

The impact of a social-media-based weight management program: insights from the community campaign “obesity does not suit me”

Obesity does
not suit me

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Abstract

Purpose – This study aimed to assess the influence of the community-based campaign on weight loss and healthy lifestyle adoption among Bahrain’s adult population.

Design/methodology/approach – A cross-sectional self-reported online questionnaire completed in February 2021. The survey evaluated the impact of the community-based campaign health program which includes (exercise, diet plan and psychological eating behavior) weight reduction using social media platforms. The authors employed data from young and middle-aged healthy adults ($n = 842$) between the ages of 18-55 years, of both sexes. The intervention group ($n = 842$) was made up of the supporters of the voluntary community initiative called Obesity does not Suit Me ($n = 194$), and the control group ($n = 648$) was made up of non-followers of the campaign.

Findings – The study showed a statistically significant difference among the followers of the community-based campaign health program in the following parameters: 3.90-4.23 kg less, 1.46-1.59 difference in BMI and 0.05-0.06 WHR. All changes were of low effect size.

Originality/value – Diet and exercise had significant impact on weight, BMI and WHR among the followers of the community campaign. However, more research is required for sponsorship to increase the motivation and rewards for the community campaign.

Keywords Weight loss, Physical activity, Diet, Nutrition, Psychological support, Social media

Paper type Research paper



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1. Introduction

Obesity is classified nowadays as a disease and not as a sign anymore and has become a major public health problem in many countries (De Lorenzo *et al.*, 2019). World Health Organization (WHO, 2019) has stated that the percentage of obesity has increased worldwide and nearly tripled since 1975; in 2016, 39% of adults over the age of 18 were overweight, and 13% were obese.

Obesity also has grown rapidly to epidemic levels in the GCC countries (Balhareth, Meertens, Kremers, & Sleddens, 2019). The cost of being overweight or obese in the Gulf region, and more specifically for Bahrain, is high and ranked among the most severe reported worldwide (Ng *et al.*, 2014). Overweight and obesity prevalence is the highest in the Eastern Mediterranean region, as stated by WHO, mainly in Bahrain along with Jordan, Egypt, Kuwait, Saudi Arabia and the UAE (WHO, 2020). According to the latest WHO data, being overweight is more prevalent in men, while obesity is higher in women (WHO, 2020). On the other hand, similar gender-based findings for overweight and obesity in Bahrain have been reported (Ministry of Health, 2020). The recent Bahrain National Health Survey 2018 estimates that among Bahraini citizens, one-third of adults over the age of 18 are overweight, and 42.8% have obesity (De Lorenzo *et al.*, 2019). By adding the two categories for survey respondents, a third of whom were non-Bahraini nationals, higher levels of overweight and obesity were observed among Bahraini nationals compared to non-Bahraini citizens (76% versus 65.5%, respectively) (Ministry of Health, 2020). Besides, overweight was also more common in men of Bahraini nationality than among their female counterparts (36.1% versus 29.7% respectively), while the opposite was true for obesity, with 47.2% of Bahraini women having obesity compared with only 39.2% of Bahraini men (Ministry of Health, 2020). The major cause of overweight and obesity is an energy imbalance – increased intake of energy-dense foods that are high in fat and fewer calories expended. Due to the increasingly sedentary nature of many occupations, evolving modes of transportation and growing urbanization, physical inactivity is one of the most obvious causes of overweight and obesity (WHO, 2019). Environmental and societal changes have affected how people eat and move, and this has been exacerbated by the absence of supportive policies in fields like health, agriculture, transportation, urban planning, environment, food processing, distribution, marketing and education (WHO, 2019). It has many health consequences such as respiratory diseases, cardiovascular diseases, diabetes, musculoskeletal disorders and some cancers. Obesity is largely preventable by having healthy lifestyles that include healthy eating and adequate physical activity (Lim, Xue, & Wang, 2020).

For the third consecutive year, the voluntary community campaign “Obesity does not suit me campaign” continues its mission in the community, inside and outside the Kingdom of Bahrain, spreading the awareness of healthy lifestyles and proceeding in changing public unhealthy behaviors. The campaign has achieved its goals since its launch in July 2018, which started with a personal experience of one of the healthcare workers in reducing weight; since then, the people in Bahrain and Gulf region have begun to interact with this campaign (AlEid, Alsaad, Aljawder, Al Sayyad, & Almadani, 2019).

