Research Article

Internet And WhatsApp for Health Education in The Obesity Prevention Program

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Abstract:

Background: Obesity is a worldwide health issue leading to various comorbidities, that can be potentially life-threatening. Recently, with modern means of technology like WhatsApp and the internet, a vast source of information on public health and problems is accessible to all..

Aim: This study aims to analyze the effect of these approaches in an individual's daily life, and to see whether they have any role in the prevention of obesity or not.

Method: An intervention-based study was carried out among the MBBS students of King Edward Medical University, Lahore (n= 201) in a period of two weeks, and their knowledge, nutrition, and physical activity were assessed before and after the intervention. A 2 weeks intervention was done through the use of articles related to obesity prevention and the importance of a balanced diet, ads, different illustrations, videos on YouTube, recommendations of different gyms and fitness clubs, etc. The majority were girls (67.2%) and in-class fourth-year (65.7%). The mean age of students was 22.13(±1.066) with a mean height of 1.65 (±0.076), and a mean weight of 58.99 (±6.96).

Results: The outcome was assessed with a slight difference and an insignificant change in BMI was seen over time. There were, however, significant improvements in health behaviors (walking, sports, screen time, exercise, household chores, healthy eating, junk food intake, and knowledge).

Conclusion: There was good participation and high satisfaction with the program. Internet-based programs hold high appeal for the youth, however, a longer follow-up is required to observe significant results.

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INTRODUCTION:

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health[1,2,3]. The Internet is a global network providing a variety of information and communication facilities consisting of interconnected networks using standardized communication protocols[4]. WhatsApp is a cross-platform instant messaging application that allows smartphone users to exchange text, image, video, and audio messages[5]. Health education is any combination of learning experiences designed to help individuals and communities improve their health, by increasing their knowledge or influencing their attitudes[6]. Prevention Program is a sum of comprehensive and integrated initiatives and strategies that consider risk and protective factors as they occur on the individual, relationship, institutional, community, and societal levels[7].

Obesity has remarkable variation in its prevalence in different regions of the world. However, the rate of obesity is progressively increasing within each country at different rates. According to WHO, 39% of adults above the age of 18 were found to be overweight, out of which 13% were obese[8]. In the US, 36.5% of adults, and 17% of children are obese [8,9]. The cases of obesity and overweight in the United States are increased from 50% to 2/3rd in the last 30 years. Over 50% of adults are diagnosed as overweight and more than one-fifth are obese and the same rates are recorded in the UK and somewhat lower rates in Canada[10]. The use of smartphones and the internet has been proven effective in patient care, monitoring, diagnosis, teaching, research purposes, and creating awareness in the masses about certain diseases like obesity [11,12]. In a research carried out in 2015 on Thai school children, it was found that an internet-based obesity prevention program was effective in modifying anthropometric measures and helped in addressing the rising prevalence of obesity in Thai children[13,14]. In 2014, an internet-based intervention study was carried out in Kuala Lumpur, Singapore, and a small effect in reducing BMI, waist circumference, and body fat percentage was observed [15]. Internet-based e-health programs helped in promoting healthy eating and appeared feasible for adolescent girls as reported in a study in 2008 by Thompson and co[16].

Obesity is more of a global havoc in recent times and Pakistan is no exception to it. According to the Express Tribune, Pakistan has a 9th ranking out of 188 countries regarding obesity prevalence[17]. In Pakistan, it has also been seen that obesity is more common among men with higher and women with lower incomes, in urban areas, and more in less educated women[18]. According to National Health Survey Pakistan, the observed prevalence of obesity in the 25-44year age group in rural areas was 9% for men and 14% for women; in urban areas, the prevalence was 22% for men and 37% for women [19]. According to research made on the Indo-Asian population, the prevalence of obesity and overweight was 25% according to the Asian-specific BMI value of 23kg/m2. The prevalence of obesity is recorded as 2.5 times greater among urban residents than rural residents[20].

