

VALIDITY OF DIGITAL FOOD PHOTOGRAPH SERIES FOR PORTION SIZE ESTIMATION AID AMONG ADULTS

Tan WW¹, MR Shahril^{1,2}

¹ Nutrition Programme, Faculty of Health Sciences, Universiti Kebangsaan Malaysia

² Centre for Healthy Ageing and Wellness (HCARE), Faculty of Health Sciences, Universiti Kebangsaan Malaysia



Undergraduate

INTRODUCTION

- ▶ Portion size estimation is a critical element in dietary assessment (1).
- ▶ This digital food photograph series was developed and contained 244 food items categorized into 18 food groups (2).
- ▶ Accuracy of portion size estimations can be classified as correct, adjacent, lightly misclassified or grossly misclassified (3).

OBJECTIVE

To determine the validity of digital food photograph series in aiding portion size estimation of food displayed among adults.

RESULTS

Table 1: Classifications of portion size estimations based on food groups

Food Group	Correct ^a or adjacent ^b (%)	Misclassified ^c (%)
Carbohydrates	98.9	2.8
Fruits & vegetables	98.5	2.5
Protein	97.7	3.1
Spread, soup & snacks	96.3	7.4
Average	97.8	4.0

a= chosen portion size image was identical to the presented portion size
b= chosen portion size image closest to the image corresponding to the presented portion size
c= selection of an image distant 2-3 images or more from the presented portion size

Figure 1: Example of misclassified food items

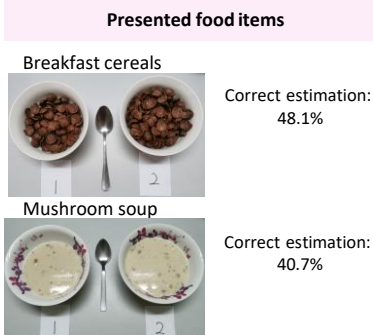
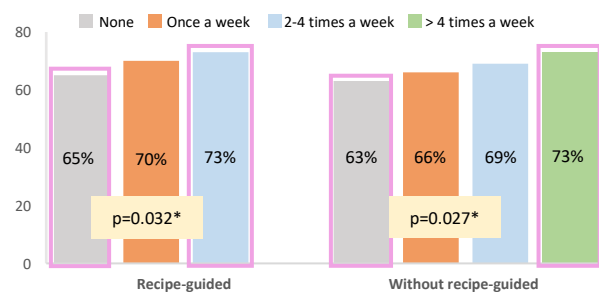


Figure 2: Portion size estimations accuracy across subjects' cooking experience



* One-Way ANOVA was used. Significance at p<0.05

Sex: Independent-T test; BMI & educational level: One-Way ANOVA

METHODOLOGY

- ▶ **Study design**
Cross-sectional
- ▶ **Location**
A private company in Ipoh, Perak
- ▶ **Sampling**
Purposive
- ▶ **Subject**
n= 54, aged 29.6 ± 6.9 years (29 females, 25 males)
- ▶ **Data collection**
Each subject estimated 2 different portion sizes of 20 displayed food items by matching them with one of the closest portion size images they perceived as displayed on the tablet screen.
- ▶ **Data analysis**
Statistical tests using IBM SPSS 25.0

DISCUSSION

- ▶ A higher proportion of subjects correctly estimated portion sizes presented on a plate than those presented in a bowl (4).
- ▶ The consistent shapes and cuts of foods could help in accurate portion size estimation (5).
- ▶ Previous study reported that cooking frequency had positive effects on subject's knowledge of the correct food portion sizes (6).

CONCLUSION

- ▶ The overall performance of the digital food photograph series was good, more than 90% portion sizes matched correctly or adjacently.
- ▶ This study adds to the importance of validating a newly developed portion size estimation aid.

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