A study done in 2018 by A-M Teeriniemi *et al.* revealed that for overweight and obese people, a combination of cognitive-behavioral therapy-based group counseling and health behavior improvement support system-based weight control is possible. Moreover, the health behavior improvement support mechanism alone could be spread to the general public as an effective treatment for obesity (Teeriniemi *et al.*, 2018). During the era of COVID-19, the urge to develop online awareness activities is necessary as weight gain was linked to poor eating habits and a lack of physical activity. The need for research into which dietary and physical activity recommendations could be most effective in combating COVID-19's possible negative effects on health behavior and body weight is mandatory as stated by Kriaucioniene *et al.*'s study (Kriaucioniene, Bagdonaviciene, Rodríguez-Pérez, & Petkeviciene, 2020).

Another study has demonstrated that engagement with smartphone applications is very helpful. The study showed that mobile phone based interventions were effective in improving body weight, waist circumference, and energy intake. The same study that Mobile Health, another health application for bodyweight reduction and interventions in Saudi Arabia and similar populations, has the potential to be successful in encouraging weight loss and healthy lifestyle changes (Alnasser, Kyle, Aloumi, Al-Khalifa, & Marais, 2019). Digital lifestyle modification programs can lead to significant weight loss and health improvement, especially because they allow easy access to health recommendations and facilitate long-term weight maintenance (Wadden, Tronieri, & Butryn, 2020).

Monica Jane *et al.*'s study demonstrated the ability of social media to help overweight and obese people make dietary and physical activity changes for weight loss and justify further research into the use of social media in clinical weight loss programs. Health professionals will find social media to be an invaluable resource as a low-maintenance vehicle for engaging with patients, as well as a means of social support and knowledge exchange for those experiencing lifestyle changes (Jane *et al.*, 2017). Despite the widespread use of social media, few studies have quantified the role of social media in online weight loss interventions; as a result, its impact remains uncertain. While social media can help to maintain and engage participants, further research is required to determine whether and how it can help with weight loss (Chang, Chopra, Zhang, & Woolford, 2013). Many countries are required to emphasize the implementation of national initiatives and population-based strategies to address the obesity epidemic and improve public health (Lim *et al.*, 2020). The "Obesity does not suit me" campaign was launched in May 2018 by a group of professionals in health promotion, nutrition, physical activity and psychological health. Campaign followers began to adopt healthy habits including daily exercises and nutritional tips for healthy lifestyles through social media, specifically Instagram, as well as Facebook, Snapchat and WhatsApp. It aims to combat obesity and prevent or reduce the incidence of non-communicable diseases by maintaining the ideal weight in the long-term through social media by providing a health program for free, including free consultation and follow-up through a qualified health professional team and achieving the third sustainable development goal. Two years ago, the campaign used social media to reach its followers to learn how a healthy program affected weight loss. They discovered that those who followed the program for more than a year saw significant weight loss, while those who did so for less than a year saw weight loss that was to a lesser extent (AlEid *et al.*, 2019). They were assigned a healthy diet plan, exercises and psychological health tips, designed for the followers mainly on the Instagram account – @health_mates_society – which showed significant results. The limitation in literature on such sustainable, voluntary and affordable campaigns with nationally qualified professionals necessitates its availability. The study aims to study the effect of such a health program run on social media that helps adopt healthy lifestyle and achieve the ideal body weight.

2. Materials and method

2.1 Study design

A cross-sectional observational study was conducted to assess the influence of the community-based campaign on weight loss and healthy lifestyle adoption among Bahrain's adult population. The cross-sectional analysis is strengthened by the fact that data of all variables are collected only once, allowing researchers to assess prevalence for all factors under review and allowing multiple outcomes and exposures to be analyzed (Shantikumar, 2018).

2.2 The program

The intervention was adapted from our previous research (AlEid *et al.*, 2019). The intervention was composed of three aspects, namely, exercise, diet plan and psychological

eating behavior (AIEid *et al.*, 2019). A licensed personal trainer developed the exercise plan. The program included a single instructional video and three simple exercise routines that only needed a water bottle and an optional exercise mat to complete (AIEid *et al.*, 2019). The exercises targeted both the cardiovascular system and the entire body's musculature (AIEid *et al.*, 2019). The instructional video described the safety measures and gave a summary of the WHO's recommendations for healthy adults who should exercise (AIEid *et al.*, 2019). "Obesity does not suit me" was the title of the YouTube channel where the videos were posted and made public (AIEid *et al.*, 2019). Each video included a thorough explanation of every safety precaution to prevent complications like dehydration and musculoskeletal injuries (AIEid *et al.*, 2019).

