ORIGINAL ARTICLE

Influence of an intervention program promoting voluntary fasting practices and its perceived barriers among overweight or obese Muslim women working in the public sector, Malaysia

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ABSTRACT

Introduction: This article aims to describe the effect of an intervention to promote the practice of voluntary Islamic fasting and its barriers among a group of overweight and obese Muslim women working in the public sector in Malaysia. **Materials and methods:** In this quasi-experimental study, an intervention to encourage voluntary fasting was delivered in a half day seminar, supported by relevant booklets prepared. A self-administered questionnaire was used to capture data on voluntary fasting practices and its perceived barriers before and four months after the intervention. Data was analysed using Mc Nemar test to compare the proportion before and after the intervention. Significant level was set at $p<0.05$. **Results:** A total of 56 women were recruited. Their mean age was 36.65 years, most were married, had formal education up to secondary level and median income of RM 3000 per month. At baseline, 60.7% of them have practiced voluntary fasting. After intervention, the number of participants who practices voluntary fasting increased with a significant increase in three types of voluntary fasting (i.e. Mondays only, Thursdays only and 6 days in Shawal). The highest barrier to practice voluntary fasting was having no motivation to do so, followed by work commitment, health problems and family commitment. **Discussion and Conclusion:** Most of the respondents could practice voluntary fasting regularly if motivated to do so and backed by social support both at work and at home.

Keywords: barriers, voluntary fasting, overweight and obese women

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INTRODUCTION

In recent time, fasting has been promoted as a popular weight loss strategy among contemporary nutritionists and dietitians (1). Even though the definition of fasting varies among the groups of people involved in its promotion and researches, the benefits of fasting such as weight loss (2,3,4) and metabolic benefits such as improved blood lipids and fasting blood glucose (5,6) are well acknowledged and documented in systematic review (7). There are many types of fasting, for example - water fasting (practitioner consumes only water); juice fasting (practitioner consumes only fruit and vegetable juices) and intermittent fasting (when a person fasts for a few hours a day and consume small amount of calories during non-fasting period). For some religion, fasting means prohibition of the consumption of certain types of food on certain days. Whereas the laboratory and human trials on fasting focus not only on the said variation but also in the numbers of hours and the frequency of fasting.

Islamic fasting is different than other fasting as a person who fast will have to totally abstain him or herself from consuming food and drinks from sunrise until sunset. There are two main types of fasting in Islam - compulsory fasting (daily fasting in the month of Ramadan) and voluntary fasting (fasting in other months besides Ramadan). Among types of Islamic voluntary fasting are, weekly fasting of two days per week (on Mondays and Thursdays), monthly fasting of three days, fasting six days in the month of Shawal (the month after Ramadan), fasting alternate days and fasting on special days that coincide with religious event such as Hajj (8). Although the definition and action in Islamic fasting are not the same as the contemporary fasting, its benefits had been considerably well documented. Scientific research including systematic reviews supported the benefits of Ramadan fasting which are similar to contemporary fasting including weight loss (9,10,11) and metabolic benefits such as improved blood lipids and fasting blood glucose (9,10).

A recent review shows the rise of obesity among Malays appears to be at a faster rate (12). In view of the fact that there are evidences supporting fasting as a potential weight loss strategy thus an intervention to promote Islamic voluntary fasting practices among a group of overweight and obese Muslim women was carried out. The aim of this article is to report the uptake of voluntary practices and its barriers among the respondent.

