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ASSOCIATION OF BODY IMAGING, PHYSICAL ACTIVITY PATTERN, AND POSTPARTUM DEPRESSION AMONG WORKING MOTHERS: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background:
A Working mother goes through a phase in her life in which she is expecting to take care of her child, look after her house responsibilities, and prove herself to be a perfect employee as well. These three things eventually led her to a cognitive condition a 'Postpartum Depression'. Postpartum depression is an issue that faces negligence on a serious note, even though this issue is something that can not only destroy the mental health condition of a woman suffering from it, but also her partner and children. Being a working mother during the postpartum period plays a major role in increasing the chances of postpartum depression. Every mother wants herself to stay fit and healthy to balance both life at work and home perfectly. Inner self also wants to slay that 'ideal' body image for satisfaction. Plan to form a proper physical activity strategy and leniency from workplace highlight the importance of extensive postpartum support systems to ease the process of returning to work so that working mothers will be able to easily cope with their mental, physical, and emotional problems, eventually being able to alleviate all the challenges.

Objective:
The objective of this study is to investigate the association of body imaging, physical activity, and postpartum depression among working mothers.

Methodology:
This observational cross-sectional study has followed a non-

probability convenient sampling that involved 169 working mothers aged between (21 to 45 years). Data collection procedure has been done via International Physical Activity Questionnaire (IPAQ), Body Shape Questionnaire (BSQ) and Edinburgh Postnatal Depression Scale (EPDS) questionnaires and the tests that has been performed includes chi square test, correlation regressions, cross-tab relations, descriptive statistics, reliability, multicollinearity, normality, homogeneity and diagnostic statistics.

Result:

The study, conducted among 169 working postpartum mothers in Karachi, investigated the interrelationships between depression (EPDS), physical activity (IPAQ), and body shape concerns (BSQ). According to EPDS results, 40.24% had no depression, 26.26% were borderline, and 35.5% were identified as having postnatal depression, most prevalent among women aged 26–30 and mothers with one child. IPAQ findings showed that 68.64% engaged in moderate activity, 20.12% in low activity, and only 11.24% in high activity levels. BSQ results revealed that 98.8% had mild body shape concerns, particularly among women aged 26–35 and those with one child. Descriptive statistics showed an average respondent age of 29.17 years and an average child count of 1.66. Correlation analysis indicated weak positive associations between depression and physical activity (4.00%) and depression and body shape concern (1.00%). EPDS items showed strong internal correlation (up to 75.1%), IPAQ items peaked at 54.9%, and BSQ correlations ranged up to 32.5% (with a minimum of -10.0%). Chi-square tests confirmed significant associations among key variables, rejecting null hypotheses.

Conclusion:

This study highlights the psychological vulnerabilities faced by working mothers in the postpartum period, emphasizing the significant, though statistically weak, interplay between depressive symptoms, physical inactivity, and body dissatisfaction. Despite high mild body shape concerns and moderate activity levels in the sample, a considerable proportion of mothers reported postnatal depression. The results stress the importance of promoting physical activity and positive body image to improve mental well-being in postpartum women. Moreover, the research calls for workplace and societal interventions to support maternal mental health, especially during the critical return-to-work transition. Although the findings are informative, the study's generalizability is limited by its cross-sectional design, non-random sampling, and exclusion of certain groups. Nonetheless, the study contributes valuable data for future culturally sensitive research and policy formulation.

INTRODUCTION:

The most prevalent yet frequently overlooked cognitive condition is depression, which causes a person's mood to be disturbed continuously, such as having low self-esteem, lack of confidence, loneliness, and suicidal thoughts. Likewise, women after giving birth are more prone to depression, which can be defined as postpartum depression. Postpartum depression is now becoming an increasingly prevalent concern among working women in today's era. [1] Postpartum depression is a specific type of psychological state or condition that can appear at any time within the first year of delivery. It affects approximately 25 to 50% of new mothers. [2] Postpartum depression may start appearing as early as the first month of the baby's life, putting a negative impact on motherhood and the development of the mother and baby's relationship.[3] The major factor that causes postpartum depression is dissatisfaction with body image, which can be defined as a person's negative perception of his or her own body, due to a physical change that easily stimulates low self-esteem in women.[4] Mostly women find returning to work more difficult than anticipated, as many described the experience as mostly negative. Various factors related to the workplace play an important role in structuring the physical and mental health of working women till postpartum 18 months. Such as work hours in total, poor support from colleagues, and private life impacting the work.[5] Various risk factors can lead to the development of PPD after delivery.[6] Factors that enhance the chances of postpartum depression include a premenstrual dysphoric disorder, depression history, and stressful situations after delivery.[7] A crucial number of women, about 1/3^{rd,} who are in PPD show the continuity of symptoms even after 6 months of delivery.[8] A tremendous percentage, about 80% of women, return to their work after their childbirth.[9]

In Netherlands, about 69,000 working women gave birth to their first child in 2010, and out of them, about 37% continued working but for fewer hours, more than half of them returned to work for the same hours as before giving birth, and only 6% stopped working. [5] The phase that is known as the postpartum period is considered a pivotal point for the onset of postpartum depression, as new mothers are particularly prone to psychological and emotional burdens during this stage. The requirement of returning to work and accommodating the demands of being a mother increases the risk of developing the symptoms of depression. [9] After giving birth to a child, a woman's body goes through different hormonal changes that lead to depressive symptoms. This postpartum depression makes interaction with people very difficult for her, even though it is her own family.[1] It can be recognized by worsening symptoms such as depressive mood, pain, appetite fluctuations, lack of concentration, suicidal thoughts, and diminished self-esteem.[10] Exercise plays a very important role in the postpartum period for a woman as it does at any other time.[11] Because physical activity during the time period of postpartum has proven to enhance the blood circulation, for strengthening the back and abdominal muscles, speed recovery of uterine and improve the mental and physical health of mothers.[12] Anxiety will be present once a woman decides to conceive, related to the pregnancy period, and in regards to her job life as well. Being pregnant, along with a job, will eventually lead to symptoms of anxiety. [13] During the postpartum period, there is a high chance of developing anxiety attacks as well.[8] It has been observed widely that depression and anxiety go side by side, and these anxiety symptoms eventually lead to the confirmation of depression. It has been researched that anxiety does affect women after delivery, regardless of whether there is a presence of depression or not. [6]

So, the development of depressive symptoms in mothers varies in prevalence across the different regions of the world.[13] Postpartum depression affects women

globally. Once, it was believed that postnatal mood disorders were affected by the culture, such as women who belonged to Western societies were more prone to experience them. But the prevalence rate varies according to different regions. Compared to women in the United States, Europe, and Australia, women who live in Asia and South Africa are at a higher risk to get affected by postpartum depression. Showing Arab women as 17%, in the Indian population, 1 in every 10 women, in China, 1 in 6 women, and in Pakistan, the range of prevalence varies from 28 to 63 %, being the highest in Asia. This condition of being in postpartum depression is associated with significant changes in hormones during and after pregnancy.[4] Rapid changes in body weight and size can be experienced by women, which can move them far apart from the socially defined ideal image, a 'thin ideal'. This mismatch can cause body image dissatisfaction, resulting in negative psychological effects such as low self-esteem, symptoms of disordered eating, and depression.[14] So, the women who are employed, specifically those who are trying to balance multiple things (such as partner, parent, and paid employee) together, are prone to numerous stressors that may impact their overall physical activity habits and well-being. During this period of time, mothers change their priorities to take care of their babies, often neglecting health-promoting habits like physical activity, with additional challenges posed by social, environmental, and individual barriers.[15] So, Physical activity plays an important role in shaping the physical and mental states of pregnant women.[12]

Women usually experience body dissatisfaction when there is a variance between their current bodies and their idealized bodies.[16] Not only does the mother not get affected by these conditions, but also the infant goes through so many risk factors that may lead to an imbalance within the emotional relationship of the family.[17] Husbands' level of literacy plays a major role in developing postpartum depression among mothers.[18] Even the partner of a woman who is suffering from postpartum psychiatric disorders is prone to be affected as well. Mothers and fathers are both at risk of getting affected by similar symptoms.[8] Studies have shown that the prevalence of postpartum depression ultimately forms an association with increased absenteeism at the workplace and decreased performance at the workplace.[17]