Our diet program, which had a moderate calorie limit of 1,500 kcal per day, was based on Bahraini traditional foods and targeted the adult population, with a special emphasis on people who had never received diet counseling (AIEid *et al.*, 2019). It was designed to help people meet their ideal nutritional needs and safe calorie limits. According to the American Diabetes Association (ADA), the following caloric restriction strategies should be followed in order to achieve and maintain nutrient adequacy and lower caloric intake: a daily caloric intake of 1200–1500 kcal for females, and 1500–1800 kcal for males (AIEid *et al.*, 2019). We used the power of social media to inform the public about the advantages of healthy eating, smart grocery shopping, smart cooking techniques and advice on how to measure and regulate serving sizes (AIEid *et al.*, 2019).

2.3 Psychological eating patterns

From the summary session of 10 participants, who were selected at random from the followers of the social media accounts, three important posts about mental health awareness related to fighting obesity were created for the followers, primarily on Instagram (AIEid *et al.*, 2019). They underwent testing for mental illnesses like depression and eating disorders (which have a strong relationship with obesity) (AIEid *et al.*, 2019). Everyone's social media accounts had access to each of these posts (AIEid *et al.*, 2019). To further examine areas of self-image, self-worth, eating habits, activity level, self-harm, cognition and perception, a three-page psychological questionnaire was created (AIEid *et al.*, 2019). The participants' screening was essential. Overeating was brought on by unhealthy behaviors and thoughts. These triggers will eventually lead to participants gaining weight during and/or after the campaign if they are not identified and treated (AIEid *et al.*, 2019). Each participant's responses were then coded and used for additional research in a one-on-one session with the psychologist. Each participant had the opportunity to talk about their past, present situation and future objectives during the consultation in order to develop a realistic perception and launch a new strategy while challenging ideas and actions that support the new vision (AIEid *et al.*, 2019). Following the consultation, the participants were given individualized treatment plans to assist them in controlling obesity-related feelings, thoughts and behaviors (AIEid *et al.*, 2019).

Behavioral support was provided remotely through various modalities, including videoconferencing, email, online messaging, telephone and a combination of telephone and online messaging. In a systematic review of tailored eHealth, six interventions were covered by eight publications that were accepted. According to anthropometric data, for health-related behaviors (such as dietary intake and physical activity), goals (such as weight loss goals), theoretical determinants (such as confidence and willingness to change behaviors), psychosocial factors (such as social support) and participant location, tailored interventions was done in a variety of ways. Systems collected data using a variety of methods, such as the dynamic collection of data from web-based diaries, websites, mobile applications and SMS messaging, as well as the administration of online questionnaires (Rayan, Dockray, & Linehan, 2019). In four of the six articles, tailored interventions were more successful in promoting weight loss than generic or waiting controls. Effect sizes ranged from extremely

tiny to moderate, and there was evidence of variations in effect sizes over time as well as differences in the effects of tailoring versus non-tailoring interventions and across different kinds of tailoring (Rayan *et al.*, 2019).

In addition, for older persons who are obese, a technology-based obesity intervention is practical, acceptable and may result in weight loss and increased physical function. Adults over the age of 65 with a body mass index (BMI) of less than 30 kg/m² were the subject of a 6-month, non-randomized, non-blinded, single-arm trial, from October 2018 to May 2020, at a community-based aging center. The average age was 72.9 ± 3.9 years, with 82% of women. Waist circumference, BMI and weight were all at baseline values of 97.8 ± 16.3 kg, 36.5 ± 5.2 kg/m² and 115.5 ± 13.0 cm, respectively, and 53 people out of a total of 142 who were screened (n = 27 ineligible) gave their consent. Nine students (17%) failed to graduate. Overall, both the trial (4.7 + 0.6 on a scale of 1 to 5; high) and Fitbit (4.2 + 0.9) received high marks for satisfaction. An average of 81.719.3% of intervention days saw Fitbit wearers. In those who finished, the average weight decrease was 4.6 ± 3.5 kg, or 4.7 ± 3.5% (*p* < 0.001). Physical function measurements of 30-s sit-to-stand repeats increased from 13.5 ± 5.7 to 16.7 ± 5.9 (*p* < 0.001), and physical function measurements of a 6-min walk improved by 42.0 ± 77.3 m (*p* < 0.005), although there were no differences in gait speed or grip strength. Late-life function subjective measures improved (3.4 ± 4.7 points, *p* < 0.001) (Batsis *et al.*, 2021).

