



Knowledge and Awareness about Obesity Complications in Pregnancy among Reproductive Women

S. MiSudharshan^a and Annejohncy^{b*}

^a Saveetha Medical College, Thandalam, Chennai, India.

^b Department of Obstetrics & Gynaecology, Saveetha medical college, Thandalam, Chennai, India.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Background: obesity in general predisposes expected to various noncommunicable diseases but its awareness in regards to the complications posed by it in reproductive women is underseen.

Methods: cross sectional study using an structured questionnaire.

Goal: To access the knowledge and awareness about complications of obesity in pregnancy among reproductive women

Statistical Analysis Used: Data was entered in excel spreadsheet and analysed using SPSS version 16.

Results: Majority of the participants [129 (86%)] knew that obesity affects reproductive health causing problem problems like just gestational diabetes mellitus GDM [136 (90.6%)], difficulties during labour, higher Chance of Caesarean [91(60.6)] section, Increased risk for hypertension [120 (80%)] infertility [53 (35.3%)], during pregnancy. Almost all of them know That obesity can increase problems in pregnancy for both mother and for the baby. Majority of them we are not sure if obesity causes increased chance of Foetal malformations [75 (50.2%)] Increased bleeding after delivery [103 (68.8%)] Most of them don't know that obesity can cause increased bleeding after delivery, stillbirth [125 (83.3%)], miscarriage [111(74%)], difficulties in Ultrasound examination of the abdomen [81 (54%)] Most of them thought that obesity does not cause difficulties in measuring BP [79 (52.6)], delivery of big baby [98 (65.3%)], premature delivery [56 (37.3%)].

Conclusion: Generating Awareness about obesity and its complications in pregnancy is required to prevent those complications in future and bring behavioural and lifestyle modification for sustainability in the long run.

Keywords: Obesity; complications; awareness; women; reproductive health; education.

1. INTRODUCTION

The prevalence of obesity is rocketing, with its wide arsenal it poses one of the biggest threats towards mankind. Obesity being a rapidly growing problem in India like elsewhere, and maternal obesity not being an exception is also taking a leap. As per the recent national family health survey [1] (NFHS-5) 41.6% of women in Tamil Nadu where obese which is almost 26% more than the previous NFHS-4, which also followed the same pattern from the previous enough NFHSs. This situation is serious in both rural and urban population but urban being far more serious in urban population with 43.3 being obese or overweight.

Obesity predisposes as a factor for various diseases on the long run. Reproductive women have effect in the form of poor reproductive outcomes [2-4]. Extensive research and studies have been done regarding this and have found that 99 bill period obesity causes increased risk of infertility [2,3], miscarriage [7,8], preterm delivery [9], pre-eclampsia [10,11], and just stational diabetes metres [12] (GDM). And in intra and postnatal period increased risk of cesarean sections [13,14], prolonged labour [15], postpartum anaemia [16] as complications of obesity are seen.

Studies also have found that neonatal complications such as stillbirth [17,18], congenital [19,20] anomalies, macrosomia [6] as well as gynecological problems like risk of breast cancer and endometrial cancer [21] due to obesity [22].

Apart from these complications, during antenatal visits the post technical difficulties such as reduced ultrasound accuracy, requirement of larger cuffs for blood pressure measurement and difficulty in external electronic fetal monitoring [23] due to excess adipocytes deposition.

Very few similar studies have been done in the past. The current obesity epidemic reflects the deep-rooted influence of cultural practices in the society which prevents behavioral changes

among people in the developing world [24,25]. Here is where Health education comes into play where it helps women enlighten the risks posed by the obesity and helps in understanding how few lifestyle and behavioral modifications [19] can reduce the threats posed by obesity, which If successful can reduce poor pregnancy outcomes.

