elicit information about a person's health-related beliefs. The total score for the instrument may range from 11 to 66 with high scores denoting a high degree of external degree of control and low scores denoting beliefs in a high degree of internal locus of control. The validity of the scale is supported by high content validity and item-total correlation values ranging from 0.30 to 0.39. Coefficient alpha of reliability coefficient of 0.71 was obtained for the scale in this study.

Psychological Vulnerability Scale (PVS) was used to assess psychological vulnerability. The PVS (Sinclair and Wallston, 1999) consists of 6 items rated on a 5-point Likert scale ranging from 1 (does not describe me at all) to 5 (describes me very well). Perceived vulnerability is defined as the individual's inability to adapt to stressful situations. Scores range from 6 to 30, with higher scores indicating greater psychological vulnerability. Values above 15 on PVS indicate psychological vulnerability. Good reliability and validity have been reported for PVS. For instance, Cronbach alpha coefficients ranging from 0.71 to 0.86 across three different samples. (Blasco et al., 2014, Sinclair and Wallston, 1999). Test-retest reliability over a 13-week period was 0.83, indicating good temporal stability. The validity of the scale is supported by the robust content validity and item-total correlation values for the PVS ranging from 0.31 to 0.37.

General Health Questionnaire-12 (GHQ-12): Mental health was assessed using GHQ-12 (Goldberg and Williams, 1988). The GHQ-12 consists of 12 items, each scored on a four-point Likert-type scale. Total scores can range from 0-36 with higher scores (from 20 upwards) indicating greater psychological distress. In Nigeria, the GHQ-12 has been validated in various populations, demonstrating robust psychometric properties (e.g. Adewuya et al. (2006). A Cronbach's alpha of 0.79 and a split-half reliability coefficient of 0.69 were obtained for the scale in this study. Item-total correlation values ranged from 0.30 to 0.47, indicating a strong alignment between the items and the overall construct of mental health.

Procedure

Ethical approval was obtained from the Research Ethics Review Board of the University of Uyo Teaching Hospital, Uyo. Questionnaire were administered in-person to participants over a 12 a four-week period, Participants were assured of their confidentiality, non-maleficence and freedom to withdraw at any point that they could no longer cope. Signed informed consent was obtained from all participants. Coding and data analysis was done using SPSS version 23. The level of significant was set at 0.05. Descriptive and inferential statistics were used to analyse data collected.

RESULTS

Data presented in Table 1 show the distribution of respondents based on their demographic characteristics. The data indicate that a vast majority of the participants (96.4%) were below the age of 40, while only 3.6% are aged 40 and above. In terms of alcohol use, the majority of participants fall into the "Likely Dependent" category

(82.5%), with a mean AUDIT score of 19.02 (SD = 4.94), indicating a higher likelihood of alcohol dependence. Only 0.5% of respondents fall within the "Low-risk" drinking range (1–7), and none of the participants are abstainers. On mental health, the majority of participants (89.7%) report high psychological distress, with a mean GHQ score of 48.67 (SD = 7.53), which suggests significant mental health challenges among the sample. A smaller proportion (10.3%) fall within the "Low Distress" range (0–18), indicating relatively better mental health. Regarding psychological vulnerability, a large proportion (90.5%) of respondents are classified as having high psychological vulnerability, with a mean PVS score of 17.08 (SD = 3.66), which exceeds the clinical cutoff of 15, suggesting that most participants experience heightened psychological stress or susceptibility.

Finally, on of locus of control, the majority of participants (77.6%) have an internal locus of control, with a mean score of 38.02 (SD = 5.76), indicating that they generally believe they have control over their health outcomes. Only 22.4% of the sample show an external locus of control (scoring below 34), suggesting that they may feel their health is influenced more by external factors beyond their control.