MATERIAL AND METHODS

Study design, study locations, participants, intervention, questionnaire and outcome

This was a one group quasi-experimental study (pre and post- intervention). The study was carried out at government offices in Putrajaya (the government administrative state for Malaysia). Three ministries were randomly selected from the list of 14 ministries. All female Malay staff who met the criteria was invited to participate. The inclusion criteria was being either overweight or obese (i.e. having a body mass index ≥ 25.0 kg/m^2), while the exclusion criteria was inability to fast and being pregnant. Body mass index was determined from body weight and height measured at point of recruitment. The intervention used in this study was an Islamic faith-based intervention to increase motivation to observe Islamic dietary principles including practice of voluntary fasting. Intervention was delivered in a half day seminar supported with 4 booklets, one of which focused specifically on information to encourage the practice of voluntary fasting. (The other 3 booklets cover the importance of being healthy, the importance of controlling food portion and motivation to be consistent in ones effort to stay healthy). The questionnaire regarding barriers to fast was adopted from questionnaires on barrier to other dieting strategies (13, 14, 15). Pre-test's Cronbach's Alpha was 0.82. This article is describing the secondary outcomes of the study which is voluntary fasting practices. Change in body mass index was main outcome and it had been reported in other publication (16).

Data collection, management and analysis

All data was collected using a validated self-administered questionnaire. Voluntary fasting practices and its barriers was accessed twice - before the intervention (before the month of Ramadan) and 4 months after intervention. Data was analysed using SPSS version 22.0.

Mc Nemar test was used to compare the percentage of voluntary fasting practice and barriers towards the practice before and after the intervention. Significant level was set at a standard value of $p<0.05$ and a confidence interval of 95%.

Ethics

This study was approved by the *Universiti Kebangsaan Malaysia* Medical Centre Research and Ethics Committee.

RESULTS

A total of 56 women were recruited for this intervention and 48 (85.7%) was still in the study at 4 months post intervention. Their mean age was 36.65 (standard deviation, SD= 10.16), most were married (75.0%), had at least formal education up to secondary level (64.3%) and their median income was RM 3000 (IOR 200-4500) per month (USD 700). In terms of body mass index, 42.9 % were overweight while 57.1% were obese.

Changes in voluntary fasting practices

Table 1 shows that at baseline, 60.7% of them had practiced voluntary fasting. The most practiced voluntary fasting was Mondays and Thursdays (44.6%) and 6 days in Shawal (33.9%). Only 7.1% practiced 3 days per month fasting and none ever practiced fasting of Prophet David's (which is fasting on alternate days). After the intervention, there was a significant increase in three types of voluntary fasting; Mondays only, Thursdays only and 6 days in Shawal. The practice of fasting for 3 days per month remained unchanged and only one respondent tried practiced fasting of Prophet David's.

Changes in the barriers to practice voluntary fasting

Table 2 shows that at baseline, the highest barrier was no motivation (32.1%) and the lowest barrier being the lack of knowledge. The percentage of perception of these two perceived barriers remained unchanged even after the intervention. The proportion of those who reported that work commitment, health problems and family commitment as the barriers to practice voluntary fasting seemed to be slightly decreased after the intervention but was not statistically significant.

DISCUSSION

The aim of this study was to investigate the changes in practicing voluntary fasting and its barriers following an intervention to promote the practice among a group of overweight and obese Muslim women working in the public sector in Malaysia. Voluntary fasting has been practiced among more than half (60.7%) of the respondents even before this intervention and the practice has significantly improved (80.4%) after the intervention. The study was a community experiment and there were no specific guidelines on the type of food allowed nor was there calorie counting - respondents ate what they normally eat.

Table 1. Ever practice voluntary fasting and types of voluntary fasting among the respondent, before and after intervention (N=56)

Variables	Before intervention *f* (%)		4 months after intervention *f* (%)		Difference in percentage (%)	Increase in percentage (%)	*p*
Ever practice voluntary fasting	34	(60.7)	45	(80.4)	+19.7	32.5↑	<0.01*
Type of voluntary fasting							
Mondays only	4	(7.1)	12	(21.4)	+14.3	201.4↑	0.02*
Thursdays only	6	(10.7)	13	(23.2)	+12.5	116.8↑	0.04*
Monday & Thursday	25	(44.6)	29	(51.8)	+7.2	16.1↑	0.42
3 days per month	4	(7.1)	4	(7.1)	0	0	1.00
Prophet David's fasting	0	(0)	1	(0)	0	0	-
6 days in Shawal	19	(33.9)	29	(51.8)	+17.9	52.8↑	0.03*
Other types of voluntary fasting	2	(3.6)	6	(10.7)	+7.1	197.2↑	0.22

