



# FACTORS ASSOCIATED WITH BODY MASS INDEX AMONG STUDENTS IN ENGINEERING MAJOR OF PUBLIC UNIVERSITY IN SELANGOR

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## INTRODUCTION

Overweight and obesity has always become a big concern in the world from year to year. According to World Health Organization (2020), overweight and obesity are characterized as the accumulation of irregular or unnecessary fat that poses a health risk. In Malaysia, data obtain based on NHMS shows that the prevalence of overweight and obesity had total increases of 13.8% and 15.2% respectively since the year 1996. According to recent data, the prevalence of overweight and obesity among young adults also quite high (NIH, 2019). The percentage of overweight among young adults aged 18-19, 20-24 and 25-29 was 15.3%, 19.7% and 24.7% respectively while the percentage of obesity was 16.2%, 11.5% and 20.3% respectively (NIH, 2019). Due to COVID-19 pandemic, there might be differences in recent data compared to previous study. Therefore, through this study, researchers will be able to classify the variables correlated with body mass index by observing the body mass index of university students especially during this COVID-19 pandemic.

## OBJECTIVE

- To identify the socio-demographic background, psychological and lifestyle factors among students in Faculty of Engineering and Built Environment of Universiti Kebangsaan Malaysia (UKM).
- To determine the body weight status of students in Faculty of Engineering and Built Environment of Universiti Kebangsaan Malaysia (UKM).
- To determine the association between socio-demographic background, psychological and lifestyles factors with body mass index among students in Faculty of Engineering and Built Environment of Universiti Kebangsaan Malaysia (UKM).

## METHODOLOGY

- Study design : Cross-sectional study
- Subjects and study location : 274 students from Universiti Kebangsaan Malaysia
- Sampling design : Multistage sampling
- Study instruments : As per showed below

Socio-demographic background	Self-developed questionnaire
Depression, Anxiety and Stress	The 21 item Depression Anxiety Stress Scale (DASS-21)
Sedentary Behavior	The Past-day Adults' Sedentary Time (PAST)
Physical Activity	The Global Physical Activity Questionnaire (GPAQ)
Sleep Quality	Pittsburgh Sleep Quality Index (PSQI)
Smoking	Global Adult Tobacco Survey (GATS)

- Ethical Approval : JKEUPM
- Data Analysis : IBM SPSS Statistics 22 (p < 0.05)

## CONCLUSION

- This prevalence of overweight (17.9%) and obese (8.4%) was quite high among participants of this study.
- Significant association between family income, physical activity, course of study and tobacco smoker had been identified in this study (p < 0.001; p = 0.009; p = 0.049).
- There was also significant association between sleep quality with BMI classification (p < 0.001).
- No significant association between age, gender, ethnicity, depression, anxiety, stress and sedentary behaviour with BMI and BMI classification (p > 0.05).
- Health awareness and intervention programs should be done to prevent overweight and obesity among this group population, particularly during this current pandemic situation.

