RESEARCH ARTICLE

EFFECTIVENESS OF OBESITY PREVENTION CAMPAIGN (OPC) AMONG ADOLESCENTS

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Abstract

Despite the existing campaigns on obesity prevention, there's still high incidence which can lead to complications. This study determined the effectiveness of obesity prevention campaign (OPC) among adolescents, and the difference according to sex and groups. A quasi-experimental time-series design was used. The participants were 56 Grade 7 high school students from Baguio City, randomly chosen through one-stage cluster sampling, assigned in the interventions groups, assessed using a self-made questionnaire, introduced with OPC and reassessed for three weeks. Frequency percentages and Chi-square were utilized. The brochure plus health teaching is an effective OPC. There is a significant difference in BMI according to sex of the adolescents. The OPC yielded effective results in the physical aspects for both groups. Repeated campaign can produce a successful effect in preventing obesity among adolescents. Utilization of either the brochure alone or brochure with health teaching is enough to create a successful change.

Introduction

The World Health Organization (WHO 2016) defines obesity as the fatness level sufficient to increase risk of morbidity and mortality considering it as a serious problem. In 2013, the American Medicine Association (AMA) has formally classified obesity as a disease that increases the risk of many chronic and lethal diseases, with more studies establishing a relationship between obesity, chronic illness and disability.

Obesity is prevalent in the whole world. Statistics reported that there are over 500 million obese individuals and approximately 1.4 billion overweight individuals around the world (Arikan, 2014). The World Health Organization (WHO, 2016) states that obesity is also prevalent in every age group that includes children and that overweight and obese child are more likely to stay obese into their adulthood, and more likely to develop non-communicable diseases at a younger age increasing the worldwide incidence of obese children and adolescents. Llewellyn C, Trzaskowski, Plomin, & Wardle (2013) further states that obesity is prevalent in the growing years of a person.

The 2011 Global School-based Health Survey indicated that about 13% of adolescents in the Philippines are overweight and obese. The number of obese children and adolescents has also been on the rise in the country and internationally over the last decade. Locally, Cruz, et al. (2009), found out that the incidence of overweight and obesity among children in Baguio City is slightly higher than the national average in 2003, and highest among males within the age group of 13-17 years.

Whittenmore, et al. (2013) also states that it is in the adolescent period that school based-prevention programs are appropriate for adolescents at risk for overweight and obesity as well as engage adolescents in learning strategies to improve health behaviors. The youngest school population are more capable in behavioral changes and they are more receptive to intervention, capable of hypothetical and deductive reasoning and are able to think about abstract concepts (Piaget, 1936). In contrast, Guerra, et al. (2013) concluded that school-based intervention program preventing obesity did not have a statistically significant effect among adolescents.

There are, however, efforts by local, national and international health organizations in the hope of preventing obesity. These obesity prevention campaigns are being introduced religiously, in

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communities and even schools, such as the posters on healthy eating by the Food and Drug Administration and the DOH, however, its effectiveness still have not been highly successful as fast food and prepared foods are a part of life in 2016. There is no reported post-evaluation of this Obesity Prevention Campaign (OPC).

Several strategies are being used as OPCs. Whittingham et al. (2007) found out that the use of brochures as an OPC elicited higher scores on obesity prevention knowledge, underscoring the importance of theory in the design of health education brochures. However, there is lack of studies supporting the use of other information guides or campaigns as effective tools, necessitating the need to further strategize to decrease the prevalence of obesity among adolescents. Therefore, the researchers would like to determine the effectiveness of OPC in the form of brochure and health teaching and its significance difference in its effectiveness according to the sex and groups.

The study made use of the concepts of health promotion, health behavior, and illness prevention. Nola J. Pender defined **health promotion "as an approach to wellness;** a behavior motivated by the desire to increase well-being and actualize human health potential." She also described illness prevention as "behavior motivated desire to actively avoid illness, detect it early, or maintain functioning within the constraints of illness" so as to minimize the burden of obesity and its association with the significant increase for risk of more than 20 chronic diseases and health conditions that cause devastating consequences and increased mortality (George Washington University School of Public Health and Health Services 2000).

The findings of the study served as a basis for formulating obesity prevention activities to be integrated in the high school curriculum particularly in the health subjects such as nutrition class and physical education and basis for health workers in providing information to clients. The OPC can also serve as a guide for community health teachings regarding obesity prevention. DOH and DepEd can use the brochure or use it as a basis in making obesity prevention material such as providing a pdf file online that is accessible for adolescents to download for free.

