Data Sharing Proposal and Results of a Pilot Cross-Sectional Study on the Risk Factors Associated with the Prevalence of Depression Severity in Postmenopausal Women in the Dominican Republic

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During a woman's life, she undergoes various stages that cause both physiological and structural changes, such as menarche, menstrual cycles, and climacteric; the latter is of particular significance regarding women's mental health. Depression is a major mental disorder, and women are susceptible to this condition. This susceptibility is heightened by the current state of the health system, particularly in the country's mental health sector. Depression is prevalent worldwide, affecting approximately 300 million people. In the Dominican Republic alone, more than three hundred thousand people are affected (Ministry of Public Health, 2018; Gordon et al., 2016).

Several risk factors that increase the likelihood of developing depression after menopause have been identified. These include a shorter time of exposure to ovarian estrogens, indicating a shorter reproductive age, low educational attainment, which is common in the country, poor sexual satisfaction, which can influence psychological well-being, and intrafamily abuse, among others (Alblooshi et al., 2023). Therefore, it is crucial to conduct new research focused on studying the factors and implications affecting postmenopausal women in detail. This includes examining the prevalence of depressive symptoms and their associated risk factors in this population.

Therefore, this study aimed to provide additional pilot data emphasizing the importance of this topic in a country in Central America. The authors are willing to share non-anonymized data from this study for future studies gathering data from different centers (please contact the corresponding author).

We collected data by interviewing postmenopausal women aged ≥40 years who attended the Hato del Yaque Center in Santiago, Dominican Republic, in 2021, resulting in a sample of 248 participants. Respondents taking antidepressants and/or hormonal replacement therapy were excluded from the study. The survey included a sociodemographic questionnaire, Beck Depression Inventory II, and Hudson Sexual Satisfaction Index. These surveys were administered in Spanish and have been previously validated in the Dominican Republic to ensure the accurate capture of participants' responses. We used the Statistical Product and Service Solutions version 15.0 for data analysis. For the quantitative parameters, the mean and standard deviation were calculated to accurately describe the sample data. If the data did not follow a normal distribution, the median and interquartile range were used to process the disproportionate data and to provide adequate results. For qualitative parameters, data were analyzed in the form of frequency and percentage tables. This study was approved by the Bioethics Committee of the Faculty of Health Sciences of the Pontificia Universidad Católica Madre and Maestra. The participants signed an informed consent form.

The study population consisted entirely of Dominican mothers, most of whom were between 55 and

59 years of age. Only 36.3% had reached basic or intermediate levels of academic education, and 58.9% did not have a profession or occupation in which they were practicing. The majority were either in a common-law relationship or were single, with the most common number of children being three. The most frequent age of menarche was 13 years, while the most representative age range for last menstruation was between 45 and 49 years. Most of these women had more than five pregnancies. Finally, the number of women with a current sexual partner was higher than the number of women without a partner.

A statistically significant unadjusted relationship was found between age and sexual satisfaction (measured using the Hudson Sexual Satisfaction Index), with women aged 45–49 reporting higher satisfaction and women aged 50–54 years being the most sexually dissatisfied (p = 0.048). As hormone production decreases during menopause, women become more prone to psychological changes such as depression and anxiety, which can decrease sexual satisfaction. Additionally, aging can diminish self-esteem and contribute to psychological issues. No statistically significant difference was found between depression levels and sexual satisfaction, although higher depression levels were correlated with lower sexual satisfaction. Women with good sexual satisfaction had minimal or normal depression in 92.9% of the cases, compared to 81.8% of those who were dissatisfied (p = 0.158).

The inclusion of sexual satisfaction as a significant measure in this study is justified by its relevance to overall quality of life and mental health. Sexual satisfaction can influence psychological well-being, self-esteem, and intimate relationships, which are all important components of mental health. By exploring the relationship between sexual satisfaction and depression severity, we aimed to provide a more comprehensive understanding of the psychosocial factors that affect postmenopausal women. Although our unadjusted analysis did not find a significant correlation between sexual satisfaction and depression severity, this does not diminish the importance of considering sexual satisfaction in the context of mental health. This is supported by Khakkar and Kazemi (2023), who found that depression in middle-aged women is related to relational concerns within sexual satisfaction, emphasizing the need for counseling programs to address sexual relationship concerns as part of mental health promotion.