Increased BMI is a major risk factor for obesity-related comorbidities like hypertension, diabetes mellitus, cholelithiasis, joint problems, ischemic heart disease and hence leading to increased mortality rates in different parts of the world[21]. Awareness about dietary behaviors is necessity of this age[13]. Given the multifaceted effects of obesity, a detailed and sustained effort is required at the population level to combat obesity prevalence[6]. Therefore, the use of modern tools like the internet and social media becomes very critical in this scientific and ever-progressing age to combat diseases like obesity and their complications.

MATERIALS AND METHODS:

The study is an interventional study. The setting chosen for the study is King Edward Medical University, Lahore. The duration of the study is 3 months. The sample size of 201 students is estimated by using a 95% confidence level, and 6% absolute precision with an expected percentage of 25% (20).

$$n=Z_{1}^{2}\text{-}p/_{2}.p.q/d^{2}$$

where

$Z_{1}\text{-}p/_{2}$= confidence level 95% =1.96

p = prevalence

q = 1-p

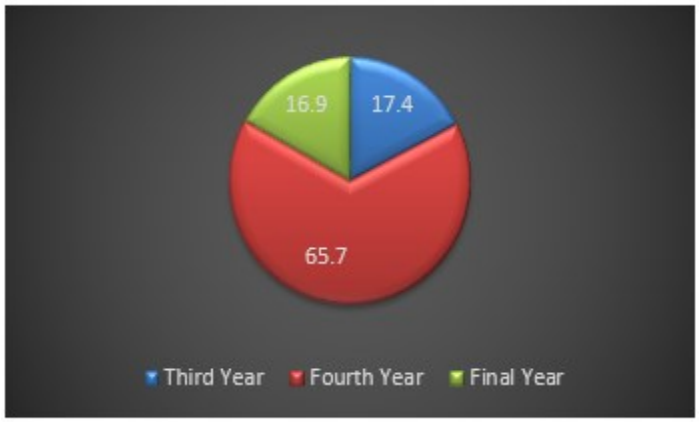
p = absolute precision

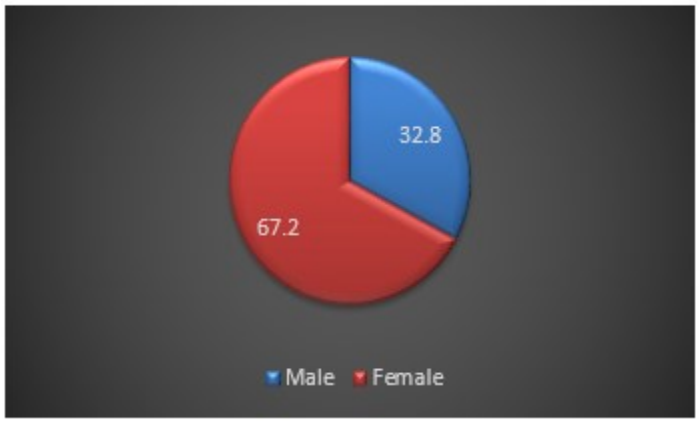
The study will be conducted on the MBBS students of all 5 years in KEMU, Lahore. A simple random sampling technique will be employed to get effective results. All the students studying MBBS in KEMU, Lahore are included in the research. Everyone except MBBS students of KEMU, Lahore is excluded. The data collection tool will be closeended questionnaires

Questionnaire responses were descriptively analyzed using SPSS (version 21). For each question, summaries of key points in the form of frequencies and percentages were calculated. Quantitative variables like weight will be presented as mean ± SD. Qualitative variables like gender, and physical activity will be presented as frequency and percentages.

RESULTS:

Recruitment for the study started in July 2018 and ended in September 2018. 201 students of different classes at King Edward Medical University were enrolled in this interventional study. All these individuals had access to the Internet and WhatsApp. Out of 201 students, 17.4% participated from 3rd year, 65.7% from 4th year, and 16.9% from the final year. Out of 201 participants, 66 were males and 135 were females.





Before the intervention, the average weight was 58.98 kg which was slightly reduced to 58.72 kg after the intervention.