Methods

The researchers utilized a quasi-experimental time-series design. The participants were 56 Grade 7 high school students from a selected middle school in Baguio City, randomly chosen through one-stage cluster sampling, All the students received the interventions, but only the 24 and 32 randomly assigned to the brochure plus health teaching group and brochure only group respectively were considered as participants. The participants included (a) normal, overweight, or obese in BMI, (b) grade 7 students who lives in Baguio City for at least 6 months. Exclusion criteria include: (a) with present illness prescribed with a specific diet, (b) with metabolic disorder, (c) an athlete, (d) taking in laxatives purposively and induces vomiting, (e) with no parent consent.

A self-made questionnaire based on a tool used by Ayala GX, Baquero et al. (2012) on a National Collaboration on Childhood Obesity Research Organization, with CVI of 1, was the study's main data gathering tool. Part 1 of the questionnaire asked for the sex of the subject, current BMI and the WHR. Part 2 contains statements related to obesity prevention such as dietary habits, physical activities, family support, expectations, and body image.

Interventions done are as follows:

Brochure:

A self-made brochure was utilized as an information guide containing the definition of obesity, its prevalence among adolescents, obesity prevention tips such as proper eating habits, physical activities and the importance of family support. It also showed the proper way to get and compute the body mass index and waist-hip ratio with their interpretations. Brochure had undergone administrability testing where in 6 randomly selected Grade-7 students which were 10% of the total population, who were not part of the actual study, were given the brochure and was asked to comment as to understandability of the brochure. They had observed for grammar, design, and understandability and the overall impact of the material. Comments were written personally on a comment form that was provided by the researcher. It was also further evaluated by the above mentioned experts.

Brochure plus Health Teaching

Alongside with the self-made brochure, health teaching was provided to group A for 30 minutes. Containing the definition of obesity, prevention tips, what to eat, food preparation tips, BMI classification, Waist and hip ratio, ideal body weight, body image, and causes of obesity. The researchers started by citing statistical trivia about obesity and then continued to discuss the following topics stated above. The researchers answered and clarified the questions of the participants regarding the contents of the brochure.

Endorsement was presented to the DepEd educational head and to the principal for the approval to conduct the study. Explanation of the study objectives were done, then potential participants were given assent forms and consent forms for their parents. The research study was approved by the Ethics Review Committee of Saint Louis University. Contract setting and scheduling was done after the participants were screened for inclusion and exclusion criteria. As Pre-test, the researchers obtained the BMI and the WHR of the participants of the two groups. The questionnaire was administered. After one hour, group A received the brochure plus health teaching while the group B

received the brochure. A weekly post-measurement was done after each same intervention for three weeks.

Descriptive statistics was used to determine the effectiveness of the OPC among adolescents. Results of the pretest and the posttest were compared. All post-test measurements in the three week periods were averaged. In the pretest period, normal and abnormal findings were noted. Such that in determining effectiveness of OPC, effective (successful) and not effective (not successful) frequencies and percentages were used. Specifically,

a. the OPC is **effective** in BMI when a). Normal pretest with a normal post-test result, b). Underweight pretest with an **increased** towards normal result, and c). Overweight pretest decreasing towards normal post-test result. The opposite means that the OPC is not effective in the BMI .

Classification of BMI	**BMI (kg/m^2)**
Underweight	<18.50
Normal Range	18.50-24.99
Overweight	> or = 25
Obese	> or = 30
Obese Class I	30- 34.99
Obese Class II	35- 39.99
Obese Class III	> or = 40.400

b. the OPC is **effective** in terms of the WHR when a). Normal pretest with a normal post-test result, b). Low pretest with an **increased** towards normal result, and c). High pretest with a decreasing towards normal post-test result. The opposite means that the OPC in the WHR is not effective.

*According to the Centers for Disease Control and Prevention (CDC): For men, a ratio of 1 or less is considered safe. For women, a ratio of 0.80 or less is considered safe.

c. the OPC is **effective** in terms of the behavioral aspects when there is an **increasing** number of **correct responses** in the questionnaire. The opposite means that the OPC is not effectiveness in the behavioral aspect.

