NIH Public Access
Author Manuscript
J Adolesc Health. Author manuscript; available in PMC 2012 October 1.

Published in final edited form as:
J Adolesc Health. 2011 October ; 49(4): 446–448. doi:10.1016/j.jadohealth.2011.01.020.

Association of web-based weight loss information use with weight reduction behaviors in adolescent women

Tabassum H Laz, MBBS, PhD and **Abbey B Berenson, MD, MMS**
Department of Obstetrics and Gynecology and the Center for Interdisciplinary Research in Women's Health

Abstract

Objectives—To examine the association between seeking weight loss information from the internet and weight loss behaviors.

Methods—A self-administered survey was conducted on 3181 women 16–24 years of age between August 2008 and August 2010. Questions were asked on use of the internet to obtain weight loss information and various weight loss practices. Multivariable logistic regression analyses were performed to examine the association between seeking weight loss information online with practicing these weight loss behaviors.

Results—Thirty-nine percent used the internet to seek weight loss information. Women who obtained weight loss information from the internet were more likely to exercise (Odds ratio (OR) 1.31, 95% confidence interval (CI) 1.07–1.60), use diet pills (OR 4.14, 95% CI 2.93–5.84), laxatives (OR 2.02, 95% CI 1.15–3.54), diuretics (OR 7.89, 95% CI 2.88–21.61), vomit after eating (OR 2.56, 95% CI 1.24–5.30), skip meals (OR 2.77, 95% CI 2.26–3.39), smoke more cigarettes (OR 1.56, 95% CI 1.14–2.14), and stop eating carbohydrates (OR 3.09, 95% CI 1.81–5.26) after adjusting for age, race/ethnicity, body mass index, and education.

Conclusions—Many young women engage in unhealthy weight loss behaviors which they may learn online. Interventions are needed to instruct young women in safe practices to lose weight.

Keywords

adolescent women; Internet use; weight loss information; unhealthy weight loss behavior

Introduction

The number of overweight adolescents has been steadily increasing over the last two decades [1]. As a result of this trend, a substantial number of young Americans need information on how to reduce their weight. One source of information which has been increasing in popularity is the internet [2–4]. Using this technology, individuals can

Correspondence Author: Tabassum Haque Laz MBBS, PhD, Center for Interdisciplinary Research in Women's Health, Department of Obstetrics & Gynecology, University of Texas Medical Branch, Galveston TX 77555-0587, Phone: 409-747-4926, Fax: 409-747-5129 tahaquel@utmb.edu.

Conflict of interest: None

Authors Contribution: **THL** initiated the study idea, analyzed the data, and drafted the manuscript. **ABB** participated in writing the manuscript and approved the final version.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

NIH-PA Author Manuscript
NIH-PA Author Manuscript
NIH-PA Author Manuscript

NIH-PA Author Manuscript

NIH-PA Author Manuscript

NIH-PA Author Manuscript

download data, often at no cost, on weight loss programs, support groups, forums, and products [5].

One potential concern is the accuracy of this information and whether it could lead to unhealthy weight loss behaviors. This concern is supported by Miles et al. [6] finding that information about dieting and related products on the internet was misleading. Another study reported that online advice related to weight loss medications was potentially harmful [7]. Thus, adopting these practices or products could have an adverse effect. However, little is known about the relationship between seeking online weight loss information and actually implementing unhealthy behaviors. We hypothesized that seeking web-based information is associated with weight reduction behaviors among low income adolescent women.

Methods

We conducted a cross sectional survey on health behaviors among women 16–24 years old attending one of five publicly funded reproductive health clinics for a family planning visit between August 2008 and August 2010. A research assistant approached patients deemed eligible in the privacy of the examination room, inviting them to complete a health survey. After obtaining oral informed consent, the research assistant left the room during survey completion, returning to retrieve the instrument from the patient at the conclusion of the examination. To assure that participants completed the survey only once, we maintained a database of those who had previously completed the survey and compared it daily to those appointed for a visit. Those who had previously participated were not approached a second time. All procedures were approved by the university's institutional review board.