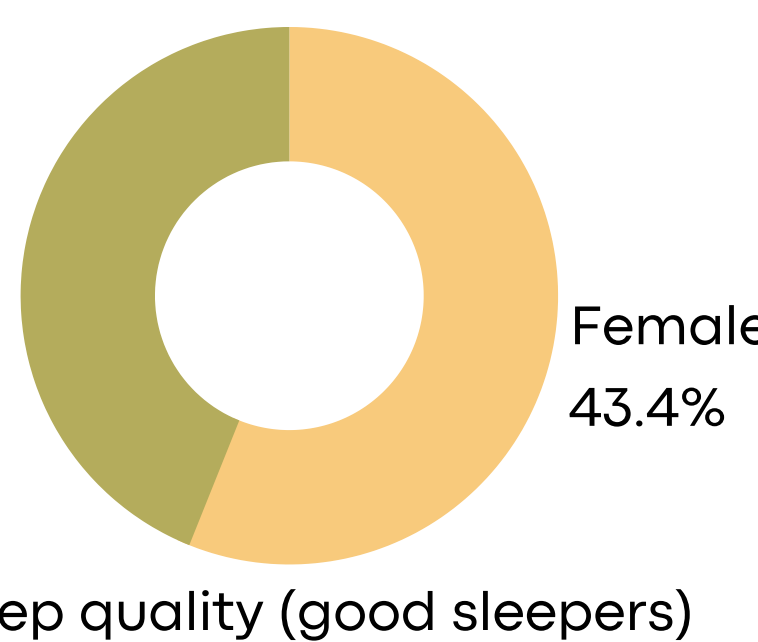
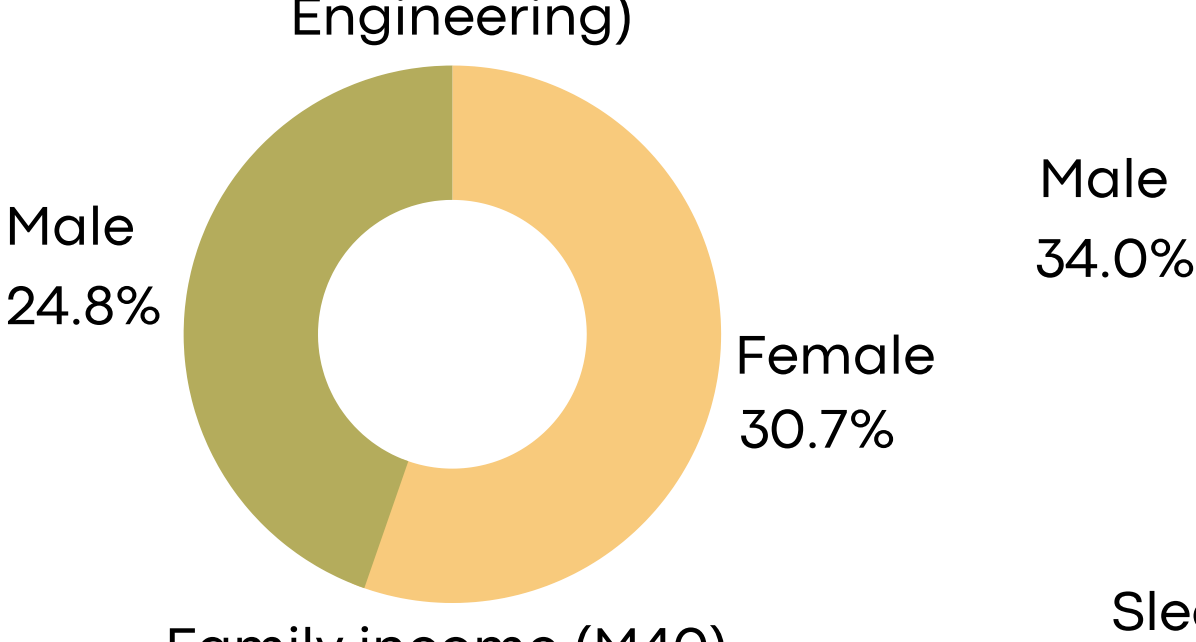