Other reasons that contribute are psychological difficulties between family and partner, like when there is no support in taking care of the newborn, being a young mother, or financial instability.[7] Depression could easily evoke body dissatisfaction, which can be via poor self-esteem, weight retention, or overeating, which can be easily associated with perinatal depression. [19] Only a small study has been done with unsubstantial results, although dissatisfaction regarding body image after giving birth can be affected by weight and may lead to changes in lifestyle habits and diet. Women now tenaciously share their concerns about returning to their normal weight after giving birth. Similarly, concerns of getting back to their ideal body shape.[20] In higher socioeconomic groups, women consider weight gain a warning to their value in society. While in low socioeconomic groups, women lack awareness regarding proper nutrition uptake and physical activities.[3] Finally, experts have got the idea of how important these concerns actually are.[20] The postpartum period is a time period when women not only maintain the weight during pregnancy but also gain some additional weight.[21] It has been stated that during the period of pregnancy, consideration of women's concern regarding the increase in weight and change in the shape are very less important, still it has been found in the studies that women often during pregnancy try to maintain their standard appearance, and continue to worry to achieve that standard after delivery.[22] Postpartum depression has been considered a stigmatized and not recognized issue in our

society, lacking proper discussion. Lack of awareness leads people to misunderstand it and is linked to superstitions such as possession. [4] Likewise, many women remain undiagnosed or untreated, because they never consult their physician regarding this matter, mostly taking it as a sign of lack of sleep, or any other reason that could be an irrelevant one. Only 11 % of women consult their physician and tell them about those depressive symptoms from which they are going through, and out of them, many women don't share the level of severity due to the fear of their motherhood capabilities being judged. Likewise, most people who show the symptoms related to depression don't come for the treatment of depression but for headaches, pains in different regions of the body. Despite having multiple treatment strategies like antidepressant medications, psychosocial therapy, only 14-15% of affected individuals receive proper treatment. [23] That's why there should be an awareness among healthcare providers that during the postpartum period, factors such as body image issues affect women's emotional well-being. It is very important to have a proper discussion with women about their concerns regarding body image and weight after delivery. [24] Physical activity could be proven as a potential approach to prevent postpartum depression. Many studies have demonstrated that physical activity can easily uplift the mood of individuals suffering from mild to moderate depression. [25]

Physical activity makes its contribution to overall well-being. It has been observed that those women who are less active within their postpartum period will have lower levels of well-being compared to those who remain more active. [11] Exercise is a very beneficial option for treating depression, even in the general population, multiplying the potential benefits in comparison to something that is being traditionally used as a treatment. Mechanisms that can be biochemical and physiological, showing the positive impact of physical activity on depressive symptoms, include the effect on quality of sleep, depression, and memory. As they increase the blood flow in the cerebral region, they increase the circulation of plasma endorphins, serotonin, and norepinephrine, maintain the inner body temperature, and show an ultimate reduction in muscle tension. [26]

Returning to physical activity after giving birth has an association with improved psychological well-being, good cardiovascular health, and a sense of tranquility. That's how during postpartum, physical activity works as both, suggested and an important benefactor to maternal health. [21]

METHODOLOGY

Study Design:

This study was an observational cross-sectional study.

Study Setting:

The study was conducted at different banks (Al-Falah, Dubai Islamic Bank, Faisal Bank, Bank AL Habib, Askari Bank, Sonehri Bank,) offices (Jubilee insurance, Study Abroad consultants, Times consultant, Lucky Core industries, Ibex, Human Capital, Civic Centre Karachi, Capital Company, Bit Technologies), hospitals (Darul Sehat, Jinnah hospital, Memon Hospital), educational institute(ICMA, Bahria University, The Bridge School).

Study Duration:

Data collection took 6 months (after the approval of the synopsis).

Sample Size:

The sample size was calculated by using the Open software. A sample size of approximately 169 working mothers is recommended to achieve statistically significant results as per a confidence level (CL) of 95 % with a error of margin <5 %.

Study Population:

Working women within their postpartum period (12 months after delivery of the child).

Sample Technique:

It was a non-probability convenience sampling technique.

Inclusion Criteria:

- Age between 21 to 45 years

- Had given birth within the last 12 months.
- Willing to participate.
- Working hours (5 to 8 hrs/day)

Exclusion Criteria:

On maternity leave or Pregnant

Study Variable:

Independent Variables:

Age

No of children

Dependent Variables:

Postpartum Depression

Data Collection Plan:

Data was collected from different sites as mentioned above, after getting the proper consent from the females to be a part of it. A total of 169 forms were distributed, which had 3 questionnaires Edinburgh Postnatal Depression Scale (EPDS), the Body Shape Questionnaire (BSQ), and the International Physical Activity Questionnaire (IPAQ).

Data Analysis:

Data analysis was performed by using SPSS version 29. Graphic measurements were used to account for quantitative factors. To determine any important association between subjective variables, the chi-square test was used. (A P-value of ≤ 0.05 was considered statistically significant).

Ethical Considerations

Ethical approval for this study was obtained from the institutional review board of Indus University. All participating working mothers were fully informed about the objectives, procedures, and voluntary nature of the research before any data collection took place. Participation was entirely voluntary, and working mothers were assured that they could withdraw from the study at any point. Written informed consent was obtained from each participant before their participation. The anonymity and confidentiality of all participants were strictly preserved throughout the study. Data were collected and handled in a secure and controlled environment, ensuring that it was used solely for academic and research purposes. The study posed no physical, psychological, or academic risk to the working mothers. No conflicts of interest were declared by the researcher or the supervising faculty.

Reliability:

Reliability testing yielded strong internal consistency for the Edinburgh Postnatal Depression Scale (EPDS, Cronbach's $\alpha = 0.87$) and the Body Shape Questionnaire (BSQ, $\alpha = 0.877$), indicating reliable psychometric performance. However, the International Physical Activity Questionnaire (IPAQ) demonstrated poor reliability ($\alpha = 0.13$), raising concerns about its consistency in this population. The overall reliability across all three scales was also low ($\alpha = 0.127$), largely due to the weak performance of IPAQ. Multicollinearity was not a concern, as all VIF values were below 10. The Shapiro-Wilk test confirmed normality in most categories ($p > 0.05$), except for "mild concern with shape." Levene's test verified homogeneity of variance for depression and body shape categories but showed inequality for physical activity by age and body shape by child count ($p < 0.05$). These results suggest the dataset was generally suitable for analysis, though some inconsistencies in physical activity data warrant caution.

RESULT:

1 Introduction:

This chapter discusses the results of statistical applications on dependent variables, independent variables, and their mutual relations. It reviews two aspects of data analysis, i.e., (i) Data dissection and its visualization aiming to provide a research glimpse briefly to the general audience, and (ii) Statistical descriptions including descriptive statistics, correlation & chi-square analysis, and diagnostic analysis.

This chapter of results & discussion contains seven sections; the First section is the introduction, which discusses the objective of the chapter. The second section is a data visualization of all data sets. The Third Section is descriptive statistical details of dependent variables with

independent variables. The fourth section is a correlation matrix of data, which states and discusses the interrelation of variables. The Fifth Section contains chi-square analysis, which compares the actual and expected results, leading to the acceptance or rejection of the null hypothesis. The sixth section is the discussion of diagnostic Analysis, which attempts to ascertain whether all verification checks are maintained during the statistical tools or not. It includes reliability test, normality test, homogeneity test, and multicollinearity test. Reliability test aims to identify the internal consistency of questionnaires; normality test aims to find the symmetry or normality of responses. And a homogeneity test aiming to verify that all chosen samples have similar characteristics. Moreover, multicollinearity aims to identify the situation in which two or more explanatory variables in a model are highly linearly related. The seventh section is a summary, which discusses the acceptance and rejection of the hypothesis and the overall chapter briefly, along with the results of this research.

2 Data Visualization:

Chart 1: Age-wise population:

Showing the break-up of population w.r.t. age brackets of respondents.

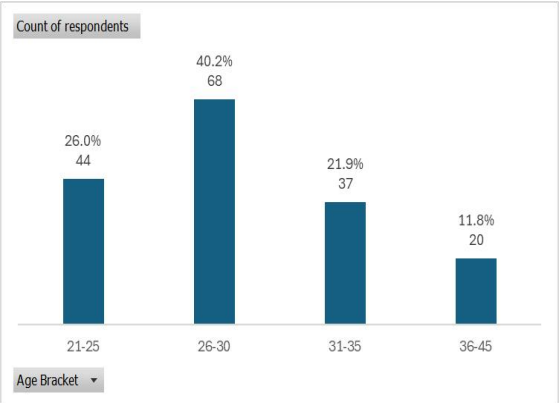

Chart-01 showing that one-hundred and sixty-nine respondents have examined for research consist with four (04) age-brackets i.e., 44 respondents (26.0% of population) having age bracket of 21-25 years old, 68 respondents (40.2% of population) having age bracket of 26-30 years old, 37 respondents (21.9% of population) having age bracket of 31-35 years old and 20 respondents (11.8% of population) having age bracket of 36-45 years old.

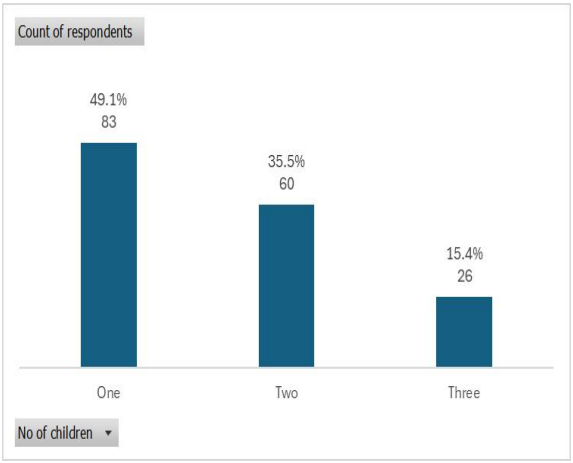

Chart 2: Count of child-wise Population:

Showing the break-up of the population of respondents w.r.t count of child-wise population.

Chart-2 showing that One-hundred and sixty-nine respondents have examine for research consist with three (03) categories i.e., 83 respondents (49.1% of population) have one-child, 60 respondents (35.5% of population) have two-child, whereas 26 respondents (15.4% of population) have three-children.

