

ASSOCIATION BETWEEN SLEEP DISTURBANCE AND LIPID PROFILE IN MALAY WOMEN WITH LOW VITAMIN D LEVELS

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Background

- Low serum vitamin D levels have been associated with unfavourable lipid profile, which could possible explain vitamin D playing as potential contributor to the prevalence of cardiovascular disease, type 2 diabetes, hypertension and obesity.
- Studies found that extra-renal 1α -hydroxylase enzyme and vitamin D receptor (VDR) were broadly distributed through our human body. This allow us to potentiate the extra-skeletal effect of vitamin D

Background

- Recently studies have focused on potential roles of Vitamin D in influencing healthy sleep and they found that low level of vitamin D was correlated with poor sleep quality

OBJECTIVE

This study is aimed to assess the association of serum vitamin D level deficiency/insufficiency, lipid profile and sleep disturbance among Malay women

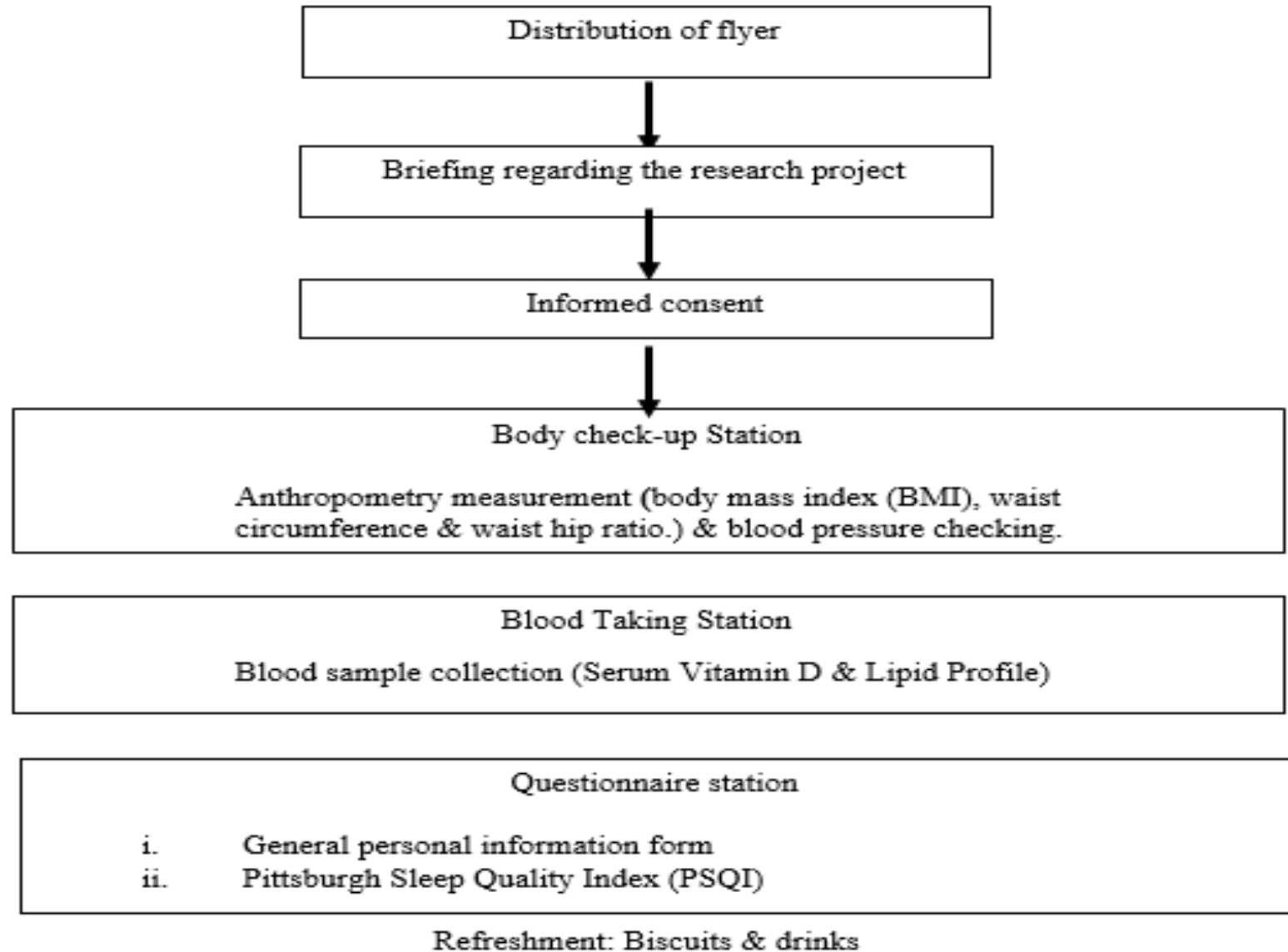
PROBLEM STATEMENT

1. Low vitamin D has been reported among Malaysian in different age group and gender, however , there is less study measure the blood level of vitamin D , and most estimate from food intake questionnaires.
2. The association of sleep quality and lipid profile and vitamin D level has not been studied in Malaysia

