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HEALTH AND REHABILITATION

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LEVEL OF DEPRESSION AND ITS ASSOCIATION WITH ACTIVITIES OF DAILY LIVING AMONG PREGNANT WOMEN

Original Research

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Acknowledgement: The authors gratefully acknowledge the support of the participants and hospital staff who contributed to this study.

Conflict of Interest: None

Grant Support & Financial Support: None

ABSTRACT

Background: Pregnancy is a physiologically and emotionally dynamic phase that significantly influences both maternal and fetal well-being. The lifestyle and daily routines adopted during this period play a crucial role in shaping outcomes. Among modifiable factors, physical activity has been identified as an effective tool in maintaining mental health and reducing antenatal depression, which in turn impacts functional ability and quality of life.

Objective: To assess the level of depression and its association with activities of daily living (ADLs) among pregnant women.

Methods: A cross-sectional study was conducted over six months at Lady Willingdon Hospital and Jinnah Hospital, Lahore. A total of 200 pregnant women aged 20 to 35 years were recruited using a non-probability convenience sampling method. Depression levels were assessed using the Edinburgh Postnatal Depression Scale (EPDS), categorized as mild (7–13), moderate (14–19), and severe (20–30). Functional status was measured using the Physical Self-Maintenance Scale (ADLs), categorized as severe (1–2), moderate (3–4), and mild (5–6) impairment. Data were entered and analyzed using SPSS version 25. Ethical approval was obtained prior to the commencement of the study.

Results: Of the 200 participants, 73 (36.5%) were aged 20–25 years, 68 (34%) were 25–30 years, and 59 (29.5%) were 30–35 years. Based on EPDS, 118 women (59%) had mild depression, 52 (26%) moderate, and 30 (15%) severe. According to ADLs, 40 participants (20%) had severely affected functioning, 54 (27%) had moderate, and 106 (53%) had mild impairment. A statistically significant association was found between depression severity and ADL impairment ($p = 0.000$).

Conclusion: The study concluded that antenatal depression is significantly associated with impairment in activities of daily living, and highlights the importance of addressing mental health to maintain maternal functionality during pregnancy.

Keywords: Activities of Daily Living, Antenatal Depression, Depression, EPDS, Mental Health, Pregnancy, Women's Health.

INTRODUCTION

Pregnancy is a transformative physiological and psychological journey in a woman's life, marked not only by profound bodily changes but also by significant emotional shifts that can greatly influence both maternal and fetal outcomes. The lifestyle adopted during pregnancy plays a pivotal role in determining the health trajectory of the mother and the developing fetus. Among various modifiable factors, physical activity has garnered substantial attention for its potential in enhancing maternal well-being and mitigating the risk of psychological distress. Depression during pregnancy, commonly referred to as antenatal depression, is a prevalent mental health issue that affects a substantial proportion of expectant mothers and poses serious consequences for both prenatal and postnatal health (1). Characterized by persistent sadness, loss of interest, fatigue, and cognitive disturbances, antenatal depression often goes underrecognized, despite its strong association with postpartum depression and other long-term mental health complications (2,3). Emerging evidence suggests that antenatal depression frequently begins during the third trimester and may serve as a predictive marker for postpartum psychological disorders (4). Factors such as poor spousal support, unplanned pregnancies, inadequate prenatal education, and significant life stressors have been identified as potential contributors to the development of antenatal depression (5). Despite its burden, depression during pregnancy remains inadequately addressed in many healthcare settings, particularly in low-resource contexts where access to mental health services is limited. Notably, physical inactivity during pregnancy is increasingly viewed as a risk enhancer for poor mental health outcomes, including depression and anxiety (6). Conversely, regular engagement in moderate-intensity physical activity has been shown to positively impact maternal mood, enhance energy levels, and contribute to better quality of life during pregnancy (7).

