

Health Literacy on Weighing Control and Use of Weight Loss Products among Working-age Women in the Northeast of Thailand

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Abstract

This cross-sectional study aimed to describe weight loss products' use patterns and identify the association of health literacy on weight control and weight loss products use among working-age women in the Northeast of Thailand. The study was conducted among 1,190 respondents who were multistage randomly selected from 4 provinces of the Northeast region. Data were collected using a self-administered structured questionnaire. The generalized linear mixed model (GLMM) was used to identify the association between health literacy and weight loss products use when controlling the effects of other covariate presenting adjusted OR and 95% confidence interval. The results indicated that 23.19% (95% CI = 20.79-25.59) of the respondents ever used weight loss products, of which 11.60% (95% CI = 9.77-13.41) were current users. Levels of health literacy on weight control was statistically significant with weight loss products use including having; sufficient level of health literacy (adj. OR = 2.62: 95% CI=1.59-4.31, p-value <0.001), problematic level of health literacy (adj. OR = 4.71: 95% CI=2.87-7.72, p-value <0.001) and inadequate level of health literacy (adj. OR = 10.97: 95% CI=6.17-19.51, p-value <0.001) when compared with having excellence level. The significant covariate was had waist circumference \geq 80 cm. (Adj. OR = 4.12: 95% CI = 2.79-6.11, p-value =0.025), finished lower than bachelor degree (adj. OR = 2.11, 95% CI = 1.78-3.70, p-value <0.001), had average monthly income \geq 15,000 THB =(adj. OR = 3.08: 95% CI = 2.20-4.31, p-value <0.001), About twenty three percent of working-age women ever used weight loss products. Health literacy was highly associated with used weight loss products.

Keywords: *Weight loss products, Health literacy, working-age women.*

Introduction

Overweight and obesity cause various health problems all over the world¹, obesity particular is one of the main causes of morbidity and mortality² especially cardiovascular disease (CVD). Awareness of the serious health consequences, people turn their attention to weight control to be within the standard³. It is widely accepted that lifestyle modification, such as healthy dietary habits and regular physical activity is necessary for weight

control, however, with a long term effort⁴. Therefore, many people use various weight loss products because they are quicker and easier than exercising or dieting⁵. Although this method is dangerous or has many side effects⁶, as well as being unable to confirm the weight loss results as to whether or not effective⁷. The main target groups of these products are working women⁸. Because they are a person with financial readiness, able to make independent purchase decisions and pay attention to the shape⁹.

Health literacy is linked to the ability of individuals to understand and apply health information to practice for disease prevention and health promotion¹⁰. People with an excellent level of health literacy should be less likely to use weight loss products since they are well aware of their complications than those with inadequate

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health literacy. Social-cognitive factors also play an important role in behavioral determination¹¹.

Although different health behavior theories have been used to explain weight management, roles of social-cognitive factors on weight loss remain poorly understood¹². Also, there is limited evidence concerning the influence of socio-demographic gradients on dieting and attempts at weight loss¹³ such as women are more likely to concern about their shape.

The Northeastern region of Thailand is the biggest region both in terms of areas and population. Most of the labor forces of the country are from this region. With the long term continuously economic expansion, there has been an increasing trend of overweight and obesity among northeastern women. Therefore it is essential to the determinants of weight loss products use among them.

Objective: To describe the weight loss products use and identify the association between health literacy on weight control and weight loss products use among working-age women in the Northeast of Thailand.

Materials and Method

This cross-sectional study was conducted in 2019. The population was working-age women aged 20 to 59 years old in the Northeast of Thailand. The sample size was calculated by using the sample size estimation formula for the logistic regression analysis of Hsieh¹⁴. The estimated sample size was 1,190. The respondent was recruited from 4 provinces of the Northeast of Thailand by using multi-stage random sampling method to respond to a structured questionnaire.

Data Analysis: All analyses were performed using Stata version 10.0 (Stata Corp, College Station, TX). Descriptive statistics including frequency and percentage to describe categorical data whereas mean, standard deviation, median, and maximum-minimum for continuous data. A simple logistic regression was used to identify individual the association between each independent variable and weight loss products use. The independent factors that had p-value <0.25¹⁵ were processed to the multivariable analysis using the generalized linear mixed model (GLMM) to identify the association between health literacy and weight loss products use when controlling the effect of other covariates, of which 4 provinces were selected to include as random effects. The magnitude of association

was presented as adjusted odds ratio (Adj. OR), 95% confidence interval (CI) and p-value <0.05 as statistical significant level.

Result

Socio-demographic: The average age of the respondents was 39.46 ±10.71 years old, 58.74 were married, 67.15 percent had education lower than a bachelor’s degree. the occupation was employee 25.04 percent, an average monthly income 10,000-19,999 baht, average monthly expenditures less than 10,000 baht, normal body mass index 40 percent, waist circumference exceeds the standard threshold 50.25 percent without chronic disease 86.47 and healthy status of 81.26 percent.

Almost a quarter of the respondents ever used weight loss products (23.19% : 95% CI = 20.79-25.59) of which 11.60% (95% CI = 9.77-13.41) were current users. The most common type of weight loss product use were diet pills which were consumed by 7.84% of the respondents, followed by diet coffee (6.68%) and fiber products (4.50%), see table 1.

