

Effect of Prenatal Sedentary Behaviour on Pregnancy Minor Disorders: A Tertiary Hospital Retrospective Survey in Kebbi State, Nigeria

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ABSTRACT

Pregnancy is associated with numerous physiological and psychological changes that may encourage sedentary behaviour. Sedentary behaviour among pregnant women is common, usually because of fear of adverse effects on their health and that of their fetus. The research was aimed at investigating prenatal sedentary behaviour and its effect on pregnancy minor disorders. Descriptive cross sectional retrospective design was applied using questionnaire that assessed sedentary behaviour, nocturnal rest time and pregnancy minor disorders patterns. Ethical approval for the research was obtained from Kebbi State Health Research Ethical Committee. Systematic sampling was used in selecting the sample from the population of the study. Data were presented and analysed in tables showing percentages, means and standard deviations. T-test and ANOVA statistical tools were used in making the inferences. The result showed there is no statistical significant difference in the sedentary behaviour categories mean between different patterns of the pregnancy minor disorders $P>0.05$; except in occurrence of miscarriage in which there is a statistical significant difference $P<0.05$. There is no statistical significant difference in the nocturnal rest time mean between different patterns of the pregnancy minor disorders $P>0.05$; except in duration of the ailments in which there is a statistical significant difference $P<0.05$. It is concluded that in most of the instances sedentary behaviour has no effect statistically on the patterns of pregnancy minor disorders. In some of the patterns the differences in the mean were noticeable, but not statistically significant. More rigorous studies using different methods are needed to shade more light on sedentary life behaviour as it relate to pregnancy minor disorders.

Key words: Effect, Minor disorders, Pregnancy, Prenatal, retrospective survey, Sedentary behaviour

INTRODUCTION

Pregnancy is associated with numerous physiological and psychological changes that may encourage sedentary behaviour (SB). [1] Studies have indicated the existence of decreased in physical activity (PA) by women during pregnancy. [2-4] With all the benefits of PA, SB among pregnant women is common, [5] usually because of fear of adverse effects on their health and that of their fetus. [6] PA is any body movement that makes muscles to

move and require more energy than resting [7] and the commonest PA during pregnancy is walking. [8] American College of Obstetricians and Gynecologists (ACOG) recommended that a pregnant woman should have 30 minutes of moderate-intensity PA in most of the days if there is no any medical/obstetrical contraindication. [9] Also it was recommended [10,11] that pregnant women should carryout regular 30-40 minutes PA 3-4 times per week, except if the pregnancy is complicated. However,

U.S. Department of Health and Human Services [12] recommended pregnant women to have 150 minutes of moderate-intensity PA per week if there is no any medical/obstetrical contraindication.

The SB is defined as “any waking behaviour characterized by an energy expenditure <1.5 metabolic equivalent of tasks (METs) while in a sitting or reclining posture”. [13] SB is referred to the activities that expend energy close to the basal metabolic rate. The energy expenditure in SB is very low and includes activities such as sitting or lying that does not reach up to 1.5 METs. [14,15] The emergence of SB and PA as factors that contribute to the healthy life has been in literature for long, but the consideration of SB alone as influential to the public health is a new development. There are many evidences indicating that moderate-vigorous PA could be unrelated to SB time. [16] Therefore SB time should be looked into independent of moderate intensity PA.

There are indications that PA alone may not be the only factor that could influence the wellbeing of women in pregnancy. Example, it was asserted that meeting PA recommendations may not be enough to prevent abnormal weight gain and thus it could be advantageous to consider the probable influence of behaviour different from PA, specifically the level of SB. [17] Though SB is not part of large total daily component of energy expenditure, but it constitute the majority of time per day and therefore ought to be considered as a possible factor that influence the overall health. [16] Moreover, Blair [18] had it that reducing SB is related to decrease in mortality. Studies have revealed around 55-60% of time awake of general adult population is spent in sedentary life, [19] and the situation appears to be the same or worse in pregnant women. [20-23] Moreover, in developing countries surveillance of minor disorders during pregnancy is virtually nonexistent. This leads to difficulties in assessing the disease burden and create a barrier to understanding the

situation, planning, control and preventive activities effectively. [24]

Advantages of physical activity to mother are numerous, some of them include relief from minor ailments, improved cardiac and vascular function, weight control, positive mental state and improved fitness and quick recovery. [25] The benefits of prenatal PA include reduction in fatigue, anxiety, stress and depression, as well as improved well-being. [26,11] Research studies on benefits of exercise during pregnancy found positive effects of moderate exercise on fetal and maternal health. [27,28] In a study conducted by Sajitha *et al.* [25] on the effectiveness of prenatal education regarding practice on antenatal exercises and minor ailments among pregnant mothers, it was concluded that the effects of minor disorders can be reduced with antenatal exercise. Therefore this study investigated prenatal SB and its effect on pregnancy minor disorders in a tertiary hospital in Kebbi state, Nigeria.