Hence this study is done to assess the knowledge and awareness about complications of obesity in pregnancy among reproductive woman in a tertiary care Hospital. The study also helps to understand how far health education had come since the previous study was done

2. METHODOLOGY

The present cross-sectional study was conducted in obstetrics and gynecology department of Savita medical College and Hospital Chennai. A sample size of 135 participants was calculated at 95% confidence and 5% margin error. Adding a non-responsive rate of 11% of the total sample size was calculated as 150.

The study period was from January 25 to 20 June 2021. Institutional ethical committee clearance (IEC) Was applied and obtain before starting the study. The study population was chosen from the patients visiting the obstetrics and gynecology OPD. Any woman aged Greater > 18 years, and consenting to participate was enrolled in this study. Menopausal woman and those who are not willing to participate we are excluded from the study. All the participants who took part in the study was briefed About the nature and the purpose of the study.

Data was collected using a structured self-administered questionnaires printed in English and Tamil. Questionnaire was distributed after describing the purpose of the study. Written consent was obtained through the questionnaire. Only the questionnaires in which the consent was filled properly were included in the study. The participants parachute participation is voluntary and confidentiality will be maintained.

The reliability of the questionnaire was determined in a pilot study among 10 non-randomly chosen participants who are not part of the main study. The cronbachs Alpha value of internal consistency of the questionnaire was found to be 0.82 indicating good level of reliability.

The questionnaire contained questions related to Awareness regarding complications of obesity in pregnancy during antenatal internal and postnatal periods. The questionnaire was devised and pre-tested based on previous research studies, current literature on the complications of obesity on reproductive outcomes and in consultation with a faculty member from the Department of obstetrics and gynecology.

Language validation of questionnaire for Tamil was done by translating it into Tamil and then back translating into English by two different language experts.

Awareness level of participants was categorized as poor, average and good if the cumulative score was in the range 0 to 4, 5 to 10 and 11 to 15 respectively. These categories were defined based on the total possible scores for “must know” and “nice-to-know” questions. The cut-off value for points below which performance was labelled as poor was based on the cumulative points allocated to “must know” questions in the questionnaire. Similarly, the lower limit for good performance was based on the cumulative points for “nice to know” questions made less from the maximum score of 15. The must know

questions were questions related to awareness of study participants regarding role of obesity in conditions like GDM, pregnancy induced hypertension (PIH) and difficulties during delivery.

After collecting the data, it was entered in the Excel spreadsheet and was analyzed using statistical package for social science software (SPSS Inc., Chicago, ILIL) version 13 and frequencies and percentages were obtained and presented with graphs and charts.

3. RESULTS

Majority of the participants [129 (86%)] knew that obesity affects reproductive health causing problems like just gestational diabetes mellitus GDM [136 (90.6%)], difficulties during labor, higher Chance of Caesarean [91(60.6)] section, Increased risk for hypertension [120 (80%)] infertility [53 (35.3%)], during pregnancy.

Almost all of them know that obesity can increase problems in pregnancy for both mother and for the baby.

Majority of them we are not sure if obesity causes increased chance of Fetal malformations [75 (50.2%)] Increased bleeding after delivery [103 (68.8%)].

Most of them don't know that obesity can cause increased bleeding after delivery, stillbirth [125 (83.3%)], miscarriage [111(74%)], difficulties in Ultrasound examination of the abdomen [81 (54%)].