2.4 Setting, participants and study size

This research was launched in February 2021 using a validated, self-administered, standardized questionnaire. Written permission was obtained from the developers of standardized questionnaires used in this study. The inclusion criteria were young and middle-aged adults between the ages of 18-55 years, of both sex, “Obesity does not suit me campaign” followers, or non-followers, regardless of whether or not applying for the campaign health program. In addition to healthy individuals or individuals with a stable chronic medical condition, such as T2DM on oral hypoglycemic agents, HTN, gout, hyperlipidemia and hypothyroidism were also included in the study. On the other hand, the exclusion criteria were individuals under the age of 18 years, T1DM and T2DM on insulin, kidney disease, a gastrointestinal condition and pregnant and lactating women under 6 months. The intervention group (n = 842) was made up of supporters of the voluntary, community campaign initiative “Obesity does not suit me” (n = 194), and the control group (n = 648) was made up of non-followers of the campaign. The research team used Instagram direct messages to follow up with all of the participants.

2.5 Ethical consideration

Ethical approval was obtained from the Research Ethics Committee of the Health Mates Society on February 2, 2021 [REC/HMS/2021/02]. The consent was obtained from an online survey. Interested participants proceeded to the questionnaire. In this research, participation was completely voluntary; no monetary or nonmonetary rewards were provided, and participants were free to leave at any time. Participants’ information was anonymous to the researchers. All procedures were carried out according to the ethical standards of the 1964 Helsinki declaration.

2.6 Data collection and instruments

Data were collected using an online self-reported, semi-structured questionnaire from February 13th to February 19th, 2021. When the participants clicked on the Uniform Resource Locator (URL) link [The link is <https://youtu.be/Ye9G6orKOEI>], they were led to a

Google form containing the questionnaire. Participants were asked to share the survey connection with their friends and family after completing the questionnaire. All of the responses were saved in a secure Google drive and were open to the principal investigator at any time for review. A questionnaire was created by the research professional group and included the three following parts: sociodemographic data (sex, age, job status and marital status), Second, the lifestyle pattern (smoking habits, weight reduction dietary approach, eating behavior and physical activity habits) and self-reporting anthropometric measurements before and after the healthy program (weight, BMI, waist circumference, hip size and waist-to-hip ratio). The measurement method was explained to the participants by Instagram posts. A simplified nutritional appetite questionnaire (SNAQ) was used to measure appetite relative to weight loss. The SNAQ has moderate sensitivity of about 50% and high specificity of about 99%. In concordance with best practices, SNAQ was interpreted with BMI and weight change (De Rubeis, Bayat, Griffith, Smith, & Anderson, 2019). A systematic review and meta-analysis concluded that, in 15 studies that included 17477 participants, self-reported measurements (weight, height and BMI) were strongly correlated with the reference standard value (De Rubeis *et al.*, 2019). All safety measures in performing exercise were thoroughly explained during each video to avoid any complications, such as dehydration and musculoskeletal injuries (AIEid *et al.*, 2019).

2.7 Data analysis

Descriptive statistics were presented as percentage means and standard deviations. Chi-square test for categorical data and independent samples *t*-test for continuous data were used to test for group differences as baseline data. The comparison between the intervention group participants and control group participants included demographics, weight, BMI, WHR and SNAQ scores. The level of statistical significance was set at $p < 0.05$. Descriptive statistics including frequencies and percentages were conducted to assess the participants' commitment, impression and experience with the provided program. The efficacy of the program in terms of weight, BMI and WHR for participants in the campaign was assessed using paired sample *t*-test. The assumptions for the statistical tests were met. Results are expressed as means, standard deviations and mean differences with 95% confidence intervals corresponding to Cohen's *d*. An effect size of <0.2 is small, 0.5 is medium and >0.8 is large. All statistics were performed using R-statistical computing version 4.0.3.

3. Results

3.1 General and sociodemographic information

One hundred ninety-four cases and 648 controls participated in the present study. The mean age of the participants was 44.23 (SD = 11.73) years for the cases and 47.99 (SD = 12.44) years for the control group. Both groups had almost the same gender proportion, which was around 70% females and 30% males. Unsurprisingly, cases had proportionally more overweight and obese individuals, while the control group had a higher percentage of individuals with normal body mass index ($p = 0.002$). Both body mass index and employment style were significantly different between the two groups. Furthermore, the control group consisted of 11.4 % smokers, while the smokers' proportion among cases was just 4.1% ($p = 0.003$). Office job workers and housewives made up 45.9 % and 24.2 % of the cases and, 28.2 % and 22.4% of the control group, respectively. Regarding marital status, in both groups, over 75% were married and the rest were not married (Table 1).