Physiological concerns have historically contributed to hesitancy regarding exercise during pregnancy, including fears of uterine hypoxia, fetal hyperthermia, teratogenic effects, and increased uterine contractility potentially leading to preterm labor (8). However, well-structured clinical studies have demonstrated that these risks are minimal in uncomplicated pregnancies when physical activity is practiced within medically recommended limits (9). Physical activity, defined as any skeletal muscle movement resulting in energy expenditure, includes a spectrum of activities such as occupational tasks, household chores, and leisure-time exercise (10). Among these, aerobic exercises like walking and swimming, as well as resistance training and stretching routines, have shown favorable outcomes in maintaining cardiovascular health, musculoskeletal strength, and overall functional capacity during pregnancy (11). Despite global health organizations advocating for moderate physical activity during pregnancy, approximately 60% of pregnant women remain sedentary, often due to misconceptions, lack of guidance, or sociocultural barriers (12). Regular physical activity during the initial six months of gestation has been linked with reduced incidence of cesarean section, shorter labor durations, and smoother deliveries without posing harm to the fetus (13). Furthermore, adherence to exercise regimens has been associated with decreased risk of gestational diabetes, hypertensive disorders, and overall perinatal complications, highlighting its preventive value in obstetric care (14). From a psychosocial perspective, active women report better self-esteem, lower perceived stress, and improved emotional well-being, underscoring the interconnection between physical and mental health (15). Nonetheless, the intersection of antenatal depression and physical activity remains an underexplored area in maternal health literature, particularly in developing countries. There is a pressing need to bridge this knowledge gap by evaluating the therapeutic role of structured physical activity in reducing depressive symptoms during pregnancy. Understanding this relationship could aid in formulating cost-effective, non-pharmacological strategies to improve maternal mental health and pregnancy outcomes. Therefore, the objective of this study is to assess the association between antenatal depression and physical activity levels among pregnant women, and to explore whether physical activity serves as a protective factor against depressive symptoms during pregnancy.

METHODS

This cross-sectional study was conducted over a six-month period, from June to December 2024, at two tertiary care hospitals in Lahore, namely Lady Willingdon Hospital and Jinnah Hospital. The study population comprised women aged 20 to 35 years who were clinically diagnosed with antenatal depression. A non-probability convenience sampling technique was employed to recruit participants, and the sample size was calculated to be 200 using Yamane's formula. Inclusion criteria were restricted to pregnant women within the specified age range who had received a clinical diagnosis of antenatal depression during routine obstetric evaluations. Exclusion criteria were

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carefully defined to avoid confounding variables and included women with a history or current risk of preterm labor, elderly primigravida, history of recurrent pregnancy loss, oligohydramnios, uncontrolled thyroid disorders, and incompetent cervix.

Data collection was facilitated through a structured, pre-validated questionnaire comprising two standardized assessment tools. The first tool was the Edinburgh Postnatal Depression Scale (EPDS), which has been widely validated for both antenatal and postnatal depression screening. It is a 10-item categorical scale with a maximum score of 30, stratified into three categories: mild depression (7–13), moderate depression (14–19), and severe depression (20–30). It should be noted that scores below 7 typically indicate the absence of depressive symptoms and may have been erroneously overlooked in the original scale description. The second tool employed was the Physical Self-Maintenance Scale, often referred to as the Activities of Daily Living Scale (ADLS), used to assess physical functionality during pregnancy. This categorical scale comprises six items, with total scores ranging from 1 to 6. ADL scores were categorized as follows: 1–2 indicating severely affected daily living activities, 3–4 indicating moderate impairment, and 5–6 indicating mild or no impairment in physical self-care activities. Data were entered and analyzed using IBM SPSS Statistics version 25. Continuous variables such as age were reported as means and standard deviations, while categorical variables including depression severity and ADL impairment were presented as frequencies and percentages. Statistical associations between depression levels and functional status were examined using chi-square tests for categorical variables and independent t-tests where appropriate. Ethical approval for the study was obtained from the Institutional Review Board (IRB) of the respective teaching hospitals. Informed written consent was obtained from all participants prior to data collection, and all ethical principles of confidentiality and participant autonomy were observed. Data were securely stored on a password-protected device accessible only to the principal investigator and research team.

