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Dietary Weight Loss Practice among Government Working Women Who Successfully Lose Weight in Malaysia

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Abstract: Overweight and obesity is a public health concern. Previously, obesity was exclusive to developed country only but nowadays, it is on the rise in developing countries as well. The purpose of this study was to determine the pattern of dietary weight loss practice among Malaysian government working women who are working in selected public funded institutions in Malaysia. This cross-sectional study involved two phases; firstly 639 adult Malaysian working women were recruited and underwent weight loss screening process and secondly 120 working women identified from the screening process based on their experience of losing at least 10% of their highest lifetime body weight, which is a criterion for successful weight loss. Simple random sampling method was used to select 4 ministries in Putrajaya vicinity, Kuala Lumpur and 25 schools in Bandar Baru Bangi. Data were collected via a survey using a set of self-administered questionnaire that includes socio-demographic characteristics, weight history and anthropometric measurements (weight, height, waist circumference, body fat). The study was conducted within one year duration from June 2011 to June 2012. The prevalence of successful weight loss among government working women was 18.8% (120/639). The mean age of women who experienced successful weight loss in this study was 33.2±7.7 years old. Majority of these women were married (72.5%), of Malay ethnicity (96.7%), had 1.3±1.5 children and had college or university degree (79.2%). Eat more fruits and vegetables was the predominant dietary weight loss strategy used (50.8%), followed by reduce the amount of eating food (49.2%) and reduce fatty food intake (42.5%). The prevalence of successful weight loss was low (18.8%) among government working women in selected public funded institutions in Malaysia. Eat more fruits and vegetables, reduce the amount of eating food and reduce fatty food intake were the main dietary weight loss strategies used by these women.

Key words: Successful weight loss, dietary weight loss practice, adult Malaysian women, working women

INTRODUCTION

Overweight and obesity is a public health concern. It is a result of unbalanced state between energy intake and energy expenditure. A large number of Malaysian adults are either overweight or obese and the percentage of this population had tripled in less than ten years. Based on WHO (2000) definition of overweight and obesity, recently published data indicated that the prevalence of overweight and obesity are increasing (Khambalia and Seen, 2010; NHMS, 2011). This trend unfortunately is on the rise despite the considerable government efforts and money spent each year on this complicated problem.

The trend in overall overweight prevalence was increased from 20.7% as reported by NHMS (1996), 26.7% as reported by Malaysian Adult Nutrition Survey (MANS, 2003), 29.1% as reported by NHMS (2006), 29.4% as reported by NHMS (2011) and (Amin *et al.*, 2012) and 33.6% as reported by Wan Mohamud *et al.* (2011). Higher rise in obesity rates was noted as

compared to overweight rate, in which the prevalence of obesity was reported as 5.5% (NHMS, 1996), 12.2% (MANS, 2003), 12.3% (National Study on Cardiovascular Disease Risk Factors 2004), 14.0% (NHMS, 2006), 15.1% by NHMS (2011) and (Amin *et al.*, 2012) and 19.5% (Wan Mohamud *et al.*, 2011).

In line with the overweight and obesity increment, there is rising percentage of people who are at increased risk of developing serious chronic health problems, including diabetes mellitus, hypertension and cardiovascular disease in Malaysia (NHMS, 1996; NHMS, 2006; NHMS, 2011; Wan Mohamud *et al.*, 2011; Zainal and Feisal, 2012).

There were a few published articles on weight loss practice among Malaysian adults (Kong *et al.*, 2002; Lim *et al.*, 2000). The positive effects of weight loss are in lowering blood pressure and cholesterol level and improving glucose tolerance (Gregg and Williamson, 2002; Powell *et al.*, 2007). Therefore, the objective of this

study was to determine the pattern of dietary weight loss practice and to describe the socio-demography, weight information and dietary weight loss methods used among Malaysian government working women aged 24 years old and above who are working in selected public funded institutions in Malaysia.

