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Relationship between social media use and disordered eating behavior among female university students in Qatar

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Abstract

Introduction: Abundant literature has established the negative impact of traditional media on body image and disordered eating behaviors among young women. In the past few years, social media use has soared especially among youth, yet the influence of social media in relation to disordered eating has not been fully explored. The aim of this study was to assess the relationship between social media use and disordered eating outcomes among young Arab women.
Methods: A cross-sectional study was carried out using a probability sample of 1,418 undergraduate female students living in Qatar, a rapidly developing nation in the Middle East. Popular social media platforms were assessed including Instagram, Snapchat, Facebook, and Twitter. Other covariates assessed included body image, body mass index, and socioeconomic status. To assess the multivariate association between social media (main predictor or exposure variable), and disordered eating as measured by three levels of the 26-item Eating Attitudes Test (EAT-26) (dependent variable), stepwise backward ordinal regression models were fit to the data. Data analysis was performed using Stata 14 software.
Results: Findings confirmed that intensive use of social media, particularly Instagram, was positively associated with increased disordered eating behaviors among young women. Social media use intensity showed a significant association with increased disordered eating [(OR 1.207, SE (0.075), $P < 0.01$, 95% Confidential Interval [CI] 1.068 to 1.363)]. Among the four social media platforms measured, Instagram use had a significant association with disordered eating [OR 1.387, SE (0.186), $P < 0.05$, 95% CI 1.107 to 1.804)].
Discussion and Conclusions: This study highlights the significant role of social media on the behavior of young women, and supports the sociocultural theory linking media to disordered eating. Such an understanding of social media's role is instrumental for the promotion and prevention of disordered eating among young women.

KEY WORDS: Arabs; body image; eating disorders; social media; women.

Riassunto

Introduzione: Un'abbondante letteratura ha dimostrato l'impatto negativo dei media tradizionali sull'immagine corporea ed i disturbi del comportamento legati all'alimentazione tra le giovani donne. In anni recenti, l'uso dei social network è incrementato specialmente tra i giovani, tuttavia l'influenza dei social sui disturbi alimentari non è stata ancora del tutto esplorata. L'obiettivo di questo studio è stato quello di valutare la relazione tra l'uso dei social media ed i conseguenti disturbi alimentari tra le giovani donne arabe.
Metodi: Uno studio trasversale è stato effettuato su un campione casuale di 1.418 studentesse laureande residenti in Quatar, una nazione del Medio Oriente in rapido sviluppo. Le piattaforme di social network popolari quali Instagram, Snapchat, Facebook, and Twitter sono state considerate. Altre co-variate valutate sono state l'immagine del proprio corpo, l'indicatore di massa corporea (Body Mass Index) e lo stato socio-economico. Il Test del Chi quadrato è stato usato per l'analisi bi-variata. Per valutare l'associazione multivariata tra i social media (principale predittore o variabile di esposizione) ed i disturbi alimentari misurati attraverso un questionario a 26-item denominato Eating Attitudes Test (EAT-26) (variabile dipendente), sono stati utilizzati modelli di regressione ordinale tipo stepwise backward. L'analisi dei dati è stata effettuata usando Stata 14 software.
Risultati: I risultati hanno confermato che l'uso intensivo dei social, in modo particolare di Instagram, risulta positivamente associato ad un incrementato livello dei disturbi del comportamento alimentare tra le giovani donne. L'intensità nell'uso dei social media è risultata essere significativamente associata ai disturbi alimentari [OR 1.207, SE (0.075), $P < 0.01$, Intervallo Confidenziale al 95% (IC) tra 1.068 e 1.363]. Tra le quattro piattaforme di social valutate, l'uso di Instagram ha evidenziato una significativa associazione con i disturbi alimentari [OR 1.387, SE (0.186), $P < 0.05$, IC tra 1.107 e 1.804].
Discussione e Conclusioni: Questo studio evidenzia il ruolo significativo dei social media sul comportamento delle giovani donne, e supporta la teoria socio-culturale che relaziona i media ai disturbi alimentari. Una comprensione del ruolo dei social network è strumentale alla promozione ed alla prevenzione dei disturbi alimentari tra le giovani donne.

TAKE-HOME MESSAGE

In Qatar, social media use is associated with increased disordered eating behaviors among young women. This evidence supports the sociocultural theory linking media to disordered eating and calls for public heath interventions that incorporate media literacy.