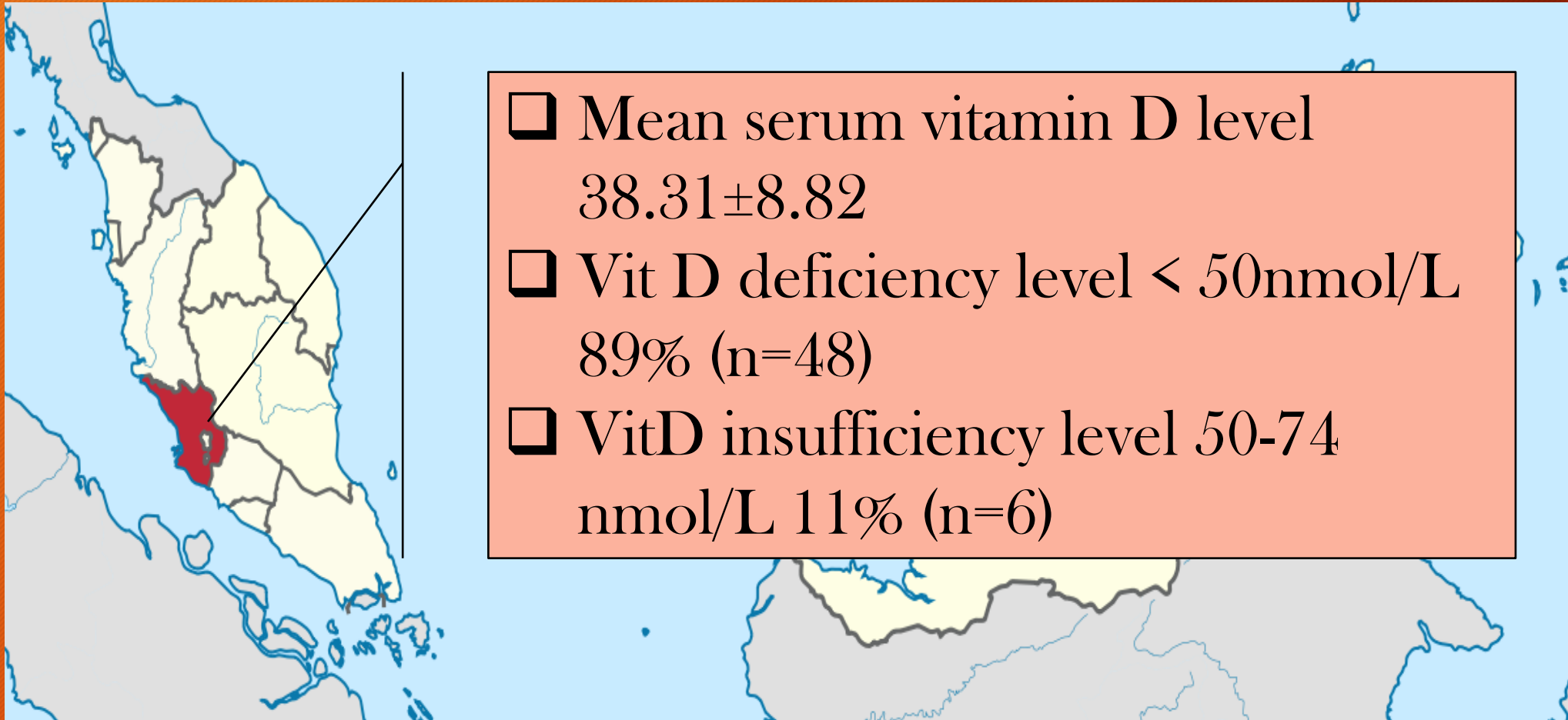
Study design

Cross-sectional study on 54 healthy Malay women aged in between 20-45 years (Mean age 30.7 ± 6.02)