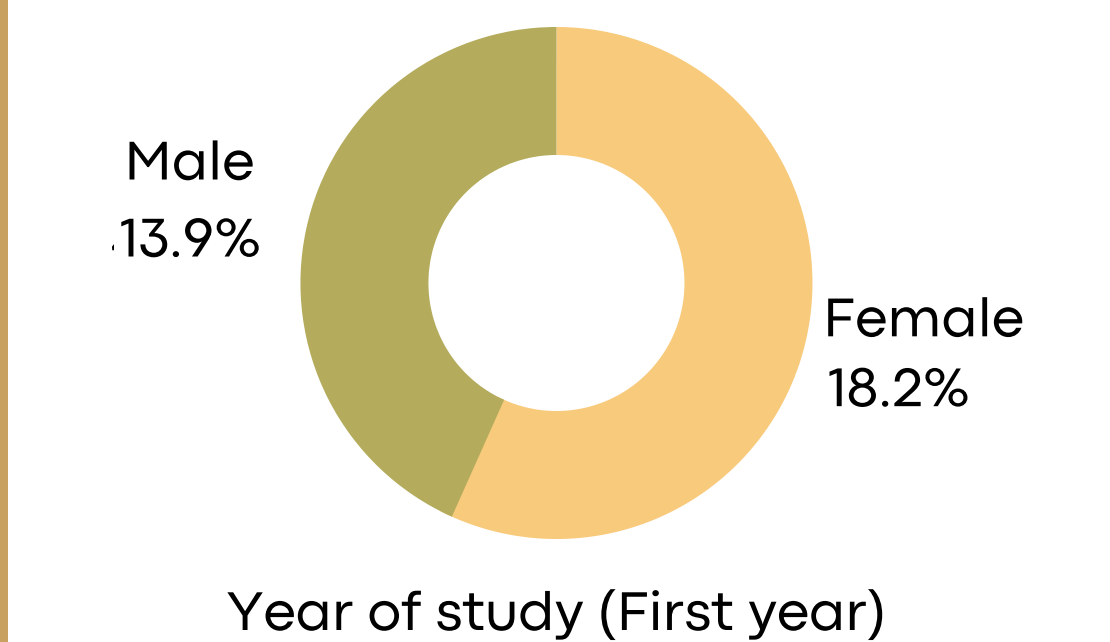
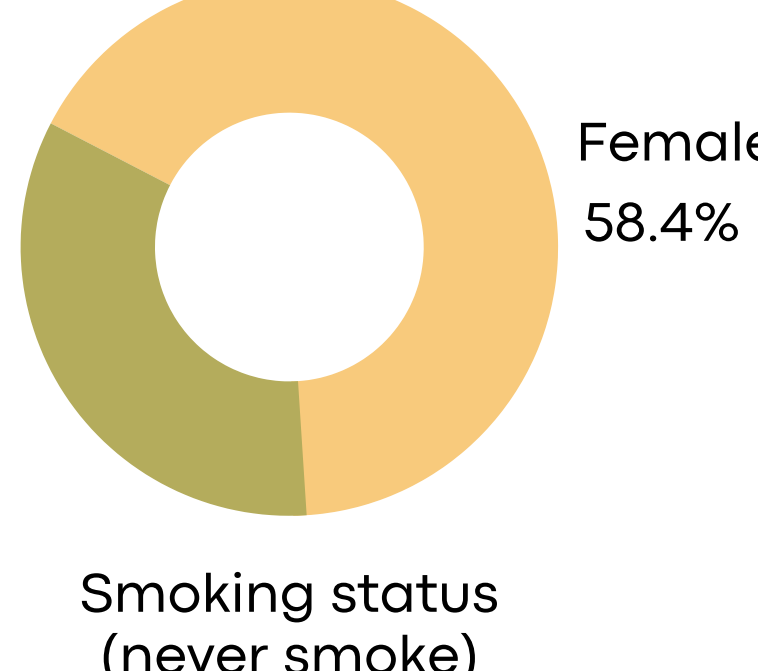
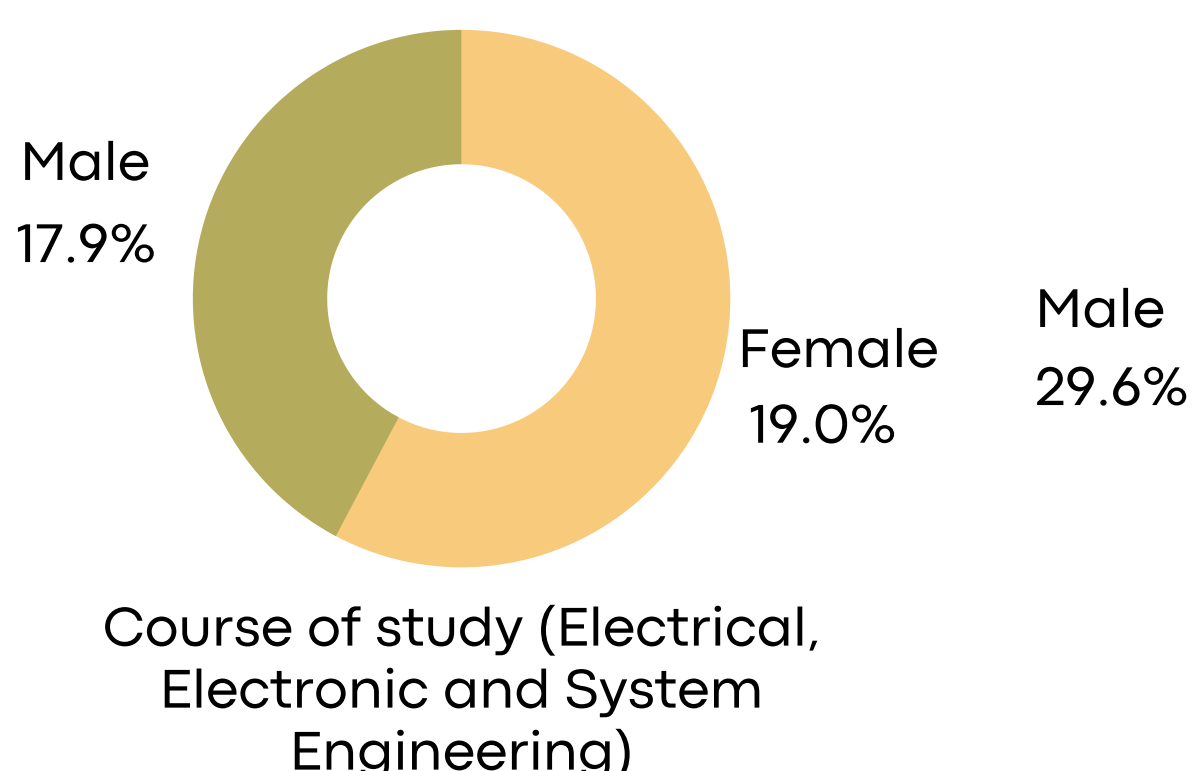