Table 1: Summary of Demographic and Psychological Measures (N = 389)

| Variable | Category | Frequency (N) | Percentage (%) | Mean | SD |
|--|------------------------|---------------|----------------|-------|------|
| Age (years) | 18 - 45 | 375 | 96.4 | 29.22 | 5.11 |
| | | 14 | 3.6 | | |
| Highest Educational Qualification | FSLC | 1 | 0.3 | | |
| | SSCE | 87 | 22.4 | | |
| | NCE/OND | 77 | 19.8 | | |
| | HND/BSc | 196 | 50.4 | | |
| | MSc | 24 | 6.2 | | |
| | PhD | 4 | 1.1 | | |
| Marital Status | Married | 347 | 89.2 | | |
| | Single | 42 | 10.8 | | |
| Alcohol Use (AUDIT) | Abstainer (0) | 0 | 0.0 | | |
| | Low-risk (1–7) | 2 | 0.5 | 19.02 | 4.94 |
| | Hazardous (8–14) | 66 | 17.0 | | |
| | Likely Dependent (15+) | 321 | 82.5 | | |
| Mental Health (GHQ) | Low Distress (0–18) | 40 | 10.3 | 48.67 | 7.53 |
| | High Distress (19–36) | 349 | 89.7 | | |
| Psychological Vulnerability (PVS) | Low (< 15) | 37 | 9.5 | 17.08 | 3.66 |
| | High (15+) | 352 | 90.5 | | |
| Locus of Control (HLoC) | External (< 34) | 87 | 22.4 | 38.02 | 5.76 |
| | Internal (≥ 34) | 302 | 77.6 | | |

Table 2 presents a zero-order correlation matrix among the study variables, showing the strength and direction of bivariate relationships. Age is positively correlated with education ($r = .24, p < .01$) but negatively correlated with marital status ($r = -.40, p < .01$). Education shows a positive correlation with alcohol use ($r = .11, p < .05$). Alcohol use is negatively correlated with mental health ($r = -.47, p < .01$). Psychological vulnerability also has a strong negative correlation with mental health ($r = -.65, p < .01$). Locus of control is positively correlated with mental health ($r = .56, p < .01$). Notably, psychological vulnerability and alcohol use show no significant relationship ($r = -.02, p > .05$).

Table 2: Zero-Order Correlation Matrix of Study Variables

| Variables | Age | Education | Marital Status | Alcohol Use | Psychological Vulnerability | Locus of Control | Mental Health |
|----------------|--------|-----------|----------------|-------------|-----------------------------|------------------|---------------|
| Age | 1.00 | | | | | | |
| Education | 0.24* | 1.00 | | | | | |
| Marital Status | 0.40** | -0.11* | 1.00 | | | | |
| Alcohol Use | -0.01 | 0.11* | 0.08 | 1.00 | | | |

| | | | | | | | |
|---------------|-------|-------|-------|---------|---------|--------|------|
| PVS | 0.04 | -0.05 | -0.09 | -0.02 | 1.00 | | |
| LoC | -0.02 | -0.03 | 0.00 | 0.00 | 0.04 | 1.00 | |
| Mental Health | -0.03 | -0.04 | 0.02 | -0.47** | -0.65** | 0.56** | 1.00 |

Table 3 summarizes responses to items on the AUDIT, showing how many respondents selected each option (0 to 4), along with their percentages, means, and standard deviations. The response distribution varies slightly across items, with most means ranging between 1.78 and 2.10. This suggests that respondents generally leaned toward moderate use of alcohol. Standard deviations, which measure response spread, are relatively similar across all items, ranging from 1.33 to 1.37, indicating moderate use of alcohol among pregnant women.

Table 3: Prevalence of Alcohol Use among Pregnant Women

| Item No | 0 0 | 1111 | 1222 | 3333 | 4444 | M Mean | SD |
|---------|------------|------------|------------|------------|------------|--------|------|
| 1 | 50 (16.7%) | 62 (20.7%) | 56 (18.7%) | 70 (23.3%) | 62 (20.7%) | 2.10 | 1.34 |
| 2 | 72 (24.0%) | 71 (23.7%) | 56 (18.7%) | 53 (17.7%) | 48 (16.0%) | 1.78 | 1.33 |
| 3 | 56 (18.7%) | 55 (18.3%) | 56 (18.7%) | 67 (22.3%) | 66 (22.0%) | 2.10 | 1.37 |
| 4 | 62 (20.7%) | 56 (18.7%) | 59 (19.7%) | 63 (21.0%) | 60 (20.0%) | 2.01 | 1.36 |
| 5 | 62 (20.7%) | 62 (20.7%) | 55 (18.3%) | 60 (20.0%) | 61 (20.3%) | 1.98 | 1.36 |
| 6 | 62 (20.7%) | 62 (20.7%) | 56 (18.7%) | 60 (20.0%) | 60 (20.0%) | 1.98 | 1.36 |
| 7 | 62 (20.7%) | 62 (20.7%) | 56 (18.7%) | 60 (20.0%) | 60 (20.0%) | 1.98 | 1.36 |
| 8 | 62 (20.7%) | 62 (20.7%) | 56 (18.7%) | 60 (20.0%) | 60 (20.0%) | 1.98 | 1.36 |
| 9 | 62 (20.7%) | 62 (20.7%) | 56 (18.7%) | 60 (20.0%) | 60 (20.0%) | 1.98 | 1.36 |
| 10 | 62 (20.7%) | 62 (20.7%) | 56 (18.7%) | 60 (20.0%) | 60 (20.0%) | 1.98 | 1.36 |