MATERIALS AND METHODS

The research was descriptive cross sectional retrospective survey on prenatal sedentary behaviour and its effect on pregnancy minor disorders. It was conducted in Sir Yahaya memorial hospital Birnin-Kebbi, Kebbi state, Nigeria. The population of the study was pregnant women attending ANC at the hospital. The questionnaire for the study consists of seventeen items including demographic data of the respondent, sedentary behaviour survey adapted from Watson [29] and researcher constructed items to assess the perceived severity of minor disorders in pregnancy. The sedentary time was categorised as 1= very low, 2 = low, 3 = high, 4 = very high based on the estimated number of hours respondents spent in sedentary. The nocturnal rest time was taken as time in hours between the time respondents goes to bed and the time she wakes up.

Ethical approval for the research was obtained from Kebbi State Health Research

Ethical Committee. The subjects of the study involved in the research voluntarily. No identity of the respondent was revealed and information obtained from the respondents was treated with utmost confidentiality. Sample size was calculated using Cochran's sample size determination formula. Pregnant women with medical, obstetric or gynaecological complications were not involved in the research. Systematic sampling was used in selecting the sample from the population of the study. SPSS version 21 was used in data analysis and data were presented and analysed in tables showing percentages, means and standard deviations. T-test and ANOVA statistical tools were used in making the inferences.

RESULTS

Table 1: Percentage distributions of demographic characteristics of the respondents

Age bracket (Years)	Frequency	Percentage
15-19	32	15.3
20-24	88	42.1
25-29	44	21.1
≥30	45	21.5
Total	209	100
Number of Pregnancies	Frequency	Percentage
First	76	36.4
Second-Fourth	75	35.9
Fifth-Seventh	32	15.3
≥Eight	23	11.0
Missing	3	1.4
Total	209	100
Occupation	Frequency	Percentage
Artisan	61	29.2
House Sells	22	10.5
Civil Servant	98	46.9
Business	24	11.5
Missing	4	1.9
Total	209	100
Educational level	Frequency	Percentage
Tertiary Education	133	63.6
Secondary Education	45	21.5
Primary Education	21	10.0
Non Formal Education	10	4.8
Total	209	100

Table 1 shows majority (42.1%) of the respondents were within the age bracket 20-24 years. While only 15.3% were found to be within the age bracket of 15-19 years. 36.4% of the respondents were having their first pregnancies; and 11.0% were having their eighth or more than eighth pregnancy. Majorities (46.9%) of the respondents were civil servants, 29.2% artisans and only

11.5% were found to be business women. Most of the respondents (63.6%) were having tertiary education, 10.0% primary education and only 4.8% involved in non-formal education.

Table 2: Mean and standard deviation (SD) of SB categories (1= very low, 2 = low, 3 = high, 4 = very high) by patterns of pregnancy minor disorders

Occurrence of ailments	Mean	SD
Yes	1.92	0.43
No	1.73	0.47
Duration of the ailments	Mean	SD
<1 week	1.86	0.37
1-2 weeks	1.91	0.45
3-4 weeks	1.85	0.41
> 4 weeks	2.03	0.45
Severity of the ailment	Mean	SD
Very severe	1.87	0.55
Severe	1.89	0.38
Mild	1.91	0.46
Very mild	1.97	0.31
Effect on daily activities	Mean	SD
Very high	1.91	0.26
High	1.85	0.39
Low	1.94	0.50
Very low	1.95	0.31
Mode of treatment	Mean	SD
Self medication	1.89	0.31
Health worker at home	1.84	0.34
Hospital with no admission	1.93	0.51
Hospital with admission	1.93	0.37
Occurrence of miscarriage	Mean	SD
Yes	1.79	0.37
No	1.95	0.45

Table 2 revealed that those that had miscarriage due to ailment in pregnancy have the SB categories mean of 1.92(0.43) against those that had no miscarriage with mean of 1.73(0.47). Respondents that had duration of the ailment more than four weeks had SB categories mean of 2.03(0.45) which are more than others with duration equal or less than four weeks. The SB categories mean was found to be 1.91(0.55) for those that perceived the ailment to be very severe, and 1.97(0.31) for those that perceived it to be very low. On the perceived effects of the disease on the daily activities, respondents that perceived it to be very low have the mean of 1.95(0.31), and the mean of 1.91 (0.26) for those that perceived it to be very high. Those treated the ailments with no hospital admission and those with hospital admission have the mean of 1.93 each and SD of 0.52 and 0.37 respectively. Respondents that had miscarriage due to the ailments had the SB

categories mean of 1.79(0.37) against those that had no miscarriage with 1.95(0.45).