***Behavioral aspects were categorized into:**

Dietary Habits (increased number of correct responses towards compliance to a healthy diet)

Physical Activity (increased number of correct responses towards compliance to physical exercise)

Family Support (increased number of responses regarding family's help in engaging the adolescent towards obesity prevention practices)

Expectation (increased number of correct responses towards realistic expectations of the adolescent's as he/she engages in obesity prevention practices)

Body Image (increased number of correct responses towards a positive body image as the adolescent engage in obesity prevention practices)

The chi-square statistics was used to determine the significant difference in the effectiveness of obesity prevention campaign according to sex and group assignment of the participants.

Results and Discussion

Effectiveness of Obesity Prevention Campaign (OPC) among Adolescents

The OPC is effective in the BMI and WHR of the participants that can be attributed to their level of physical activity and normal adolescent metabolism. The adolescent participants in the study attend Physical Education classes wherein they are required and expected to get involved in sports and dances as part of their curriculum. As claimed by Lavelle, H. (2012), there is growing evidence that school-based interventions that contain a physical activity component may be effective in helping to reduce BMI in children.

Table 1. Frequency and percentage distribution of the effectiveness of OPC

N=24 **Obesity Prevention Campaign**	**Effective** Freq	%	**Not Effective** Freq	%
Physical Aspect				
Body Mass Index (BMI)	16	66.67	8	33.33
Waist-Hip Ration (WHR)	22	91.67	2	8.33
Behavioral Aspect				
Dietary Habits	12	50.00	12	50.00
Physical Activity	13	54.17	11	45.83
Family Support	12	50.00	12	50.00
Expectation	18	75.00	6	25.00
Body Image	8	33.33	16	66.67

*The OPC is **effective** in BMI when a). Normal pretest with a normal post-test result, b). Underweight pretest with an **increased** towards normal result, and c). Overweight pretest decreasing towards normal post-test result. The opposite means that the OPC is not effective in the BMI.

The OPC is also effective in terms of the behavioral aspect particularly expectation and physical activity, which can be explained by motivation, self-efficacy, and self-regulation. These are psychological and behavior aspects considered as the best predictors of beneficial weight and physical activity outcomes (BMC Medicine 2015). The creation of a goal as motivation (Bandura, 2001), and the way to behave may depend on expected outcomes, strengthen expectation and personal effectiveness, therefore, adolescent's perception of being fit, the desire to be physically fit is a motivation that affects self-

expectation, and acting it out through increasing physical activity. Adolescents can also learn from peers or social environment, and through observation of others' behavior, attitude and outcomes of behavior, they are motivated to engage more in physical activities to be accepted in their genre.

Findings also imply that the use of the brochure plus health teaching which is a means of personal interaction can contribute to a favorable change in the physical as well as the behavior aspects of the adolescents. The researchers used repetition in motivating the participants to aim for positive outcomes. Weibell C. 2011 suggests that repetition, which is one principle of learning, could shape an individual's behavior since it is parallel in cognitive learning theory through repeated presentations and reviews. The results may be attributed to the fact that through health teaching and repeated use of the brochure, there is an increase in knowledge and increase in motivation of the part of the participants that positively affects the behavioral outcomes. The more frequent the repetition meaning the more the participants are being exposed to the researcher's interventions results to a higher positive outcomes since the participants are being reminded more often through the health teachings given which the researchers have done during the visit every week.

Moreover, the expectation, which is highest in effectiveness in the behavioral aspect, can be associated with the negative body image. Adolescents become more conscious about their body due to the factors mentioned. More likely physical attractiveness is one of the causes in the involvement to physical activities. Social media peers and family again influence this perception. Body weight, and perceived body weight strongly influences the self-concept. Hence, adolescents are involved and participate in physical activities (O'dea, et al., 2010).

Nurses can use repetition of information about healthy lifestyle habits to prevent the progression to other more complicated diseases such as cardiac illnesses. As early as adolescence, the stage where they get more aware of themselves, health promotion (which is a primary responsibility of nurses) may have significantly affected their behavioral change through increasing the knowledge and awareness. The health care team will most likely educate patients through verbal communications (Paul S, 2008). However, patients will most likely forget these health teachings (Hoffman T. et al., 2012). Therefore, it is important to consistently reiterate the health teachings given to make it more effective and be supplemented by a brochure where they can easily glean this information when being forgotten, as what was done in this study

It must be emphasized that schools can be a good setting for the promotion of healthy lifestyle and healthy practices that will prevent adolescents from having illnesses in the future as they spend much of their time in this environment. The school environment is an opportunity to educate students on healthy living (Jacobs J. 2013), thus it can be implied that the use of brochure on OPC plus health teaching in school environment contribute to the improvement of dietary habits, physical activity, family support, self-expectation, BMI and WHR with constant repetition. Veugelers P. et al., 2005; Mahmood S. et al., 2014 confirm that school-based intervention programs are effective in obesity prevention. The Robert Wood Johnson Foundation found school-based physical activity and nutrition programs alone cannot prevent obesity but such programs can cultivate long-term healthy habits among children and adolescents, contributing significantly to prevention (RWJF, 2003).

