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National Maternal and Child Health Center

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ប្រធានបទ៖ «ពង្រឹង និងបង្កើនសេវាព្យាបាល ថែទាំ សង្គ្រោះ ប្រកបដោយគុណភាព »

The relationship between overweight and obesity in the first trimester and maternal complications in Cambodia

Presented by Chhin Soknay, Vice chief of nursing committee, NMCHC.

ថ្ងៃទី៤-៥ ខែកញ្ញា ឆ្នាំ២០២៥
សណ្ឋាគារភ្នំពេញ

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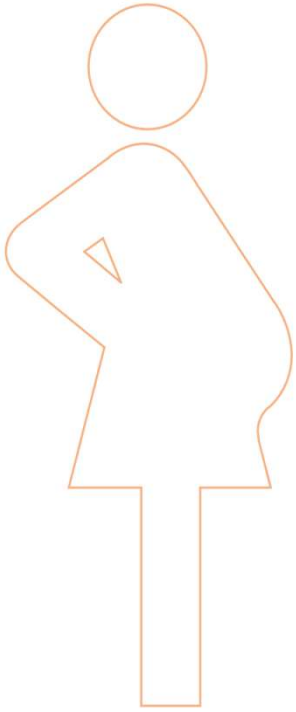

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Introduction

The prevalence of overweight and obesity has escalated to a significant global health concern (Lu et al., 2014).

The issue of overweight and significant public health concern (Afshin et al., 2017),

Overweight or obese, defined by a body mass index (BMI) of >25 kg/m², surged from 921 million in 1980 to 2.1 billion in 2013 (Ng et al., 2014).

Introduction

- In 2014, 38.9 million overweight and obese pregnant women and 14.6 million obese pregnant women existed globally (Chen et al., 2018).

- Women who are overweight or obese before or during early pregnancy face a heightened risk of adverse health outcomes (Rahman et al., 2015).

Introduction

Maternal obesity is a well established risk factor for complications such as cesarean section, preterm birth (Rahman et al., 2015), and macrosomia (Wahabi et al., 2021).

Obesity may also increase adipose tissue or pelvic soft tissue, leading to excessive inflammatory responses and a narrowing of the birth canal

(Catalano & Shankar, 2017).

Introduction

Overweight and obesity among women of reproductive age are significant global health issues, linked to adverse maternal and neonatal outcomes

In Cambodia, the prevalence of overweight and obesity is rising, yet research on their impact on maternal health is limited.

This study explores the relationship between early pregnancy body mass index (BMI) and maternal complications.

Introduction

- In Cambodia, the burden of overweight and obesity is rising, contributing to an increased risk of non-communicable diseases and adverse maternal health outcomes.
- In 2014, non-communicable diseases accounted for more than 50% of all deaths among Cambodians (MoH, 2018).
- According to a national demographic health survey, the prevalence of overweight and obesity among women of reproductive age increased from 6% in 2000 to 18% in 2014 (Um et al., 2023).

Introduction

- Pregnant women with higher BMI face greater risks of obstructed labor, lower infant birth weight, lower quality breast milk, mortality due to postpartum hemorrhage, and morbidity for both mother and newborn (National Institute of Statistics, 2014).

- In Cambodia, there is limited data on body mass index (BMI) and its relationship with pregnancy complications.

Objective

The objective of this study was to calculate the body mass index (BMI) of the pregnant women who received the antenatal care within the first 12 weeks of gestation and to assess the relationship between overweight and obesity and maternal complications.

Methods

- A retrospective cohort study was conducted at the National Maternal and Child Health Center (NMCHC).

- 400 pregnant women who attended their first antenatal care visit within 12 weeks of gestation were analyzed in 2023.