McNemar test, significant when $p<0.05$

Table 2. Barriers in practicing voluntary fasting among the respondent, before and after intervention (N=56)

Variables	Before intervention *f* (%)		4 months after intervention *f* (%)		Difference in percentage (%)	Increase in percentage (%)	*p*
Lack knowledge	2	(3.6)	2	(3.6)	0	0	1.00
No motivation	18	(32.1)	18	(32.1)	0	0	1.00
Work commitment	11	(19.6)	9	(16.1)	-3.5	17.9↓	0.75
Family commitment	8	(14.3)	5	(8.9)	-5.4	37.8↓	0.45
Health problems	11	(19.6)	8	(14.3)	-5.3	27.0↓	0.55
Husband doesn't permit (n=42)	0	(0)	0	(0)	0	0	-

McNemar test, significant when p<0.05

Changes in types of voluntary fasting practices

The most popular voluntary fasting was the 2 days fasting per week (Mondays and Thursdays). Nevertheless, it was reported that there was a significant increase in the practice of voluntary fasting among respondents, specifically fasting on 'Mondays only' and 'Tuesdays only'. This showed a positive direction in the uptake of the two day per week voluntary Islamic fasting practice. Although there are no scientific researches to compare between the practices of fasting on Mondays and Thursdays, in terms of the potential use of this two days fasting in a week as a potential weight loss intervention, it is interesting to note that this pattern of Islamic fasting is quite similar to researches described as intermittent energy restriction (IER) particularly the 5:2 diet pattern notably promoted by current dietician. In the 5:2 diet, a person eats normally for 5 days but fast (or practice caloric restriction) for 2 days per week. Studies on IER have shown that it is as effective as continuous energy restriction (CER) with regards to weight loss, increasing insulin sensitivity and reducing disease risk (17,18,19). In addition, a systematic review reported that weight loss was achieved using this strategy in overweight and obese adults (18,20). Hence, an intervention similar to IER such a Monday and Thursday voluntary fasting may be an effective alternative strategy for health practitioners to promote weight loss for overweight and obese Muslims.

The other commonly practiced voluntary Islamic fasting among the respondents was 6 days in the month of Shawal, the month immediately after Ramadan. In this

study it was noted that the practice of voluntary Islamic fasting in Shawal increased after the intervention. To put things into perspective, fasting during the month of Ramadan is compulsory. It is one of the 5 pillars of the Islamic faith. It is a grave sin for an able Muslim adult if they are not fasting during Ramadan. Following this obligatory month-long fasting, Muslims celebrate Eid. Although Eid by definition is only for one day (that is immediately after 29 or 30 days of Ramadan), in several countries such as Malaysia, the celebration could last for as long as a month. In Malaysia, it has become a culture to hold *'open house'* where food and drinks are served in conjunction with the celebration (21,22). While voluntary fasting in the month of Shawal is only for 6 days, it could be tougher compared to Ramadan, due to the festive environment. Therefore it was definitely a promising and positive finding that there was a significant increase in the practice of voluntary fasting in the 6 days of Shawal after the intervention among the overweight and obese respondents.