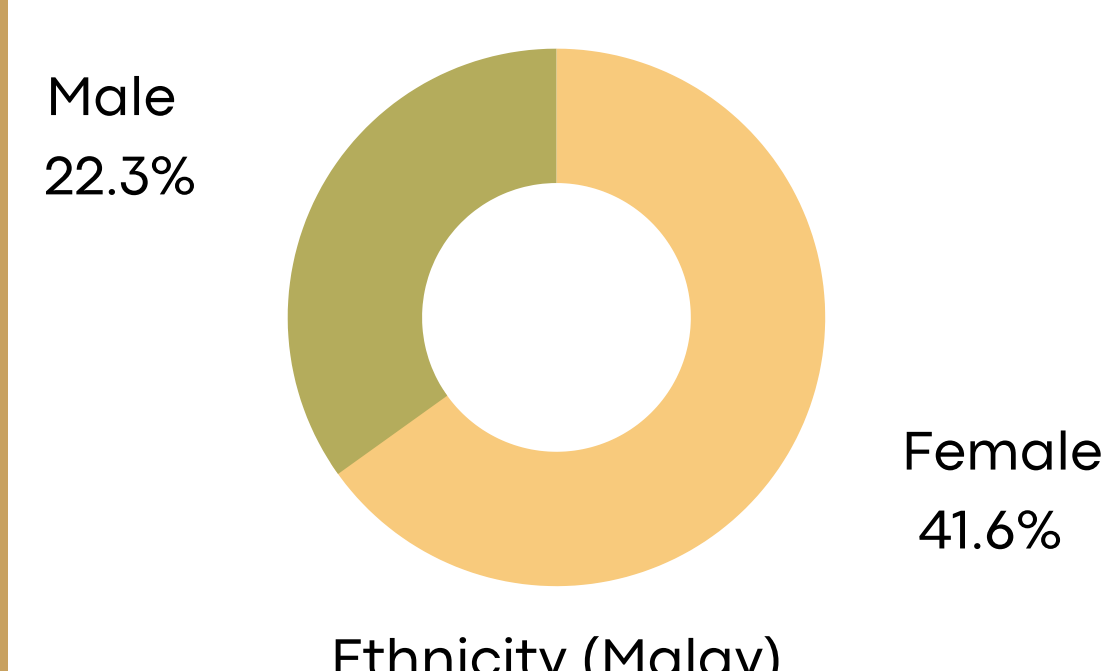
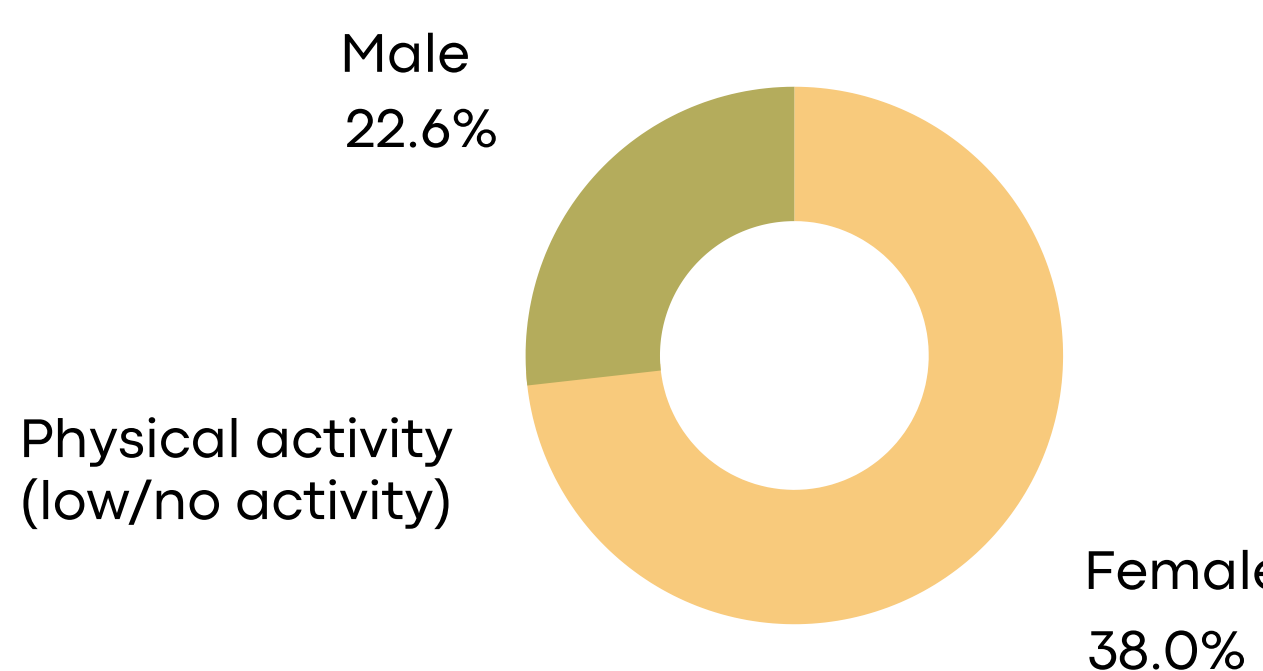