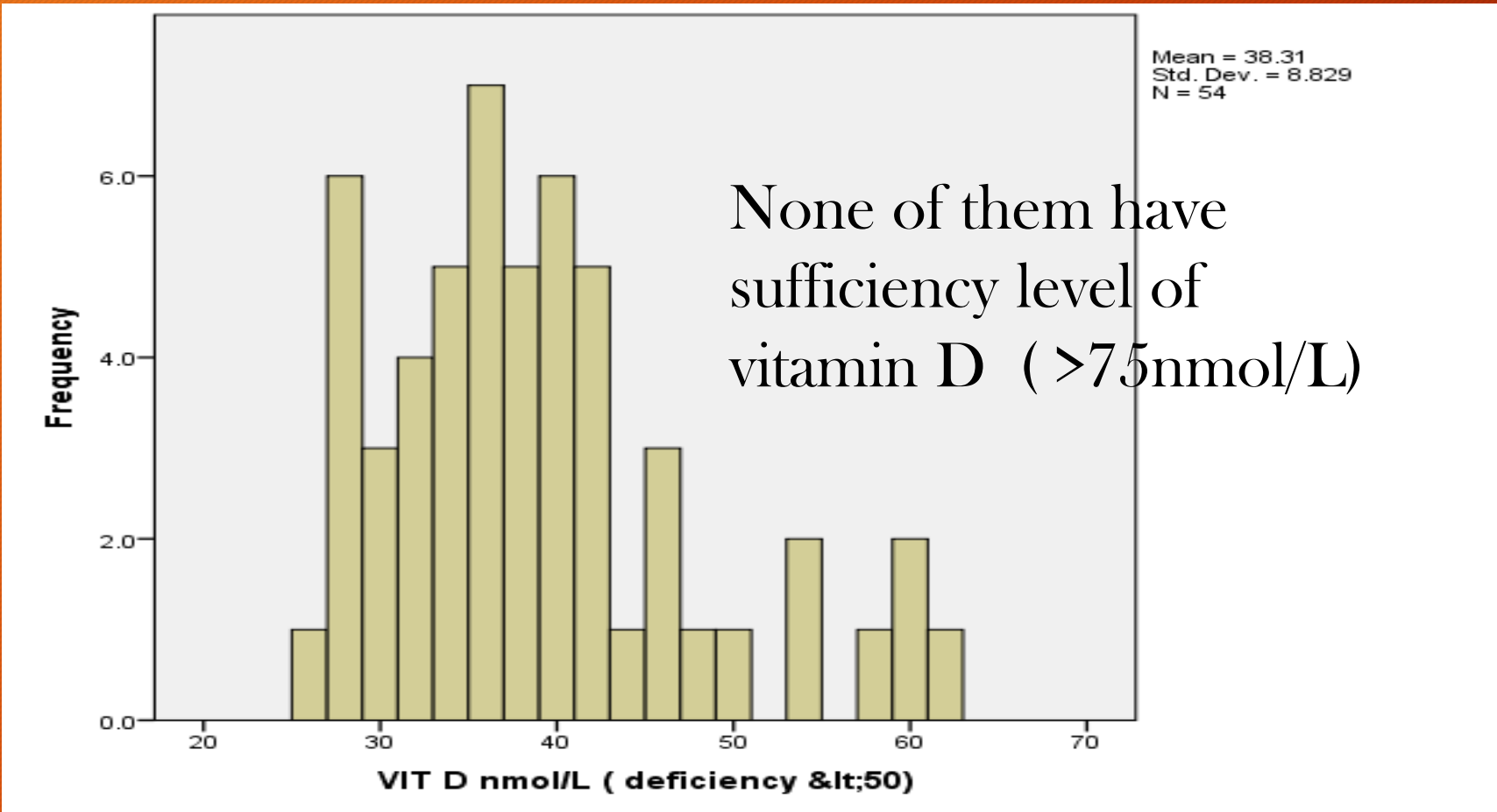
Flowchart



Subjects Characteristic

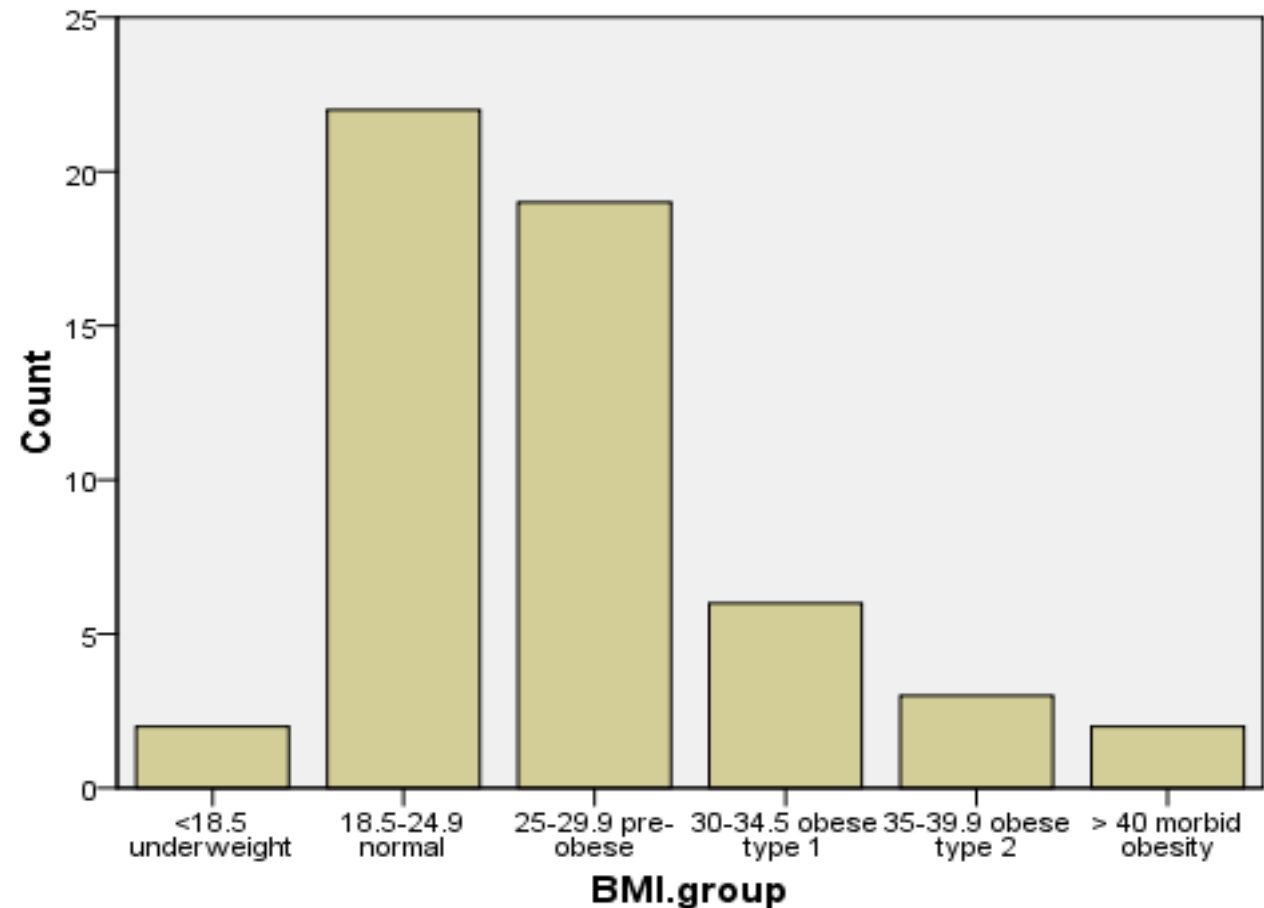


Subjects Characteristic

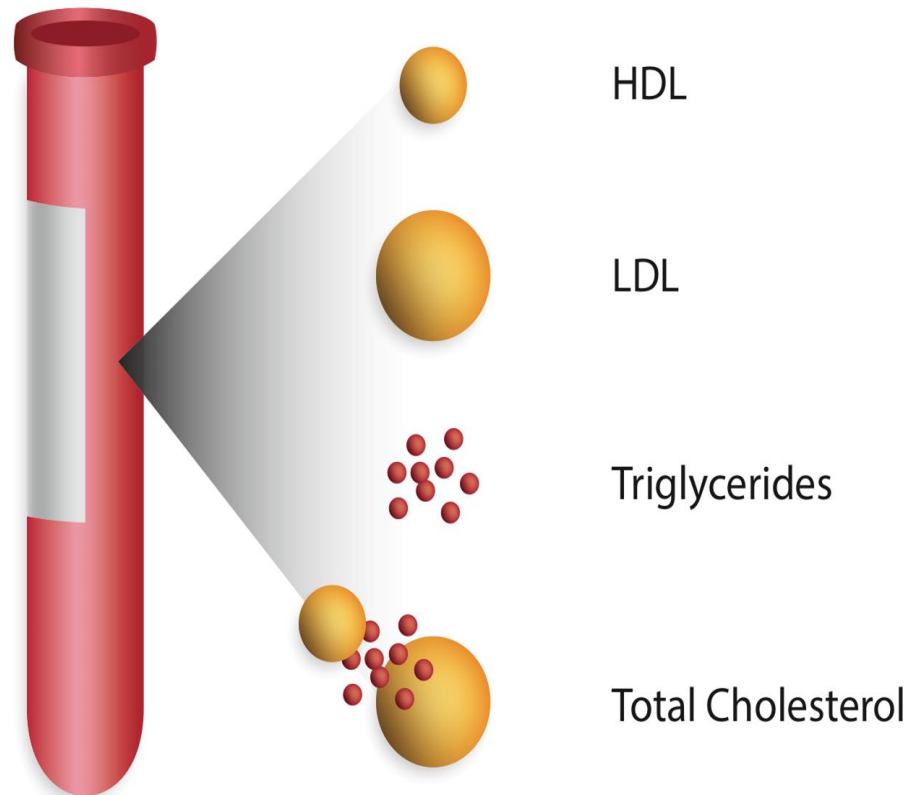


Subjects Characteristic

- About 41% of participants have normal BMI whilst 52% were either overweight or obese
- Fasting glucose were normal in 94% (n=51) participants



LIPID PROFILE



HDL

- 11% (n=6) have **LOW** high-density Lipoprotein (< 1.2 mmol/L)

LDL

- 83% (n=45) have **HIGH** low-density Lipoprotein cholesterol (> 2.6 mmol/L)