Competing interests - none declared.

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INTRODUCTION

Disordered eating has become a global phenomenon with increasing prevalence estimates, especially among young women [1–4]. Irregular and extreme eating-related behaviors with poor health and emotional outcomes are the hallmark of disordered eating [5]. These behaviors include, but are not limited to binge eating, strict dieting, regular fasting, and purging [2]. Media has been largely implicated in the widespread incidence of disordered eating worldwide [6, 7]. One of the main theories to explain the relationship between media and disordered eating is the sociocultural model. According to sociocultural theory, when young women are exposed to idealized body images in the media, they internalize these images gradually developing unrealistic body image expectations [8, 9]. In turn, failure to attain this idealized body image may result in body shape concerns, body dissatisfaction, and disordered eating behaviors [8, 9]. For example, Chang et al [10] found that young women exposed to models via television advertisements internalized beauty ideals they saw, increased their body concerns and were more likely to engage in disordered eating behaviors including vomiting, fasting and use of laxatives [10].

Disordered eating in the social media era

The majority of studies examining the relationship between media and disordered eating focus on traditional media platforms, such as television and magazines. In recent years, the increased popularity and intensified use of social media [11] pose new channels for more ubiquitous, versatile, and prolonged exposure to unrealistic beauty ideals among young women. Furthermore, many social media offer interactive and tailored features that may strengthen their influence on users. For example, popular social media platforms such as Instagram, Facebook, Snapchat and Twitter allow users to follow the profiles and posts of peers and favorite celebrities, intensifying exposure to these significant influencers' messages and images [12, 13]. Such an exposure is of concern, considering that favorite celebrities mediate the relationship between media and body image concerns [14], which in turn mediates disordered eating. Recent studies have uncovered associations between social media use and body dissatisfaction through negative physical appearance comparisons [15–17]. In a study of American female college students, those who showed a higher emotional connection to and incorporation of Facebook in their personal lives, were significantly more likely to have disordered eating when engaging in negative physical appearance comparisons [18]. Along the same lines, Holland and Tiggemann [6] conducted a systematic review and concluded that available evidence supported a positive association between increased use of social media and the development of body dissatisfaction and disordered eating. Holland and Tiggemann [6] also confirmed Facebook as the most widely studied site and there was a dearth of research regarding how other social media sites may relate to these same outcomes. Thus, the present paper aims to address this gap in the literature by exploring the association of disordered eating to different popular social media networks beyond Facebook to include Instagram, Snapchat and Twitter.

Disordered eating in the Middle East

Most findings from studies of the Arab Middle East suggest that disordered eating is currently a significant public health problem among young women. Relatively high rates of disordered eating behaviors have been reported among young women in Kuwait, Jordan, Palestine, Syria, Libya and United Arab Emirates [3, 19, 20]. In fact, scholars argue that the rapid urbanization and exposure to western media are potential contributors to the rise in prevalence of disordered eating among young Arab women through the adoption of western beauty ideals [3, 19]. However, to our knowledge there have been no studies that assessed the association between social media and disordered eating in Qatar and the Arab world, despite the rise in social media use. The purpose of this study was to delineate for the first time the relationship between different

types of social media and disordered eating among young women in Qatar, a rapidly developing nation in the Middle East. We have decided to carry out a study on the basis of previous recommendations to analyze disordered eating's relation to social media platforms other than Facebook [6, 21] and measure the association of Instagram, Facebook, Snapchat and Twitter with disordered eating among young women in Qatar. Our first hypothesis was that each of the four assessed social media platforms would be positively associated with increased disordered eating behaviors. We also hypothesized that extensive overall social media use would be positively associated with higher levels of disordered eating behaviors.