MATERIALS AND METHODS

This institutional-based cross-sectional study was carried out between June 2011 and June 2012. The study was conducted to determine the pattern of dietary weight loss practice among government working women aged 24 years old and above in selected areas of Malaysia namely Federal Territory of Putrajaya and Kuala Lumpur. A total of 4 government ministries and 25 schools were selected by simple random sampling. Women were excluded if their weight loss was unintentional, due to specific medical or psychiatric condition, due to use of medication (e.g., thyroid or replacement hormones), had a history of anorexia nervosa or bulimia or women who are currently pregnant.

Self-administered questionnaire was used to collect information on respondents' socio-demography, weight history and anthropometric measurements (weight, height, waist circumference, body fat). Women current weight, height and percentage of body fat were measured using Tanita BC554 Ironman Body Composition Monitor and body meter model Seca 214, Hamburg, Germany. Successful weight loser is defined as women who had lost at least 10% of their highest lifetime body weight and had at least one intentional weight loss attempt in the past one year; while unsuccessful weight loser is defined as women who had lost less than 10% of their highest lifetime body weight or maintained their weight with effort in the past one year. The 10% criterion for weight loss was suggested because these losses are associated with significant health benefits and reduction of risk factors for many diseases such as diabetes and heart disease as documented by the National Heart, Lung and Blood Institute (NHLBI, 1998). The one year duration was proposed based on the Institute of Medicine criteria in 1995. In the questionnaire, women were also asked on the dietary strategies practiced for weight loss.

Data analysis: Data analysis was carried out using "Statistical Package for Service Solutions" (SPSS) version 20.0. Descriptive data were reported using mean, standard deviation and minimum-maximum range for numerical variables and frequency distribution (percentage or proportion) for categorical variables.

Ethical consideration: The study protocol was approved by the Research and Ethics Committee, Universiti Kebangsaan Malaysia Medical Centre prior to the study

(Research Code: FF-188-2011). All government working women were informed about the objectives, procedures, potential risk and benefits of the study. Written informed consents were obtained from the respondents before the study took place. The respondents were also assured that all the information given were strictly confidential.

RESULTS

At the initial phase, a total of 639 government working women were recruited in this study. They were then screened to identify 120 women who experienced at least 10% of weight loss from their highest lifetime body weight. The prevalence of successful weight loss in this study was 18.8% (120/639). Table 1 shows that the mean age of government working women who successfully lose weight was 33.2 ± 7.7 years old. The age range was between 24 to 58 years old. Majority of these women (72.5%) were married, had 1.3 ± 1.5 children, more than two-thirds (79.2%) had college or university degree, majority (96.7%) were Malays, 73.3% had more than RM 1,500 basic salary per month and 34.2% were residence of Putrajaya. A total of 16.7% women reported having health problems, the commonest health problem was hypertension (20.0%), followed by gastritis (15.0%). Back bone and muscular pain, allergy and other problems (increased weight, thyroid) shared a similar proportion (10.0%).

Weight history: Table 2 shows mean and percentage of weight history details among government working women who experienced successful weight loss. The mean current weight among these women was 64.1 ± 15.4 kg and their weight range was between 40.0 and 140.0 kg. The number of years with current body weight was predominantly less than one year. The women mean height was 160.0 ± 0.5 cm in which the height range was between 150.0 and 170.0 cm and the highest lifetime weight was 69.1 ± 15.1 kg. The lifetime weight range was between 44.0 kg and 146.0 kg.

According to the WHO cut-off points for current BMI, 44.2% women were having normal weight (18.5 - 24.9 kg/m²), 32.5% women were overweight (25.0 - 29.9 kg/m²) and 23.3% women were obese (≥ 30.0 kg/m²). The mean highest lifetime BMI among women was 28.7 ± 5.8 kg/m². The mean waist circumference was 77.7 ± 11.3 cm and the range was between 57.0 and 116.0 cm. The majority of women were in the obese body fat category (46.7%), this is followed by average category (26.7%).

