

Original Research Article

## Association between Level of Physical Activity and Quality of Life among Postpartum Women in Bangalore Urban Community

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### ABSTRACT

**Background and Objective:** Postpartum period is defined as the period beginning immediately after the birth of a child up to six weeks of postnatal period. There is evidence that physical activity plays an important role in enhancing and maintaining women's physical health in the postpartum which helps in improving quality of life. There is no study found the association between physical activity and Quality of Life of postpartum women in Bangalore Urban Community. The purpose of the study to find the Level of Physical Activity associated with the Quality of Life in Postpartum women in Bangalore urban community.

**Method:** A correlation study design conducted on 104 postpartum women at the 6<sup>th</sup> week post-natal clinical visit selected from various hospitals and clinics in Bangalore urban community. The outcome measure such as Level of physical activity of the subjects was evaluated using the International Physical Activity Questionnaire (IPAQ) and Quality of Life was evaluated using WHOQOL-BREF Questionnaire.

**Results:** The outcome measures of IPAQ and WHOQOL were correlated using Pearson coefficient of correlation. When total MET of Physical activity correlated with physical, psychological, social relationship and environmental domain of Quality of Life it was found that there is a significant weak positive correlation.

**Conclusion:** It is concluded that Physical activity like vigorous activity, walking activity is significantly associated with Quality of Life of postpartum women of Bangalore urban community. The moderate physical activity found no significant relation with quality of life.

**Key words:** Physical Activity, Quality of Life, Postpartum women, International Physical Activity Questionnaire, IPAQ, WHOQOL, World Health Organization Quality of Life Questionnaire.

### INTRODUCTION

Postpartum period is defined as the period beginning immediately after the birth of a child up to six weeks of postnatal period. <sup>[1]</sup> The postpartum period

has been termed the “fourth stage of labour”, and has three distinct but continuous phases. The acute or initial period involves the first 6–12 hours postpartum. The second phase is the

subacute postpartum period, which lasts 2–6 weeks. The third phase is the delayed postpartum period, which can last up to 6 months. [2] There is evidence that physical activity plays an important role in enhancing and maintaining women's physical health in the postpartum which helps improving quality of life. Raphael Bize et al., stated in their study that there is a positive association between physical activity level and health-related quality of life in general adult population. [3]

Physical activity is defined by World Health Organization as any bodily movement produced by skeletal muscles that require energy expenditure. Regular moderate intensity physical activity has significant benefits for health. [4] Return to physical activity after pregnancy has been associated with decreased postpartum depression, [5,6] no adverse effect on volume or composition of breast milk, maternal body weight or fat loss, infant weight gain, or maternal prolactin levels and significant improvements in maternal cardiovascular fitness were noted. [7]

Quality of life defined by World Health Organization (WHO) as individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment. [8] Increased depressive symptoms among postnatal mothers were significantly negatively associated with decreased Quality of life. Through a wide spectrum of QOL aspects, including physical, emotional, social, and economic concerns by the mothers. [9] There is limited evidence regarding possible changes in Quality of life experienced by mothers during the postpartum period. [10]

There was no study found the physical activity level associated with quality of life in Post-Partum women in

India. Evaluating the association between levels of Physical activity with Quality of life in postpartum women will be beneficial for the medical professionals including Physiotherapists to determine the need of physical activity in the postpartum period and how it affects quality of life. It will be helpful to advice postpartum women about the physical activity level recommended in postpartum period. Hence, the purpose of the study is to find the association between physical activity and quality of life in postpartum women in Bangalore urban community.

## **METHODOLOGY**

A correlation study design conducted on 104 subjects who were 6<sup>th</sup> week post-partum women. As this study involved human subjects the Ethical Clearance was obtained from the Ethical Committee of Goutham College of Physiotherapy Bangalore as per the ethical guidelines of Bio-medical research on human subjects. This study was registered under Rajiv Gandhi University of Health Sciences for subject for registration for dissertation with registration number09\_T017\_67369. Subjects included in the study were 6<sup>th</sup> week postpartum women, age 20 years and above, both caesarean and normal delivery. Subjects excluded were medically unstable women, mentally unstable women, and non-co-operative from the study. Subjects who meet inclusion criteria were informed about the study and a written informed consent was taken. Study conducted at multi centres. Subjects were recruited from surrounding hospitals, and clinics of urban community of Bangalore were recruited. A single time study, conducted from October 2016 to May 2017.