We tested the hypothesis that alcohol use will negatively predict mental health among pregnant women, such that higher alcohol consumption will be associated with lower mental health. Simple linear regression was employed to examine the extent to which alcohol use predicts mental health among participants. This statistical method was appropriate because it allows for the analysis of the direct influence of a single continuous independent variable (alcohol use) on a continuous dependent variable (mental health). The goal was not just to explore association but to assess predictive power—how well alcohol use can account for variations in mental health scores.

Summary of Linear Regression showing the Contribution of Alcohol Use to Mental Health among Pregnant Women

| Predictor | β | Std. β | t | Sig. R1 | R ² | F | Df | Sig. (Model) |
|-------------|---------|--------------|--------|---------|----------------|--------|--------|--------------|
| Alcohol Use | -1.14 | -0.49 | -33.60 | < .001 | 0.23 | 112.04 | 1, 387 | < .001 |

Results presented in Table 4 show the findings from simple linear regression. The model was statistically significant, $F(1, 387) = 112.04$, $p < .001$, and explained 23% of the variance in mental health scores among pregnant women ($R^2 = .23$). As hypothesized, alcohol use was a significant negative predictor of mental health ($\beta = -0.49$, $t = -33.60$, $p < .001$), indicating that each unit increase in alcohol consumption was associated with a 1.14-point decrease in mental health. These findings support the hypothesis that Alcohol use will negatively predict mental health among pregnant women, such that higher alcohol consumption will be associated with lower mental health.

We also tested the hypothesis that psychological vulnerability will negatively predict mental health among pregnant women, such that higher levels of psychological vulnerability will be associated with lower mental health. Simple linear regression was used to assess whether psychological vulnerability significantly predicts mental health among participants. This statistical technique was chosen because it allows for the evaluation of a direct and quantifiable relationship between a single predictor (psychological vulnerability) and a continuous outcome variable (mental health). Psychological vulnerability was treated as a continuous variable hypothesized to negatively influence mental health. Regression analysis was ideal for testing this hypothesis, as it not only identifies the direction and strength of the relationship but also determines how much variance in mental health can be explained by psychological vulnerability.

Summary of Simple Linear Regression Analysis on the Role of Psychological Vulnerability on Mental Health of Pregnant Woman

| Predictors | β | Std. β | T | Sig.R1 | R ² | F | df | Sig. |
|-----------------------------|---------|--------------|--------|--------|----------------|--------|----|------|
| Psychological Vulnerability | -1.783 | 0.648 | 16.756 | <.001 | 0.42 | 280.76 | 1 | <.05 |

Results presented in Table 5 show the results of the simple linear regression analysis, where psychological vulnerability was tested as a predictor of mental health. The model was statistically significant, $F(1, 387) = 280.76$, $p < .001$, explaining 42% of the variance in mental health scores ($R^2 = 0.42$). The results indicate that psychological vulnerability is a significant negative predictor of mental health, with each unit increase in psychological vulnerability associated with a 1.78-point decrease in mental health ($B = -1.783$, $\beta = -0.648$, $t = -16.76$, $p < .001$). These findings support the hypothesis that psychological vulnerability will negatively predict mental health among pregnant women, such that higher levels of psychological vulnerability will be associated with lower mental health.

The hypothesis that health locus of control will positively predict mental health among pregnant women, was tested using simple linear regression was conducted to test this hypothesis. A simple linear regression was chosen as the appropriate statistical test for this analysis because the aim was to determine the predictive power of a single continuous independent variable (locus of control) on a continuous dependent variable (mental health). The use of linear regression allowed for the evaluation of how changes in locus of control predict corresponding changes in mental health, which directly aligns with the hypothesis.