The Islamic voluntary fasting practice of 3 days in a month was only taken up by a few respondents. The poor uptake of the 3-day fasting could be because according to some hadith the fasting should be on the 13th, 14th and 15th of each lunar month. As the respondents were women working in the public sector, they are familiar with the solar or the Gregorian calendars in their daily work and thus the lunar calendar could have been overlooked. Although this 3-day fasting has no similarity with any current contemporary diet promotions, there is a new trend of fasting which is fasting for 5 days a month currently being studied that extols other benefits such as prevention or treatment of age-related illnesses like diabetes and cardiovascular disease (23). As research in the 5-day fasting in a month has shown positive results, research should also be carried out to determine the benefits of the Islamic 3-day fasting as weight loss intervention. In term of the fixed 13th, 14th and 15th of each lunar month, this is another interesting aspect to explore as there are some research which documented the influence of the lunar cycle on human behaviour and physiology including eating behaviour (24).

The least practiced Islamic voluntary fasting among the subjects in this study was the Prophet David's fasting. Perhaps it is the toughest kind of Islamic voluntary fasting since none of the respondents had practiced it before the intervention and only one did try, after the intervention. Prophet David's fasting is similar to the alternate day fasting (ADF) in the contemporary context. In the context of weight loss, an article in the Spanish medical literature in 1957 of an experiment carried out among 120 residents of an old people's home summarized that ADF could impact influenza epidemics and other communicable diseases by improving resistance to infection and has also has proven to be a good method of weight control (25). Besides weight loss, ADF has been medically hypothesized to be able to delay, prevent or improve many conditions such as Alzheimer's disease, Parkinson's disease, multiple sclerosis, brain injury due to thrombotic stroke, atherosclerosis, non-insulin-dependent diabetes mellitus, congestive heart failure and cancer (26,27,28).

Changes in barriers to practice voluntary fasting

The main barrier to practicing voluntary fasting among the respondents was having no motivation. Lack of motivation or mental barrier is a known barrier in adopting other dieting strategies as well (29,30). Other barriers to healthy dieting such as lack of knowledge, lack of time to prepare food, costly and unavailability of food that are often reported in other dieting studies were not applicable for the intervention in this study (31,32,33). Thus, when adopting Islamic voluntary fasting as long-term weight control strategy, there is a need to emphasize on sufficient continuous motivation.

This study also reported respondents' perceived barrier to voluntary fasting involves the consumption of food at work and with the family. These barriers are probably due to lack of self-control over food cues (34). Specifically in Malaysia, most urbanites eat out with their families (35). Outside of Ramadan, prepared food is easily accessible with a wide range of variety that makes it difficult to fast. At the work place, it is culturally acceptable for meetings to be accompanied with refreshments or meals. Even in other forms of dieting, studies have shown that it is difficult to avoid unhealthy food consumptions at gatherings (32). Thus, overcoming these barriers at home as well as at work could improve the practices of any form of dieting (36). For instance, supporting efforts could be established at home as well as at workplace such as fasting together and reducing food cues on voluntary fasting days (37).

It is heartening to note that among all the married women, none of their husbands prevented them from performing voluntary fasting when they wanted to, especially because in Islam, married women have to seek permission from their husbands before performing actions which are categorized religiously as voluntary. "The Prophet said: It is not permissible for a woman to fast when her husband is present except with his permission." This could be because the women in this study were working women who in general socioeconomically stable and thus more empowered to make their own decisions including dieting decisions such as to practice voluntary fasting (38).

The main limitations of the study were small sample size and quasi-experimental study design. Other limitations include having no fixed type of voluntary Islamic fasting assigned to the respondents or monitoring of adherence of the implementation of fasting. Also, other factors which could also influence voluntarily fasting practices such as knowledge, attitude, time and timing effects are not studied or controlled. However, there is much

potential in promoting voluntary Islamic fasting among the Muslim population for weight reduction and weight loss maintenance regime which is 'culturally accepted' and does not cost anything.

CONCLUSION

To conclude, most of the respondents could practice or increase practice voluntary Islamic fasting if they were sufficiently motivated and determined to do so. Their voluntary fasting practices could be improved by overcoming barriers related to commitment at work as well at home.

CONFLICT OF INTEREST

The authors declare no conflicts of interest. The article reflects the research findings and does not necessarily represent the official views of the sponsors.

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