### **Procedure:**

The subjects whom were selected according to the inclusion criteria and who was able to read and understand English was selected and explained about the purpose of the study. Their personal demographic data was collected at the

beginning. Level of physical activity of the subjects was checked using the International Physical Activity Questionnaire short form and Quality of Life was measured by

WHOQOL-BREF Questionnaire. Both the questionnaires were given to all post-partum 6<sup>th</sup> week women at the 6<sup>th</sup> week post-natal clinical visit and were asked to fill it.



Figure-1: Explaining about the study to a subject



Figure-2: Subject filling the questionnaire

### Outcome Measurements

#### International Physical Activity Questionnaire <sup>[11]</sup>

International Physical Activity questionnaire is reliable and valid measure for physical activity. The items in the short IPAQ form were structured to provide separate scores on walking, moderate-intensity and vigorous-intensity activity. Computation of the total score for the short form requires summation of the duration (in minutes) and frequency (days) of walking, moderate-intensity and vigorous-intensity Activities. Domain specific estimates cannot be estimated. IPAQ short version assesses physical activity across a variety of different domains including leisure-time, domestic, work and transport related physical activity over seven days. Each domain assesses walking, moderate and vigorous physical activity performed for at least 10 consecutive minutes each day, over seven days. MET score is calculated for total physical activity performed per week as a continuous variable whereby total physical activity in MET-minutes/ week = sum of total [Walking + Moderate + Vigorous] MET minutes/week scores. <sup>[11]</sup>

#### WHOQOL-BREF

WHOQOL-BREF is a valid and reliable measure for quality of life. The WHOQOL-BREF was developed by the

World Health Organization as an abbreviated 26-item version of the WHOQOL-100 instrument. The WHOQOL-100 is used to measure quality of life across a variety of cultural settings. <sup>[12]</sup> The WHOQOL-BREF is divided into four domains: Physical, Psychological, Social Relationships and Environment. Each domain score reflects an individual's perception of his or her quality of life in that particular area. Scores for each domain are scaled in a positive direction and the raw scores are converted to a metric on a scale from 0 to 100. <sup>[13]</sup> Each domain requires that a minimum number of questions be answered in order to generate a score. Two items are examined separately: question 1 (Q1) asks about an individual's overall perception of quality of life and question 2 (Q2) asks about an individual's overall perception of her health. <sup>[12]</sup>

#### Statistical Methods

Descriptive statistical analysis has been carried out in the present study. Outcome measurements such as International Physical Activity Questionnaire and WHOQOL-BREF was measured and presented as mean  $\pm$  SD. Significance is assessed at 5 % level of significance with p value was set at 0.05 (1 tailed Hypothesis) less than this is considered as statistically significant

difference. Pearson coefficient of correlation as a parametric test has been used to correlate the association of means between International Physical Activity Questionnaire and WHOQOL-BREF. Microsoft word and Excel have been used to generate graphs, tables etc.

## RESULTS

The total number of participants participated in the study were 104 subjects. The table-1 shows that descriptive analysis of IPAQ SHORT shows that the mean vigorous activity is  $449.62 \pm 1292.722$ , moderate activity is  $326.15 \pm 713.107$ , walking activity is  $805.01 \pm 1027.690$ , and total MET is  $1552.22 \pm 2196.704$ . WHO QOL scoring shows that the mean total physical domain is  $84.23 \pm 11.596$ , total psychological domain is  $76.46 \pm 11.669$ , total social relationship domain is  $41.85 \pm 11.049$ , and total environmental domain is  $112.65 \pm 22.428$ . In Table-2 Q1. Participants

responded to the first question “How would you rate your quality of life?” Among 104 respondents, 5.8% respondents responded that they had poor quality of life, 41.3% respondents responded that they had neither poor nor good quality of life, 44.2% respondents responded that they had good quality of life, 8.7% respondents responded that they had very good quality of life. Q2. Participants responded to the second question “How satisfied are you with your health?” Among 104 respondents, 1.9% respondents responded that they were very dissatisfied about their health, 11.5% respondents responded that they were dissatisfied about their health, 29.8% respondents responded that they were neither satisfied nor dissatisfied about their health, 51% respondents responded that they were satisfied about their health, 5.8% respondents responded that they were very satisfied about their health.