Table 6: Summary of Simple Linear Regression showing the Predictive Role of Locus of Control on Mental Health of Pregnant Women

| Predictors | β | Std. β | T | Sig. | R ² | F | Df | Sig. |
|------------------|---------|--------------|-------|-------|----------------|--------|--------|-------|
| Locus of Control | 0.99 | 0.56 | 13.13 | <.001 | 0.31 | 172.51 | 1, 387 | <.001 |

A simple linear regression results is presented in Table 6. The regression model was statistically significant, $F(1, 387) = 172.51$, $p < .001$, explaining 31% of the variance in mental health of pregnant women ($R^2 = .31$). As hypothesized, locus of control was a significant positive predictor of mental health ($\beta = 0.56$, $t = 13.13$, $p < .001$), with each unit increase in locus of control associated with a 0.99-point increase in mental health. These findings support the hypothesis that Health locus of control will positively predict mental health among pregnant women, such that higher levels of health locus of control will be associated with higher mental health.

DISCUSSION

Findings of this study indicated a significant association between alcohol use and mental health outcomes of pregnant women in Akwa Ibom State. Implying that pregnant women with more exposure to alcohol use will present poorer mental health hence reports more symptoms of anxiety, depression, and other poorer mental health outcomes. This finding is consistent with the study conducted by Pacho et al. (2023) which reported that a strong association was found between substance use and mental health outcomes. Also, Paoletti et al. (2013) found that alcohol exerts teratogenic effects in all the gestational times, with peculiar features in relationship to the trimester of pregnancy in which alcohol is assumed.

Health locus of control was found to significantly predict mental health of pregnant women in Akwa Ibom State. This finding is consistent with that of Kurtović et al. (2018) in which cognitive orientation towards control was reported to be a key to enhancing mental health. This implies that understanding about control affect beliefs about one's self-worth and coping strategies, which in turn can affect one's mental health. Also, pregnant women with traits tilting towards a more internal locus of control, who perceive themselves to have greater agency towards life events are likely to experience better mental health outcomes while those with traits tilting more to external locus of control who perceives life events as being determined by powerful others, fate and chance are likely to experience more anxiety, depression and poorer mental health outcomes. This underscores the need for mental health interventions such as meditation based therapy during antenatal periods in order to strengthen self-efficacy, and decision-making capacity of the pregnant women. It was concluded that the locus of control is an important construct in the direct or indirect prediction of psychopathological symptoms.

Findings of this study also indicated that psychological vulnerability negatively predicted mental health of pregnant women in Akwa Ibom State was accepted. This implies that higher levels of psychological vulnerability such as low resilience, poor coping skills, high susceptibility to stress are associated with poorer mental health outcomes in pregnant women. This is supported by studies from other parts of the world (e.g. Mazhari et al., 2022) in which psychological vulnerability was found to be associated with worse mental health outcomes.

Mental health is a crucial aspect of pregnancy and can significantly impact both the mother and the child. By understanding the psychosocial factors that influence mental health during pregnancy and providing appropriate support and treatment, health care professionals could help ensure the well-being of both the mother and the baby. Conclusion drawn from the results of this study indicated that pregnant women in Akwa Ibom State were motivated to using alcohol in combating their stressors due to lack of adequate knowledge of its negative impact on mental health. Also because of their inability to completely rely on their abilities to cope with issues that currently confronts them, This has made them highly vulnerable and receptive to offers and options intended to provide succor to them despite its negative implication to their mental health.

It is recommended that adequate follow-up on pregnant women be provided by expert care provider such as clinical psychologists and counsellors for enhanced adherence. Rehabilitative measures should be instituted for already vulnerable patients as their mental state may have been poorer at this stage. Treatment should be broad and multidisciplinary with a view to reducing psychosocial predictors and enhancing mental health. As a matter of urgency, there should be a legislation on free and compulsory antenatal care for pregnant women within the studied population. Medications and care protocols should be made free to pregnant women.

Most of the participants had the reservation with the research instrument by perceiving it as a threat to their privacy and dignity probing into their lifestyle by asking to know about their drinking pattern, belief, and how they rely on their confidants. In spite of the time frame given to respondents, some were not able to complete the instrument as required Lack of interest and exposure. Gender bias also played a role as they women were more comfortable with female research assistants. However, the afore-mentioned limitations were not strong enough to affect the merit of the study or the veracity of the findings.

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