



INTRODUCTION

Anemia is a condition where number of red blood cells insufficient to fulfill the physiological requirements of the body [1]. Women at reproductive age group is one of the highest risk groups, with the overall prevalence of 30.4% among Malaysian in 2019 [2]. Insufficient iron-containing foods consumption is one of the main causes of IDA [3]. However, poor KAP has also been demonstrated in contributing to IDA development [4]. A correct perception towards nutrition knowledge and establishing anemia prevention programs is the key to proper nutritional practices. A multidimensional approach to increasing knowledge on the iron bioavailability should be implemented to reduce the IDA cases among women [5]. Nutrition education have shown to improve KAP and lead to more healthier food choice [6].

OBJECTIVE

To determine the KAP on IDA and its associations with Hb concentration among female students in UPM.

METHODOLOGY

a) Study Design

- Design: Cross-sectional
- Location: KPZ, K11 and K17 (UPM)
- Sampling Method: Convenience sampling
- Participants: 171 female students

Table 1: Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> <li>• 18 to 30 years</li> <li>• Pre-university &amp; undergraduates</li> </ul>	<ul style="list-style-type: none"> <li>• Pregnant and lactating mothers</li> <li>• Nutrition &amp; dietetics background</li> <li>• Donated blood past 6 months</li> <li>• Chronic health conditions</li> </ul>

Table 2: Study instruments

Instruments	Indicator
Self-administered questionnaire	Socio-demographic characteristics
SECA portable stadiometer 213 & TANITA digital weighing scale HD 319, USA	Height (cm) & Weight (kg) •BMI classification (WHO, 2000)
Hemocue Hb 201+ Analyzer	Hb concentration (g/dL) (WHO, 2011) •Non-anemia (> 12.0) •Mild anemia (11.0 – 11.9) •Moderate anemia (8.0 – 10.9) •Severe anemia (< 8.0)
KAP questionnaire	Knowledge level (Ahmed et al., 2018 & Dhaher, 2020) •Poor (<50.0%) •Satisfactory (50.0%-65.0%) •Good (>65.0%) Attitude level (Ahmed et al., 2018 & Dhaher, 2020) •Negative (<60.0%) •Positive (≥60.0%) Practice level (Daka et al., 2018 & Dhaher, 2020) •Poor (<50.0%) •Good (≥50.0%)

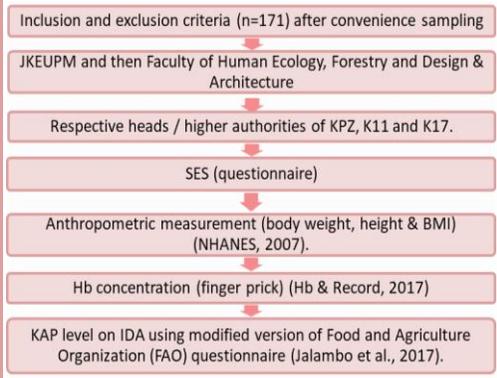
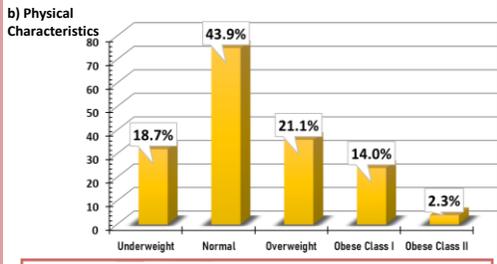
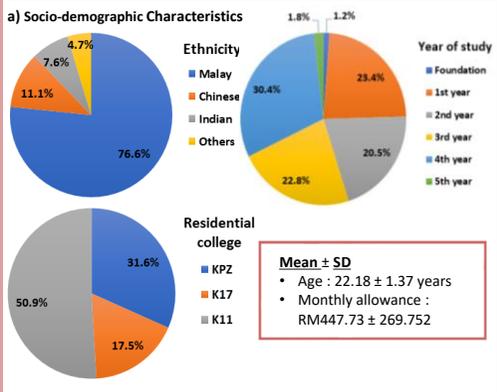
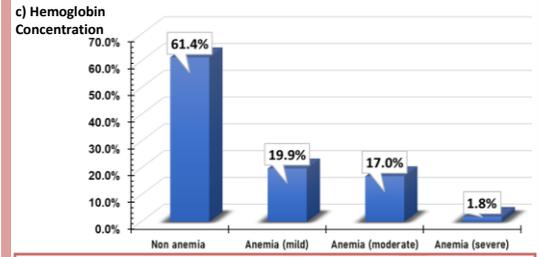