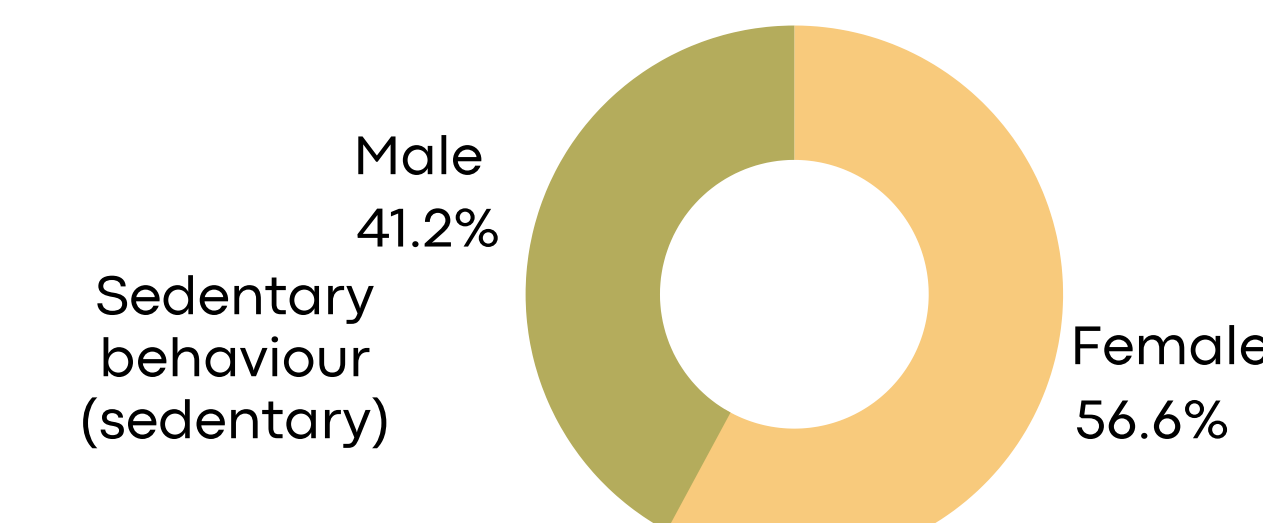
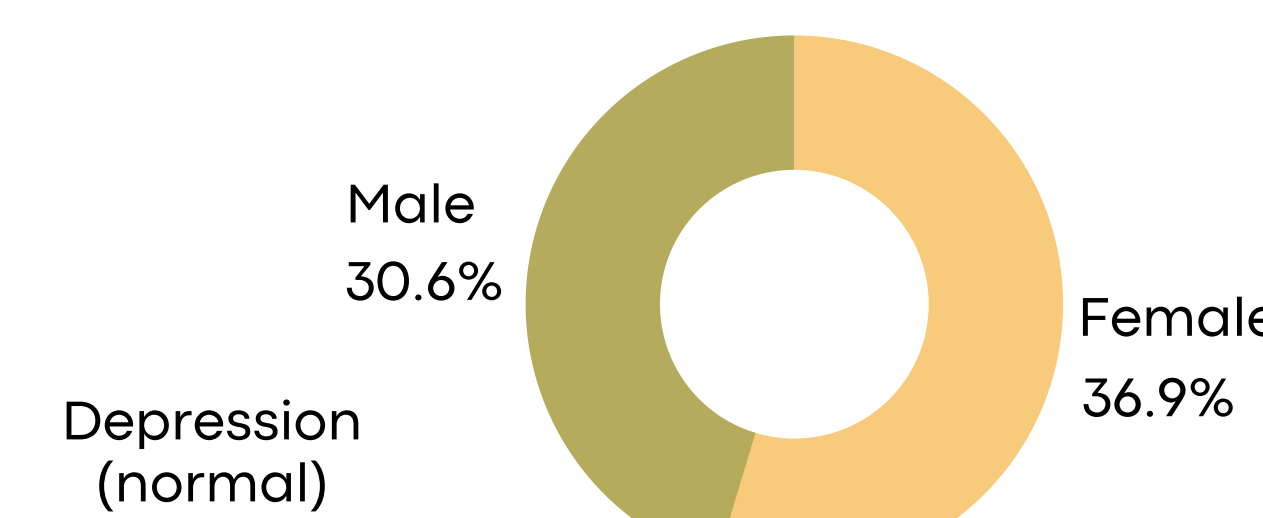