Table 1: Number and percentage of weight loss products use pattern (n = 1,190 people)

Weight loss products use pattern	Number	Percent
1. Weight loss products use		
Currently, use	138	11.60
Used for less than 6 months and stop using	39	3.28
Used for more than 6 months and stop using	99	8.32
Never used but would like to use in the future	90	7.56
Never used and want to use	824	69.24
2. Type of weight loss product use (Can answer more than 1 question)		
Diet pills	101	7.84
Diet coffee for weight loss	86	6.68
Fiber products	58	4.50
Konjac Extract	55	4.27
Wearable products for weight loss	12	0.93
Tea products	11	0.85
A traditional procedure such as massage	10	0.78
Chitosan	9	0.70
Weight loss program	8	0.62
Equipment	7	0.54
Garcinia extract	5	0.39

Weight loss products use pattern	Number	Percent
Increased metabolism products	4	0.31
Other weight loss products	8	0.62
Do not use weight loss products	914	70.96

Association between health literacy and weight loss products use among northeastern working women when controlling other covariates: A multivariable analysis: Association between health literacy and weight loss products use among northeastern working women were identified by using the Generalized Linear Mixed Model (GLMM) to control the clustering effect in each health zone. The results indicated that levels health literacy were associated with weight loss products use including had sufficient level of health literacy (adj.

OR = 2.62 :95% CI=1.59-4.31, p-value <0.001), had problematic level of health literacy (adj. OR = 4.71:95% CI=2.87-7.72, p-value <0.001) and had inadequate level health literacy 10.97 times the use of weight loss products for those with excellent health literacy (adj. OR = 10.97: 95% CI=6.17-19.51, p-value <0.001) when compared with those with excellent level of health literacy. The other significant covariates were, those with waist circumference \geq 80 cm. (adj. OR = 4.12: 95% CI = 2.79-6.11, p-value =0.025), graduated bachelor degree or higher (adj. OR = 2.11,95% CI = 1.78-3.70, p-value <0.001), had average monthly income \geq 15,000 THB (adj. OR = 3.08:95% CI = 2.20-4.31, p-value <0.001), see Table 2.

Table 2: Association between health literacy and weight loss products use among northeastern working women when controlling other covariates: a multivariable analysis using GLMM

Factors	Number	Percent	Crude OR	Adj. OR	95% CI	P-value
Health literacy						
Excellent	320	9.69	1	1	1.60-4.24	<0.001
Sufficient	407	18.92	2.17	2.61	2.88-7.61	<0.001
Problematic	331	30.32	4.15	4.68	6.04-18.62	<0.001
Inadequate	132	50	9.32	10.6		
Education Level						
\geq Bachelor Degree	391	18.41	1	1	1.78-3.70	<0.001
<Bachelor Degree	799	25.53	1.52	2.57		
Income per month (THB)						
<15,000	667	15.59	1	1	2.20-4.31	<0.001
\geq 15,000	523	32.89	2.65	3.08		
Waist circumference(cm.)						
<80	588	10.54	1	1	4.48-8.98	<0.001
\geq 80	602	35.55	4.68	6.31		

Discussion

This present study observed that about 23% of working-age women ever used weight loss products. This proportion was a little lower than those found in a study in 2015 in Bangkok, Thailand indicated that 27.7% of the respondents used weight loss products¹⁶. However, it was higher than those found in a study in 2017 in Ratchaburi Province, Thailand that observed that 19.6% of the participants used weight loss products¹⁷. A possible explanation was that there was a higher level of economic development in Bangkok, people have higher income and might concern about shape more than the

northeasterners. Ratchaburi, on the other hand, had a lower income. The multivariable analysis of this study also indicated that higher income had a high influence on weight loss products use (adj. OR = 3.08) which was similar to a study in Sweden¹³.

Health literacy (HL) played an important role in weight loss products use. Our finding indicated that those who had excellence level of health literacy on weight control were less likely to use weight loss products when compared to those who had sufficient, problematic, and inadequate levels of HL (adj. OR= 2.61, 4.68, and 10.60 respectively). A study of Cheong et al. Indicated that

HL had a positive impact on weight loss behaviors. There was also evidence that interventions focusing on improving knowledge and HL skills could effectively control the weight¹⁸. HL influences reach and moderates weight effects. These findings underscore the need to integrate recruitment strategies and further evaluate programmatic approaches that attend to the needs of low-HL audiences. HL is necessary and an important indicator when making decisions about weight loss products. Having HL can influence the choice and decision not to use weight loss products. Therefore, encouraging the public to have good HL will help people to avoid using weight loss products and choose to use the right weight control¹⁹. Our finding also observed that there were socioeconomic gradients to overall health and showed that those with lower levels of education had poorer health and higher mortality. A previous study of Barbering et.al¹³ also indicated that proper dietary regimen and overweight were associated with higher education levels. Similarly a studied of Ball observed that males who were married, living in households with shared income and who had less education were more likely to use weight loss products²⁰. Waist circumference(WC) is one of the conditions of metabolic syndrome, which is an important risk factor of cardiovascular disease²¹. Women with higher WC have a bigger belly which made them looked fat. This might lead to more concern about weight loss. They might try to reduce the WC as quick as possible by using weight loss products²². Therefore, it requires effective measures to improve health literacy on appropriate weight control especially among those with lower education having a big belly and had a higher income that has more purchasing power.

Conclusion

The study indicated that about 23 percent of working-age women ever used weight loss products. Health literacy was highly associated with used weight loss products when considering the influenced of waist circumference, educational level, and income.

Source of Funding: Nil

Conflict of Interest Statement: The authors declare that there is no conflict of interest.

Ethical Clearance: The written informed consent was taken from all the individuals after explaining the study objectives. The Ethical Committee of KhonKaen University approved this study (reference no. HE 622008).

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