Triglycerides

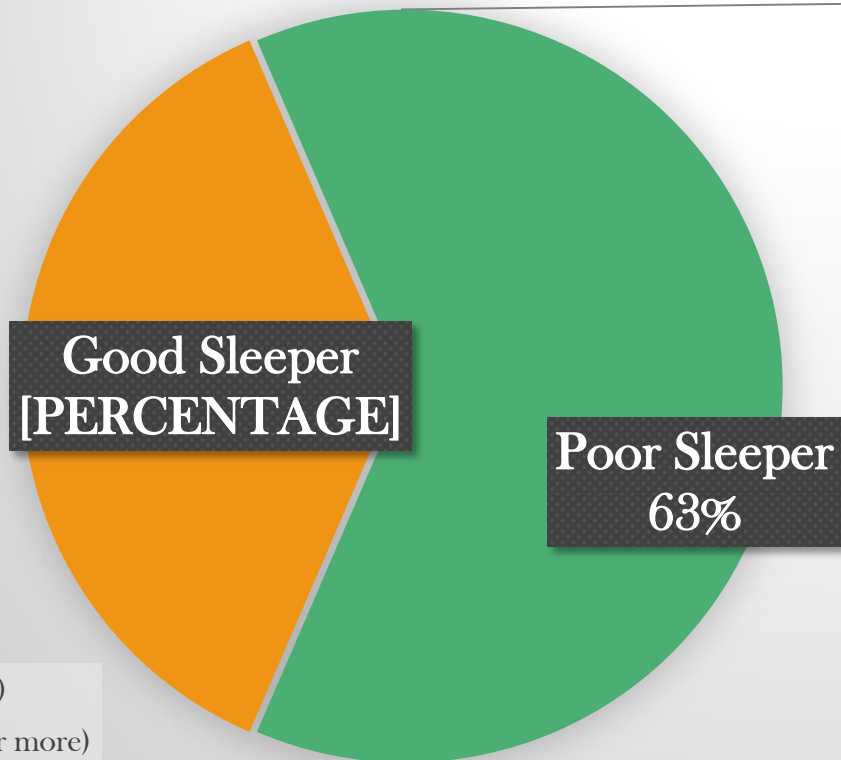
- 7% (n=4) have **HIGH** triglyceride (> 1.7 mmol/L)

Total Cholesterol

- 58% (n=31) have **HIGH** total cholesterol (> 5.2 mmol/L)

Pittsburgh Sleep Quality Index (PSQI)

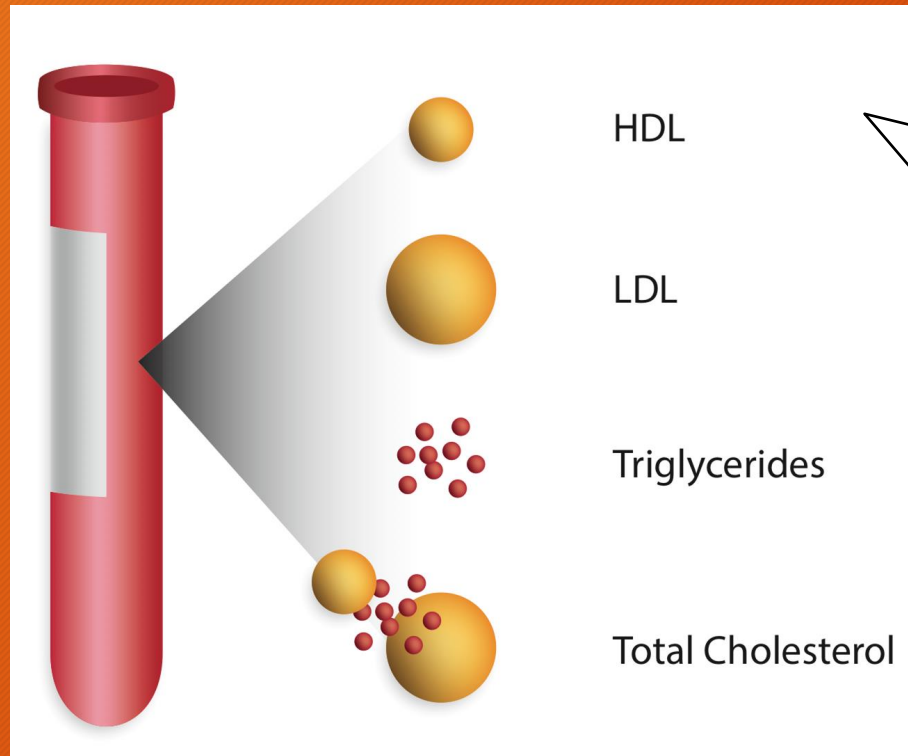
Sleep Quality



Global PSQI scores shown that majority of participants (63%, N=34) have poor sleep quality (mean score 5.93 ± 2.84).