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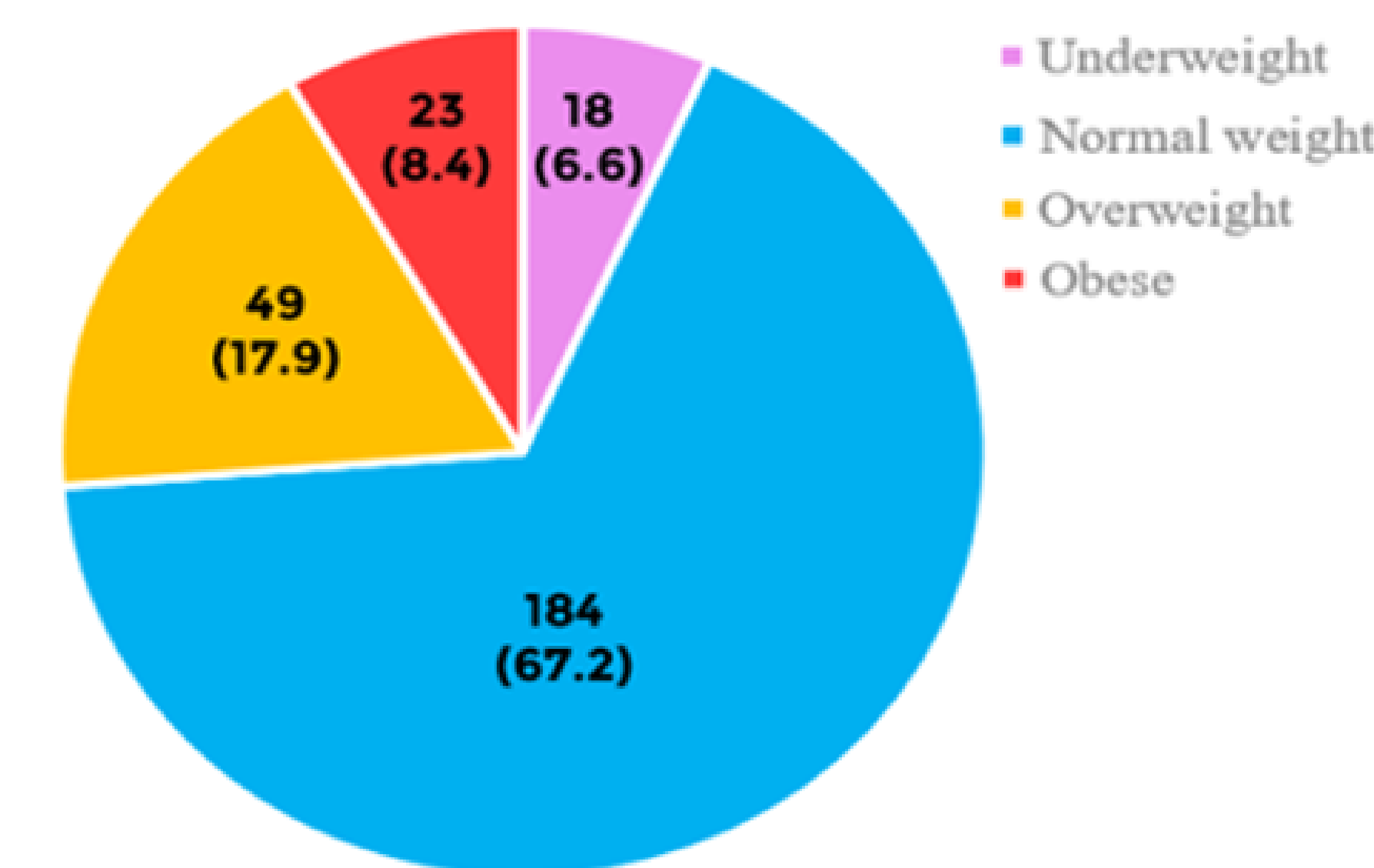
## RESULTS AND DISCUSSION