The survey contained questions on demographics, internet use to seek weight loss information, and weight loss behaviors. Women were asked "Have you ever used the internet to find ways to lose weight?" Questions on specific behaviors in the last 30 days included those on use of diet pills, powder, or liquids, laxatives, diuretics, induced vomiting, skipping meals, smoking more cigarettes and not eating carbohydrates. Other activities assessed were intake of fruits and vegetables in the previous 24 hours and whether participants exercised or played sports for 30 minutes straight in the last week. Height and weight were obtained from anthropometric data recorded in the medical chart.

Bivariate comparisons were performed to compare those who sought weight loss information online versus those who did not using chi square or Student *t* test, as appropriate. Multivariable logistic regression analyses were performed to compare weight related behaviors of online weight loss information seekers with non-seekers, adjusting for age, race/ethnicity, BMI, and education. All analyses were performed using STATA 10 (Stata Corporation, College Station, TX).

Results

Almost 83% (3181/3835) percent of invited women agreed to participate, yielding 3,181 surveys. However, 126 women who completed only part of the survey did not respond to the questions on internet use to seek weight loss information. The mean age of the 3055 adolescents who participated was 20.8 years (SD = 2.5, range 16–24 years). Overall, 28.7% were non-Hispanic white, 25.6% were African American, 44.9% were Hispanic and 0.8% from other racial/ethnic groups. Of the total, 81.5% used the internet and 38.7% had used it to obtain weight loss information. Twenty-nine percent had practiced at least one unhealthy weight loss behavior during the past 30 days. Women who were obese, white, had completed some college, had a higher income, and worked ≥20 hrs/week were more likely to seek information online on weight loss (Table 1).

NIH-PA Author Manuscript

NIH-PA Author Manuscript

NIH-PA Author Manuscript

No significant differences were observed between online information seekers and non-seekers with regard to eating fruits (50.1% vs. 52.0%, *P*=.320) and vegetables (54.7% vs. 54.4%, *P*=.861). However, weight loss information seekers were significantly more likely to exercise (24.3% vs. 19.2%, *P*=.001)

Multivariable logistic regression analyses showed that women who sought online weight loss information were more likely than those who did not practice unhealthy weight loss behaviors after adjusting for age, race/ethnicity, BMI, and education (Table 2). The odds of engaging in unhealthy weight loss behaviors, such as using diuretics or diet pills, were 8 and 4 times higher respectively while other unhealthy behaviors were over twice as high among the online weight loss information seekers compared to non-seekers. In addition, online weight loss information seekers were 31% more likely to exercise to lose weight.

Discussion

Our finding that 4% of adolescent women had recently purged and 7% used diet pills is a public health concern. This frequency of unhealthy behaviors actually surpasses that reported in some prior investigations [8,9]. For example, one study observed that 4% of students reported purging or using diet pills to lose weight [8] while another observed these behaviors in 7% [9]. In a later study, these investigators also reported a slightly higher prevalence of these unhealthy behaviors than we did [10]. Variation in prevalence was also observed between studies based on a national survey of US high school students conducted in 1999 and 2009 which used the same time frame as our study (past 30 days) [11,12]. The latter study reported an almost similar prevalence of these behaviors like our study. Thus, variations in rates between our study and others are probably due to differences between populations or methodology rather than an increase in prevalence over time.

We observed that adolescents who sought weight loss information online were more likely to engage in unhealthy weight loss behaviors than non-seekers. This is consistent with a prior study on adolescents which observed an association between reading about weight loss in magazines and unhealthy weight loss behaviors [13]. Moreover, the odds of engaging unhealthy weight loss behaviors were much higher than healthy weight loss behaviors such as exercise among online weight loss information seekers compared to non-seekers. Together, these studies provide evidence that obtaining weight loss information from the media may increase the risk of adopting unhealthy weight loss strategies. To prevent poor outcomes associated with these behaviors, clinicians need to inquire about unhealthy behaviors, especially when the patient is obese. In addition, adolescents should be warned that weight loss medications which may be available online can place them at risk for adverse outcomes. Future studies should explore the ultimate impact of internet use on healthy and unhealthy weight loss behaviors using a large cohort of adolescents and follow them for a reasonable amount of time.