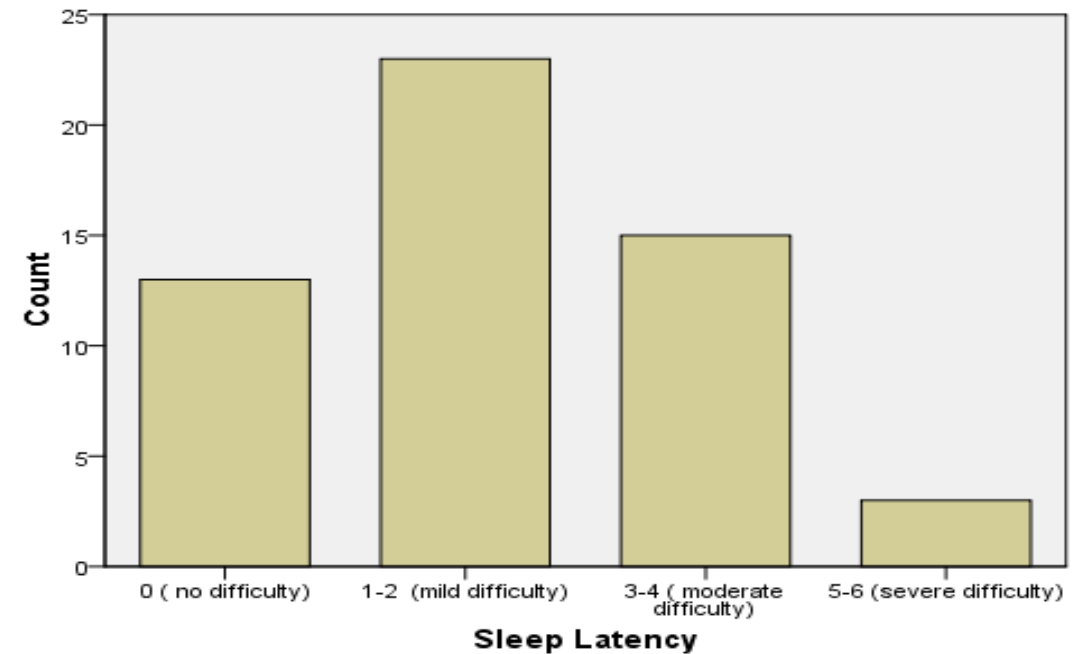
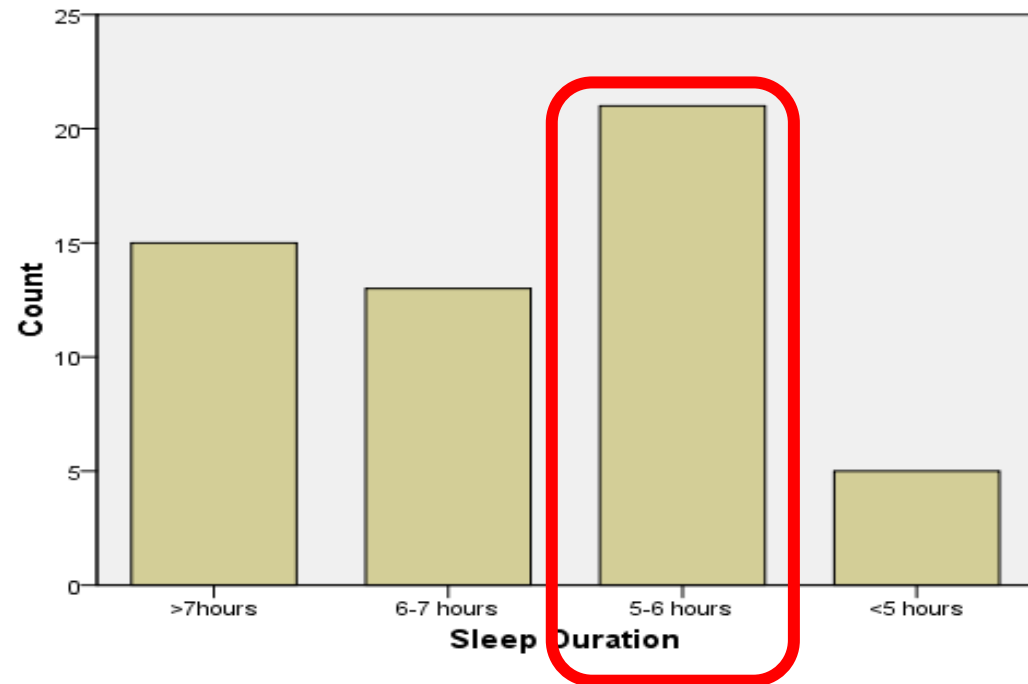
- Good Sleeper (score <5)
- Poor Sleeper (score 5 or more)

HDL-C with Poor Sleep Quality



Interestingly , of all the participant with normal HDL ($>1.2\text{nmol/L}$), 70.8% ($n=34$) reported to have poor sleep quality , which was significance differences ($P=0.001$)

