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Altering risk practice of food nutrition choice among medical students: A formative study

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ABSTRACT

Introduction: Medical students are susceptible to neglecting the information on the food packages. This study aims to identify predictor factors and provides recommendations for nutrition literacy programs for medical students.
Methods: The formative research applied the BEHAVE framework to investigate the current practices of reading nutrition information among medical students in Semarang City. Medical students collected data through open-ended questions and self-questionnaires (n=68). Univariate and linear regression tests were used with significance (p-value < 0.05).
Results: The study participant's majority were female (69.1%), with a mean age of 19.6 (SD= 1.30) years. Among 68 respondents, 33 (48.5%) were normal weight, 10 (14.7%) were underweight and obese class I, 9 (13.2%) were obese class II, and 6 (8.8%) were overweight. Normal weight had a lower risk or tended to read nutrition information labels routinely compared to underweight (OR=1.15), obesity class II (OR=1.11), overweight (OR=2.28), and obesity class II (OR=3.37). Participants were prone to purchasing food without nutrition information and neglected recommended nutrition choice practices, such as reading nutrition composition and information about food producers.
Conclusion: Medical students' high abnormal body mass index ratio could be due to a combination of the predictor and social determinants factors. These factors need to be modified risk behavior through increased literacy in reading food nutrition information on the food packages.

Keywords: Food label, obesity, risk factor, student, nutrition information, formative study.

INTRODUCTION

An unhealthy and unbalanced diet leads to obesity among reproductive age.[1,2] Basic Health Research found that in 2013, the prevalence of obesity among the adult male population was 19.7%, higher than in 2010 (7.8%). While the adult female population was 32.9% in 2013 compared to 2010 (15.5%).[3] Previous evidence confirms that diet practices among the Indonesian population are less healthy. The unhealthy consumption pattern is influenced by cultural, economic, industrialization, knowledge of nutrition information, and technological developments.[4] These determinant factors encourage people to shift towards new habits by choosing ready-to-eat and packaged food for reasons and affordability.[5,6] This pattern of consumption pattern food needs to be more considerable because it contains sodium, sugar, saturated fatty acids, trans fatty acids, and preservatives. However, evidence on university students remains unexplored in Indonesia.[7] Previous studies have shown that medical students are susceptible to unhealthy dietary habits. Medical students have even neglected the nutrition information label on the package label.[8,9] The behavior of reading nutrition labels has not become a concern due to a lack of awareness to notice the nutritional composition of food packages. The evidence emphasized by the National Consumer Protection Agency found only 6.7% of the population in Indonesia was aware of the nutrition information labels. Although several articles report the results of nutritional choice studies, key gaps in developing interventions for reading food information labels still exist. These gaps include how to combine and weigh information provided by expert informants versus that of regular faculty members, which has not been developed systematically. Therefore, understanding such factors and the processes that can be employed to develop effective interventions at multiple levels (individual and organizational) is highly needed. This study aims to establish baseline data for nutrition promotion programs among medical students. The specific aim is to identify significant predictors of nutrition choice and to develop a recommendation for reducing predictors of risk practice behavior.

METHODS

This study was designed as formative research and conducted at the Faculty of Medicine, Soegijapranata Catholic University, Semarang, Indonesia.[10,11] The research team developed questionnaires to identify the most neglected determinants of specific behaviors of interest. It used the BEHAVE framework developed by the Academy for Educational Development to translate findings into context-specific social and behavior change strategies.[11] Verbal consent was obtained from all participants before their inclusion in the study. Data were collected from medical students using structured questionnaires to assess risk practices relating to nutrition information on the food packages from May to June 2023. Information on the Body Mass Index at the time of the survey was obtained. We also collected demographic information such as participants' ages and sex. The data on participants' characteristics, including age, gender, and body mass index (BMI) presented descriptively. The significance level of a predictor was determined by

either P values <0.05 or, in the case of odds ratio, if the confidence of interval (CI) did not cross 1.

RESULTS

A total of 68 medical students were included in the study. The majority were female (69.1%), with a mean age of 19.6 (SD= 1.30), ranging from 16 to 23 years (Table 1). This age range was selected for design reasons relating to impact assessment. Regarding the BMI, among 68 respondents, 33 (48.5%) were normal weight, 10 (14.7%) were underweight and obesity class I, 9 (13.2%) were obesity class II, and 6 (8.8%) were overweight.

Univariate analysis showed males and females did not significantly differ in practicing reading nutrition information on food packages. In contrast, the risk estimates of the participants' age had a positive association. However, age was not statistically significant for reading nutritional information on the food package. Interestingly, the interaction between weight status (body mass index) and reading nutrition information was not statistically significant. Normal weight had a lower risk or tended to read the nutrition information on the food packages compared to underweight (OR=1.15), obesity class II (OR=1.11), overweight (OR=2.28), and obesity class II (OR=3.37). The interaction term between weight status and reading nutrition information did not reach significance, meaning that weight status did not modify the relation between knowledge and practicing reading nutrition information on food packages.