3.2 Impressions and opinions of the participants around the program

Of the 194 cases, over one-half followed the nutritional recommendations, and around two-thirds followed the sport recommendation that was provided to them. Most of the

| Measure | Control | | Intervention | | <i>p</i> | effect size |
|------------------------|------------------|------|------------------|------|----------|-------------|
| | <i>n</i> = 648 | % | <i>n</i> = 194 | % | | |
| Age (mean ± SD) | 47.991 ± 12.4388 | | 44.227 ± 11.7257 | | <0.001 | 0.3113 |
| <i>Sex</i> | | | | | | |
| Female | 463 | 71.5 | 138 | 71.1 | 0.142 | 0.068 |
| Male | 183 | 28.2 | 53 | 27.3 | | |
| Prefer not to say | 2 | .3 | 3 | 1.5 | | |
| <i>Body mass index</i> | | | | | | |
| Underweight | 9 | 1.4 | 0 | 0.0 | 0.002 | 0.134 |
| Normal | 156 | 24.1 | 29 | 14.9 | | |
| Overweight | 187 | 28.9 | 79 | 40.7 | | |
| Obese | 296 | 45.7 | 86 | 44.3 | | |
| <i>Smoking</i> | | | | | | |
| Yes | 74 | 11.4 | 8 | 4.1 | 0.003 | 0.104 |
| No | 574 | 88.6 | 186 | 95.9 | | |
| <i>Employment</i> | | | | | | |
| In-field/site | 66 | 10.2 | 36 | 18.6 | <0.0001 | 0.264 |
| Office job | 183 | 28.2 | 89 | 45.9 | | |
| Housewife | 145 | 22.4 | 47 | 24.2 | | |
| Unemployed | 254 | 39.2 | 22 | 11.3 | | |
| <i>Marital status</i> | | | | | | |
| Married | 500 | 77.2 | 146 | 75.3 | <0.0001 | 0.154 |
| Single | 84 | 13.0 | 25 | 12.9 | | |
| Divorced | 23 | 3.5 | 20 | 10.3 | | |
| Widow | 41 | 6.3 | 3 | 1.5 | | |

Note(s): **p* value of *t* test or chi-square as appropriate; #Cohen's *d* or Cramer's *V* as appropriate

Table 1.
General information and characteristics of both intervention group and control group

participants (68.6%) got stuck to the given diet plans to improve their general health. Other major causes that led participants to follow the diet were self-satisfaction (37.1%), mood improvement (34.0%) and being able to wear their favorite clothes (32.0%). Moreover, a considerable proportion of the diet followers justified their willingness to follow the diet by gaining self-confidence, reducing bone and joints pain and improving their sleep quality (Table 2).

In the provided program, social support and encouragement were the most liked part by the participants, followed by the fact that it is freely available. Additionally, 37.1 %, 36.6 % and 33.0 % of the respondents reported the recommended food plans, the slow weight loss in a healthy way and the sports program as the most liked parts of the program. Most of the cases knew about the program from social media, and less knew about it from their family members or friends. Fortunately, the level of satisfaction with the program was impressive. Eighty-three percent of the participants wanted to advise their people to register in the program, and over two-thirds rated their last experience from very good to excellent (Table 2).

3.3 Body mass index, weight and risk of weight loss

Those who were involved in the program had significantly higher weight ($p = 0.031$) and waist-to-hip ratio ($p = 0.003$) in comparison to the control group. However, their body mass index showed an insignificant difference. After the program finished, based on SNAQ, the two groups did not vary a lot in terms of the risk of losing weight (Table 3).

| Measure | N | % |
|--|-----|------|
| <i>Did you follow the nutritional recommendations?</i> | | |
| Yes | 104 | 53.6 |
| No | 90 | 46.4 |
| <i>Did you follow the sport recommendations?</i> | | |
| Yes | 120 | 61.9 |
| No | 74 | 38.1 |
| <i>Why did you follow the current diet program?</i> | | |
| Self-satisfaction | 72 | 37.1 |
| Satisfying others | 9 | 4.6 |
| Self-confidence | 54 | 27.8 |
| To wear favorite clothes | 62 | 32.0 |
| Improve mood | 66 | 34.0 |
| Improve sleep | 45 | 23.2 |
| Improve health | 133 | 68.6 |
| Joint and bone pain reduction | 51 | 26.3 |
| Others | 41 | 21.1 |
| <i>What did you like most in the program?</i> | | |
| Social encouragement and support | 94 | 48.5 |
| Experts and other clients support | 69 | 35.6 |
| The sport program | 64 | 33.0 |
| Being easy and not strict | 34 | 17.5 |
| Slow and healthy weight loss | 71 | 36.6 |
| Recommended food plans | 72 | 37.1 |
| Recommended foods' taste | 58 | 29.9 |
| Being free of charge | 74 | 38.1 |
| Others | 15 | 7.7 |
| <i>How did you hear about the program?</i> | | |
| Social media | 90 | 46.4 |
| Family/Friend | 62 | 32.0 |
| Internet | 23 | 11.9 |
| Others | 19 | 9.8 |
| <i>How do you rate your last experience?</i> | | |
| Excellent | 81 | 41.8 |
| Very good | 43 | 22.2 |
| Good | 50 | 25.8 |
| Weak | 10 | 5.2 |
| Very weak | 10 | 5.2 |