	N	Mean	Std. Deviation
Age (Years)	201	22.13	1.066
Height Before (Meters)	201	1.6533	.07623
Height After (Meters)	201	1.6533	.07623
Weight Before (Kg)	201	58.985	6.9584
Weight After (Kg)	201	58.729	6.8782
Valid N (list-wise)	201		

Factors that have affected BMI include physical activity, exercise, and junk food.

Before the intervention, 26.9% were not spending time in walking but this figure has markedly decreased to 10.0%. 50.2% of people were spending time walking for less than 30 minutes before intervention. But after the intervention, 58.7% of people started spending time walking. 16% more people have started spending time in exercise after the intervention. 16.4% of people before and 24.4% after the intervention started spending time in sports for less than 30 minutes.

	Less than 30 minutes	30-45 minutes	45-60 minutes	More than 1 hour	Not at all
	Row N %	Row N %	Row N %	Row N %	Row N %
Time spent Walking (Before)	50.2%	18.9%	4.0%	0.0%	26.9%
Time spent Walking (After)	58.7%	26.4%	1.5%	3.5%	10.0%
Time spent in Sports (Before)	16.4%	25.9%	0.5%	0.5%	56.7%
Time spent in Sports (After)	24.4%	24.4%	1.0%	4.0%	46.3%
Time spent Sitting (Before)	0.0%	16.4%	13.9%	69.7%	0.0%
Time spent Sitting (After)	0.5%	16.4%	14.4%	68.7%	0.0%
Time spent in Exercise (Before)	29.4%	17.9%	2.0%	0.0%	50.7%
Time spent in Exercise (After)	39.3%	22.4%	3.0%	0.5%	34.8%
Time spent on household chores (Before)	28.4%	21.9%	16.4%	2.5%	30.8%
Time spent on household chores (After)	36.3%	28.4%	15.4%	2.5%	17.4%

Changing dietary habits also brought a slight change in the BMI of participants.

58.7% of people were taking fruits before intervention. But after undergoing intervention, 65.2% of people started taking fruits daily. 17.9% were taking junk food before the intervention but this figure has reduced to 9.5% after the intervention.

	Not at all	Daily	Once a week	Twice a week	Occasionally
	Row N %	Row N %	Row N %	Row N %	Row N %
Bread and Cereals (Before)	0.5%	97.0%	2.0%	0.5%	0.0%
Bread and Cereals (After)	0.0%	99.5%	0.5%	0.0%	0.0%
Fruits (Before)	3.5%	58.7%	3.5%	16.4%	17.9%
Fruits (After)	3.0%	65.2%	3.5%	14.4%	13.9%
Vegetables (Before)	3.5%	46.8%	24.9%	24.4%	0.5%
Vegetables (After)	0.0%	48.3%	19.9%	27.9%	4.0%
Dairy Products (Before)	0.0%	61.2%	9.0%	12.9%	16.9%
Dairy Products (Before)	0.5%	56.7%	15.4%	12.4%	14.9%
Meat (Before)	0.0%	25.9%	34.3%	38.8%	1.0%
Meat (After)	0.0%	29.4%	36.3%	30.3%	4.0%
Fats (Before)	0.0%	62.2%	16.4%	15.9%	5.5%
Fats (After)	0.5%	38.8%	24.9%	24.4%	11.4%
Junk Food (Before)	0.5%	17.9%	31.3%	24.4%	25.9%
Junk Food (After)	0.5%	9.5%	33.8%	16.9%	39.3%

Before the intervention, 71.6% of people agreed that health-related regimens available on the Internet were helpful. This percentage increased to 75.6% after the intervention.

There was an increment of 3.5% of people who started thinking that the effectiveness of the Internet for obesity prevention was better than traditional methods.

There were only 2% of people who witnessed any obesity prevention program before intervention. But this figure was increased to 18.9% after the intervention was applied.