Table 3: Statistical analysis between sedentary behaviour and pattern of the pregnancy minor disorders

Occurrence of ailments (t-test)		Duration of the ailments (ANOVA)		Severity of ailment (ANOVA)		Effect on daily activities (ANOVA)		Mode of treatment (ANOVA)		Occurrence of miscarriage (t-test)	
Df	P	Df	P	Df	P	Df	P	Df	P	Df	P
140	0.092	3	0.229	3	0.897	3	0.736	3	0.827	207	0.002

Table 3 shows that there is no statistical significant difference in the SB categories mean between different patterns of the pregnancy minor disorders $P > 0.05$; except in occurrence of miscarriage in which there is a statistical significant difference $P < 0.05$.

Table 4: Mean and standard deviation of nocturnal rest time by pattern of pregnancy minor disorders

Occurrence of ailments	Mean	SD
Yes	4.06	0.75
No	4.10	0.47
Duration of the ailments	Mean	SD
<1 week	4.26	0.74
1-2 weeks	4.23	0.83
3-4 weeks	4.01	0.63
> 4 weeks	3.75	0.67
Severity of the ailment	Mean	SD
Very severe	3.83	0.67
Severe	4.19	0.84
Mild	3.99	0.66
Very mild	4.15	0.89
Effect on daily activities	Mean	SD
Very high	3.64	0.80
High	4.20	0.84
Low	3.97	0.67
Very low	4.16	0.69
Mode of treatment	Mean	SD
Self medication	4.15	0.67
Health worker at home	4.21	0.89
Hospital with no admission	4.05	0.68
Hospital with admission	3.79	0.78
Occurrence of miscarriage	Mean	SD
Yes	4.21	0.98
No	4.00	0.68

Table 4 revealed the nocturnal rest mean time of the respondents that had miscarriage due to the ailments is 4.06(0.75), and those that had no miscarriage is 4.10(0.47). Respondents with the duration of the ailments more than four weeks had the mean nocturnal rest of 3.75(0.67), and those with duration less than a week had the mean of 4.26(0.74). The respondents with perceived severity as severe had the mean of 4.19(0.84) and very mild 4.15(0.89). The mean of those that perceived the effect of the ailments on daily activities as very high was 3.64(0.80) and low 3.97(0.67). The respondents that had mode of treatment with self medication had the mean of 4.15(0.67), and those treated at hospital with admission had the mean of 3.79(0.78). The respondents that had miscarriage due to the ailments had the mean of 4.21(0.98) and those with no miscarriage, 4.00(0.68).

Table 5: Statistical analysis between nocturnal rest and pattern of the pregnancy minor disorders

Occurrence of ailments (t-test)		Duration of the ailments (ANOVA)		Severity (ANOVA)		Effect on daily activities (ANOVA)		Mode of treatment (ANOVA)		Occurrence of miscarriage (t-test)	
Df	P	Df	P	Df	P	Df	P	Df	P	Df	P
205	0.635	3	0.012	3	0.373	3	0.124	3	0.185	139	0.326

Table 5 shows that there is no statistical significant difference in the nocturnal rest time mean between different patterns of the pregnancy minor disorders $P > 0.05$; except in duration of the ailments in which there is a statistical significant difference $P < 0.05$.

DISCUSSION

The age of the respondents revealed 15.3% were within 15-19 years age bracket, which could indicate a reduction in child marriage, and could be due to being of study area an urban setting where mostly child

marriage is less. The number of pregnancies further supports the possibility of reduction in early marriage and early pregnancy; 36.4% of the respondents were having their first pregnancy, considering 15.3% within the age bracket 15-19 years. Most of the respondents (46.9%) were civil servants, 29.2% artisans, and only 11.5% found to be business women. This could be due to the fact that majority (63.6%) of the respondents possessed tertiary education, people most likely to get involved in civil service.

It was found that the SB categories mean by occurrence of ailments was 1.92(0.43) for those that had the ailments during pregnancy and 1.73(0.47) for those that do not. Thus those that suffered from minor disorders of pregnancy have higher SB categories mean than those that do not suffer the disorders. The respondents that suffered the disorders in duration of more than four weeks have SB categories mean of 2.03(0.45), while those that suffered the ailment in less than four weeks have lower SB categories mean.