Table 1: Analysis of IPAQ SHORT SCORING and WHO QOL SCORING

	N	Minimum	Maximum	Mean ± Std. Deviation
<b>IPAQ SHORT SCORING</b>				
VIGOROUS ACTIVITY(8*)	104	0	8400	449.62 ±1292.722
MODERATE ACTIVITY(4*)	104	0	3360	326.15 ±713.107
WALKING ACTIVITY(3.3*)	104	0	4158	805.01 ±1027.690
TOTAL MET	104	0	12096	1552.22 ±2196.704
<b>WHO QOL SCORING</b>				
PHYSICAL DOMAIN	104	60	112	84.23 ±11.596
PSYCHOLOGICAL DOMAIN	104	48	104	76.46 ±11.669
SOCIAL RELATIONSHIP DOMAIN	104	12	60	41.85 ±11.049
ENVIRONMENTAL DOMAIN	104	44	160	112.65 ±22.428

Table 2: Analysis of Overall Quality of Life and General Health of WHOQOL-BREF

	Scoring	Reponses	Frequency	Percent
How would you rate your quality of life?	1	Very poor	--	--
	2	Poor	6	5.8
	3	Neither poor nor good	43	41.3
	4	Good	46	44.2
	5	Very Good	9	8.7
	Total	---		104
How satisfied are you with your health?	1	Very Dissatisfied	2	1.9
	2	Dissatisfied	12	11.5
	3	Neither satisfied nor dissatisfied	31	29.8
	4	Satisfied	53	51.0
	5	Very satisfied	6	5.8
	Total	---		104

The table-3 shows that association of International Physical Activity Questionnaire Vigorous Activity, moderate activity, walking activity, total MET was correlated with WHO QOL scoring physical domain, psychological domain, social

relationship domain, and environmental domain. When Vigorous Activity correlated it was found that there is significant weak positive correlation with physical domain, psychological domain, social relationship domain whereas there is no correlation with

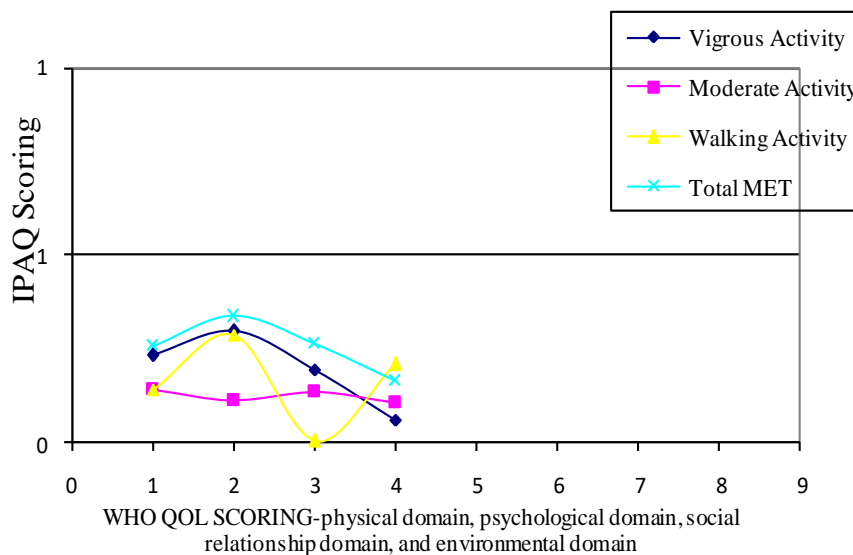
environmental domain. When moderate activity was correlated with physical domain, psychological domain, social relationship domain and environmental domain it was found that there is no significant correlation. When walking activity was correlated with physical domain it was found that there is no significant correlation and there is a

significant weak positive correlation with psychological domain, social relationship domain and environmental domain. When total MET was correlated with physical domain, psychological domain, social relationship domain and environmental domain it was found that there is a significant weak positive correlation.