Significant Difference in the Effectiveness of OPC According to Sex of the Adolescents

It is seen from table 2 that the OPC (brochure plus health teaching) is effective in the physical aspect specifically the Body Mass Index (BMI) with females (87.5%) compared to the males (25%). It is noted that among males, the OPC is effective in terms of the WHR (100%), and not effective among the females (93.75%). It is also noted that along behavioral aspects, the OPC is not effective specifically in terms of physical activities and body image among the males. Among the females, physical activity (62.50%) is effective. Statistically, there is a significant difference in the BMI results according to the sex of the adolescents, and no significant difference in the WHR and behavioral aspects results as shown by Chi-square computations.

Table 2. Significant Difference in the Effectiveness of OPC according to Sex of the Adolescents

N=24

Obesity Prevention Campaign	**Male (n=8)**		**Female (n=16)**		**Chi-square**	p-value	
	Effective	Not Effective	Effective	Not Effective			
	F %	F %	F %	F %			
Physical							
BMI	2 (25)	6 (75)	14 (87.5)	2 (12.5)	**9.375**	0.0022	S
WHR	8 (100)	0 (00)	15 (93.75)	1 (6.25)	**0.2727**	0.6015	NS
Behavioral Aspects							
Dietary Habits	4 (50.00)	4 (50.)	8 (50)	8 (50.00)	**0.0000**	1.0000	NS
Physical Act	3 (37.50)	5 (62.5)	10 (62.5)	6 (37.50)	**1.3427**	0.2465	NS
Family Support	4 (50.00)	4 (50)	8 (50)	8 (50.00)	**0.0000**	1.0000	NS
Expectation	6 (75)	2 (25)	12 (75)	4 (25)	**0.0000**	1.0000	NS

*The OPC is **effective** in terms of the WHR when a). Normal pretest with a normal post-test result, b). Low pretest with an **increased** towards normal result, and c). High pretest with a decreasing towards normal post-test result. The opposite means that the OPC in the WHR is not effective. The chi-square statistics was used to determine the significant difference in the effectiveness of obesity prevention campaign according to sex of the participants.

The Chi square computed value for BMI is 9.375, with a p= 0.0022, showing that there is a significant difference in the effectiveness of OPC where it is effective for females and not effective for males, thus the effectiveness of OPC in terms of BMI is associated with the sex of the adolescents. The significant difference of the results can be explained by the adolescents' struggle to discover their identities will try to "fit in" to social expectations (Erickson, 1959). Females tend to become more interested in losing weight, and the males aim to be more muscular. According to a study commissioned by Nickelodeon UK, with the females experiencing puberty, and maturing ahead of males, females feel the need to be socially desirable, thus they attempt to have slim figures and be conscious about their physical appearance. Hazzaa, et al. (2014), and Park, et al. (2011), share that it is likely that adolescent girls at this age might be more concerned with their physical appearance and would probably desire a slim body than boys, and Daniels (2000) further states that BMI was significantly and positively correlated with age, stage of maturation, and all of the anthropometric variables in each race-sex group.

Statistically, there is no significant difference in effectiveness of OPC in terms of WHR according to sex of the adolescents. The result on males is more positive than females since females have higher fat deposits in the body than in males, which is noticeable as early as age 3, and defined at the age of 5 or 6 thus it is easier identify gender differences based on the WHR of a female from that of the male (Kohlberg, 1969). Klimek-Piotrouska et al. (2015) share same results that WHR is considerably higher in males than in females and contradicting the results in the study of Sabageh (2013), done in Osun State, Nigeria where WHR yielded a higher prevalence for obesity with remarkable difference especially among females.

Statistically, chi-square computation show no significant difference with a p value=1 greater than p=0.05, which means that the effectiveness of the OPC in terms of the dietary habits is the same for both males and females. As Zofiran, et al. (2011) share, adolescents are into the habit of going to convenient stores which have junk foods and ready to eat foods, because of some reason such as lack of time cooking at their house.