However, respondents that perceived the severity of the ailments to be very mild had the SB categories mean of 1.97(0.31) slightly higher than those that perceived it as very severe, severe, and mild; the mean increases as the perceived severity decreases, 1.87(0.55), 1.89(0.38), 1.91(0.46) respectively. By implication, the higher the sedentary time the lower the perceived severity, though the mean difference is very slight. Also the SB categories mean seems to increase with decrease in perceived effect of the ailments on daily activities. Very low effect had the mean of 1.95(0.31) compared with very high with mean of 1.91(0.26) and low 1.94(0.50); though the differences are very slight.

The SB categories mean based on the mode of treatment of the ailments was found to be higher to respondents treated in the hospital; 1.93(0.51) and 1.93(0.37) for those with admission and those without admission respectively. Also, their difference with other mode of treatment is very slight. The SB categories mean was found to be higher (1.95, SD 0.45) in those that had no miscarriage during the period of minor disorders of pregnancy, compared to those that had the miscarriage with 1.79(0.37).

The nocturnal rest time mean was found to be higher (4.10, SD 0.47) in those that had pregnancy minor disorders, compared to those that do not had pregnancy minor disorders with 4.06(0.75). Even though the difference is found to be very slight, the same pattern was also found

in case of SB categories mean, thus indicating its possible importance. The nocturnal rest time mean was found to decrease with increase in duration of the ailments. Respondents that suffer the ailments for less than one week had the mean of 4.26(0.74), while others were 4.23(0.83), 4.01(0.63) and 3.75(0.67) for those that suffer the ailment for one to two weeks, three to four weeks and more than four weeks respectively. This is contrary to the pattern of SB categories mean under duration of the ailments.

Random occurrence of nocturnal rest time mean in perceived severity of disorders was observed, the highest mean was 4.19(0.84) for the respondents that perceived the disorders to be severe and lowest, 3.83(0.67) for those that perceived the disorders as very severe. However, those that perceived the disorders to be very mild had the mean of 4.15(0.89). This is a random occurrence that does not follow any pattern of decreasing or increasing with severity of disorders. The same random pattern was observed on the nocturnal rest time mean under perceived effect of the disorders on daily activities. The mean was found to be higher, 4.20(0.84) in respondents that perceived the effect to be high, followed by those that perceived the effect to be very low 4.16(0.69).

The differences of nocturnal rest time mean by mode of treatment of pregnancy minor disorders was found to be higher among respondents treated by health workers at home, 4.21(0.89) and the least was for those treated at hospital with admission, 3.79(0.78). The difference between those treated at home and those at hospital was found to be very slight, but those treated at hospital had lower nocturnal rest time mean than those treated at home. Based on the occurrence of miscarriage, those that had miscarriage during the ailments have higher nocturnal rest time mean, 4.21(0.98), than those that had no miscarriage, 4.00(0.68). This pattern is contrary to that of sedentary time mean in occurrence of miscarriage.

The statistical inferences indicate that there is no significant difference in sedentary behaviour by all the patterns of pregnancy minor disorders, $P > 0.05$; except in occurrence of miscarriage. Therefore the SB categories mean do not differ significantly between respondents that suffered pregnancy minor disorders and those that do not; between different durations of the ailments; between perceived severity levels of the ailments; between perceived effects of ailment; and between modes of treatment of the ailment. There is significant difference in sedentary behaviour between respondents that had miscarriage during the ailments and those that do not $P < 0.05$ (0.002). Table two revealed that those that do not have miscarriage had higher mean of 1.97(0.45) compared to those that had miscarriage, 1.79(0.37). The sedentary effect could have an impact in preventing miscarriage, even if it does not influence other variables.

There was also no significant difference in nocturnal rest across all the patterns of the pregnancy minor disorders, $P > 0.05$; except in duration of the ailment where $P < 0.05$. Therefore the nocturnal rest time mean do not differ significantly between respondents that suffered pregnancy minor disorders and those that do not; between perceived severity levels of the ailments; between perceived effects of ailment; between modes of treatment of the ailment; and between the occurrence of miscarriage or not. However there is significant difference in nocturnal rest time mean in duration of the ailments, $P < 0.05$ (0.012). Table 5 revealed that respondents with duration of ailment more than four weeks had the lowest nocturnal rest time mean (3.75, SD 0.67). Thus high nocturnal rest might have an effect in reducing the duration of pregnancy minor disorders. This is contrary to the SB categories mean in which respondents suffer ailments for more than four weeks had higher SB categories mean, though there was no significant difference.

CONCLUSION

It is concluded that in most of the instances SB has no effect statistically on the patterns of pregnancy minor disorders. There were few instances by which statistical significant difference were detected. However, in some of the patterns, differences in the mean were noticeable, but not statistically significant. More rigorous studies using different methods are needed to shade more light on sedentary life behaviour as it relate to pregnancy minor disorders.

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