The examination was conducted with a regression model for the predictors' factor test. All items were partially included in the statistical test. The results found four predictor factors with significant values higher than 0.05 (table 2). The expired date information, food serving size, registration number, and received information on how to read food labeling emerged as significant predictors for practicing reading nutrition information on the food packages. Therefore, serious risk factors in this study, such as not reading nutrition composition and food producer profiles, purchasing food products without nutrition information, and low levels of understanding regarding nutrition information on the food packages, should be modified or intervened immediately.

DISCUSSION

Our findings revealed significant inconsistencies between basic knowledge and practices. Reading the nutrition composition on the food package, reading the information about food product manufacture, purchasing food products without nutrition information labels, and understanding the nutrition information on the food package are the predictors of reading nutritional information on food packages are serious risk factors in this study should be modified or intervened immediately.[12,13] The well-understood nutritional information on food labels reflects an ability to calculate quantitative information and to understand the nutrition information contained in the food packages.[14,15] This study found that medical students are prone not to read the nutrition information on packaged foods due to a lack of nutritional literacy. Inadequate nutrition information regarding understanding nutrition terms such as serving sizes and the nutrients contained leads them to ignore the nutritional information on packaged foods. This study is in line with previous studies. Reading nutrition information on the food packages needed additional time. Medical students are prone to neglect nutritional information and prefer buying products without labeled nutrition

Table 1. Univariate analysis of respondent characteristics and reading nutrition information

Variable	OR	(95% CI)	p-Value
Sex (Male vs. Female)	0.409	0.075-2.221	0.369
Age (<20 yrs vs >20 yrs)	1.88	0.205-17.36	1.000
BMI			
Underweight	1.15	1.022-1.217	0.581
Normal	0.50	0.085-2.932	0.608
Overweight	2.28	0.221-23.51	0.438
Obesity Class I	3.37	0.529-21.522	0.212
Obesity Class II	1.11	1.022-1.213	1.00

Table 2. Predictors of reading nutritional information on food packages

Predictors	Coef. Linear reg	Adjusted R square	Significant (p < 0.05)
Reading the expiration date of food product	2.79	0.09	0.007*
Reading the food product brand	5.59	0.31	0.000*
Reading the netto information on the food product package	3.07	0.11	0.003*
Reading the food serving size on the package	2.51	0.07	0.014*
Reading the nutrition composition on the food package	1.54	0.02	0.126
Reading the registration number of food product	2.29	0.06	0.025*
Reading the information about food product producer	1.40	0.01	0.164
Purchase food products without nutrition information labels	1.30	0.01	0.197
Understanding the nutrition information on the food package	0,63	0.09	0.529
Received the information on how to read the nutrition information on the food package	3.62	0.15	0.001*

information.[16] During the transition of an epidemic of noncommunicable diseases, reading nutrition information on food packages is a basic effort to reduce the incidence of obesity.[17] People with inadequate knowledge have difficulties adopting dietary behavior changes, which can cause nutritional problems even if it is not a direct impact of nutritional disorders. Therefore, findings provide erroneous beliefs about nutritional information and food choice practices to shape health promotion messages for the university context. This proposed predictive analytics is based on an individualized auto-regression that will be applied for personalization when there is insufficient data on the compliance ratio of a type of intervention related to modifying risk behaviors.[18] Despite this study being limited to a specific population and potentially being sensitive to the additional data available over time, we adopt a strategy to prioritize personal factors based on the greatest improvement possible behavior and a standardized framework supported by biomarkers of health outcomes. The findings presented in this paper are relevant for the design of nutrition health promotion interventions

CONCLUSION

This study presents how formative research can identify and quantify knowledge, attitudes, and determinants of nutritional choice practices and shape communications strategies to address the most salient behavioral determinants. These findings are likely applicable to other faculty in the university in Semarang. The high ratio of weight status among medical students could be due to a combination of the predictor and social influences. These factors need to be considered by faculty staff as early as possible with a focus on modifying risk behavior through increased awareness in reading food nutrition information for medical students. Finally, the approaches described here will likely be valuable to other program planners.

CONFLICT OF INTEREST

All the authors declare to have no conflicts of interest.

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This study received no external funding.

ETHICS

This research was conducted after obtaining approval and a research permit from the Head of the Faculty of Medicine, Soegijapranata Catholic University, Semarang, Indonesia.

AUTHOR CONTRIBUTIONS

NS and PHS conceptualized the research, collected the data, conducted formal analysis, and wrote the original draft. FSR contributed and wrote the initial draft. All authors have read and agreed to the published version of the manuscript.

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