**Table 3: Correlation of IPAQ SHORT SCORING and WHO QOL SCORING**

IPAQ SHORT SCORING	WHO QOL SCORING	PHYSICAL DOMAIN	PSYCHOLOGICAL DOMAIN	SOCIAL RELATIONSHIP DOMAIN	ENVIRONMENTAL DOMAIN
VIGOROUS ACTIVITY(8*)	Pearson Correlation	0.233**	0.297**	0.196*	0.060
	Sig. (1-tailed)	0.009**	0.001**	0.023**	0.274 (NS)
	Correlation	Weak positive correlation	Weak positive correlation	Weak positive correlation	No correlation
MODERATE ACTIVITY(4*)	Pearson Correlation	0.144	0.112	0.135	0.107
	Sig. (1-tailed)	0.072 (NS)	0.128 (NS)	0.086 (NS)	0.139 (NS)
	Correlation	No correlation	No correlation	No correlation	No correlation
WALKING ACTIVITY(3.3*)	Pearson Correlation	0.144	0.289**	0.252**	0.210*
	Sig. (1-tailed)	0.072	0.001	0.005	0.016
	Correlation	No correlation	Weak positive correlation	Weak positive correlation	Weak positive correlation
TOTAL MET	Pearson Correlation	0.260**	0.338**	0.265**	0.166*
	Sig. (1-tailed)	0.004**	0.000**	0.003**	0.046**
	Correlation	Weak positive correlation	Weak positive correlation	Weak positive correlation	Weak positive correlation

\*\* Statistically Significant difference p<0.05; NS- Not significant.



**Graph: 1: Correlation of IPAQ SHORT SCORING and WHO QOL SCORING**

## DISCUSSION

The present study conducted on 6<sup>th</sup> week post partum women subjects shows that there is a significant weak positive association of past seven days of physical activity such as vigorous activity, walking

activity and total MET measured using International Physical Activity Questionnaire with Quality of life measured from past four weeks using WHOQOL scoring that contains physical domain, psychological domain, social relationship



domain, and environmental domain. Whereas there is no correlation found between moderate activities with Quality of life.

The significant weak positive association might be due to several factors that supported from previous studies which influence on Physical activity and quality of life in post partum women. In all cultures in India, certain beliefs and practices exist, which assist a good pregnancy and its outcome. Most Indian women believe that they have little or no control over the outcome of pregnancy. [14] For the common people in India, in the context of a given social heritage local health tradition is a strategy for decision about health, illness, and life. [15] A significant association of practices was observed with age, educational status, occupation, type of family, gravidae, and para of the rural women related to maternal and newborn care. [16] Postpartum women may face Barriers in adopting healthier lifestyles include child care and time management issues. Each mother has multiple responsibilities to those around them, even to the expense of improving their health. Social support from family and friends is a potential motivator to engage in lifestyle behavior changes, and the form of that support (i.e., meeting together to walk, talking on the phone) may be useful strategies for sustainable behaviour change. [17]

In our study the Vigorous Activity scores found that there is significant weak positive correlation with physical domain, psychological domain, social relationship domain whereas there is no correlation with environmental domain. The walking activity found no significant correlation with physical domain and there is a significant weak positive correlation with psychological, social relationship and environmental domain. The total MET when correlated found significant weak positive correlation with all the domains of Quality of life. The present study findings are related to previous studies. A systemic

review done by Raphael Bize et al., (2007) in general adult population showed a consistently positive association between physical activity level and health-related quality of life. [3] A study by Carolyn M. Sarnpselle et al., (1999) on postpartum women concluded that physical and psychologic benefits may accrue to postpartum women who are able to exercise vigorously and avoid decreasing their usual level of activity. Regular physical activity is a recognized factor in the promotion of lifelong health. Women are less likely than men to engage in vigorous, regular exercise, and their exercise programs may be further compromised by childbearing. Specifically, health care providers rarely incorporate women's exercise goals into the postpartum care plan and little information is available to guide postpartum fitness activities. [7] Robledo-Colonia et al., (2012) in their study concluded that 3 months of exercises reduces symptoms of postpartum depression which can increase Quality of Life. [18]