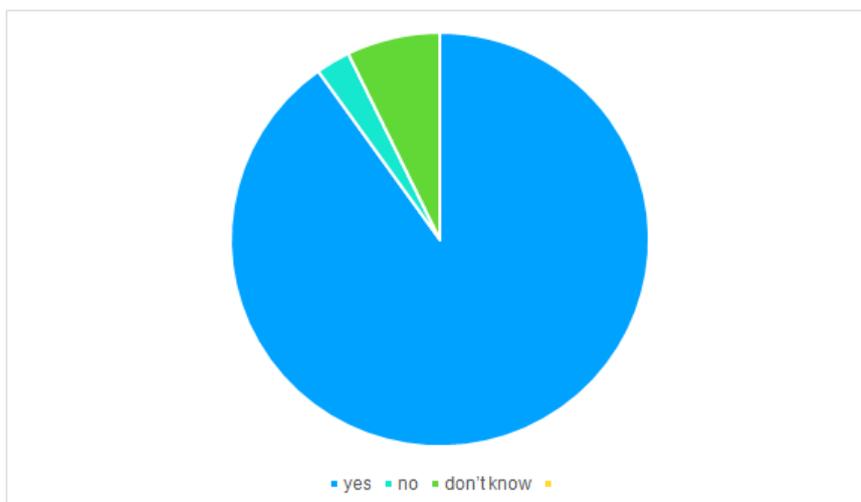


Chart 1. Do you know that obesity increases the risk for diabetes mellitus in pregnancy

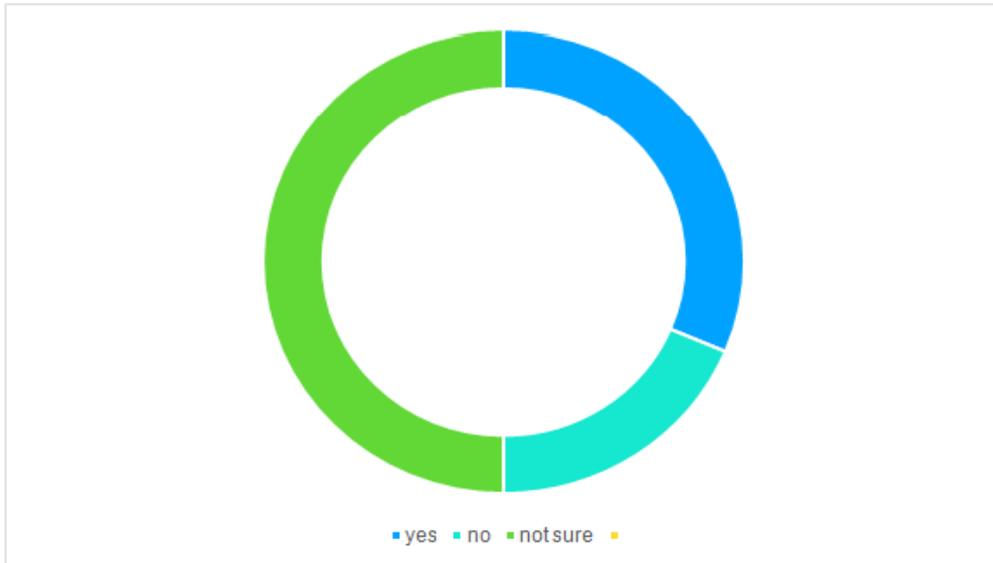


Chart 2. Does obesity increase risk of fetal malformations?