METHODS

Study partecipants and survey design

This cross-sectional study's sample was part of a larger two–wave panel survey drawn from Qatar's national university, which has the largest number of student admissions of both Qatari and non-Qatari females in the country. The data collection for this study came from the first survey wave, which took place between April and May of 2016. A sample frame of all undergraduate students enrolled in September of 2015 was used as starting point and after applying all eligibility criteria (female only, complete contact information, not being in the last year of study), the remaining sample of 8,971 constituted our target population, which was further divided into 10 strata based on two variables: nationality (Qatari, Non-Qatari) and program year (5 levels). Random systematic stratified sampling was used to select the study's sample from these strata (n = 3,450). A total of 1,810 surveys were attempted (52% response rate), of which 1,793 surveys were completed. The final sample of 1,418, was obtained after data cleaning and the exclusion of participants under 18 years of age (n = 4) or with one or more missing values on the Eating Attitudes Test (EAT-26) (n = 145) or self-reported height or weight (n = 115) or with inconsistent responses across survey questions (n = 111).

The Study instruments

This study's questionnaire was part of a thirty-minute long web-survey, which was programmed and administered in Qualtrics [22]. Ethics approval was obtained from the University's Institutional Review Board. Participants had a choice to complete the online survey either in English or Arabic. Language subgroups were created based on responses to the specific language of survey administration. Respondents were able to complete the survey on their laptops, computers, mobile phones, or tablets. In addition to questions about social media use, body image, and disordered eating, the survey included questions about general health, dietary habits, weight, height, weight perception, and weight-related concerns and behaviors.

Social media use

The frequency of use of different social media outlets was measured using a 10-item graded response scale adapted from a recent study [22]. The social media items were translated from English to Arabic and tested in one-on-one cognitive interviews with twenty female university students. The interviews explored the cognitive processes underlying responses to social media items [24]. During the cognitive interviews, we tested participants' understanding and perceived meaning of the Arabic version of the social media assessment question 'How often do you use each of the following social media portals?' and the corresponding ten response options ('Never', 'once a month', 'several times a month', 'once a week', 'several times a week', 'once a day', 'several times a day', 'once an hour', 'several times an hour', and 'all the time'). The measure of use for each social media outlet was dichotomized as 0 or 1 depending on the intensity of social media use, where 1 indicated extreme frequency of use that is once or more an hour, and 0 was indicative of a frequency of use that is less than once an hour.

In addition to the separate Instagram, Facebook, Snapchat and Twitter assessments, we developed a combined overall social media intensity score. This intensity measure was deve-

loped by calculating a total score of Instagram, Facebook, Snapchat and Twitter use. The responding intensity score ranged from 0-4, where 0 was considered as 'low use' of social media with none of the social media websites used hourly, 1 as 'medium' (where at least one social media website was used hourly) and 2-4 as 'high' whereby 2 or more social media websites were used hourly.

Disordered eating behaviors

The 26-item Eating Attitudes Test (EAT-26) is one of the most widely used measures of disordered eating [25]. It was validated among Arab populations [26, 27], and applied in the assessment of Arab youth [3, 19, 28]. The Eat-26 score was divided into tertiles and categorized as 'low' for scores 0-7, 'medium' for 8 to 14 and 'high' for scores 15 and above.

Body image

Several proxies were used to assess body image concerns. The first proxy, body weight satisfaction, was measured using the question 'How satisfied are you with your current body weight?' with responses on a four-point satisfaction scale ('very satisfied', 'satisfied', 'dissatisfied', 'very dissatisfied'). The second proxy was a cumulative score of the shortened form of the Body Shape Questionnaire (BSQ) [29] translated and adapted to the Qatari context. The BSQ score was divided into four categories: 0-19 'no concern' with body shape, 19 to 25 'mild concern' with body shape, 26 to 33 'moderate concern' with body shape, and a score over 33 marked 'high concern' with body shape [29].

Body Mass Index (BMI)

Self-reported measures of weight and height were used in calculating BMI (Kg/m^2). Accordingly, participants were classified into four groups as per the World Health Organization's body weight classification system: underweight (< 18.5), normal weight (18.5 to 24.9), overweight (25.0 to 29.9), obese (30.0 or more).

Demographic characteristics and social support

The instrument contained a demographic section, including citizenship status (Qatari/Non-Qatari), age, marital status, and duration of residence in Qatar. A language variable (Arabic or English) was also created based on the participant's choice of language for the questionnaire administration. Respondents were also asked to rate their family's socioeconomic status as 'poor', 'financially challenged', 'financially stable', 'financially comfortable' or wealthy. To accommodate for low frequency counts corresponding to the 'poor' response option, poor and financially challenged were later collapsed into one category. Respondents were also asked to identify the highest level of education completed by their mothers and fathers by choosing one of the following: less than high school diploma, high school diploma, college degree, undergraduate, graduate, or post-graduate. Later in the analysis and due to low frequency counts in some categories, the education variable was collapsed into three categories: 'less than high school', 'high school', and 'post-secondary'. Finally, social support was measured by asking respondents to describe the overall direction of influence (positive or negative) exerted by their mothers, fathers, sisters, brothers, and friends in terms of their feelings about weight and intention to lose or gain weight.