Moreover, we observed no differences between online seekers and non-seekers with regard to fruit and vegetable intake. Those who obtained online weight loss information did exercise a little more, but only slightly. This is concerning as it suggests that internet users are not adopting healthy behaviors discussed online. One possible reason is that they had already tried more traditional methods and were seeking new strategies online. However, this is speculative as we did not ask about their reasons for using the internet.

The main strength of our study includes the investigation of various risky weight loss behaviors in a large sample of low-income, ethnically diverse young women who were seeking weight loss information online. Our study also has several limitations. First, participants self-reported their internet use and behaviors. Second, our analyses were based

NIH-PA Author Manuscript

NIH-PA Author Manuscript

NIH-PA Author Manuscript

on one month of behaviors, so we do not know whether they were continued longer. Third, our study was limited to women 16–24 years old. Together, these limitations could impact the overall generalizability of our findings. Our cross-sectional design also prevents us from examining causal relationships or pathways to weight loss behaviors.

In conclusion, we observed that unhealthy weight loss behaviors are commonly practiced by adolescents who seek weight loss information online. This finding is consistent with reports that web-based information on this topic often is not reliable [6,7]. Thus, it is important to develop educational programs to help young women recognize the difference between healthy and unhealthy weight loss strategies and the importance of engaging only in those which will improve their overall well being.

Acknowledgments

Federal support for this study was provided by the Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD) as follows: Dr. Berenson, under a mid-career investigator award in patient-oriented research (K24HD043659, PI: Berenson). Dr. Tabassum Haque Laz, as an NRSA postdoctoral fellow under an institutional training grant (T32HD055163, PI: Berenson). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NICHD or the National Institutes of Health.

References

1. Hedley AA, Ogden CL, Johnson CL, et al. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999–2002. JAMA. 2004; 291:2847–2850. [PubMed: 15199035]
2. Womble LG, Wadden TA, McGuckin BG, et al. A randomized controlled trial of a commercial Internet weight loss program. Obes Res. 2004; 12:1011–1018. [PubMed: 15229342]
3. Tate DF, Jackvony EH, Wing RR. A randomized trial comparing human e-mail counseling, computer-automated tailored counseling, and no counseling in an Internet weight loss program. Arch Intern Med. 2006; 166:1620–1625. [PubMed: 16908795]
4. Fox, S. Health information online. Washington, DC: Pew Internet & American life project; 2005. Available at:http://www.pewinternet.org/Reports/2005/Health-Information-Online.aspx (Retrieved December 5, 2011)
5. Tsai AG, Wadden TA, Womble LG, et al. Commercial and self-help programs for weight control. Psychiatr Clin N Am. 2005; 28:171–192.
6. Miles J, Petrie C, Steel M. Slimming on the Internet. J Royal Soc Med. 2000; 93:254–257.
7. Hwang KO, Farheen K, Johnson CW, et al. Quality of weight loss advice on Internet Forums. Am J Med. 2007; 120:604–609. [PubMed: 17602934]
8. Neumark-Sztainer D, Story M, French DA. Covariations of unhealthy weight loss behaviors and other high-risk behaviors among adolescents. Arch Pediatr Adolesc Med. 1996; 150:304–308. [PubMed: 8603226]
9. Neumark-Sztainer D, Story M, Falkner NH, et al. Sociodemographic and personal characteristics of adolescents engaged in weight loss and weight/muscle gain behaviors: who is doing what? Prev Med. 1999; 28:40–50. [PubMed: 9973587]
10. Neumark-Sztainer D, Story M, Hannan PJ, et al. Weight-related concerns and behaviors among overweight and nonoverweight adolescents. Arch Pediatr Adolesc Med. 2002; 155:171–178. [PubMed: 11814380]
11. Lowry R, Galuska DA, Fulton JE, et al. Weight management goals and practices among U.S. high school students: associations with physical activity, diet, and smoking. J Adolesc Health. 2002; 31:133–144. [PubMed: 12127383]
12. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance- United States, 2009; MMWR. 2010. p. 1-148.Available at: http://www.cdc.gov/mmwr/ss/ss5905.pdf (Retrieved December 5, 2011)
13. Van den Berg P, Neumark-Sztainer D, Hannan PJ, et al. Is dieting advice from magazines helpful or harmful? Five-year associations with weight-control behaviors and psychological outcomes in adolescents. Pediatrics. 2007; 119:e30–e37. [PubMed: 17200254]