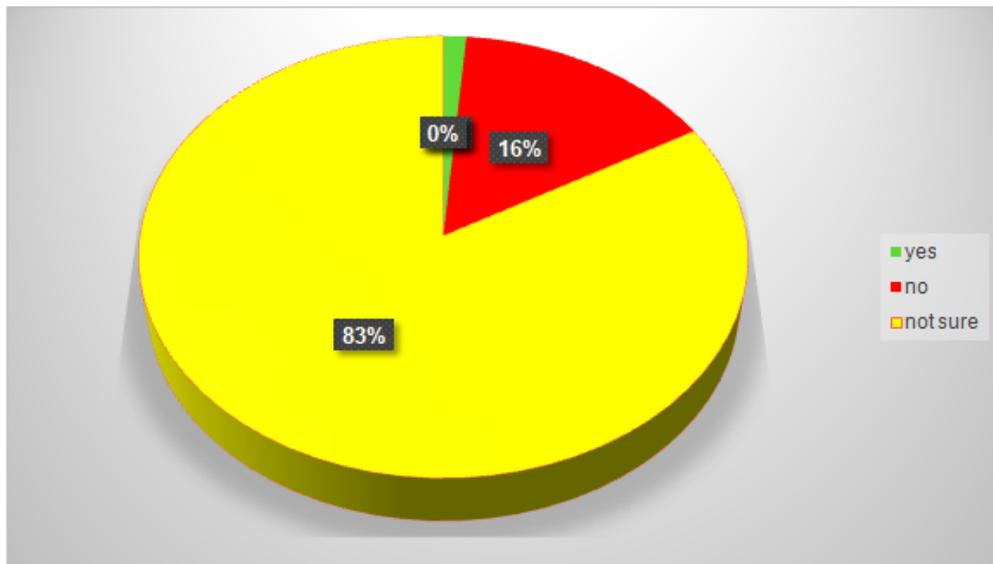


Chart 3. Does obesity increase risk of still birth?

Most of them thought that obesity does not cause difficulties in measuring BP [79 (52.6)], delivery of big baby [98 (65.3%)], premature delivery [56 (37.3%)]

4. DISCUSSION

In a dynamic population with very drastically increasing non communicable diseases with obesity being a major task force in posing one of the biggest threats towards the maternal services today. So, it is very crucial to improve women's awareness on risks reduce cost by obesity in

order to prevent obesity during pregnancy and its complications (for that matter to anyone any time). Improving women's awareness on the short- and long-term risks of obesity to both self and their offspring's health is likely to be an important initial step in preventing obesity during pregnancy [26].

The awareness of fetal anomalies was 23.7% in a study done in Chicago and 58% in a study done in Brisbane [26] Australia, 26.4% in a study done in Karnataka [27] in comparison to 34.1% reported by the participants in this study.

Table 1. Association between awareness and socio demographic variable Age of study participant

Socio demographic variables	Number of participants	Mean score
Age		
18-25	37	9.31
26-35	57	7.52
36-45	56	9.63

Table 2. Association between awareness and socio demographic variable educational status of study participant

Socio demographic details	Number of participants	Mean score
Educational status		
Upto 10 th standard	13	6.67
PUC	35	8.01
undergraduate	88	8.56
Postgraduate	14	9.15

Table 3. Association between awareness and socio demographic variable Number of previous pregnancies of study participant

Socio demographic details	Number of participants	Mean score
Number of previous pregnancies		
0	44	8.79
1	37	6.88
2	58	7.46
>3	11	8.43

Mostly in Karnataka observe role of obesity complications was much more for maternal the new natal complications which is not similar to our findings.

With an ultimate goal of antenatal care being birth of a healthy baby, awareness about neonatal complications helps them become more conscious about obesity and may prevent obesity before pregnancy [26,28].

The study found that 73% woman knew that obesity adversely affect reproductive health outcomes which is slightly less than that reported by the previous study done in Karnataka [29] with 80% and 75% in Australia [26] and 49% in Chicago [29]. However, you level of awareness in the present study was good only in about 9% participants in comparison to 49.8% and 10% in Karnataka. While over our poor virus in the study has seen about 20% what is the point in comparison to 39.5% and 14% reported in the Nigeria [30] and Karnataka [27] -based studies respectively

A women of reproductive age will be responsive to education consequences of obesity and health information needs to be widely disseminated in

the community to bring about behavioral modification.

There was an in awareness about increased risk of cesarian section delivery and infertility, Gestational diabetes mellitus and hypertension in comparison to previous studies. However, awareness regarding stillbirth, Premature deliveries and miscarriages, where more than those reported by the participants in this study. Other figures features of diseases like GDM pregnancy inducedhypertension (PIH)

Educational status significantly influencing awareness among participants as observed in the study whichwas supported by findings of several other studies. This supports the fact that the female literacy is the main determinant to be considered before designing education campaign. Only the study done in Nigeria [30] showed no association of level of education status of participants in the awareness of obesity as a risk factor adverse report in health outcomes.