Dietary weight loss methods: Table 3 summarizes the dietary weight loss methods used by women who experienced successful weight loss. Approximately half of women (50.8%) eat more fruits and vegetables. A total of 49.2% reduced the amount of eating food while 42.5%

Table 1: Socio-demographic characteristics of women who experienced successful weight loss (N = 120)

Characteristics	Frequency	Percentage (%)
Age in years; minimum-maximum (Mean±SD)	24-58 (33.2±7.7)	-
Marital status		
Married	87	72.5
Single	30	25.0
Widowed	2	1.7
Separated or divorced	1	0.8
No. of children, minimum-maximum (Mean±SD)	0-5 (1.3±1.5)	-
Education		
Primary school	1	0.8
Secondary school	21	17.5
College or university degree	95	79.2
Others (diploma)	3	2.5
Ethnicity		
Malay	116	96.7
Others	4	3.3
Women basic salary		
≤RM 1,500 per month	32	26.7
>RM 1,500 per month	88	73.3
Women residency		
Kuala Lumpur	39	32.5
Putrajaya	41	34.2
Selangor (Bandar Baru Bangi)	32	26.7
Others	6	5.0
Health problem		
Yes	20	16.7
No	100	83.3
Type of health problem (n = 20)		
Hypertension	4	20.0
Gastritis	3	15.0
Back bone and muscular pain	2	10.0
Allergy	2	10.0
Other problems (increased weight, thyroid)	2	10.0
Ovarian cyst	1	5.0
Diabetes	1	5.0
Not known	5	25.0

Table 2: Weight history of women who experienced successful weight loss (N = 120)

Weight history	Frequency	Percentage (%)
Current weight (kg) range (Mean±SD)	40.0-140.0 (64.1±15.4)	-
Number of years with current weight		
<1 year	79	65.8
1-5 years	29	24.2
>5 years	12	10.0
Height (cm) range (Mean±SD)	150.0-170.0 (160.0±0.5)	-
Current BMI (kg/m²)		
Normal (18.5-24.9)	53	44.2
Overweight (25.0-29.9)	39	32.5
Obese (≥30.0)	28	23.3
Waist circumference (cm) range (Mean±SD)	57.0-116.0 (77.7±11.3)	-
Body fat (%)		
Essential (10-12%)	6	5.0
Athletes (14-20%)	17	14.2
Fitness (21-24%)	9	7.5
Average (25-31%)	32	26.7
Obese (32% plus)	36	46.7
Highest lifetime weight (kg) range (Mean±SD)	44.0-146.0 (69.1±15.1)	-
Highest lifetime BMI (kg/m ²) (Mean±sd)	19.0-54.0 (28.7±5.8)	-

reduced fatty food intake. A total of 38.3 and 36.7% of women reduced the intake of high sugar food and carbohydrate food, respectively. A total of 32.5 and 31.7%

women eat smaller portion sizes and practiced fasting respectively as their weight loss methods. Meanwhile, a total of 16.7% of women skip meals to reduce their body

Table 3: Dietary weight loss methods used by women who experienced successful weight loss (N = 120)

Dietary weight loss methods	Frequency	Percentage (%)
Eat more fruits and vegetables		
No	59	49.2
Yes	61	50.8
Reduce the amount of eating food		
No	61	50.8
Yes	59	49.2
Reduce fatty food intake		
No	69	57.5
Yes	51	42.5
Reduce high sugar food intake		
No	74	61.7
Yes	46	38.3
Reduce carbohydrate food intake		
No	76	63.3
Yes	44	36.7
Eat smaller portion sizes		
No	81	67.5
Yes	39	32.5
Fasting		
No	82	68.3
Yes	38	31.7
Skip meals		
No	100	83.3
Yes	20	16.7
Reduce the amount of food prepared away from home		
No	102	85.0
Yes	18	15.0
Consume meal replacement products		
No	105	87.5
Yes	15	12.5
Count calories		
No	108	90.0
Yes	12	10.0
Consume over-the-counter diet products		
No	111	92.5
Yes	9	7.5
Go to formal weight loss programme		
No	112	93.3
Yes	8	6.7
Use internet web-site with individualized diet programme		
No	112	93.3
Yes	8	6.7
Keep a food diary		
No	114	95.0
Yes	6	5.0
Taking slimming products such as pills, shots		
No	118	98.3
Yes	2	1.7