Out of 274 participants, most of them were:

Age	21.57±1.58 years
Gender (female)	58.8% (n=161)
Ethnicity (Malay)	63.9% (n=175)
Year of study (first year)	32.1% (n=88)
Course of study (Electrical, Electronic and Systems Engineering)	36.9% (n=101)
Family income (M40)	55.5% (n=152)
Depression (normal)	67.5% (n=185)
Anxiety (normal)	58.0% (n=159)
Stress (normal)	67.9% (n=186)
Sedentary behaviour (sedentary)	97.8% (n=268)
Physical activity (low/no activity)	60.6% (n=166)
Smoking status (never smoke)	88.0% (n=235)
Sleep quality (good sleepers)	77.4% (n=212)



Below showed the prevalence of body weight status of participants:



- 17.9% of participants were overweight, 8.4% were obese and 6.6% were underweight.
- Almost similar result had been determined from a study by Yeng and Sedek (2012) among UKM students where 17.0% were overweight and 9.5% were obese while higher percentage of underweight, 16.5% compared to this study.

Variable	χ <sup>2</sup>	p	BMI group n(%)			
			UW	N	OW	O
Sleep quality	19.485	<0.001				
Good			7(38.9)	150(81.5)	40(81.6)	15(65.2)
Poor			11(61.1)	34(18.5)	9(18.4)	8(34.8)

\*UW-underweight, N-normal, OW-overweight, O-obese

- This study showed good sleepers had high prevalence of overweight and obesity but it contrast with study by Park et al (2018) and Suhaimi et al (2020) that result in high prevalence of overweight and obesity among poor sleepers.

Variables	Mean±SD	BMI (kg/m <sup>2</sup> ) r/t/F	p
Family income		-0.227	<0.001
Physical activity level		-0.273	<0.001
Course of study		3.426	0.009
Civil Engineering	23.35±4.95		
Electrical, Electronic and Systems Engineering	23.29±2.90		
Chemical and Process Engineering	22.71±3.90		
Mechanical Engineering	25.59±5.32		
Architecture and Built Environment	22.88±3.02		
Smoking status		-1.978	0.049
Current smoke	22.10±3.73		
Never smoke	23.58±3.99		

- This study showed low family income and low physical activity had been associated with high BMI and this were in line with study by Singh et al (2011) and Mokhtari et al (2015).
- However, a study by Jiang et al (2018) found that high family income were likely to be associated with high BMI while study by Chan et al (2017) found no correlation between physical activity with BMI.
- Significant mean difference been found between smoking status with BMI (p=0.009; 0.049) which high BMI were found among those who never smoke and this similar with a study by Ginawi et al (2016)
- Significant mean difference also been found between course of study with BMI (p=0.009) and result as the same as study by Selvakumar (2015)