Statistical analysis

Data analysis was performed using Stata 14 software [30]. The data was weighted to account for sampling disproportionality and nonresponse. Chi-square tests were used for bivariate analyses. To assess the multivariate association between social media (main predictor or exposure variable), and disordered eating as measured by three levels of the EAT-26 (dependent variable), stepwise backward ordinal regression models were fit to the data. For each of the models we started with a fully saturated model that included one type of social media measure (Instagram, Snapchat, Facebook, Twitter, or overall social media intensity) and covariates commonly assessed in disordered eating literature. These covariates included BMI, weight satisfaction, BSQ score, citizenship status, socioeconomic status, mother's education, father's educa-

tion, and social support (support from father, mother, brother, sister, and friend were entered as separate indicators in all the models). A variable was retained in the final model if dropping the variable resulted in a change of 10% or more in the adjusted odds ratio relative to the crude odds ratio or if the variable was statistically significant (P value of less than 0.2) [31].

RESULTS

Descriptive statistics and bivariate associations with EAT-26

A total of 1,418 women were included in the analyses. About 74% of participants were between 18 to 22 years of age (see Table 1 for the distribution of all remaining variables). With the exception of socioeconomic status (P =.044), there was no significant bivariate relationship between the EAT-26 and the remaining demographic characteristics of the participants (citizenship status, language survey completed in, age, years lived in Qatar, marital status, mother and father education). Among the five types of social support, only support from fathers (P =.001) was significant. In contrast and more closely affiliated with the EAT-26, BMI, body dissatisfaction, and body shape concern scores had a significant bivariate relationship with the EAT-26. With regard to social media, respondents were more likely to report using Snapchat (52.9%) and Instagram (32.5%) than using Twitter (20.1%) and Facebook (5.4%). There was a significant relationship between both Instagram (P =.004) and Facebook (P =.016) use and disordered eating, while there was no significant relationship for Snapchat and Twitter use and the EAT-26 score. The overall social media use intensity score also showed a significant relationship with disordered eating (P =.003).

Multivariate model for individual social media types on EAT-26

The first ordered logistic regression model – Model 1 – was built on the bivariate relationships described above. The individual effects of the four types of social media outlets were entered in the model along with the other study covariates. The final model presented in Table 2 included the results only for the variables that did not drop out of the analysis as per previously described retention criteria (as detailed in the methods section). Of the four types of social media, only Instagram use had a significant association with the EAT-26 [OR 1.387, SE (0.186), P < 0.05, 95% Confidential Interval (CI) 1.107 to 1.804]. Similarly, having mild [OR 2.855, SE (0.416), P < 0.01, CI 2.146 to 3.798], moderate [OR 6.052, SE (1.169), P < 0.01, CI 4.145 to 8.837], and marked body shape concerns [OR 28.332, SE (9.489), P < 0.01, CI 14.696 to 54.620], being very dissatisfied with current weight [OR 1.534, SE (0.278), P < 0.05, CI 1.075 to 2.189], and friend support [OR 1.326, SE (0.152), P < 0.05, CI 1.059 to 1.661] were associated with disordered eating symptoms.

Multivariate model for social media use intensity score on EAT-26

The results of Model 2 for the overall social media use intensity are presented in Table 3. The social media use intensity score showed a significant association with the EAT-26, with OR of 1.207 [SE (0.075), P < 0.01, CI 1.068 to 1.363]. Having body shape concerns also was significantly associated with the EAT-26 with odd ratios ranging between 2.584 [SE (0.358), P < 0.01, CI 1.969 to 3.391] (for mild concerns with body shape) and 25.385 [SE (8.389), P < 0.01, CI 13.282 to 48.515] (for high concerns with body shape). Being very dissatisfied relative to being very satisfied with current weight was significantly associated with disordered eating behaviors [OR 1.567, SE (0.277), P < 0.05, CI 1.109 to 2.215)]. Satisfaction with weight was not a significant predictor of the EAT26 (P > 0.05). The obese category of the BMI was inversely but insignificantly (P > 0.05) associated with higher levels of the EAT-26. With regard to the perceived social support variables, friend support was significantly associated with an odds ratio of 1.260 [SE (0.141), P < 0.05, CI 1.012 to 1.568)]. Father support was not si-

gnificantly associated.