weight. In addition, a total of 15.0% of women reduced the amount of food prepared away from home, 12.5% women consumed meal replacement products and 10.0% women count calories. Other dietary methods women used are consumed over-the-counter diet products (7.5%), go to formal weight loss programme (6.7%), used internet website with individualized diet programme (6.7%), keep a food diary (5.0%) and took slimming products such as pills and shots (1.7%).

DISCUSSION

This study was conducted to determine the pattern of dietary weight loss practice among government working

women who successfully lose weight in public funded institutes in Malaysia. This data suggests that weight losses of 10% or more of maximum lifetime body weight were used in other cross-sectional studies conducted in USA and Germany (McGuire *et al.*, 1999; Zwaan *et al.*, 2008). The present study results might be different from those typically reported from western weight loss regain studies due to no standard definition of weight regain and the weight characteristics of samples of the selected population who experienced 10% of weight loss tend to be heavier at maximum weight (Wyatt *et al.*, 2002; Weiss *et al.*, 2007).

It is more likely that unsuccessful weight loss women had feeling of self-control failure because of the current overweight status. It is comparable to the study conducted in USA by Weiss *et al.* (2007) with similar definition of unsuccessful weight loss. They found that 33.5% participants had weight loss regained. However, their study was conducted among adults who were overweight or obese at their maximum weight (BMI > 25 kg/m²) and had experienced 10% of weight loss. In one prospective study conducted in Australia among both gender aged 20±45 years old, it was found that more than half (53.7%) of the participants in the study gained weight within 12 months (Crawford *et al.*, 2000). Another population-based study conducted in USA reported 69.4% of participants have weight regain. However, it was conducted among both gender (male and female) with larger population sample, with different study definition and broader age interval (18-65 years old) (Kruger *et al.*, 2006).

A major problem faced by the majority of Malay working women in selected public funded institutions who succeeded in losing weight is that they could not maintain their weight. The results indicated that the prevalence of current overweight among weight loss women was 32.5%, while the current obesity was 23.3%, which revealed that both obesity and overweight among weight loss government working women in this subgroup population is slightly higher than studies carried out among women who tried to lose weight (Kong *et al.*, 2002; Lim *et al.*, 2000; Noor Salihah *et al.*, 2011) and overall working women (Nazma, 2008) in some subgroup populations.

In more recent studies conducted among working women, Nazma (2008) found that the prevalence of overweight among female health care staff in Hulu Langat district, Kelang, Selangor was 28.8% and the prevalence of obesity was 20.7%, while Siti Affira *et al.* (2011) found that 24.7 and 7.9% were overweight and obese, respectively and the mean BMI was 23.7±4.8 kg/m² in Petaling Jaya, Malaysia.

Successful weight losers reported the reduction in fatty food intake, high sugar food intake and carbohydrate food intake. In a study carried out by Kruger *et al.* (2006), successful weight losers (maintenance-non-regainers) reported eating more fruits and vegetables (65.9 vs 71.6%), smaller portions (64.9 vs 64.6%), fewer fatty food (57.7 vs 60.1%) and reduced sweetened beverages (52.8 vs 56.5%) than unsuccessful weight losers (maintenance-regainers).

The limitation of our study was institutional-based data collection which could not be generalized to all working women. Majority of women were Malays and highly educated which may limit the overall generalizability. There was selection bias due to convenient sampling method; therefore it is more likely that women who had lower BMI agreed to participate in the study.

Conclusion: The prevalence of successful weight loss practice was low (18.8%) among government working women in selected public funded institutions in Malaysia. Eat more fruits and vegetables, reduce the amount of eating food and reduce fatty food intake were the main dietary weight loss methods used by government working women who successfully lose their weight.

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