Descriptive Statistics:

Table 1: Descriptive Analysis of Independent Variables Scale:

IDV Elements	N	Min.	Max.	Mean	SD	Variance
Age	169	21	45	29.17	4.77	22.77
No. of children	169	1	3	1.66	.731	.534

Table no 1 is showing the descriptive analysis of independent variables related to measuring the Association of body imaging, physical activity pattern and postpartum depression among working mother showing that each element showing how frequently respondents made assertive answers against these questions; results showing that respondents have highest age is 45, lowest age is 21 within average of 29.17. Similarly, respondents with have highest child count is 3, the lowest child count is 01, with an average of 1.66.

Table 2: Descriptive Analysis of EPDS Scale:

EPDS	N	Min.	Max.	Mean	SD	Variance	%
Have been able to laugh and see the funny side of things	169	0	3	0.95	.808	.653	31.8%
I have looked forward with enjoyment to things	169	0	3	1.06	.807	.651	35.3%
I have blamed myself unnecessarily when things went wrong	169	0	3	1.21	.963	.927	40.2%
Have been anxious or worried for no good reason	169	0	3	1.57	.891	.794	52.5%
I have felt scared or panicky for no very good reason	169	0	3	1.15	.957	.917	38.5%
Things have been getting on top of me	169	0	3	1.42	.856	.733	47.3%
I have been so unhappy that I have had difficulty sleeping	169	0	3	1.17	.958	.917	39.1%
I have felt sad or miserable	169	0	3	0.90	.877	.770	30.0%
I have been so unhappy that I have been crying	169	0	3	1.19	.866	.750	39.6%
The thought of harming myself has occurred to me	169	0	3	0.42	.856	.733	14.0%
Depression Prevalence	169	1	3	1.95	.872	.760	65.1%

Table no 2 shows the descriptive analysis of EPDS related to measuring the Association of body imaging, physical activity pattern, and postpartum depression among working mothers' study of each element, showing how frequently respondents made assertive answers to these questions. EPDS is the parameters to show the overall involvement of respondents in response to assess the Association of body imaging, physical activity pattern and postpartum depression among working mothers study here and in the rest of documents as well; showing that 52.5% respondents have highest response for item "Have been anxious or worried for no good reason" and 14.0% respondents have lowest response for item "The thought of harming myself has occurred to me".

Table 3: Descriptive Analysis of IPAQ Scale:

IPAQ	N	Min.	Max.	Mean	SD	Variance	%
During the last 7 days, on how many days did you do	169	0	7	0.85	1.813	3.286	12.1%

vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling(Days)							
How much time did you usually spend doing vigorous physical activities on one of those days(Minutes)	169	0	300	16.63	44.869	2013.259	5.5%
During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking(Days)	169	0	7	1.39	2.096	4.394	19.9%
How much time did you usually spend doing moderate physical activities on one of those days(Hours)	169	0	180	16.15	34.859	1215.179	9.0%
During the last 7 days, on how many days did you walk for at least 10 minutes at a time(Days)	169	0	7	5.01	2.615	6.839	71.5%
How much time did you usually spend walking on one of those days(Minutes)	169	0	120	22.84	23.803	566.587	19.0%
During the last 7 days, how much time did you spend sitting on a weekdays (Minutes)	169	0	840	423.55	212.909	45330.178	50.4%
Physical Activities Prevalence	169	1	3	1.91	.555	.308	63.7%

Table no 3 shows the descriptive analysis of IPAQ related to measuring the Association of body imaging, physical activity pattern, and postpartum depression among working mothers' study of each element, showing how frequently respondents made assertive answers against these questions. IPAQ is the parameters to show the overall involvement of respondents in response to assess the Association of body imaging, physical activity pattern and postpartum depression among working mothers study here and in the rest of documents as well; showing that 71.5% respondents have highest response for item "During the last 7 days, on how many days did you walk for at least 10 minutes at a time (Days)" and 5.5% respondents have lowest response for item "How much time did you usually spend doing vigorous physical activities on one of those days(Minutes)".

Table 4: Descriptive Analysis of BSQ Scale:

BSQ	N	Min.	Max.	Mean	SD	Variance	%
Have you been so worried about your shape that you have	169	1	6	3.99	1.587	2.518	66.6%

been feeling you ought to diet							
Have you been afraid that you might become fat (or fatter)	169	1	6	3.88	1.333	1.776	64.6%
Has feeling full (e.g. after eating a large meal) made you feel fat	169	1	6	3.04	1.422	2.023	50.6%
Have you noticed the shape of other women and felt that your own shape compared unfavorably	169	1	6	2.22	1.276	1.628	37.1%
Has thinking about your shape interfered with your ability to concentrate (e.g., while watching television, reading, listening to conversations	169	1	6	1.64	1.202	1.445	27.4%
Has being naked, such as when taking a bath, made you feel fat	169	1	6	3.49	1.268	1.608	58.1%
Have you imagined cutting off fleshy areas of your body	169	1	6	1.40	1.098	1.206	23.4%
Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape	169	1	6	1.90	1.033	1.067	31.7%
Have you felt excessively large and rounded	169	1	6	3.02	1.418	2.011	50.4%
Have you thought that you are in the shape you are because you lack self-control	169	1	6	4.01	1.376	1.893	66.9%
Have you worried about other people seeing rolls of fat around your waist or stomach	169	1	6	2.60	1.279	1.635	43.3%
When in company, have you worried about taking up too much room (e.g., sitting on a sofa, or a bus seat	169	1	6	3.65	1.440	2.074	60.8%
Has seeing your reflection (e.g., in a mirror or shop window) made you feel about your shape	169	1	6	3.73	1.279	1.637	62.2%
Have you pinched areas of your body to see how much fat there is	169	1	6	3.36	1.284	1.649	56.0%
Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming baths)	169	1	6	2.26	1.346	1.813	37.7%
Have you been particularly self-conscious about your shape when in the company of	169	1	6	3.14	1.286	1.654	52.3%

other people							
BSQ Prevalence	169	1	2	1.01	.108	.012	50.6%

Table no 4 shows the descriptive analysis of BSQ related to measuring the Association of body imaging, physical activity pattern, and postpartum depression among working mothers' study of each element, showing how frequently respondents made assertive answers against these questions. BSQ is the parameters to show the overall involvement of respondents in response to assess the Association of body imaging, physical activity pattern and postpartum depression among working mothers study here and in the rest of documents as well; showing that 66.9% respondents have highest response for item "Have you thought that you are in the shape you are because you lack self-control" and 23.5% respondents have lowest response for item "Have you imagined cutting off fleshy areas of your body".

3 Correlation Matrix:

Correlation is a statistical technique that ascertains whether and how strongly a set of variables is related. In this research, the correlation coefficient computed from the sample data measures the strength and direction (positive or negative) of a linear relationship between dependent and independent variables.

Table 5: Correlation Analysis of EPDS Prevalence

Depression Prevalence	Item-1	Item-2	Item-3	Item-4	Item-5	Item-6	Item-7	Item-8	Item-9	Item-10	Depression Prevalence
Have been able to laugh and see the funny side of things	1	.589**	.372**	.443**	.417**	.253**	.326**	.422**	.504**	.235**	.529**
I have looked forward with enjoyment to things	.589**	1	.405**	.317**	.412**	.265**	.387**	.505**	.444**	0.14	.529**
I have blamed myself unnecessarily when things went wrong	.372**	.405**	1	.409**	.598**	.219**	.426**	.567**	.552**	.428**	.742**
Have been anxious or worried for no good reason	.443**	.317**	.409**	1	.510**	.353**	.310**	.493**	.283**	0.09	.534**
I have felt scared or panicky for no very good reason	.417**	.412**	.598**	.510**	1	.393**	.581**	.678**	.518**	.298**	.751**
Things have been getting on top of me	.253**	.265**	.219**	.353**	.393**	1	.376**	.413**	.326**	0.07	.450**
I have been so unhappy that I have had difficulty sleeping	.326**	.387**	.426**	.310**	.581**	.376**	1	.644**	.513**	.354**	.659**
I have felt sad or miserable	.422**	.505**	.567**	.493**	.678**	.413**	.644**	1	.597**	.263**	.741**

I have been so unhappy that I have been crying	.294**	.444**	.552**	.283**	.518**	.326**	.513**	.597**	1	.390**	.682**
The thought of harming myself has occurred to me	.235**	0	.428**	0	.298**	0	.354**	.263**	.390**	1	.481**
Depression Prevalence	.529**	.529**	.742**	.534**	.751**	.450**	.659**	.741**	.682**	.481**	1
**. Correlation is significant at the 0.01 level (2-tailed).											
*. Correlation is significant at the 0.05 level (2-tailed).											

Referred to table no 5 is the Correlation Analysis of EPDS assessment of depression shows the correlation between items of EPDS prevalence of our research data. Directions of relations among has positive and negative impact for association Relationship between Association of body imaging, physical activity pattern and postpartum depression among working mothers' study. Results showing that "I have felt scared or panicky for no very good reason" has the highest positive relationship to i.e., 75.1%, and the least relationship has found positive impact of item "Things have been getting on top of me," i.e., 45.0% is correlated positively with depression prevalence.