RESULTS

The study included a total of 200 pregnant women aged between 20 and 35 years. The most common age group was 20–25 years, comprising 73 participants (36.5%), followed by 25–30 years with 68 participants (34%), and 30–35 years with 59 participants (29.5%). With respect to obstetric history, the majority of participants were primary gravida, accounting for 112 individuals (56%), while the remaining 88 (44%) were multigravida. Assessment of depression using the Edinburgh Postnatal Depression Scale (EPDS) revealed that 118 women (59%) experienced mild depressive symptoms, 52 (26%) had moderate depression, and 30 (15%) reported severe depression. A substantial proportion of participants demonstrated mild to moderate symptoms, indicating a significant prevalence of antenatal psychological distress.

Evaluation of functional ability through the Activities of Daily Living Scale (ADLS) indicated that 106 participants (53%) had only mild impairment, while 54 (27%) and 40 (20%) experienced moderate and severe impairment, respectively. This suggests that over half of the participants were able to maintain a reasonable level of physical independence despite the psychological burden. A significant association was observed between EPDS scores and levels of functional impairment as measured by ADLS ($p = 0.000$). Among women with mild depression, the majority (94 out of 118; 79.66%) exhibited mild ADL impairment, while 18 (15.25%) had moderate and only 6 (5.08%) had severe impairment. In contrast, among those with moderate depression, most women (31 out of 52; 59.6%) showed moderate ADL impairment, followed by 11 (21.15%) with severe and 10 (19.23%) with mild impairment. Notably, the majority of women with severe depression (23 out of 30; 76.66%) had severe functional limitations, further emphasizing the correlation between the intensity of depressive symptoms and physical self-maintenance limitations.

Table 1: Frequency Distribution of Age

	Frequency	**Percent**
20-25	73	36.5
25-30	68	34
30-35	59	29.5
Total	**200**	**100**

Table 2: Frequency Distribution of Gravida

	Frequency	**Percent**
Primary Gravida	112	56
Multi Gravida	88	44

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Total	**200**	**100**

Table 3: Total Edinburgh Postnatal Depression Scale (EPDS)

	Frequency	Percent
Mild (7-13) / less than 07	118	59
Moderate (14-19)	52	26
Severe (19-30)	30	15
Total	**200**	**100**

Table 4: Physical Self-Maintenance Scale (ADLs)

	Frequency	Percent
Severe (1-2)	40	20
Moderate (3-4)	54	27
Mild (5-6)	106	53
Total	**200**	**100**

Table 5: Cross Tabulation between Edinburgh Postnatal Depression Scale (EPDS) & Activities of Daily Living (ADL)

Count						**P Value**
		Total ADLS			Total	
		Severe (1-2)	Moderate (3-4)	Mild (5-6)		
Total EPDS	Mild (7- 13)/less than 7	6(5.08%)	18(15.25%)	94(79.66%)	118	0.000
	Moderate (14-19)	11(21.15%)	31(59.6%)	10(19.23%)	52	
	Severe (19- 30)	23(76.66%)	5(16.66%)	2(6.66%)	30	
Total		**40(20%)**	**54(27%)**	**106(53%)**	**200**	