There is also no significant difference in the effectiveness of OPC in the physical activity according to sex. The result can be attributed to the fact that both male and female adolescents of the present time are becoming less active due to their focused attention on the use of gadgets and technology where they spend much time playing with the gadgets than engaging in exercises. Thomas (2011) conforms to this attitude of adolescents when he found out that children in Britain would be sitting in front of the television or computer screen for 4½ hours per day than the hours they spend exercising for the week.

Furthermore, chi-square computation on family support shows no significant difference on both sex. According to the Attachment Theory by Bowlby and Ainsworth (1958): having consistent, loving parents or significant reliable caregivers allows development of trust foundation and attachment; therefore, family support is very significant on child's behavior and that can be related to the occurrence of change in them. Thus the findings imply that both male and female adolescent behaviors are influenced by their parents or family.

The results for Expectations were non-significant on both sexes. There are expectations from today's society on how a person should look – these expectations are not necessarily the healthiest (for girls), and/or easily achievable (for boys). Society dictates that "thin" girls are preferable than "thick" girls, while "muscular" boys are favored compared to "scrawny" boys. Barry, et al. (2013) and Pétré, et al. (2016) stated that females are more concerned with losing weight than males causing females to be more susceptible to body image dissatisfaction.

The data for Body Image were also non-significant on both sexes. Societal expectations also have an effect on an individual's body image by setting unrealistic expectations. An individual could be content with himself/herself, but society could contradict that perception. Girls who lived in cultures where prevalence of obesity/overweight was relatively low were more likely to be dissatisfied with their body. This is consistent with the notion that Western appearance-related ideals have greatest impact in communities where individuals, on average, are closer to the ideal (Mellor et al., 2012). Obesity can be a possible explanation for such dissatisfaction, aside from Western ideals. A study by Coelho et al. (2016) stated that adolescents that are considered obese are more at risk for body dissatisfaction compared to adolescents that have normal weight.

Significant Difference in the Effectiveness of OPC between the Experimental and Control Groups

It is shown in table 3 that the OPC yielded effective results in the physical aspects for both groups, and majority in their behavioral aspects with the exception of the body image where the OPC is not effective. Statistically, chi-square computations yielded a significant difference in the effectiveness of the OPC in terms of the WHR and expectation of the groups.

In terms of the physical aspect, the OPC utilized yielded a significant result in the WHR and not significant in the BMI. A change in the BMI is visible within two weeks of an intervention for obesity prevention. The use of brochure plus health teaching yielded effective results (please refer to table 1) and a comparison with using brochure only show effective results too, therefore regardless of the OPC intervention used, the effect in the BMI is the same for both groups.

Table 3. Significant Difference in the Effectiveness of OPC according to Groups

Obesity Prevention Campaign Teaching (N=24)	Group A: Brochure + Health Brochure				Group B: Only (N=32)				Chi-square	P value	
	Effective		Not Effective		Effective		Not Effective				
	F	%	F	%	F	%	F	%			
Physical Aspect											
BMI	15	(62.5)	9	(37.5)	20	(62.50)	12	(37.50)	0.0000	1.0000	NS
WHR	22	(91.66)	2	(8.33)	22	(68.75)	10	(31.25)	4.2778	0.03861	S
Behavioral Aspects											
Dietary Habits	12	(50.00)	12	(50.00)	9	(28.125)	23	(71.875)	2.8000	0.0943	NS
Physical Act	13	(54.16)	11	(45.83)	12	(37.50)	20	(62.50)	1.5415	0.2144	NS
Family Support	12	(50.00)	12	(50.00)	12	(37.50)	20	(62.50)	0.875	0.3495	NS
Expectation	18	(75.00)	6	(25.00)	11	(34.375)	21	(65.625)	9.0651	0.0026	S
Body Image	8	(33.33)	16	(66.66)	13	(40.625	19	(59.375)	0.3111	0.5770	NS

*The OPC is effective in terms of the behavioral aspects when there is an increasing number of correct responses in the questionnaire. The opposite means that the OPC is not effectiveness in the behavioral aspect. The chi-square statistics was used to determine the significant difference in the effectiveness of obesity prevention campaign according group assignment of the participants.

It is noted that in the three weeks period of the OPC intervention, BMI changed towards a positive result. There is a significant difference in the effectiveness of the OPC intervention utilized in terms of the WHR, with higher percentage of effective results in the brochure plus health teaching group. The personal interaction and the reiteration of the undesirable WHR measurements leading to a high risk of having heart disease and other problems associated with being overweight may have helped in the positive results.