Table 6: Correlation Analysis of IPAQ Prevalence:

IPAQ Prevalence	Item-1	Item-2	Item-3	Item-4	Item-5	Item-6	Item-7	Physical Activities Prevalence
During the last 7 days, how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling(Days)	1.00	.696**	.382**	.276**	0.12	.153*	0.12	.549**
How much time did you usually spend doing vigorous physical activities on one of those days(Minutes)	.696**	1.00	.430**	.353**	0.09	.180*	0.11	.537**
During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis Do not include walking(Days)	.382**	.430**	1.00	.602**	.247**	.258**	0.12	.516**

How much time did you usually spend doing moderate physical activities on one of those days(Hours)	.276**	.353**	.602**	1.00	0.07	.204**	-0.02	.495**
During the last 7 days, how many days did you walk for at least 10 minutes at a time(Days)	0.12	0.09	.247**	0.07	1.00	.343**	.308**	.403**
How much time did you usually spend walking on one of those days(Minutes)	.153*	.180*	.258**	.204**	.343**	1.00	.191*	.418**
During the last 7 days, how much time did you spend sitting on a weekday(Minutes)	0.12	0.11	0.12	-0.02	.308**	.191*	1.00	.514**
Physical Activities Prevalence	.549**	.537**	.516**	.495**	.403**	.418**	.514**	1.00
****. Correlation is significant at the 0.01 level (2-tailed).**								

Table no 6 is the Correlation Analysis of the IPAQ assessment of physical activities shows the correlations between items of our research data. Directions of relations among have positive and negative impacts for the association of body imaging, physical activity pattern, and postpartum depression among working mothers. Results showing that "During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling (Days)" has highest positive relationship to i.e. 54.9%, and the least relationship has found positive impact of item "During the last 7 days, on how many days did you walk for at least 10 minutes at a time (Days)" i.e. 40.3% is correlated positively with physical activities prevalence.

Table 7: Correlation Analysis of BSQ Prevalence:

BSQ	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7	Q-8	Q-9	Q-10	Q-11	Q-12	Q-13	Q-14	Q-15	Q-16	BSQ
Item-1	1.0	0.8	0.2	0.1	-0.1	0.5	-0.2	0.2	0.5	0.5	0.2	0.4	0.6	0.6	0.0	0.5	0.1
Item-2	0.8	1.0	0.4	0.2	0.2	0.5	-0.1	0.3	0.6	0.4	0.4	0.4	0.6	0.6	0.2	0.6	0.2
Item-3	0.2	0.4	1.0	0.5	0.5	0.1	0.2	0.2	0.3	0.0	0.4	0.1	0.2	0.2	0.4	0.3	0.2
Item-4	0.1	0.2	0.5	1.0	0.5	0.2	0.4	0.2	0.2	-0.1	0.4	0.1	0.2	0.3	0.5	0.3	0.3
Item-5	-0.1	0.2	0.5	0.5	1.0	-0.2	0.5	0.3	0.1	-0.1	0.4	0.0	0.0	0.2	0.5	0.3	0.3

Item-6	0.5	0.5	0.1	0.2	-0.2	1.0	-0.1	0.2	0.5	0.5	0.2	0.4	0.4	0.5	0.0	0.5	0.1
Item-7	-0.2	-0.1	0.2	0.4	0.5	-0.1	1.0	0.3	-0.1	-0.2	0.3	-0.1	-0.1	0.1	0.4	0.1	0.0
Item-8	0.2	0.3	0.2	0.2	0.3	0.2	0.3	1.0	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.4	-0.1
Item-9	0.5	0.6	0.3	0.2	0.1	0.5	-0.1	0.2	1.0	0.5	0.6	0.7	0.6	0.6	0.1	0.6	0.2
Item-10	0.5	0.4	0.0	-0.1	-0.1	0.5	-0.2	0.2	0.5	1.0	0.3	0.6	0.4	0.5	0.0	0.4	0.1
Item-11	0.2	0.4	0.4	0.4	0.4	0.2	0.3	0.3	0.6	0.3	1.0	0.3	0.2	0.4	0.3	0.4	0.3
Item-12	0.4	0.4	0.1	0.1	0.0	0.4	-0.1	0.2	0.7	0.6	0.3	1.0	0.5	0.5	0.2	0.5	0.2
Item-13	0.6	0.6	0.2	0.2	0.0	0.4	-0.1	0.2	0.6	0.4	0.2	0.5	1.0	0.6	0.3	0.5	0.2
Item-14	0.6	0.6	0.2	0.3	0.2	0.5	0.1	0.3	0.6	0.5	0.4	0.5	0.6	1.0	0.3	0.6	0.2
Item-15	0.0	0.2	0.4	0.5	0.5	0.0	0.4	0.3	0.1	0.0	0.3	0.2	0.3	0.3	1.0	0.3	0.3
Item-16	0.5	0.6	0.3	0.3	0.3	0.5	0.1	0.4	0.6	0.4	0.4	0.5	0.5	0.6	0.3	1.0	0.2
BSQ	0.1	0.2	0.2	0.3	0.3	0.1	0.0	-0.1	0.2	0.1	0.3	0.2	0.2	0.2	0.3	0.2	1.0

Referred to table 7 is Correlation Analysis of BSQ assessment of body-shape phenomena, shows the correlations between items of our research data. Directions of relations among has positive and negative impact on association of body imaging, physical activity pattern and postpartum depression among working mothers. Results showing that "Have you noticed the shape of other women and felt that your own shape compared unfavorably" has highest positive relationship to i.e. 32.5%, and the least relationship has found negative reciprocal impact of item "Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape" i.e. -10.0% is correlated positively with BSQ assessment.

Table 8: Correlation Analysis of Dependent Variables:

DVs Prevalence	Depression Prevalence	Physical Activities Prevalence	Body-shape Prevalence
Depression Prevalence	1.00	0.04	0.01
Physical Activities Prevalence	0.04	1.00	0.02
Body-shape Prevalence	0.01	0.02	1.00
**. Correlation is significant at the 0.01 level (2-tailed).			

Table no 8 is about correlation Analysis of which shows the correlations between all items of questionnaire of our research data. Directions of relation among all variables

are correlated positive with all items for relationship, association of body imaging, physical activity pattern and postpartum depression among working mothers. Depression has correlated with 4.00% correlation over physical activities, and vice versa. Similarly, Depression has correlated with 1.00% correlation over body-shape prevalence and vice versa.

4 Chi-Square: It is a statistical measure that compares the actual and expected results, leading to the acceptance or rejection of the null hypothesis. We reject the null hypothesis if the chi-square value is greater than the critical value. If you reject the null hypothesis, you can conclude that your data are significantly different from what you expected. Here we assume four (04) null hypotheses are as under to assess:

- HO_1: There is no significant relationship between age groups and the Association of body imaging, physical activity pattern, and postpartum depression among working mothers.
- HA_1: There is a significant relationship between age groups and between the Association of body imaging, physical activity pattern, and postpartum depression among working mothers.
- HO_2: There is no significant relationship between the number of children and the Association of body imaging, physical activity pattern, and postpartum depression among working mothers' study.
- HA_2: There is a significant relationship between the number of children and the Association of body imaging, physical activity pattern, and postpartum depression among working mothers.

Table 9: Case Processing Summary:

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age Bracket * Depression Prevalence	169	100%	0	0%	169	100%
Age Bracket * Physical Activities Prevalence	169	100%	0	0%	169	100%
Age Bracket * BSQ Prevalence	169	100%	0	0%	169	100%
No. of children * Depression Prevalence	169	100%	0	0%	169	100%
No. of children * Physical Activities Prevalence	169	100%	0	0%	169	100%
No. of children * BSQ Prevalence	169	100%	0	0%	169	100%

Table 9 shows that each element has no exclusion, and each element has been assessed with filled parameters.

Table 10: Chi-Square Tests:

Test Element	Chi-Square	p-value	Result
Age Bracket * Depression Prevalence	6.610	0.358	Null hypothesis rejected
Age Bracket * Physical Activities Prevalence	7.412	0.284	Null hypothesis

			rejected
Age Bracket * BSQ Prevalence	1.545	0.672	Null hypothesis rejected
No. of children * Depression Prevalence	2.660	0.616	Null hypothesis rejected
No. of children * Physical Activities Prevalence	5.177	0.270	Null hypothesis rejected
No. of children * BSQ Prevalence	2.097	0.350	Null hypothesis rejected

Table 10 shows that each element has a greater chi-square value than of p-value; resulting that each HO have rejected hence concluding the assertiveness of all alternative hypothesis and stated that have a significant impact on the Association Relationship between the Association of body imaging, physical activity pattern, and postpartum depression among working mothers.

5 Diagnostic Analysis:

Diagnostic analyses in research are to be performed to check that all conditions for the application of statistical analysis have been verified or not with a substantial degree of accuracy. In this research, we have checked (i) reliability and (ii) multicollinearity of all independent variables.

5.1 Reliability: Reliability of a questionnaire as a survey instrument ensures the accuracy of measures by assessing its internal consistency. There are different methods available to evaluate the internal consistency of the questionnaire. As we used SPSS, Cronbach's alpha was used to assess reliability. Cronbach's alpha is a measure of internal consistency, which describes how closely related a set of items is as a group. It is a measure of scale reliability, having a statistical standard that Cronbach's alpha of 0.70 and up to 0.79 has acceptable internal consistency, 0.80 and up to 0.89 is good, and 0.90 and above is considered excellent internal consistency.