A study in Catalonia found that the prevalence of depression in women remained stable between the ages of 25–65 (51%) and decreased in those over 65 years of age (>63%) (Montesó-Curto and Aguilar-Martín, 2014). In contrast, our study found the highest prevalence among women aged 50–65, accounting for 79% of the sample, with a peak between 60–65 years old. Although age was not a statistically significant factor in our study, a similar distribution of depression severity was observed. Additionally, a study in Colombia found a high prevalence of depression in individuals over 61 years old, which aligns with our findings (Gómez-Restrepo et al., 2004). Cultural and geopolitical similarities between the samples may explain this alignment. However, it is important to note that our study focused solely on women, while the Colombian study included both sexes, which could affect the determination of prevalence.

Based on the data shown in Table 1, a statistically significant relationship was found between the number of children the respondent had and level of depression. As the number of children increases, moderate and severe depression also increases. Additionally, those with two children were the only ones that classified severe depression at 6.7% (p = 0.015). This is supported by a study by the Committee on Depression, Parenting Practices, and Healthy Child Development in the United States, which found a relationship between parental depression and child rearing. It mentions that, although it must be confirmed through studies, some mediators and moderators indicate such disorders, as well as the role of stress and social support these parents receive (National Research Council & Institute of Medicine, 2009).

Furthermore, although not statistically significant, it was shown that respondents in a common-law relationship had the highest percentage of minimal depression (94.2%), divorced participants had the highest moderate depression (16.7%), and married participants had the highest (2.3%). Temporary job holders had minimal depression compared to those with permanent jobs or no employment, with 95% falling into this category. Those without a job had the highest percentage of patients with moderate depression (4.1%).

Besides the factors discussed in our research that contribute to the development of depression symptoms, other factors influence the menopause period, including age, body mass index, bone mineral density, and hormonal levels, particularly estrogen. The decline in estrogen levels significantly affects the onset and progression of conditions, such as osteoporosis and cardiovascular disease. Nutrition and physical activity play a vital role. A balanced diet rich in calcium and vitamin D, along with regular exercise, can enhance bone and cardiovascular health. In contrast, a low-calcium diet and lack of exercise can exacerbate the loss of bone density. Additionally, psychosocial factors, such as stress and social support, impact postmenopausal health, with higher