Figure 1: Study Protocol

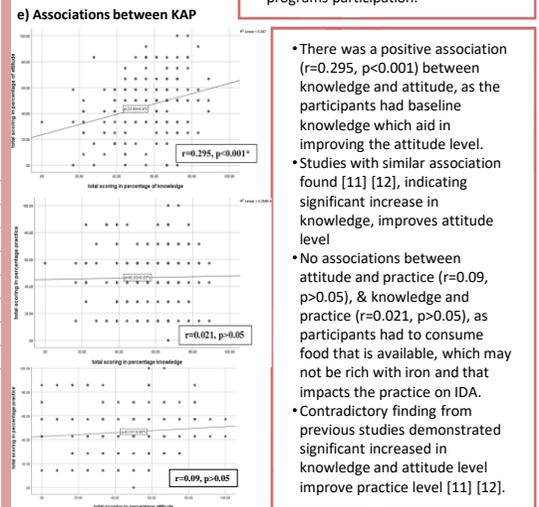
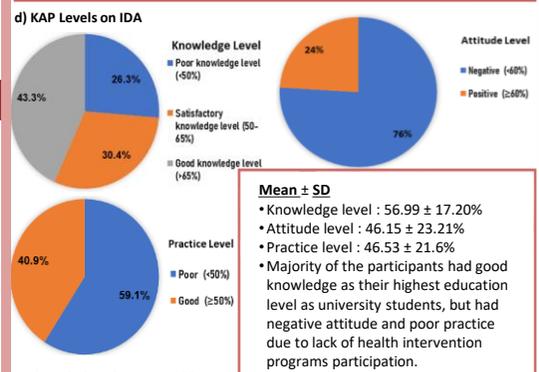
RESULTS & DISCUSSION



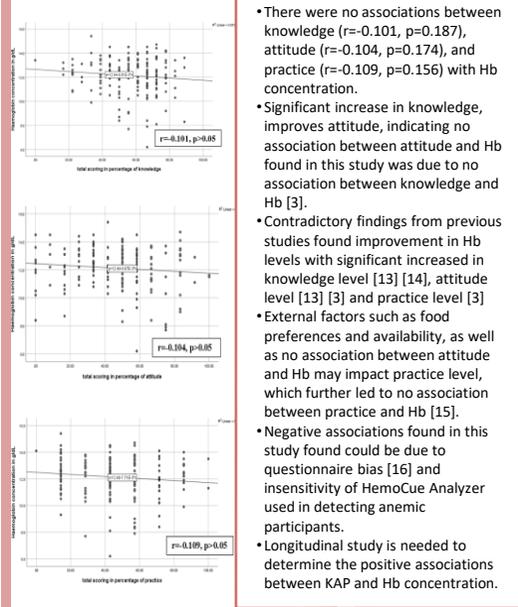
- Mean ± S.D on BMI : 22.72 ± 4.88 kg/m<sup>2</sup>
- Previous study found similar findings, 50.5% normal, 24.8% overweight. [7]



- Mean ± S.D Hb concentration: 12.13 ± 1.53 g/dL
- Prevalence of anemia: 38.6%
- Previous studies found consistent findings whereby the adult females being anemic, ranging from 30.0% to 40.0% [2] [8] [9] [10].



f) Associations between KAP and Hb Concentration



CONCLUSION

- There was a positive association between knowledge and attitude (r=0.295, p<0.001), but no associations between attitude and practice (r=0.09, p>0.05), and knowledge and practice (r=0.021, p>0.05).
- Observed significant increase in knowledge led to improvement in attitude, but not significant increase in attitude and knowledge that may improve the practice level.
- No significant associations between KAP on IDA and Hb concentration.
- Did not observe significant increase in KAP levels leading to improvement in Hb concentration as hypothesized, which may only influence iron-rich food consumption, but not to the extent to improve iron status in general.

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