Table 11: Case Processing Summary:

		N	%
Cases	Valid	169	100
	Excluded	0	0
	Total	169	100

Table 11 shows that each element has no exclusion, and each element has been assessed with filled parameters.

Table 12: Reliability Statistics:

Cronbach's Alpha	Cronbach's Alpha	N of sub-scales
EPDS	0.870	10
IPAQ	0.139	7
BSQ	0.877	16
Overall	0.127	33

Table 12 shows that Cronbach's Alpha of two (03) scales; EPDS questionnaire is 0.87 with ten (10) items which show good reliability of EPDS questionnaire; IPAQ questionnaire is 0.13 with seven (07) items which show poor reliability of EPDS questionnaire to use it in this research and BSQ questionnaire is 0.877 with sixteen (16) items which show good reliability of EDBS questionnaire. Over all Cronbach's Alpha of all three (03) scales is 0.127 with thirty-three (33) items which show poor reliability of using all questionnaires as whole.

6.2 Multicollinearity:
In statistical research, Multicollinearity is known as a situation in which two or more explanatory variables in a model are highly linearly related. Multicollinearity is denoted by the variance inflation factor (VIF). If VIF is greater than ten, there is severe collinearity in that specific variable, and research results would be perturbed. In contrast, if VIF is less than 10, there is no collinearity, and the data is acceptable for performing the statistical analyses.

Table 13: Multicollinearity Values:

Model: Dependent Variable:EDBS, IPAQ and BSQ	
Age bracket	1.300
No. of child	1.308
a. Dependent Variable: EDBS, IPAQ and BSQ	

Above table shows that VIF of all two (02) components are <10 which shows there is no collinearity and data is acceptable for performing the statistical analyses.

6.3 Normality Test: The Normality Test determines whether the sample data has been drawn from a normally distributed population. Here we are using the Shapiro-Wilk Test to assess the normality; where value of the Shapiro-Wilk test is greater than 0.05, it assumes the data is normal.

Table 14: Case processing summary:

		Shapiro-Wilk		
		Statistic	Sig.	Remarks
Age	Normal	0.856	0.000	
	Borderline	0.849	0.000	
	Postnatal depression	0.863	0.000	
	Low	0.854	0.000	
	Moderate	0.861	0.000	
	High	0.818	0.002	
	No concern with shape	0.861	0.000	
	Mild concern with shape[1]			
No. of children	Normal	0.735	0.000	
	Borderline	0.753	0.000	
	Postnatal depression	0.788	0.000	
	Low	0.757	0.000	
	Moderate	0.745	0.000	
	High	0.818	0.002	
	No concern with shape	0.764	0.000	
	Mild concern with shape[1]			
1: No. of children is constant when BSQ Prevalence = mild concern with shape. It has been omitted.				

Table 14 shows that each element has no exclusion, and each element has been assessed with filled parameters. Above table shows that each dimension of results has derived from a normal distributed population for assessment of all factors have significant impact on Association of body imaging, physical activity pattern and postpartum depression among working mothers as value of the Shapiro-Wilk test is greater than 0.05 for all elements for all assessments except Mild concern with shape as their results are constant with respondent's count as only one (01) respondent.

6.4 Homogeneity Test: In the test of homogeneity, we select random samples from each subgroup or population separately and collect data on a single categorical variable.

Table 15: Homogeneity Test:

		Levene's test	
			Sig.
Age bracket	Depression Prevalence	2.262	0.107
	Physical Activities Prevalence	3.867	0.023
	BSQ Prevalence	0.505	0.478
No. of Children	Depression Prevalence	0.288	0.750
	Physical Activities Prevalence	1.136	0.323
	BSQ Prevalence	7.674	0.006

Table no 15 shows that the population of all elements for assessment of all factors has a significant impact on the Association of body imaging, physical activity pattern, and postpartum depression among working mothers. Here p-value is more than 0.05 in the age bracket for depression assessment and body shape assessment; hence homogeneity assumption of the variance is met; the mean spread of data within each combination of factors should be roughly the same. On the other hand, elements have a p-value less than 0.05 for physical activity in the age bracket, is less than 0.05 showing data has no homogeneous assumption; hence, homogeneity doesn't meet, and revealed that data is fit-for-analysis. Similarly, p-value is more than 0.05 in the count of children for depression assessment and physical activity; hence homogeneity assumption of the variance is met; the mean spread of data within each combination of factors should be roughly the same. On the other hand, elements have a p-value less than 0.05 for body shape assessment in the count of children is less than 0.05, showing the data is not homogeneous with the assumption; hence, homogeneity doesn't meet and revealed that the data is fit for analysis.

6.5 Discussion of Results:

This chapter presented a detailed discussion about the statistical tests performed in this research to assess the developed hypotheses that based on how extensively assertiveness to association of body imaging, physical activity pattern and postpartum depression among working mothers study as dependent variable are influenced by a set of independent variables Extensively, this research has segmented into three (03) scales i.e. EPDS, IPAQ and BSQ aiming to make this research as multi-dimensional assessment of deep insight of reasons of assertiveness to Association of body imaging, physical activity pattern and postpartum depression among working mothers.

In the first section, a brief introduction of this chapter presents which analyses to be performed and later discussed. The organization of sections of the chapter is also discussed in this section.

In the second section, data visualization presents all factors.

In the third section, descriptive statistics analyze dependent and independent

variables. It includes some basic descriptive statistical tools, i.e., count of observations, range, mean, maximum value, minimum value, and percentiles of assertiveness to Association of body imaging, physical activity pattern and postpartum depression among working mothers. Results showing how frequently respondents made assertive answers against these questions; results showing that respondents have the highest age is 45, lowest age is 21 within average of 29.17. Similarly, respondents have highest child count is 3, lowest child-count is 01 within an average of 1.66. Similarly, for EPDS, results showing that 52.5% respondents have highest response for item "Have been anxious or worried for no good reason" and 14.0% respondents have lowest response for item "The thought of harming myself has occurred to me". For IPAQ, results showing that 71.5% respondents have highest response for item "During the last 7 days, on how many days did you walk for at least 10 minutes at a time(Days)" and 5.5% respondents have lowest response for item "How much time did you usually spend doing vigorous physical activities on one of those days(Minutes)". For BSQ, results show that 66.9% respondents have the highest response for item "Have you thought that you are in the shape you are because you lack self-control" and 23.5% respondents have the lowest response for item "Have you imagined cutting off fleshy areas of your body".

In the fourth section, Correlation Analysis shows the correlations between scales on prevalence with positive and negative impact for measurement of body imaging, physical activity pattern, and postpartum depression among working mother's study. EPDS results showing that "I have felt scared or panicky for no very good reason" has the highest positive relationship to i.e. 75.1%, and the least relationship has found positive impact of item "Things have been getting on top of me" i.e. 45.0% is correlated positively with depression prevalence. IPAQ results showing that "During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling (Days)" has highest positive relationship to i.e. 54.9%, and the least relationship has found positive impact of item "During the last 7 days, on how many days did you walk for at least 10 minutes at a time (Days)" i.e. 40.3% is correlated positively with physical activities prevalence. BSQ showing that "Have you noticed the shape of other women and felt that your own shape compared unfavorably" has highest positive relationship to i.e. 32.5%, and the least relationship has found negative/reciprocal impact of item "Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape" i.e. -10.0% is correlated positively with BSQ assessment. Depression has correlated with 4.00% correlation with physical activities, and vice versa. Similarly, Depression has correlated with 1.00% correlation over body-shape prevalence and vice versa.

In the fifth section, a Chi-square test was performed which compares the actual and expected results leading to reject null hypothesis. Results showing that each element has a greater chi-square value than of p-value; resulting that each HO have rejected hence concluding the assertiveness of all alternative hypotheses and stating that they have a significant impact on the Association Relationship between Association of body imaging, physical activity pattern, and postpartum depression among working mothers.

In the sixth section, diagnostic analysis has been performed including reliability, multicollinearity normality and homogeneity.

Reliability tests showing that Cronbach's Alpha of two (03) scales; EPDS questionnaire is 0.87 with ten (10) items which show good reliability of EPDS questionnaire; IPAQ questionnaire is 0.13 with seven (07) items which show poor reliability of EPDS questionnaire to use it in this research and BSQ questionnaire is 0.877 with sixteen (16) items which show

good reliability of EPDS questionnaire. Overall, Cronbach's Alpha of all three (03) scales is 0.127 with thirty-three (33) items, which shows poor reliability of using all questionnaires as a whole.

Multicollinearity is a situation in which two or more explanatory variables in a model are highly linearly related. Multicollinearity is denoted by variance inflation factor (VIF). Results show that VIFs of all two (02) components are <10 which shows there is no collinearity and data is acceptable for performing the statistical analyses.

The Normality Test determines whether the sample data has been drawn from a normally distributed population. Here we are using the Shapiro-Wilk Test and found each dimension of results has derived from a normal distributed population for assessment as value of the Shapiro-Wilk test is greater than 0.05 for Shapiro-Wilk test is greater than 0.05 for all elements for all assessments except Mild concern with shape as their results are constant with respondent's count as only one (01) respondent.