	Minimal Depression No.	%	Mild Depression No.	%	Moderate Depression No.	%	Severe Depression No.	%	p
Age									
40 to 44	12	80	3	20	0	0	0	0	
45 to 49	31	91.2	2	5.9	1	2.9	0	0	
50 to 54	54	87.1	7	11.3	1	1.6	0	0	0.472
55 to 59	69	88.5	5	6.4	2	2.6	2	2.6	
60 to 65	44	74.6	10	16.9	3	5.1	2	3.4	
Education level									
High School	39	88.6	3	6.8	1	2.3	1	2.3	
Complete primary education	28	84.8	4	12.1	0	0	1	3	
Incomplete primary education	31	73.8	6	14.3	3	7.1	2	4.8	
University	1	100	0	0	0	0	0	0	0.399
Intermediate/Basic	80	88.9	10	11.1	0	0	0	0	
Cannot read or write	21	80.8	3	11.5	2	7.7	0	0	
Professional	1	50	1	50	0	0	0	0	
Technical Degree	9	90	0	0	1	10	0	0	
Employment status									
No	116	79.5	22	15.1	6	4.1	2	1.4	
Yes, Permanent	56	90.3	3	6.5	1	1.6	1	1.6	0.133
Yes, Temporary	38	95	1	2.5	0	0	1	2.5	
Marital Status									
Married	36	81.8	6	13.6	1	2.3	1	2.3	
Legally separated	4	66.7	1	16.7	1	16.7	0	0	
Single	58	77.3	12	16	3	4	2	2.7	0.117
Canonical union	1	100	0	0	0	0	0	0	
Common – law union	97	94.2	4	3.9	1	1	1	1	
Widowed	14	77.8	3	16.7	1	5.6	0	0	
Number of children									
1	8	100	0	0	0	0	0	0	
2	51	85	4	6.7	1	1.7	4	6.7	
3	77	89.5	6	7	3	3.5	0	0	
4	47	82.5	7	12.3	3	5.3	0	0	0.015*
5 or more	26	72.2	10	27.8	0	0	0	0	
None	1	100	0	0	0	0	0	0	
Age at first menstruation									
10 years old	6	85.7	0	0	1	14.3	0	0	
11 years old	22	91.7	2	8.3	0	0	0	0	
12 years old	44	93.6	3	6.4	0	0	0	0	0.41
13 years old	58	81.7	7	9.9	3	4.2	3	4.2	
14 years old	41	80.4	8	15.7	2	3.9	0	0	
After 14 years old	39	81.3	7	14.6	1	2.1	1	2.1	
Age at last menstruation									
Younger than 40 years old	38	84.4	4	8.9	1	2.2	2	4.4	
40 to 44	33	76.7	6	14	3	7	1	2.3	
45 to 49	68	88.3	8	10.4	1	1.3	0	0	0.401
50 to 54	64	87.7	6	8.2	2	2.7	1	1.4	
55 to 59	7	70	3	30	0	0	0	0.0	
Number of pregnancies									
0	1	100	0	0	0	0	0	0	
1	5	100	0	0	0	0	0	0	
2	35	89.7	1	2.6	1	2.6	2	5.1	
3	69	86.3	7	8.8	2	2.5	2	2.5	0.178
4	51	89.5	4	7	2	3.5	0	0	
5 or more	49	74.2	15	22.7	2	3	0	0	

Table 1: *Beck depression inventory II.*

stress levels and lower social support correlating with poorer outcomes. Genetic and unhealthy lifestyle factors, including tobacco and alcohol consumption, accelerate bone loss and increase the risk of heart disease, further influencing postmenopausal experience (Bromberger & Epperson, 2018; Kim et al., 2021).

The study's cross-sectional design limits its ability to infer causation. As a result, we could not establish a definitive cause-and-effect relationship between sociodemographic factors, sexual satisfaction, and depression severity in postmenopausal women. This limitation means that while we can identify associations, we cannot determine whether these factors directly cause changes in the severity of depression.

Additionally, our reliance on unadjusted chi-square tests for statistical analysis, although useful for identifying relationships between categorical variables, may not fully account for all potential confounding variables. More sophisticated analytical methods, such as regression models in studies with larger sample sizes, are needed to better control for these confounders and provide a clearer understanding of the underlying dynamics. For instance, regression analysis can simultaneously adjust for multiple variables and help isolate the effects of individual factors on depression severity.

In addition, premature menopause could have been a confounding factor in this study. Women who experience menopause before the age of 40 years might have different underlying health conditions or genetic factors that influence their psychological profile, which could independently affect depression severity.

Future research should employ longitudinal study designs to track changes over time and establish causative links between variables. Longitudinal studies would allow for observation of how depression severity and sexual satisfaction evolve with age and under different sociodemographic conditions. Additionally, using more advanced statistical techniques, such as multivariate regression analysis or structural equation modeling, could help control for confounding factors and provide deeper insights into the relationships between variables.

Finally, data sharing is critical for advancing scientific research, particularly in the mental health field. By making our data available to other researchers, addressing the limitations, and employing more robust research methodologies, larger-scale studies can contribute to a better understanding of depression in postmenopausal women. This collaborative approach can lead to higher-quality interventions and improve mental health outcomes.

Supplementary Materials

Sociodemographic characteristics of menopausal participants included in the analysis,
Hudson sexual satisfaction index vs sociodemographic variables,
Severity of Beck depression II vs sexual satisfaction.

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Conflicts of Interest

The authors declare no conflict of interest.

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