In comparison with previous study made in Karnataka [27] where the awareness level was

found to be significantly decreased with increasing gravida. This phenomenon is getting changed where no decrease in knowledge with increasing gravida was not seen and either increasing knowledge was seen, indicating that more education interventions medical personnel regarding complications of obesity during pregnancy and in after repeated pregnancies. This enhances how important is the role of educating women during pregnancy. Lois et al, [31] where they easily lean towards healthy practices in concern towards the health of the baby so it's an ideal period to plan such interventions.

5. CONCLUSION

Surprisingly the results have improved since the previous study [24]. In comparison with previous study there is more intervention by the medical personnel between the pregnancies and it has helped gaining better understanding and awareness towards it. This knowledge is not necessarily to be imparted only to the obese women as this in Future may make them self-conscious about becoming obese and the problems they have to face. And this acts through word of mouth as a route, where its reached to very minimal population but with a high success rate, so on the long run it might create an impact. Obesity and its complications to be covered along with other common and preventable diseases with sanitary measures under a subject called health education at school level. Multiple campaigns across the country greatly supports such cause.

6. LIMITATIONS OF THE STUDY

Done in an urban setting, so can't assess knowledge and awareness in the rural population. And as far creating awareness goes how far successful those are practiced in real time can't be assessed in this study. BMI (body mass index) assessment among the participants (in order to create consciousness about their weight and help them correct if any needed) can't be done due to limited time.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for

any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. IIPS (International Institute for Population Sciences), Macro International National Family Health Survey (NFHS-3), 2005-06, 2007; India, Vol. 1, Mumbai: IIPS; 2007.
2. Soliman PT, Bassett RL, Jr, Wilson EB, Boyd-Rogers S, Schmeler KM, Milam MR et al. Limited public knowledge of obesity and endometrial cancer risk: what women know. *Obstet Gynecol.*
3. Rahman M, Justiss AA, Berenson AB. Racial differences in obesity risk knowledge among low-income reproductive-age women. *J Am Coll Nutr.* 2012;31:397-400.
4. Callaway LK, O'Callaghan MJ, McIntyre HD. Barriers to addressing overweight and obesity before conception. *The Medical Journal of Australia.* 2009;191:425-8.
5. Gesink Law DC, Maclehose RF, Longnecker MP. Obesity and time to pregnancy. *Hum Reprod.* 2007;22:414-20.
6. Ramlau-Hansen CH, Thulstrup AM, Nohr EA, Bonde JP, Sørensen TI, Olsen J. Subfecundity in overweight and obese couples. *Hum Reprod.* 2007;22:1634-7.