BMI Classification of Pregnant Women

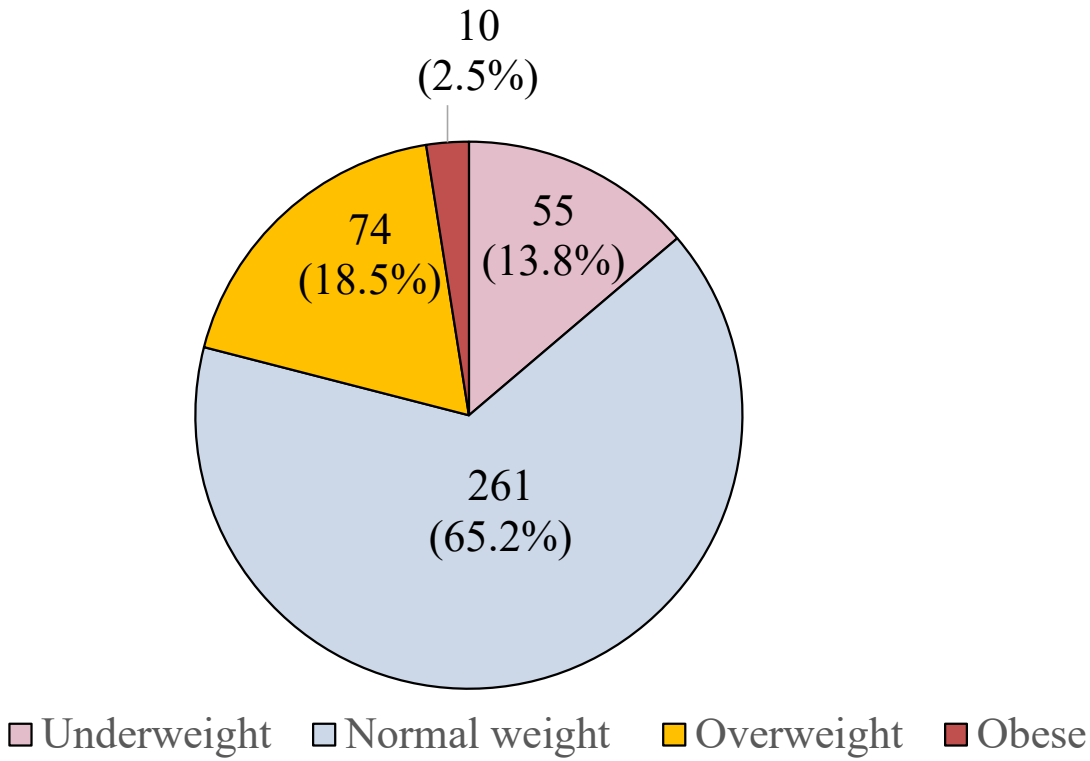

Table 1: Characteristics of Pregnant Women

	Total N=400 (%)	Underweight n=55 (13.8)	Normal weight n=261(65.2)	Overweight/obese n=84 (21.0)	P-value
BMI (kg/m^2)	22.22±3.47	17.23±0.64	21.67±1.79	27.21±2.19	**<0.001**
Age (years)	30.72±6.28	30.20±5.85	30.53±6.39	31.63±6.19	0.304
Occupational status n (%)					
Unemployed	341 (85.2)	46 (83.6)	220 (84.3)	75 (89.3)	0.498
Employed	59 (14.8)	9 (16.4)	41 (15.7)	9 (10.7)	
Place of resident n (%)					
Urban	127 (31.8)	11 (20.0)	91 (34.9)	25 (29.8)	0.090
Rural	273 (68.2)	44 (80.0)	170 (65.1)	59 (70.2)	

Abbreviations: BMI, Body Mass Index
All values are presented as mean (SD). A p-value of < 0.05 was considered statistically significant.

Table 1: Characteristics of Pregnant Women

	Total N=400 (%)	Underweight n=55 (13.8)	Normal weight n=261(65.2)	Overweight/obese n=84 (21.0)	P-value
Marital status n (%)					
Married	395 (98.8)	54 (98.2)	259 (99.2)	82 (97.6)	0.470
Divorced/widowed/separated	5 (1.2)	1 (1.8)	2 (0.8)	2 (2.4)	
Antenatal care visit	5.34±1.57	5.05±1.59	5.29±1.59	5.65±1.47	0.065
Number of pregnancies	2.54±1.42	2.13±1.16	2.48±1.36	2.96±1.63	**0.002**
Number of children	0.98±1.00	0.76±0.90	0.95±0.99	1.20±1.04	**0.030**
Gestational age at delivery (weeks)	38.50±2.89	38.04±2.52	38.70±3.01	38.19±2.69	0.165
Gestational weight gain (kg)	11.03±4.93	12.29±5.61	10.70±4.82	11.24±4.70	0.085
Birth weight (g)	3063.4±545.1	2927.1±523.3	3057.1±480.1	3172.1±709.9	**0.033**
Cesarean section n (%)	192 (48.0)	24 (43.6)	112 (42.9)	56 (66.7)	**< 0.001**

Abbreviations: BMI, Body Mass Index
All values are presented as mean (SD). A p-value of < 0.05 was considered statistically significant.

Table 2: Maternal complications compared among three groups

	Total N=400	Underweight n=55	Normal weight n=261	Overweight/obese n=84	P-value
Gestational hypertension	7	1	6	0	0.376
Preeclampsia	16	1	7	8	**0.014**
Postpartum hemorrhage	7	1	5	1	0.907
PROM	43	10	23	10	0.116
Induced labor	86	12	56	18	0.998
Stillbirth	5	2	3	0	0.163

Abbreviations: PROM, premature rupture of membrane
All values are presented as mean (SD). A p-value of < 0.05 was considered statistically significant.

Discussion

Overweight and obesity

- Um et al., 2023
  - National Institute of Statistics reported 18.0%
- Um & An, 2024
  - More recent data have reported the prevalence of overweight among women was 22.6%, and obesity was 5.6%

The study found:

- Overweight 18.5%
- Obesity 2.5%
- Overall, 21.0%

These findings suggest that overweight and obesity remain prevalent among women of reproductive age and pregnant women in Cambodia

Discussion

Caesarean sections

- (Giri et al., 2022; Mwanamsangu et al., 2020; Vats et al., 2021).
- Significantly among overweight and obese
- Higher rates in overweight and obese

- The study found that cesarean section was significantly among pregnancy women overweight and obesity (p-value=<0.001)

Discussion

Pre-eclampsia

Vats et al., 2021

- Overweight and obese were significantly risk preeclampsia

- The study was significantly among pregnant women overweight and obesity (p-value=0.014)

Limitations

1. The use of a computerized registry system: Educational level, alcohol consumption, and smoking status were not included, potentially resulting in a partial representation of pregnant women's condition.
2. BMI calculations were not consistently recorded in the medical records.
3. Not all medical records included height or weight measurements taken during the first antenatal care visit, which limited our ability to assess BMI accurately
4. Our study focused solely on BMI in the first trimester, with no available information related to pre-pregnancy BMI.

Conclusion

- The study revealed significantly influenced by maternal overweight and obesity, leading to higher cesarean section and particularly preeclampsia.

- Cambodian healthcare professionals to implement effective weight management strategies during ANC to improve maternal and neonatal health outcomes.

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Thank You