Test of homogeneity is denoted by Levene's test, and select random samples from each subgroup or population separately, and collect data on a single categorical variable. The above table shows that the population of all elements for assessment of all factors has a significant impact on the Association of body imaging, physical activity pattern, and postpartum depression among working mothers. Here p-value is more than 0.05 in age bracket for depression assessment and body shape assessment; hence homogeneity assumption of the variance is met; have a mean that spread of data within each combination of factors should be roughly the same. On other hand, elements have p-value less than 0.05 for physical activity in age bracket is less than 0.05 showing data has no homogeneous assumption; hence, homogeneity is not met, and revealed that the data is fit for analysis. Similarly, p-value is more than 0.05 in the count of children for depression assessment and physical activity; hence homogeneity assumption of the variance is met; the mean spread of data within each combination of factors should be roughly the same. On other hand, elements have p-value less than 0.05 for body shape assessment in count of child is less than 0.05 showing data has no homogeneous assumption; hence, homogeneity is not met, and revealed that the data is fit for analysis.

Depression State:

Based on the collected data, below are the deep insights for entire research. Showing the breakdown of population w.r.t. depression prevalence among respondents.

Chart 3: Depression state w.r.t. count of respondents:

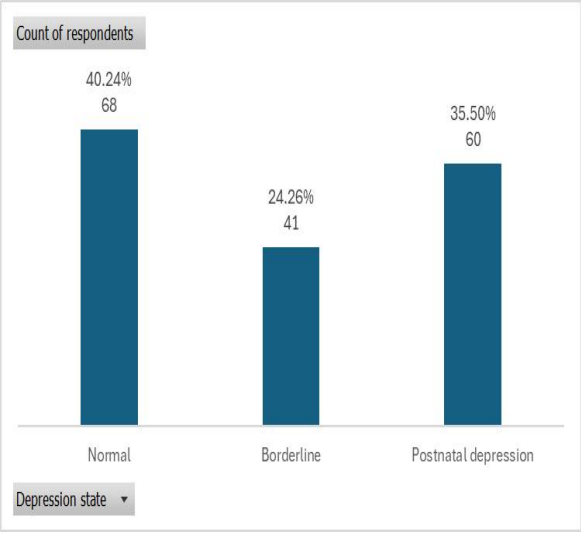

Chart no 3 is showing that one-hundred and sixty-nine respondents have examined for research consist with three (03) states of depression according to EPDS i.e., 68 respondents (40.24% of population) have no depression, 41 respondents (26.26% of population) are on border-line and 60 respondents (35.5% of population) have post-natal depression.

Chart 4: Depression state w.r.t count of age bracket:

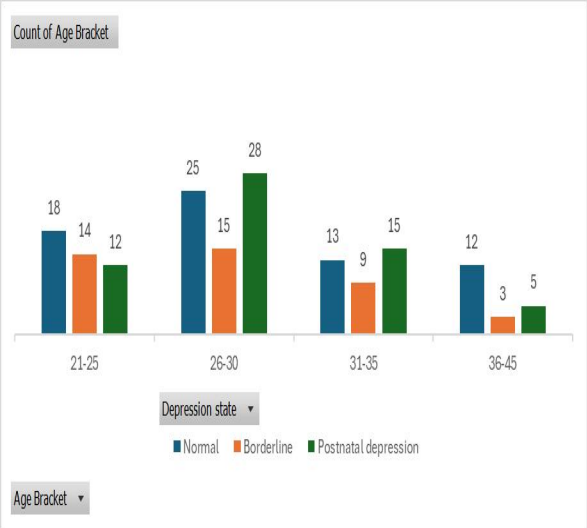

Chart no 4 is showing that one-hundred and sixty-nine respondents have examine for research consist with three (03) states of depression according to EPDS i.e., highest post-natal depression is found in age-bracket of 26-30 as 28 respondents (46.67% of post-natal population) with lowest number of 05 in age-bracket of 36-45 (8.3% of population of post-natal depression) have post-natal depression.

Chart 5: Depression state w.r.t count of No of children:

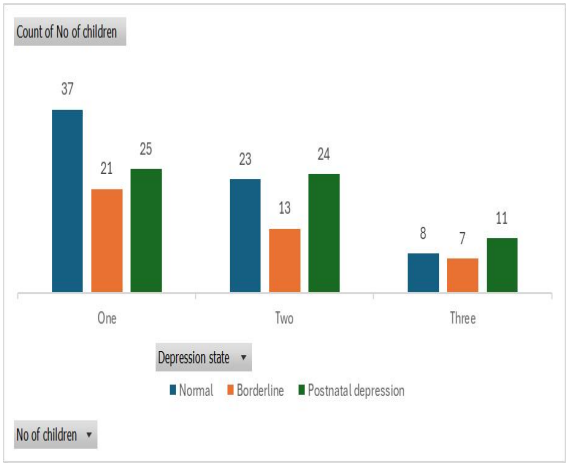

Chart no 5 is showing that one-hundred and sixty-nine respondents have examined for research consist with three (03) count of child according to EPDS i.e., highest post-natal depression is found in mothers having one-child as 25 respondents (41.67% of post-natal population) with lowest number of 11 in mothers having three children (18.3% of population of post-natal depression) have post-natal depression.

State of physical activity:

Based on the collected data, below are the deep insights for the entire research. Showing the break-up of the population w.r.t. execution of physical activity among respondents.

Chart 6: State of physical activity w.r.t the count of Respondents:

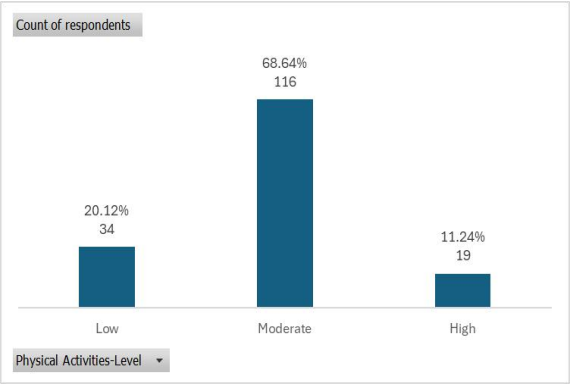

Chart no 6 is showing that one-hundred and sixty-nine respondents have examined for research consist with three (03) states of physical activity according to IPAQ i.e., 34 respondents (20.12% of population) have involve in low-physical activities, 116 respondents (68.64% of population) have involve in moderate-physical activities, and 19 respondents (11.24% of population) have involve in high-physical activities.

Chart 7:
State of Physical Activity w.r.t the count of Age Bracket:

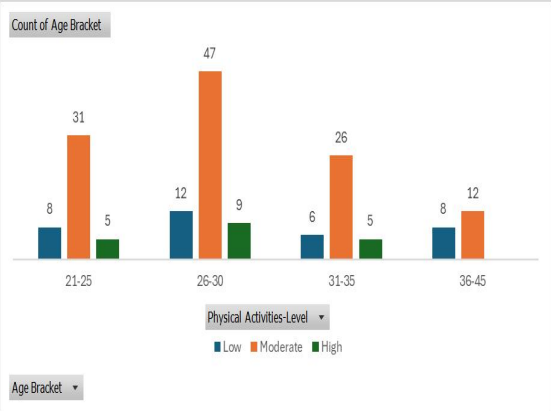

Chart no 7 shows that one hundred and sixty-nine respondents have been examined for research consistent with three (03) states of physical activity according to IPAQ, i.e., highest physical activity is found in the age-bracket of 26-30, as 09 respondents (47.36% of population having high-physical activity) with the lowest number of 05 in the age-bracket of 21-25 and 36-45 each (8.3% of population having high-physical activity) having low-physical activity.

Chart 8: State of Physical Activity w.r.t. No of Children:

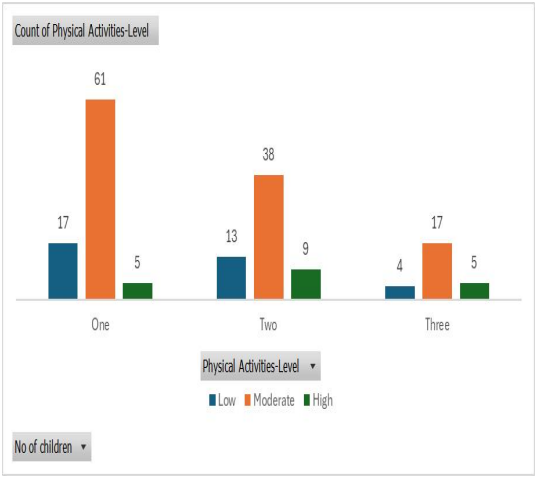

Chart no 8 is showing that one hundred and sixty-nine respondents have examined for research consist with three (03) count of child according to IPAQ i.e., highest physical activity is found in mothers having two-child as 09 respondents (47.36% of highest physical activity population) with lowest number of 05 in mothers having one-child and three-child (26.3% of population highest physical activity) have highest physical activity.

Body shape phenomena:

Based on collected data, below are the deep insights for entire research. Showing break-up of population w.r.t. having Body shape phenomena.