Table 2. Questions assess the cases' commitment, impression and experience with the provided program (intervention group n = 194)

| Parameter | Control Mean ± SD | Intervention Mean ± SD | p value | Cohen's d |
|-----------|----------------------|---------------------------|---------|-----------|
| Weight | 79.751 ± 21.138 | 83.267 ± 19.505 | 0.031 | 0.17 |
| BMI | 29.969 ± 6.693 | 31.024 ± 8.108 | 0.100 | 0.14 |
| WHR | 0.910 ± 0.247 | 0.988 ± 0.497 | 0.003 | 0.20 |
| SNAQ | 15.182 ± 2.241 | 15.510 ± 2.174 | 0.068 | 0.15 |

Table 3. Comparison between cases and controls in terms of weight, BMI, WHR and SNAQ score

3.4 Effectiveness of the given program

Involvement in the provided program, including diet and exercise plan, showed an obvious and significant effect on weight, body mass index and waist-to-hip ratio. This result was

irrespective of the fact that the participant followed the diet plan only, the exercise program or both (Table 4).

Obesity does not suit me

4. Discussion

Obesity has almost tripled globally since 1975, according to the World Health Organization (WHO), with over 2.8 billion overweight and obese people worldwide reported in 2016. Obesity is now a global problem; thus, immediate action is needed (WHO, 2016).

The results showed that most of the cases (68.6%) followed the nutritional and sports recommendations that were provided to them for different reasons such as self-satisfaction (37.1%) or mood improvement (34.0%). It is almost similar to Alnasser *et al.*'s study which demonstrated that engagement with applications for weight reduction is very helpful; showed 65% of engaged users experienced more successful outcomes. Another study found that social media is a useful resource for engaging with clients about lifestyle changes. It showed that the Facebook group reported a 4.8% reduction in initial weight as well as an improvement in body mass index and waist circumference (Jane *et al.*, 2017).

Most of the available literature on the influence of psychological and social motivations on weight loss and weight maintenance is not strong enough (Varkevisser, van Stralen, Kroeze, Ket, & Steenhuis, 2019). However, in the present study, each self-satisfaction, self-confidence and mood improvement were chosen by over 30 % of the clients as a positive motivation to keep up and follow the recommendations. They could act as positive motivations for obese individuals to lose weight. Despite that, if the psychological effect reaches a level in which it becomes a stigma, then it will act as a negative motivation to lose weight and it may lead to further weight gain (Wu & Berry, 2018; Drury & Louis, 2002).

Social media has also been recognized by the WHO as a valuable agent for behavior modification in health promotion. At the community level, social services are described as knowledge, material assistance and encouragement offered by significant others such as family, partners and peers (Jane, Hagger, Foster, Ho, & Pal, 2018).

Social media's immersive features facilitated social support and social comparison while also introducing novel ways of monitoring. This research leads to a better understanding of how social media affects people's weight-control habits. Improved methods for preserving constructive patterns in social media interactions and avoiding disruptive reactions to surveillance technologies are among the study's practical consequences (Chang, Chattopadhyay, Li, Xu, & Li, 2021).

Our study showed those who were involved in the program had significantly higher weight ($p = 0.031$) and waist-to-hip ratio ($p = 0.003$) in comparison to the control group. However, their body mass index showed an insignificant difference. After the program finished, based on SNAQ, the two groups did not vary a lot in terms of the risk of losing weight. Chang *et al.*'s study demonstrated that few studies have quantified the role of social media in online weight loss interventions (Chang *et al.*, 2013). In our previous study by Aleid *et al.*, there was a significant difference in weight reduction after following the health program for more than one year, and to a lesser extent for those who followed it for less than one year; results showed that there were changes in diet and nutrition habits (Aleid *et al.*, 2019).