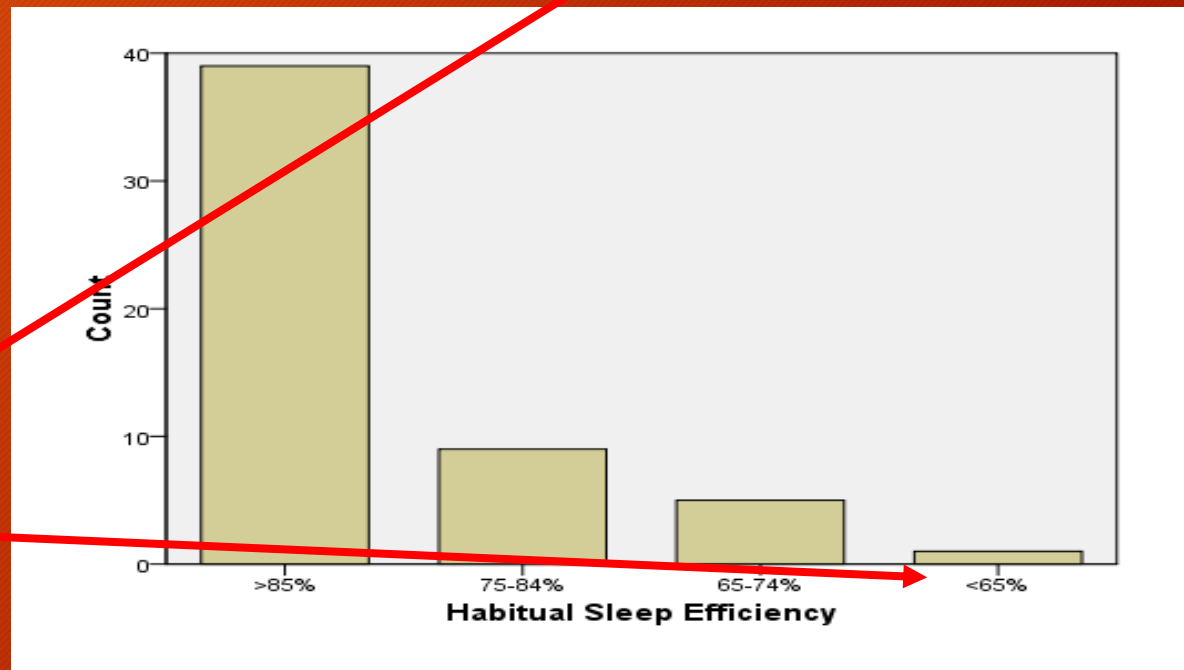
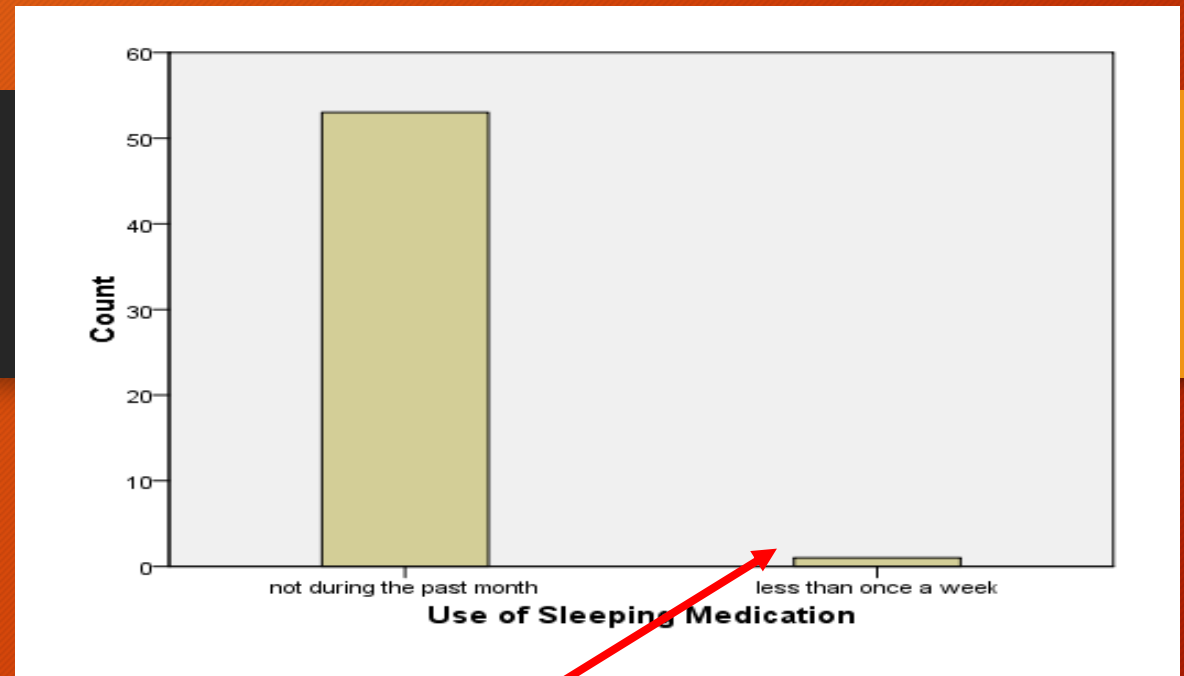
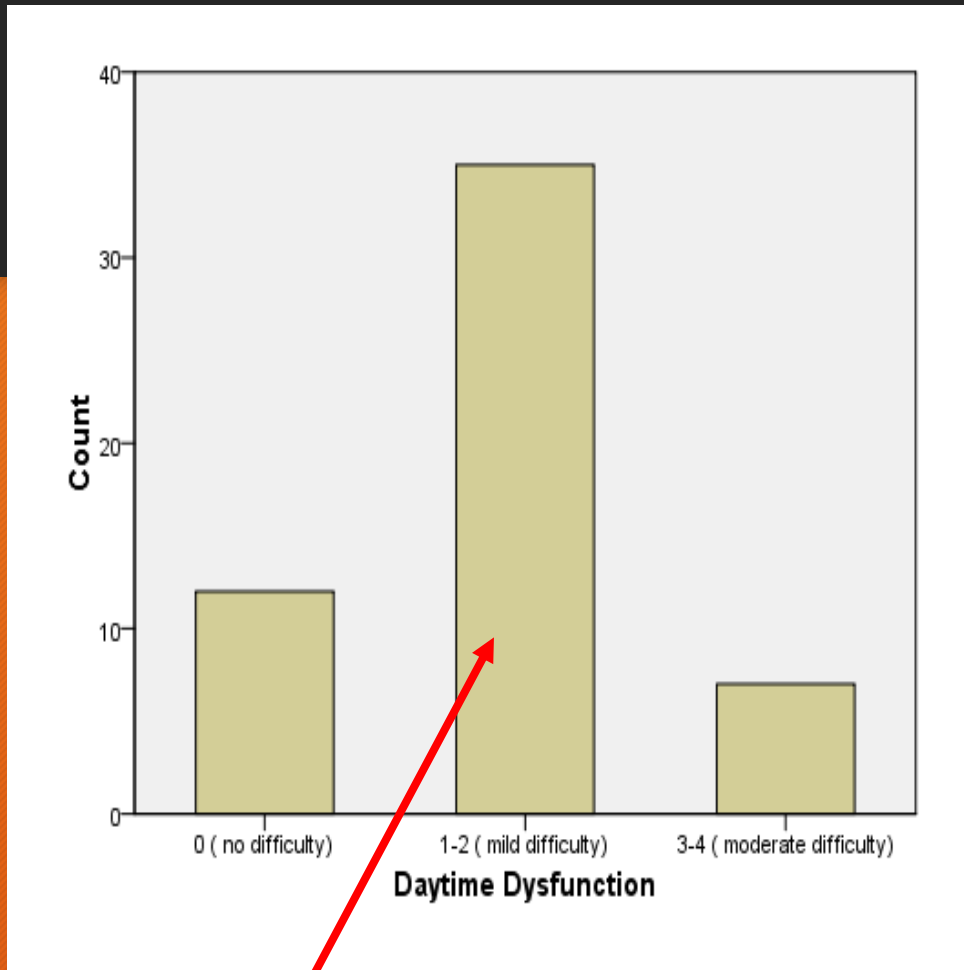
Pittsburgh Sleep Quality Index (PSQI)