	Strongly agree	Agree	Not sure	Disagree	Strongly Disagree
	Row N %	Row N %	Row N %	Row N %	Row N %
Health-related regimens available on the internet are quite helpful in controlling obesity (Before)	6.5%	71.6%	21.9%	0.0%	0.0%
Health-related regimens available on the internet are quite helpful in controlling obesity (After)	7.0%	75.6%	17.4%	0.0%	0.0%
The effectiveness of the Internet for health promotion is better than traditional methods (Before)	5.0%	75.1%	19.9%	0.0%	0.0%
The effectiveness of the Internet for health promotion is better than traditional methods (After)	8.5%	74.6%	16.9%	0.0%	0.0%
Do you consider yourself informed concerning the current health facts about obesity via the internet (Before)	3.0%	71.6%	25.4%	0.0%	0.0%
Do you consider yourself informed concerning the current health facts about obesity via the internet (After)	13.9%	69.7%	16.4%	0.0%	0.0%
Surfing the internet for entertainment purposes is more frequent than for health purposes (Before)	30.3%	52.2%	16.9%	0.5%	0.0%
Surfing the internet for entertainment purposes is more frequent than for health purposes (After)	32.3%	53.2%	14.4%	0.0%	0.0%
Have you witnessed any obesity prevention programs on the internet (Before)	2.0%	52.7%	45.3%	0.0%	0.0%
Have you witnessed any obesity prevention programs on the internet (After)	18.9%	70.1%	10.9%	0.0%	0.0%

DISCUSSION:

The purpose of the study is to find out the role of the Internet and WhatsApp in obesity prevention programs. A 2 weeks interventional study has revealed that people are intrigued by the idea of the use of the Internet to reduce obesity and improve physical activity, however, a limited time frame has reduced the chances of any significant changes in the outcome measures of obesity and BMI.

Over the years, dozens of research articles have been written about obesity prevention through the Internet and social media use. It has been studied that school-based internet prevention programs are appealing to adolescents and have ensured high participation and satisfaction[10]. In 2014, an internet-based intervention study was carried out in Kuala Lumpur, Singapore, and a small effect in reducing BMI, waist circumference, and body fat percentage was observed [15].

Internet-based e-health programs helped in promoting healthy eating and appeared feasible for adolescent girls as reported in a study in 2008 by Thompson and co [16]. However, there were researches in which there were no significant differences between control and interventional groups. The results of these internet-based prevention programs are subjected to gender differences, such that girls have higher participation and better outcomes as compared to boys [10].

Having seen how effective these studies have been in preventing obesity, there were certain limitations to them. Internet and WhatsApp usage have some disadvantages. It is not very cost-efficient and has space limits. It was seen in most of the research, the study was limited to school-going children and primarily adolescents only [10, 15]. Limited sample size also makes it difficult to analyze data with accuracy as results can't be generalized because of socioeconomic differences [15]. Another thing to be taken into consideration is the participation level of people and the intrinsic factors affecting participation i.e. academic performance, learning styles, and motivation levels [10].

This study is helpful in enhancing the knowledge of the population about obesity prevention and changing lifestyles to overcome obesity through the Internet and WhatsApp. This study is a gateway for other researchers to execute their studies on other prevalent diseases and health problems. This study has certain limitations of increased time duration for follow-up, and observational biases may be present.

CONCLUSION:

This study highlights that the outcome was computed without any drastic difference. However, a slight difference was observed in the lifestyle of people like physical activity, and dietary habits. But, for long-term and measurable changes to occur, we need a longer time frame for follow-up. Internet and WhatsApp can serve as a dispersible method for improving health and preventing obesity by developing a convenient and accessible method for increasing healthy lifestyle behaviors.

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This published article reports data based on a modified response scale for the Jefferson Scale of Empathy (JSE) without advance permission from the copyright holder, Thomas Jefferson University. The standard validated JSE response scale ranges from 1 (strongly disagree) to 7 (strongly agree). The modified scale used in this study ranged from 1 (strongly disagree) to 5 (strongly agree). Caution should be exercised when interpreting the results, as unauthorized alterations may impact validity and reliability. The authors recognize the importance of adhering to instrument licensing conditions for the JSE.

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