Chart 9: Body Shape phenomenon w.r.t count of Respondents:

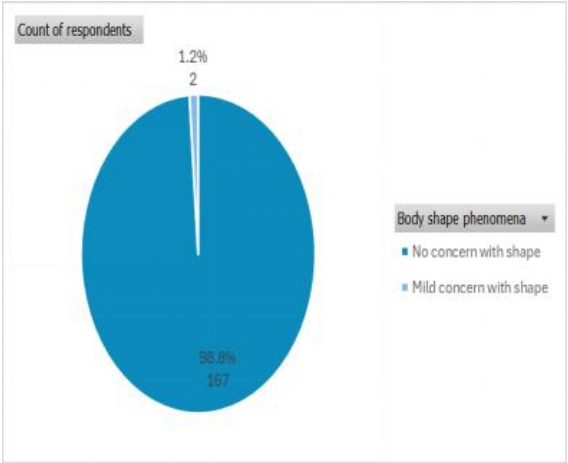

Chart no 9 is showing that one-hundred and sixty-nine respondents have examined for research consist with two (02) concerns according to BSQ i.e., 167 respondents (98.8% of population) have involved in mild-concern with shape and 02 respondents (1.2% of population) have no concern with shape.

Chart 10: Body Shape Phenomenon w.r.t count of Age Bracket:

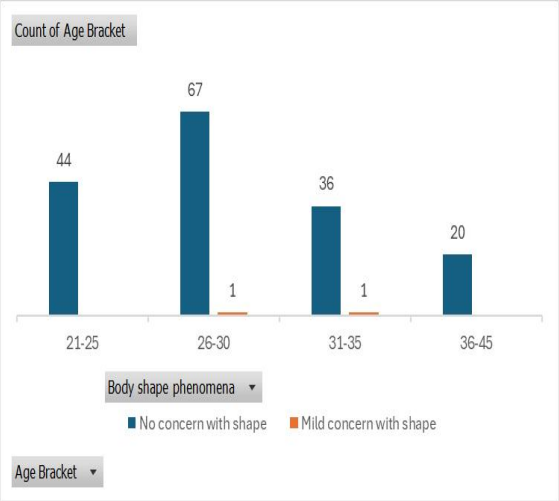

Chart no 10 is showing that one-hundred and sixty-nine respondents have examine for research consist with two (02) concerns according to BSQ with 04 age-brackets. Highest mild concern among respondents is found in age bracket of 26-30 and 31-35 i.e. 01 (50% of respondent among having mild concern).

Chart 11: Body Shape Phenomenon w.r.t Count of No of Children:

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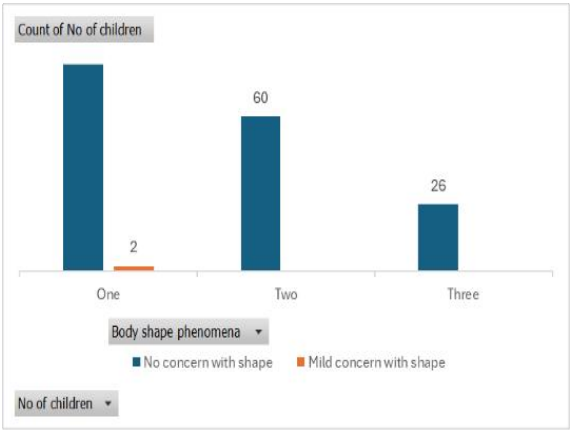

Chart no 11 is showing that one-hundred and sixty-nine respondents have examined for research consist with two (02) concerns according to BSQ with 03
category of count of child Highest mild concern among respondents is found in one-child category i.e. 02 (100% of respondents among having mild concern).

Cross-tabulation of data:

Depression prevalence				
Age Bracket	Normal	Borderline	Postnatal depression	Total
21-25	18	14	12	44
26-30	25	15	28	68
31-35	13	9	15	37
36-45	12	3	5	20
Total	68	41	60	169
	Depression prevalence			
No. of children	Normal	Borderline	Postnatal depression	Total
One	37	21	25	83
Two	23	13	24	60
Three	8	7	11	26
Total	68	41	60	169
	Physical activity prevalence			
Age	Low	Moderate	High	Total

Bracket				
21-25	8	31	5	44
26-30	12	47	9	68
31-35	6	26	5	37
36-45	8	12	0	20
Total	34	116	19	169
	Physical activity prevalence			
No. of children	Low	Moderate	High	Total
One	17	61	5	83
Two	13	38	9	60
Three	4	17	5	26
Total	34	116	19	169
	Body-shape phenomena		Total	-
Age Bracket	no concern with shape	mild concern with shape		-
21-25	44	0	44	-
26-30	67	1	68	-
31-35	36	1	37	-
36-45	20	0	20	-
Total	167	2	169	-
The above table shows that age group of "26-30" and "31-35" each exists with highest numbers i.e. 01 (0.59%) and “21-25" and "36-45" each with minimum number of 0 (0.0%) of total population of "mild concern with body shape" status cross-tabulated over BSQ-based Body-shape phenomena				-
				-
				-
	Body-shape phenomena		Total	-
No. of children	no concern with shape	mild concern with shape		-
One	81	2	83	-
Two	60	0	60	-
Three	26	0	26	-
Total	167	2	169	-
The above table shows that no. of children group of "One child" exists with highest numbers i.e. 02 (1.18%) and “Two Childs" and Three-Childs" each with minimum number of 00 (0.00%) of total population of "mild concern with body shape" status cross-tabulated over BSQ-based Body-shape phenomena				-
				-

7 DISCUSSION:

7.1 Summary:

The research, conducted on 169 respondents, explored three key areas: depression, physical activity, and body shape concerns. According to the EPDS scale, 40.24% had no depression, 26.26% were borderline, and 35.5% experienced postnatal depression—most prevalent among women aged 26–30 and mothers with one child. Regarding physical activity (IPAQ scale), 68.64% engaged in moderate, 20.12% in low, and 11.24% in high activity, with the 26–30 age group and mothers of two children showing the highest activity. On body shape concerns (BSQ scale), 98.8% had mild concern, mainly in the 26–35 age group and mothers with one child.

7.2 Interpretation:

This chapter provides a comprehensive statistical evaluation of the hypothesis that assertiveness regarding body image, physical activity, and postpartum depression among working mothers is influenced by various factors. Three standardized scales—EPDS, IPAQ, and BSQ—were used. Descriptive analysis revealed the average respondent age as 29.17 years and average child count as 1.66. EPDS showed 52.5% of mothers felt anxious without reason, and 14.0% reported self-harm thoughts. IPAQ showed 71.5% walked regularly, while only 5.5% engaged in vigorous activity. BSQ found 66.9% lacked self-control over body shape. Correlation results revealed EPDS items had up to 75.1% positive correlation; IPAQ showed 54.9% highest correlation; BSQ had a maximum positive correlation of 32.5% and a negative one at -10.0%. Depression had weak correlations with physical activity (4.00%) and body shape (1.00%). Chi-square tests rejected null hypotheses due to higher values than p-values, supporting significant associations among variables. Reliability testing showed high Cronbach's alpha for EPDS (0.87) and BSQ (0.877), but low for IPAQ (0.13). Overall reliability was poor (0.127). VIF values <10 indicated no multicollinearity. The Shapiro-Wilk test ($p > 0.05$) confirmed normality, except in the “mild concern with shape” category. Levene’s test confirmed homogeneity for depression and body shape ($p > 0.05$), but not for physical activity by age and body shape by child count ($p < 0.05$), confirming that while some data lacked homogeneity, it remained fit for analysis.

7.3 Implication:

This research holds substantial significance in the broader landscape of public and maternal mental health by shedding light on the underexplored interplay between body image dissatisfaction, physical inactivity, and postpartum depression among working mothers. In contemporary societies where an increasing number of women return to the workforce shortly after childbirth, understanding the psychological and physical pressures they encounter is critical. This study addresses this gap by examining the specific stressors that contribute to mental health challenges during the postpartum period, particularly among mothers who are navigating both familial responsibilities and professional demands. This research also holds academic significance by employing validated tools like EPDS, IPAQ, and BSQ to measure the psychological and behavioral dimensions of postpartum life. Its methodological rigor allows for reproducibility and comparison across different settings, making it a valuable contribution to maternal health literature. Future researchers can build upon this foundation to explore similar issues across different populations or cultural contexts, thus amplifying its impact.

7.4 Limitations:

Despite the valuable insights offered by this research, several limitations must be acknowledged. Firstly, the cross-sectional design limits the ability to establish causal relationships between postpartum depression, physical activity, and body image. Since data was collected at a single point in time, the directionality of associations remains uncertain. Secondly,

the use of a non-probability convenience sampling technique introduces potential selection bias. Participants were selected based on availability and willingness, which may not reflect the broader population of working mothers. The study's sample size, although statistically justified at 169 respondents, still restricts generalizability. It focused on selected banks, offices, hospitals, and educational institutions within Karachi, which limits applicability to other geographical and socio-economic contexts. Additionally, the exclusion of mothers currently on maternity leave or pregnant further narrows the population scope, potentially omitting significant perspectives on transitional mental health phases. Another limitation involves the self-reported nature of the EPDS, BSQ, and IPAQ questionnaires. Responses may be influenced by social desirability bias or recall bias, especially concerning sensitive issues like depression or body image dissatisfaction. The absence of clinical diagnosis also weakens the validity of identifying postpartum depression.

7.5 Recommendations:

To address the identified limitations and enhance the overall value and applicability of the research, the following remedial steps are recommended:

1 **Adopt a Longitudinal Design**: Future studies should use a longitudinal approach to track changes in postpartum depression, physical activity, and body image over time. This would help in establishing causal relationships and understanding long-term trends.