7. Metwally M, Ong KJ, Ledger WL, Li TC. Does high body mass index increase the risk of miscarriage after spontaneous and assisted conception? A meta- analysis of the evidence. *FertilSteril.* 2008;90:714– 26.
8. Lashen H, Fear K, Sturdee DW. Obesity is associated with increased risk of first trimester and recurrent miscarriage: matched case-control study. *Hum Reprod.* 2004;19:1644–6.
9. Thornburg LL. Antepartum obstetrical complications associated with obesity. *Semin Perinatol.* 2011;35:317-23.
10. O'Brien TE, Ray JG, Chan WS. Maternal body mass index and the risk of preeclampsia: a systematic overview. *Epidemiology.* 2003;14:368–74.
11. Dokras A, Baredziak L, Blaine J, Syrop C, VanVoorhis BJ, Sparks A. Obstetric outcomes after in vitro fertilization in obese and morbidly obese women. *Obstet Gynecol.* 2006;108:61–9.
12. Solomon CG, Willett WC, Carey VJ, Rich-Edwards J, Hunter DJ, Colditz GA et al. A prospective study of pregravid determinants of gestational diabetes mellitus. *JAMA.* 1997;278:1078–83.
13. Rosenberg TJ, Garbers S, ChavkinW, ChiassonMA. Prepregnancy weight and adverse perinatal outcomes in an ethnically diverse population. *Obstet Gynecol.* 2003;102:1022–7.
14. Vahratian A, Siega-Riz AM, Zhang J, Troendle J, Savitz D. Maternal pre-pregnancy overweight and obesity and the risk of primary cesarean delivery in nulliparous women. *Ann Epidemiol.* 2005;15:467– 74.
15. Vahratian A, Zhang J, Troendle J, Savitz D, Siega- Riz AM. Maternal pre-pregnancy overweight and obesity and the pattern of labor progression in term nulliparous women. *Obstet Gynecol.* 2004;104:943– 51.
16. Bodnar LM, Siega-Riz AM, Cogswell M. High pregnancy body mass index increases the risk of postpartum anemia. *Obes Res.* 2004;12:941–8.
17. Cardozo ER, Dune TJ, Neff LM, Brocks ME, Ekpo GE, Barnes RB et al. Knowledge of obesity and its impact on reproductive health outcomes among urban women. *J Community Health.* 2013;38:261–7.
18. Sekar V, Mathew AC, Chacko TV. Awareness of women about complications and causes of obesity. A cross sectional study in Coimbatore, South India. *South Asian Journal of Preventive Cardiology.* Available: http://sajprevcardiology.com/vol8/vol8_3/awarenessofwomen.htm
19. Stothard KJ, Tennant PW, Bell R, Rankin J. Maternal overweight and obesity and the risk of congenital anomalies: a systematic review and meta- analysis. *JAMA* 2009;301:636-50.
20. Anderson JL, Waller DK, Canfield MA, Shaw GM, Watkins ML, Werler MM. Maternal obesity, gestational diabetes, and central nervous system birth defects. *Epidemiology.* 2005;16:87–92.
21. Eliassen AH, Colditz GA, Rosner B, Willett WC, Hankinson SE. Adult weight change and risk of postmenopausal breast cancer. *JAMA.* 2006;296:193–201.
22. Modesitt SC, van Nagell JR Jr. The impact of obesity on the incidence and treatment of gynecologic cancers: a review. *Obstet Gynecol Surv.* 2005;60:683– 92.
23. Ramsay JE, Greer I, Sattar N. ABC of obesity Obesity and reproduction. *BMJ* 2006;333:1159-62.
24. Ojofeitimi EO, Adeyeye AO, Fadiora AO, Kuteyi AO, Faborode TG, Adegbenro CA et al. Awareness of obesity and its health hazard among women in a university community. *Pakistan Journal of Nutrition.* 2007;6:502-5.
25. World Health Organisation (WHO) Global Strategy of Diet, Physical Activity and Health (Obesity and Overweight) London; 2003. Available: http://www.who.int/hpr/NPH/docs/gs_obesity.pdf [Last accessed on 2012 Oct 22].
26. Nitert MD, Foxcroft KF, Lust K, Fagermo N, Lawlor DA, O'Callaghan M et al. Overweight and obesity knowledge prior to pregnancy: a survey study. *BMC Pregnancy Childbirth.* 2011;11:96.
27. Joseph N, Sneha V, Nelliyanil M, Rai S, Supriya K, Bhat K. Awareness of consequences of obesity on reproductive health problems among women in an urban area in South India. *Int J Reprod Contracept Obstet Gynecol.* 2015;4:1109- 16.,
28. Luo ZC, Wilkins R, Kramer MS. Effect of neighbourhood income and maternal education on birth outcomes: a population-based study. *CMAJ.* 2006,174:1415- 20.

29. Kominiarek MA, Vonderheid S, Endres LK. Maternal obesity: do patients understand the risks? *Journal of Perinatology*. 2010;30:452–8.
30. Awotidebe TO, Adedoyin RA, Fatoogun B, Adeyeye V, Mbada CE, Akinola OT et al. An assessment of knowledge of Nigerian female undergraduates on obesity as a risk factor for cardiovascular disease in women. *American Journal of Health Research*. 2014;2:50-5.
31. Louis GM, Cooney MA, Lynch CD, Handal A. Periconception window: advising the pregnancy- planning couple. *Fertil Steril. International Journal of Reproduction, Contraception, Obstetrics and Gynaecology* 2008;89(2):e119–21.

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