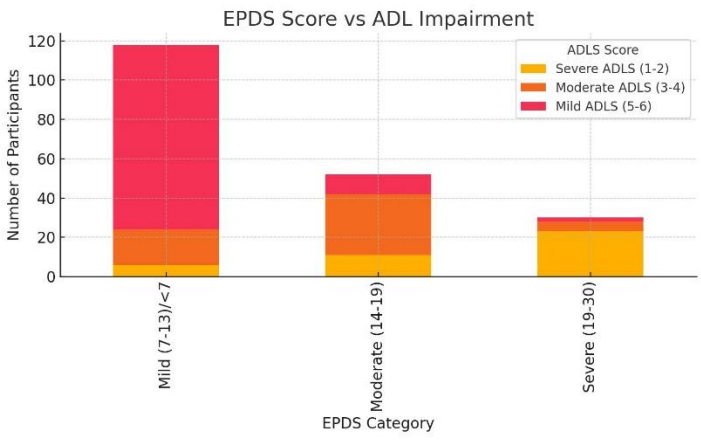


Figure 1 EPDS Score vs ADL Impairment

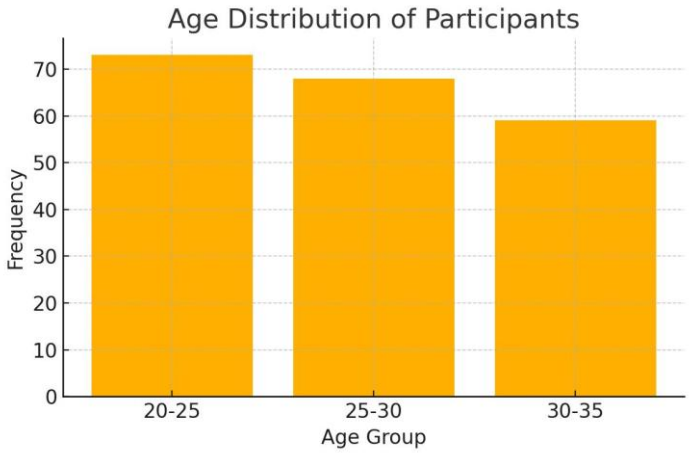
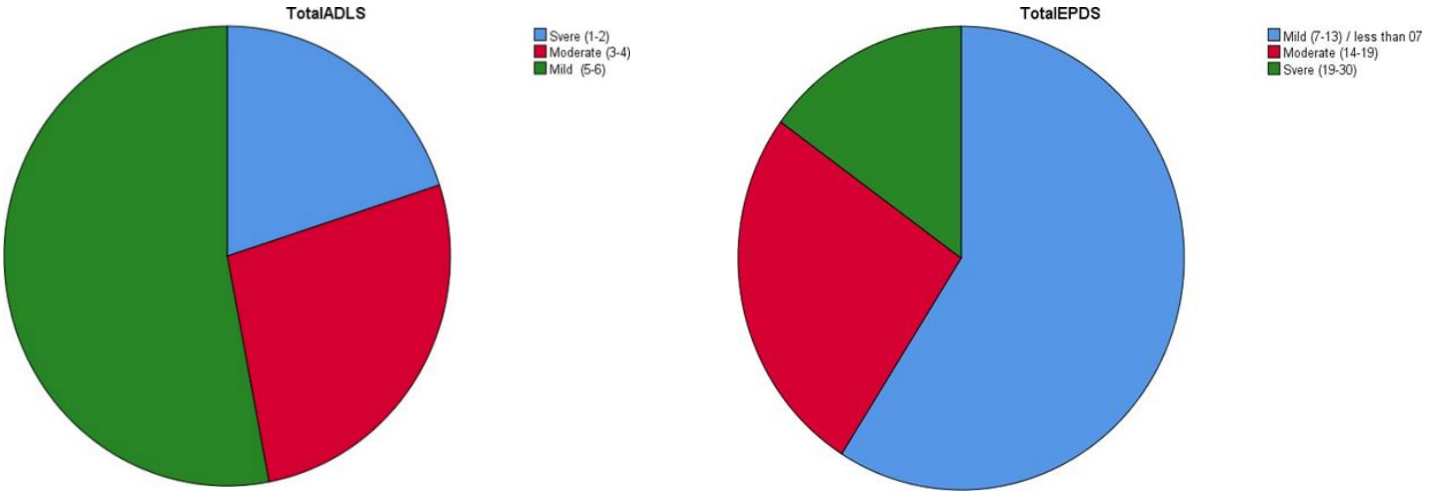