Analysis of Physical activity in this study shows that the mean vigorous activity is  $449.62 \pm 1292.722$ , mean moderate activity is  $326.15 \pm 713.107$ , mean walking activity is  $805.01 \pm 1027.690$ , and mean total Physical activity MET of postpartum women in Bangalore urban community stands in  $1552.22 \pm 2196.704$  comparing to the maximum possible MET of 12096 accordingly. Physical activities helps in weight retention, reduced postpartum depression or mental health and reduction of primary and secondary diseases and improvement of overall health. In a study by Carolyn M. Sarnpselle et al., (1999) showed more active women had retained significantly less weight than their less active counter parts. [7] Also in the study done by Dunn et al., (2001) results showed that greater amounts of occupational and leisure time physical activity were generally associated with reduced symptoms of depression. [19] A study by Darren E.R. Warburton et al., (2006) state that there is irrefutable evidence of the effectiveness of regular physical activity in the primary and

secondary prevention of several chronic diseases (e.g., cardiovascular disease, diabetes, cancer, hypertension, obesity, depression and osteoporosis) and premature death. They stated that there appears to be a linear relation between physical activity and health status, such that a further increase in physical activity and fitness will lead to additional improvements in health status. [20]

### **Moderate Activity and Quality of Life**

In our study the moderate activity was correlated with physical, psychological, social relationship and environmental domain it was found that there is no significant correlation. There is no literature supporting the effect of moderate level physical activity on quality of life. Similar studies found the various factors that affect the quality of life. Tychenne. M et al., (2013) in their study suggest that more than dose of the Physical activity the domain of Physical activity (leisure time physical activity) is more important, because even lower levels of leisure time physical activity domain is linked with lower postpartum depressive symptoms. [21] In our present study apart from moderate level physical activity the other factors that may influences on quality of life in postpartum women. Ravi Prakash Upadhyay et al.,(2017) reported risk factors for postpartum depression in India which may also add up to change in quality of life which also includes not only physical activity but also financial problems, domestic violence issues, past psychiatric conditions in mother, marital and family conflicts, lack of support and care from husband and birthing a female baby. [22] Van der Woude, D et al., (2015) in his publication which shows micronutrient deficiencies which causes anaemia and deficiency of vitamin D which has been found to be associated negatively with Quality of Life. [23] Also Factors like prepartum physical activity level also would have added to the maternal perception of health status or Quality of Life. Hermansen et al., (2010) concluded in their study that Urinary incontinence and lower urinary tract

symptoms reduce quality of life of postpartum women. [24]

It was observed in this study that the first two questions aimed by WHOQOL-BREF about overall quality of life and general health was answered positively by the majority of subjects. Accordingly Overall Quality of Life of Majority of postpartum women in Bangalore urban community in this study shows either Good quality of Life or moderate level of quality of life. Also participants responded to the second question “How satisfied are you with your health?” Majority of postpartum women were satisfied or thinks moderately about their health.

The study was limited considering the various factors that can influence the physical activity and quality of life. The postpartum period is a transitional phase involving lifestyle and body weight changes. Postpartum weight retention is common and can have long-term impacts on health. This weight retention is as much associated with modifiable lifestyle factors, including diet and physical activity, as with characteristics such as pre pregnancy body weight.

### **Limitations of this study**

The physical activity measured was past seven days of physical activity and Quality of life measured from past four weeks, not considered the entire postpartum period. The complications faced by women during postpartum period were not considered that may influence on Quality of life. The factor such as age, educational status, occupation, type of family, gravidae, and para may also influence on the outcome. The questionnaire used such as IPAQ short version and WHOQOL scoring used contains limited domains which may not cover the lifestyle of post-partum women of the Bangalore Urban community. This study was limited to Bangalore urban Community.

### **Recommendation for further future study:**

Findings of the study further need to be ruled out in large population in different geographic location using appropriate evaluation tools. Study needed to find the association in different Community considering the various factors that may influence the quality of life. Study need to find the comparison of Physical activity and quality of life between communities such as comparing urban and rural communities.

## CONCLUSION

It is concluded that Physical activity like vigorous activity, walking activity is significantly associated with Quality of Life of postpartum women of Bangalore urban community. The moderate physical activity found no significant relation with quality of life.

It is recommended that clinically it is advisable to prescribe physical activity in postpartum women to improve quality of life and for other health benefits.

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*Conflicts of interest:* None

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