NIH-PA Author Manuscript

NIH-PA Author Manuscript

NIH-PA Author Manuscript

NIH-PA Author Manuscript
NIH-PA Author Manuscript
NIH-PA Author Manuscript

Table 1

Demographic characteristics according to weight loss information seeking on the internet

Demographic characteristics	Internet use to seek weight loss information		*P* value*
	Sought (n=1181)	Did not seek (n=1874)	
Age, yr, mean(±SD)	20.9 (2.4)	20.8 (2.5)	.436
Race/ethnicity (%)			
White	382 (32.7)	495 (26.6)	.002
Black	288 (24.6)	494 (26.6)	
Hispanic	500 (42.7)	871 (46.8)	
Marital status (%)			
Never married	710 (60.4)	1092 (58.7)	.129
Living together/currently married	399 (34.0)	687 (36.9)	
Divorced/ separated/widowed	66 (5.6)	83 (4.5)	
Education (%)			
Did not complete HS	145 (12.3)	425 (23.2)	<.001
HS graduate/enrolled in HS	573 (48.6)	1003 (54.8)	
Some college/ college degree	460 (39.1)	404 (22.1)	
Income/year (%)			
< $15,000	591 (54.3)	981 (60.1)	.005
$15,000–$29,999	314 (28.8)	424 (26.0)	
$30,000–$49,999	114 (10.5)	160 (9.8)	
$50,000 and above	70 (6.4)	68 (4.2)	
Work (hours/week) (%)			
Do not work	575 (48.8)	1069 (57.4)	<.001
1–20 hours/week	128 (10.9)	186 (10.0)	
21 hours or more	475 (40.3)	607 (32.6)	
BMI (%)			
Normal weight (<25 kg/m^2)	340 (29.9)	1088 (60.2)	<.001
Overweight (25–29.9 kg/m^2)	322 (28.3)	403 (22.3)	
Obese (>30 kg/m^2)	476 (41.8)	317 (17.5)	

*x^2 test used to compare proportions of given variables between seekers and non-seekers, except age, which used Student's t test for comparison of means.

NIH-PA Author Manuscript NIH-PA Author Manuscript NIH-PA Author Manuscript

Table 2

Odds ratios and confidence limits of weight loss behaviors: online weight loss information seekers Versus non-seekers

weight-loss behaviors	Internet use to seek weight loss information			Odds ratios (95% confidence interval)	*P* value
	Yes (%)	No (%)	Total (%)		
Diet pills/ powder/ liquid use	165 (14.0)	56 (3.0)	221 (7.3)	4.14 (2.93–5.84)	<.001
Laxatives use	36 (3.1)	26 (1.4)	62 (2.0)	2.02 (1.15–3.54)†	.015
Diuretics use	32 (2.7)	7 (0.4)	39 (1.3)	7.89 (2.88–21.61)†	<.001
Vomiting after eating	24 (2.0)	19 (1.0)	43 (1.4)	2.56 (1.24–5.30)†	.011
Skipping meals	383 (32.6)	250 (13.4)	633 (20.9)	2.77 (2.26–3.39)	<.001
Smoking more cigarettes	110 (9.4)	106 (5.7)	216 (7.2)	1.56 (1.14–2.14)	.005
Stopped eating carbohydrates	53 (4.5)	27 (1.5)	80 (2.7)	3.09 (1.81–5.26)	<.001
Any unhealthy behaviors	509 (43.6)	363 (19.8)	872 (29.1)	2.60 (2.17–3.12)	<.001
Exercise (30m/d for at least 3d/wk)	285 (24.3)	356 (19.2)	641 (20.9)	1.31 (1.07–1.60)	.008

Adjusted by age, race/ethnicity, BMI, education and marital status

†Bivariate logistic regression analyses were also performed due to concern about the small cell size in multivariable logistic regression. However, the results were almost similar.