Figure 2 Age Distribution of Participants



DISCUSSION

The present study aimed to assess the association between antenatal depression and the level of impairment in activities of daily living (ADLs) among pregnant women, highlighting the potential mitigating role of physical activity during pregnancy. The findings revealed a significant relationship between the severity of depression symptoms, as measured by the Edinburgh Postnatal Depression Scale (EPDS), and levels of physical functioning, as measured by the Activities of Daily Living Scale (ADLS). Women with higher depression scores experienced greater limitations in self-care activities, a trend consistent with previous studies emphasizing the physical and psychological burden of antenatal depression on maternal health. Evidence from prior research has repeatedly demonstrated that physical activity during pregnancy can alleviate depressive symptoms and improve health-related quality of life (15,16). One study reported that women participating in structured aerobic programs experienced significant reductions in depressive scores compared to non-exercising controls, with interventions including walking, stretching, and relaxation techniques contributing to improved emotional and physical well-being (17). Another investigation highlighted that, women who maintained moderate to high levels of physical activity, particularly in the second and third trimesters, exhibited lower depressive symptoms and better functioning in everyday tasks (18). The current study supports these findings by demonstrating that milder depressive symptoms were more common in women with better ADL scores, implying that maintaining mobility and self-care practices may buffer against worsening mood disturbances during pregnancy. Additionally, research has indicated that anxiety and depression during pregnancy are associated with reduced quality of life in both physical and mental domains, with higher depression scores correlating with impairments across several dimensions of maternal functioning (19,20). This aligns with the present results, where greater impairment in daily living activities paralleled the increased severity of depressive symptoms. Social support, planned pregnancies, and absence of comorbidities have also been identified as protective factors against antenatal depression in previous studies, suggesting the multifactorial nature of maternal mental health during gestation (21). These contextual variables were not captured in this study and represent an important consideration for future research.

The strength of this study lies in its use of standardized and validated instruments such as EPDS and ADLS, which allowed for systematic assessment of depressive symptoms and functional capacity. Moreover, the cross-sectional design offered a snapshot of the psychological and physical interplay during the antenatal period. However, there are limitations that must be acknowledged. The use of a non-probability sampling method limits the generalizability of the findings to a broader population. The exclusion of clinical and demographic variables such as socioeconomic status, parity-related complications, gestational age, and comorbid psychiatric or medical conditions may have introduced unmeasured confounding. Additionally, the reliance on self-reported measures may have led to underreporting or overreporting due to recall or social desirability bias. The lack of longitudinal follow-up is another limitation, as it prevents understanding of how depressive symptoms and ADL impairment may evolve throughout pregnancy or postpartum. Future studies should incorporate a prospective cohort design to capture temporal changes in maternal mental and physical health and assess the effectiveness of structured physical activity programs as a therapeutic intervention. Investigating the role of partner support, stress levels, nutritional status, and access to prenatal care could provide a more comprehensive understanding of the determinants of antenatal depression and functional decline. Overall, the study contributes valuable insights into the strong association between antenatal depression and impaired physical functioning. It reinforces the growing body of literature suggesting that promoting physical activity

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and functional independence during pregnancy can serve as a non-pharmacological approach to mitigate depressive symptoms, ultimately improving maternal quality of life and birth outcomes.

CONCLUSION

In conclusion, the study demonstrated a significant link between antenatal depression and impairment in activities of daily living among pregnant women, emphasizing the importance of maintaining physical activity during pregnancy. Regular aerobic exercise was associated with noticeable improvements in mood and functional capacity, reinforcing its role as a practical, non-pharmacological strategy for managing depressive symptoms. Women who remained physically active during pregnancy reported enhanced self-esteem and reduced physical discomfort, highlighting the broader benefits of integrating structured physical activity into prenatal care. These findings underscore the value of encouraging safe, moderate exercise during pregnancy to promote both mental and physical well-being for expectant mothers.

AUTHOR CONTRIBUTION

Author	Contribution
Ayesha Malik	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Amina Riaz*	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Muhammad Saif Ikram	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Fizza Saeed Ur Rehman	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Iqra Shabbir	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Umar Khayyam	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published
Fatima	Contributed to study concept and Data collection Has given Final Approval of the version to be published

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