2 **Utilize Probability Sampling**: Replacing convenience sampling with probability-based methods (such as stratified or random sampling) would minimize selection bias and increase the representativeness of the sample.

3 **Expand Geographic Scope**: Including participants from diverse regions, both urban and rural, and from various socio-economic backgrounds across Pakistan would enhance the generalizability of the findings.

4 **Include Broader Participant Criteria**: Involving mothers on maternity leave or currently pregnant could provide deeper insight into transitional periods and early postpartum challenges.

5 **Increase Sample Size**: A larger sample would allow for more robust statistical analysis and more reliable subgroup comparisons (e.g., by occupation, number of children, or age groups).

6 **Incorporate Clinical Assessments**: To strengthen the diagnostic validity, supplementing self-reported tools (EPDS, BSQ, IPAQ) with evaluations by mental health professionals could reduce bias and increase diagnostic accuracy.

7 **Use Mixed Methods**: Incorporating qualitative interviews or focus groups would provide richer context and explore nuanced experiences that are not captured in structured questionnaires.

8 **Apply Advanced Statistical Techniques**: Utilizing regression modeling, factor analysis, or path analysis would allow for deeper investigation into complex relationships among variables.

9 **Ensure Anonymity and Confidentiality**: Reinforcing data privacy may help reduce social desirability bias, encouraging participants to respond more honestly to sensitive questions.

10 **Conduct Pilot Studies**: Small-scale pilot testing of tools can help identify issues in questionnaire design or delivery that might affect data quality.

11 **Improve Questionnaire Validity**: Local adaptation and validation of EPDS, BSQ, and IPAQ for the Pakistani context—through language translation and cultural sensitivity checks—can improve response accuracy.

8. CONCLUSION:

This research offers a timely and insightful contribution to the understanding of postpartum mental health, particularly among working mothers who face the dual pressures of professional and familial responsibilities. By focusing on the intersection of postpartum depression,

physical activity, and body image dissatisfaction, the study brings attention to an often-overlooked aspect of maternal well-being. The use of standardized assessment tools (EPDS, IPAQ, and BSQ) and statistical analyses provides a credible foundation for identifying significant associations and patterns within the target population. The finding such as the high prevalence of mild body shape concerns and moderate physical activity among mothers aged 26–30 highlight important age-specific challenges that merit further attention. Despite its limitations, including the cross-sectional design, convenience sampling, and the exclusion of certain population groups, the study successfully opens a dialogue on the mental health struggles faced by postpartum working women in urban Pakistan. It underscores the need for holistic support systems that prioritize not only physical recovery but also emotional resilience during the postpartum phase. Importantly, the study emphasizes the critical role that body image satisfaction and physical activity can play in alleviating depressive symptoms. The recommendations provided such as adopting longitudinal designs, expanding sample diversity, and integrating clinical assessments pave the way for more robust and generalizable future research. In conclusion, this study serves as a vital stepping stone toward developing informed, culturally sensitive interventions and workplace policies that support maternal mental health, ultimately fostering healthier outcomes for both mothers and their children.

REFERENCES:

1. Masih J, Masih C. Effects of Postpartum Depression (PPD) in Working Women. J Anxiety Depress. 2022;5(2):148.
2. Yuan M, Chen H, Chen D, Wan D, Luo F, Zhang C, Nan Y, Bi X, Liang J. Effect of physical activity on prevention of postpartum depression: a dose-response meta-analysis of 186,412 women. Frontiers in psychiatry. 2022 Nov 4;13:984677.
3. Goodman JH. Postpartum depression beyond the early postpartum period. Journal of Obstetric, Gynecologic, & Neonatal Nursing. 2004 Jul;33(4):410-20.
4. Ghafoor S, Aftab S, Baloch ZH, Rashid S, Waheed A, Ali N. Postpartum depression & body image dissatisfaction in housewives and working women. Age (years).2021;28(4.935):18-29.
5. Bakker M, van der Beek AJ, Hendriksen IJ, Bruinvels DJ, van Poppel MN. Predictive factors of postpartum fatigue: A prospective cohort study among working women. Journal of Psychosomatic Research. 2014 Nov;77(5):385-90.
6. Zanardo V, Giliberti L, Volpe F, Parotto M, de Luca F, Straface G. Cohort study of the depression, anxiety, and anhedonia components of the Edinburgh Postnatal Depression Scale after delivery. Intl J Gynecology & Obste. 2017 Jun;137(3):277-81.
7. Rovcanin M, Tomic A, Sipetic Grujicic S, Jankovic S, Ivic B, Lackovic M, Lackovic M, Vujcic I. The Impact of Physical Activity on the Development of Postpartum Depression. Depression and Anxiety. 2024;2024(1):6539734.
8. ZELKOWITZ P, MILET TH. The Course of Postpartum Psychiatric Disorders in Women and Their Partners. The Journal of Nervous and Mental Disease. 2001 Sep;189(9):575-82.
9. Selix NW, Goyal D. Postpartum Depression Among Working Women: A Call for Practice and Policy Change. The Journal for Nurse Practitioners. 2015 Oct;11(9):897- 902.
10. Dagher RK, McGovern PM, Dowd BE, Gjerdingen DK. Postpartum Depression and Health Services Expenditures Among Employed Women. Journal of Occupational & Environmental Medicine. 2012 Feb;54(2):210-5.
11. Sampselle CM, Seng J, Yeo S, Killion C, Oakley D. Physical activity and postpartum well- being. Journal of Obstetric, Gynecologic, & Neonatal Nursing. 1999 Jan;28(1):41-9.

12. Kołomańska-Bogucka D, Mazur-Bialy AI. Physical Activity and the Occurrence of Postnatal Depression—A Systematic Review. Medicina. 2019 Sep 2;55(9):560.
13. Fidora I, Ningsih R. Factors leading to maternal depressive symptoms for working mothers during their pregnancy and postpartum. IOSR Journal of Nursing and Health Science (IOSR-JNHS). 2019;8(6):51-6.
14. Sun W, Chen D, Wang J, Liu N, Zhang W. Physical activity and body image dissatisfaction among pregnant women: A systematic review and meta-analysis of cohort studies. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2018 Oct;229:38-44.
15. Alsobayel H Buragadda S, Aljuaid S, Basamad L, Alshehri S, Alhenaki M, et al. Sociodemographic factors associated with postpartum physical activity levels in working women. Women & Health. 2020 Jan 2;60(1):60-71.
16. Sweeney AC, Fingerhut R. Examining relationships between body dissatisfaction, maladaptive perfectionism, and postpartum depression symptoms. Journal of Obstetric, Gynecologic & Neonatal Nursing. 2013 Sep 1;42(5):551-61.
17. Zhao J, Zhang M. Postpartum depression and risk factors among working women one year after delivery in Beijing, China: a cross-sectional study. Frontiers in Public Health. 2024 May 2;12:1346583.
18. Ramji RS, Noori MY, Faisal A. POSTPARTUM DEPRESSION (PPD) AMONG WORKING AND NON-WORKING MOTHERS/WOMEN IN KARACHI, PAKISTAN.i-Manager's Journal on Nursing. 2016 Aug 1;6(3).
19. Gjerdingen D, Fontaine P, Crow S, McGovern P, Center B, Miner M. Predictors of mothers' postpartum body dissatisfaction. Women & health. 2009 Nov 30;49(6-7):491- 504.
20. Walker LO, Freeland-Graves J. Lifestyle Factors Related to Postpartum Weight Gain and Body Image in Bottle- and Breastfeeding Women. Journal of Obstetric, Gynecologic & Neonatal Nursing. 1998 Mar;27(2):151-60.
21. Evenson KR, Aytur SA, Borodulin K. Physical Activity Beliefs, Barriers, and Enablers among Postpartum Women. Journal of Women's Health. 2009 Dec;18(12):1925-34.
22. Silveira ML, Ertel KA, Dole N, Chasan-Taber L. The role of body image in prenatal and postpartum depression: a critical review of the literature. Archives of women's mental health. 2015 Jun;18:409-21.
23. Riesco-González FJ, Antúnez-Calvente I, Vázquez-Lara JM, Rodríguez-Díaz L, Palomo-Gómez R, Gómez-Salgado J, García-Iglesias JJ, Parrón-Carreño T, Fernández- Carrasco FJ. Body image dissatisfaction as a risk factor for postpartum depression. Medicina. 2022 May 31;58(6):752.
24. Walker L, Timmerman GM, Kim M, Sterling B. Relationships Between Body Image and Depressive Symptoms During Postpartum in Ethnically Diverse, Low Income Women. Women & Health. 2002 Nov 18;36(3):101-21.
25. Nakamura A, van der Waerden J, Melchior M, Bolze C, El-Khoury F, Pryor L. Physical activity during pregnancy and postpartum depression: Systematic review and meta- analysis. Journal of affective disorders. 2019 Mar 1;246:29-41.
26. Poyatos-León R, García-Hermoso A, Sanabria-Martínez G, Álvarez-Bueno C, Cavero- Redondo I, Martínez-Vizcaíno V. Effects of exercise-based interventions on postpartum depression: a meta-analysis of randomized controlled trials. Birth. 2017 Sep;44(3):200-8.