| Parameter | Pre (mean ± SD) | Post (mean ± SD) | Mean Diff | 95% CI | Cohen's d |
|-----------|-----------------|------------------|-----------|---------------|-----------|
| weight | 87.33 ± 19.57 | 83.27 ± 19.50 | 4.06335 | (3.90 – 4.23) | 3.45 |
| BMI | 32.55 ± 8.20 | 31.02 ± 8.10 | 1.52399 | (1.46 – 1.59) | 3.16 |
| WHR | 1.04 ± 0.53 | 1.00 ± 0.50 | 0.05577 | (0.05 – 0.06) | 1.52 |

Table 4. The efficacy of the program in terms of weight, BMI and WHR for participants in the campaign

4.1 Strengths and limitations

The most obvious point is widespread of the campaign's tools through social media and the impressive feedback of the followers for continuous improvement including easy access, easy availability, free of charge and useful for all age groups. The motivation part and the follow-up are remarkable. Community participation is one of the best in the campaign. No geographical limitation for raising awareness all over the world is noticeable except that the campaign's materials and posts were in the Arabic language only. On the other hand, the campaign needs more sponsorships to generate more attraction and encourage more research. The media campaign is still on a low profile.

5. Conclusions

The data revealed the positive impacts of the community campaign "Obesity Does Not Suit Me" on weight loss and a healthy lifestyle. The majority of the participants reported that they wanted to advise people to register for the program. Moreover, the participants rated their last experience as very good to excellent. In addition to the existing literature, we can conclude that social media based on weight management programs had an influence on weight loss and healthy lifestyle adoption among the Bahraini adult population. Based on the results of the present study, diet and exercise plans had a significant impact on weight, body mass index and waist-to-hip ratio among the followers of the community campaign. Our findings showed that the interventional group had a significantly higher weight than the control group and an insignificant difference between the control and the intervention group concerning body mass index. This study showed the effect of such a health program run on social media for adopting healthy lifestyles and achieving the ideal body weight. Future researches require sponsorships to increase the motivation and rewards for the community campaign.

References

- AlEid, K., Alsaad, A., Aljawder, A., Al Sayyad, A., & Almadani, L. (2019). Impact of a healthy program on weight reduction using social media: A voluntary community-oriented campaign through a multidisciplinary approach. *Saudi Journal of Medicine*, 4(12), 766–773.
- Alnasser, A., Kyle, J., Aloumi, N., Al-Khalifa, A., & Marais, D. (2019). The Twazon Arabic weight loss app: App-based intervention for Saudi women with obesity. *JMIR mHealth and uHealth*, 7(5), e10923. doi: [10.2196/10923](https://doi.org/10.2196/10923).
- Balhareth, A., Meertens, R., Kremers, S., & Sleddens, E. (2019). Overweight and obesity among adults in the Gulf states: A systematic literature review of correlates of weight, weight-related behaviours, and interventions. *Obesity Reviews: An Official Journal of the International Association for the Study of Obesity*, 20(5), 763–793. doi: [10.1111/obr.12826](https://doi.org/10.1111/obr.12826).
- Batsis, J., Peterson, C., Clark, M., Cook, B., Kotz, D., Gooding, T., . . . Mackenzie, T. (2021). Feasibility and acceptability of a technology-based, rural weight management intervention in older adults with obesity. *BMC Geriatrics*. Available from: <https://bmccgeriatr.biomedcentral.com/track/pdf/10.1186/s12877-020-01978-x.pdf>
- Chang, T., Chopra, V., Zhang, C., & Woolford, S. J. (2013). The role of social media in online weight management: Systematic review. *Journal of Medical Internet Research*, 15(11), e262. doi: [10.2196/jmir.2852](https://doi.org/10.2196/jmir.2852).
- Chang, L., Chattopadhyay, K., Li, J., Xu, M., & Li, L. (2021). Interplay of support, comparison, and surveillance in social media weight management interventions: Qualitative study. *JMIR mHealth and uHealth*, 9(3), e19239. doi: [10.2196/19239](https://doi.org/10.2196/19239).
- De Lorenzo, A., Gratteri, S., Gualtieri, P., Cammarano, A., Bertucci, P., & Di Renzo, L. (2019). Why primary obesity is a disease?. *Journal of Translational Medicine*, 17(1), 169. doi: [10.1186/s12967-019-1919-y](https://doi.org/10.1186/s12967-019-1919-y).
- De Rubeis, V., Bayat, S., Griffith, L. E., Smith, B. T., & Anderson, L. N. (2019). Validity of self-reported recall of anthropometric measures in early life: A systematic review and meta-analysis. *Obesity*