Majority of participants have 5 to 6 hours sleep at night (39% ,n= 21)

43% (n=23) having mild difficulty of sleep latency

Pittsburgh Sleep Quality Index (PSQI)



Majority of participants 65% (n=35) have mild difficulty daytime dysfunction; only 2% (n=1) participant has used of sleeping medication past 1 month and poor < 65% habitual sleep efficiency

DISCUSSION

- Our study revealed the prevalence of low VitD levels $< 50\text{nmol/L}$ among Malaysian Malay women with mean age 30 ± 6 is high at 89%
- Local study conducted by **Rahman et al** among post-menopause Malay women (mean age 49 ± 5) showed prevalence of VitD level $< 50\text{nmol/L}$ of **73.3%**. In similar age group study, **Moy and Bulgiba** has found higher prevalence of VitD levels below 50nmol/L at **87%** among their Malay female employees (mean age 47.7 ± 4.6 .)
- Interestingly, when involving younger Malay women in age group (18-40 years) (mean age 26 ± 0.5) **Green et al** has reported to have similar result with prevalence of VitD ($< 50\text{nmol/L}$) at **74%**

DISCUSSION

The mean serum vitamin D concentration reported in Green et al was 43 nmol/L ; this corresponds to the older age group study by Rahman et al which was 44.4 ± 10.6 ;

However, our study showed a similar mean result with Moy and Bulgiba's study which reported a lower level of vitD mean, 36.2 ± 13.4 .

DISCUSSION

- Our findings did not show significant association among Malay women with low vitamin d level with lipid parameters. In other studies such as Moy and Bulgiba et al. such results have been presented where there were no statistically significant correlations between 25(OH) D levels and total serum cholesterol.

CONCLUSION

- ❑ Overall sleep quality is not significant associated with lipid profile and vitamin D level.
- ❑ There is no association between sleep disturbance and lipid profile in Malay women with low vitamin D level who participated in this study
- ❑ This study will continue the participant recruitment to achieve targeted sample size in future.

References

1. Maalouf, N. M. (2008). "The noncalcitropic actions of vitamin D: recent clinical developments." Curr Opin Nephrol Hypertens 17(4): 408-415.
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Thank you