The use of health teachings together with the brochure in the experimental group can be explained in the theory of Paivio called the dual code theory, he stated that there are two cognitive subsystems that process information, and they are, verbal and visual system. This theory states that the person who reads will be able to construct an association between the two systems when the corresponding text and picture are in the working memory at the same time. This can be seen in our study wherein the Experimental group were informed on the importance of healthy food choices, maintain a normal BMI, integrating Physical Activity etc. images were included in the brochure. Even so, the reasons why nurses could be well placed to promote health and facilitate self-care are that parents and teachers are often seen as authority figures, whereas nurses are seen as independent health professionals (Cohen, 1994). Nurses are also well equipped and already prepared with the knowledge base for both the content and process of health education. Thus, not only is their knowledge of the behavioural, biological, and nursing sciences helpful in teaching, but nurses are also able to design learning packages that account for the entry level of the learner and style of teaching needed for this age group (Redman, 1993).

The Expectation aspect was significant (9.0651) with a p value of .002605 in our OPC research. Through OPC, expectation levels were increased and that adolescents with higher life expectations decrease health risk factors in young adulthood. Furthermore parental education plays an important role, but still independent expectations are greater predictors of perceived life chances as well as health behaviors. It also has an important role in establishing individual trajectories of health, and in contributing to social gradients in population health (McDade, et al., 2011).

For the dietary habits, the computed chi square value was not significant. Through repetition in the experimental group, it has shown a better result. Which the experimental group have brochure plus health teaching while in the control group they only have brochure only. The brochure was emphasized through health teaching and with the help of visual effects. According to Cerin, Barnett, & Baranowski, 2009; Rinderknecht & Smith, 2004, the most commonly used theory in interventions to promote healthy eating among adolescents is Socio Cognitive Theory by Albert Bandura. The adolescents tend to consume high intake of fatty foods and carbohydrates and fewer intakes of fruits and vegetable. As the individual enters adolescence their dietary habits tends to become unhealthier (Rasmussen et al., 2006, Vereercken, et al., 2005).

The computed chi squared value for the physical activity was non-significant. This may be due to the vital role of schools in preventing obesity since grade 7 students are mandated to attend their PE classes. PE classes included learning about the importance of physical activity and healthy eating. Since they already have an existing knowledge on such topics, new information added can improve how they process what they

learned (Centers for disease control and prevention 2017). According to Bester. et al. (2016) for the students, it may seem that increasing their physical activity helps with achieving their body shape and size, but are teased for typically doing things skinny people are seen doing. Schools – Educating in nutrition and physical activity is used positively when influencing students since it is included in their curriculum (i.e. MAPEH).

The weight status of youth (i.e. overweight and obese) is strongly connected to body image. Studies suggest that the impact on body image are long term such that greater BMI during adolescence strongly predicts body dissatisfaction in young adulthood. The association between weight status (objective or perceived) and body image is relatively consistent in the literature, the varied psychological factors that contribute to that relationship provide a more complex picture. Internalization, the degree to which someone adopts a sociocultural body ideal as his or her own seems to be a particularly salient psychological factor in weight status- body image relationship. (Lawler and Nixon et al., 2011) in a study that included 111 boys and 129 girls between the ages of 12-19 also supported internalization as a key construct. Internalization, along with appearance criticism and conversation with peers accounted for 45.7% of variance in body dissatisfaction over and above BMI. Additionally, Knauss, et al., 2007) reported that internalization of body ideals represented in the media and perceived pressures to conform to those ideals were significant predictors of body dissatisfaction.

Conclusions and Recommendations

Reinforced campaign can produce a successful effect in preventing obesity among adolescents. Sex is not a very important factor in determining the effectiveness of OPC. Utilization of brochure plus health teaching will yield a more successful change. Continue disseminating information about obesity prevention among adolescents. Continue to give teachings to students with the use of visual aids, personal interaction and activities and active participation that would increase attention span and interest of the adolescents such as giving trivia's and examples, doing question and answer and also giving exercise program. Combine new teaching strategies in OPC. Further researches may focus on excluded groups and unaccounted-for factors from this study such as larger sample sizes, longer duration period, higher age ranges, and different teaching strategies. Future studies to consider other variables such as ethnicity, and student perceptions.

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> “The best way to find yourself is to lose yourself in the service of others.”
>
> —Mahatma Ghandi