- Reviews: An Official Journal of the International Association for the Study of Obesity*, 20(10), 1426–1440. doi: [10.1111/obr.12881](https://doi.org/10.1111/obr.12881).
- Drury, C. A., & Louis, M. (2002). Exploring the association between body weight, stigma of obesity, and health care avoidance. *Journal of the American Academy of Nurse Practitioners*, 14(12), 554–561. doi: [10.1111/j.1745-7599.2002.tb00089.x](https://doi.org/10.1111/j.1745-7599.2002.tb00089.x).
- Jane, M., Hagger, M., Foster, J., Ho, S., Kane, R., & Pal, S. (2017). Effects of a weight management program delivered by social media on weight and metabolic syndrome risk factors in overweight and obese adults: A randomised controlled trial. *PLoS One*, 12(6), e0178326. doi: [10.1371/journal.pone.0178326](https://doi.org/10.1371/journal.pone.0178326).
- Jane, M., Hagger, M., Foster, J., Ho, S., & Pal, S. (2018). Social media for health promotion and weight management: A critical debate. *BMC Public Health*, 18(1), 932. doi: [10.1186/s12889-018-5837-3](https://doi.org/10.1186/s12889-018-5837-3).
- Kriaucioniene, V., Bagdonaviciene, L., Rodríguez-Pérez, C., & Petkeviciene, J. (2020). Associations between changes in health behaviours and body weight during the COVID-19 quarantine in Lithuania: The Lithuanian COVIDiet study. *Nutrients*, 12(10), 3119. doi: [10.3390/nu12103119](https://doi.org/10.3390/nu12103119).
- Lim, H., Xue, H., & Wang, Y. (2020). *Global trends in obesity. Handbook of eating and drinking: Interdisciplinary perspectives* (pp. 1217–1235). Berlin, Heidelberg: Springer International Publishing.
- Ministry of Health. (2020). Bahrain national health survey 2018. Kingdom of Bahrain. Available at: <https://www.data.gov.bh/en/ResourceCenter/DownloadFile?id=3470>
- Ng, M., Fleming, T., Robinson, M., Thomson, B., Graetz, N., Margono, C., . . . Gakidou, E. (2014). Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: A systematic analysis for the global burden of disease study 2013. *Lancet (London, England)*, 384(9945), 766–781. doi: [10.1016/S0140-6736\(14\)60460-8](https://doi.org/10.1016/S0140-6736(14)60460-8).
- Rayan, K., Dockray, S., & Linehan, C. (2019). A systematic review of tailored eHealth interventions for weight loss. 5, 1–23. Sage Pub. Available from: <https://journals.sagepub.com/doi/10.1177/2055207619826685>
- Shantikumar, S. (2018). Public health action support tea. Health Knowledge. Available from: <https://www.healthknowledge.org.uk>
- Teeriniemi, A. M., Salonurmi, T., Jokelainen, T., Vähänikkilä, H., Alahäivälä, T., Karppinen, P., . . . Savolainen, M. J. (2018). A randomized clinical trial of the effectiveness of a web-based health behaviour change support system and group lifestyle counselling on body weight loss in overweight and obese subjects: 2-year outcomes. *Journal of Internal Medicine*, 284(5), 534–545. doi: [10.1111/joim.12802](https://doi.org/10.1111/joim.12802).
- Varkevisser, R., van Stralen, M. M., Kroeze, W., Ket, J., & Steenhuis, I. (2019). Determinants of weight loss maintenance: A systematic review. *Obesity Reviews: An Official Journal of the International Association for the Study of Obesity*, 20(2), 171–211. doi: [10.1111/obr.12772](https://doi.org/10.1111/obr.12772).
- Wadden, T. A., Tronieri, J. S., & Butryn, M. L. (2020). Lifestyle modification approaches for the treatment of obesity in adults. *The American Psychologist*, 75(2), 235–251. doi: [10.1037/amp0000517](https://doi.org/10.1037/amp0000517).
- World Health Organization Obesity and overweight (2016). Obesity and overweight. Available from: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>
- World Health Organization Obesity and overweight (2019). Obesity and overweight. Available from: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>
- World Health Organization Regional Office for the Eastern Mediterranean (2020). Obesity. Available from: <http://www.emro.who.int/health-topics/obesity/>
- Wu, Y. K., & Berry, D. C. (2018). Impact of weight stigma on physiological and psychological health outcomes for overweight and obese adults: A systematic review. *Journal of Advanced Nursing*, 74(5), 1030–1042. doi: [10.1111/jan.13511](https://doi.org/10.1111/jan.13511).

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