DISCUSSION

Traditional media (e.g., television and magazines) exposure is a known predictor of disordered eating behaviors especially among young women. Recently, the use of new social media (such as Facebook and Instagram) has increased worldwide including in the Arab Middle East and Qatar [32–34]. This was also demonstrated in our sample as extreme hourly use of Instagram was highly prevalent while hourly use of Snapchat was reported by the majority. Facebook overall use was relatively low as compared to other Western countries [32, 33], however, past surveys in Qatar also found lower rates of Facebook use relative to other social media platforms [34]. Despite social media's popularity and high use worldwide and in Qatar, the relationship between social media and disordered eating remains an under-explored area of research that needs further investigation. In this study, we assessed this relationship and found that extreme (hourly) use of social media among young women was positively and significantly associated with disordered eating behaviors independent of known predictors including body shape concerns, body dissatisfaction, and social support. Our study findings add to evidence found by the currently small number of recent studies that explored social media's association with disordered eating [6, 21].

Literature investigating the relationship between social media and disordered eating tends to typically examine Facebook as a social media platform with little attention to other highly popular social media websites such as Instagram and Twitter [6]. Holland and Tiggemann [6] called for further research on social media and disordered eating, emphasizing the need to expand the focus of future research beyond Facebook to include other social networking sites, including those exclusively offering image-based activities such as Instagram. This is one of the first studies to assess disordered eating in relation to social media websites other than Facebook; namely Instagram, Snapchat, and Twitter. Unlike other studies that found Facebook associated with disordered eating [18, 35], we did not find hourly use of Facebook significantly associated with increased disordered eating among young women in Qatar. Nonetheless, hourly use of Instagram was positively and significantly associated with increased levels of disordered eating. This could be due to the centeredness of Instagram around images, as compared to other social networking sites [36, 37]. Past studies emphasized the importance of images in the development of body image concerns. For example, Meier and Gray [21] found that lowered body image was specifically associated with the image-based activities of Facebook. Recent studies also have demonstrated the role of Instagram in the development of body image concerns [13, 38]. Instagram is an image-based application with majority of posted photos related to peers, fashion, selfies and food [37]. Accordingly, this image-based platform may be extensively exposing young women users to unattainable body images. As predicted by sociocultural theory, women internalize unattainable body images, developing unrealistic expectations that are never met, leading to body image concerns and disordered eating [8, 9]. This may be especially true in the case of obese young women whose BMI status also significantly predicted disordered eating behaviors in our sample. This finding also is in accordance with previous studies that found obesity associated with disordered eating outcomes [3, 39]. Another predictive factor of disordered eating was increased perceived friend support. This could be due to social norms promoted among one's peer group that encourage extreme dieting behaviors [40, 41].

This study is not free of limitations. Firstly, we only assessed the association between social media and disordered eating, yet future studies could benefit from determining the effect of social media use on disordered eating. Secondly, the sample frame belonged to one university in Qatar, and as such is not representative of all young women in Qatar. However, the vast majority of young women in Qatar who opt to continue their post-secondary edu-

cation enroll in Qatar University, indicating that our sample frame has good coverage. Finally, accurate measurement of social media use is generally challenging, especially as young people often multitask (between emailing, surfing the web, etc.) when using social media, and access it through multiple mobile devices (such as smartphones) making it difficult to track the actual time spent using one social networking site. Taking this challenge into consideration, we used a recently validated scale suggested by Rosen et al [23] for the measurement of social media use and tested its face validity with the local population. Nonetheless, cognitive interviews revealed that for the same use intensity response option selected for Facebook, Twitter and Instagram, participants may spend longer duration of time using Snapchat. Despite its limitations, this study adds to what little literature there is on the association between disordered eating and four social media platforms, making use of a large probability sample and validated measurement items.

Several implications are drawn based on the study findings. Firstly, there is a need for public health interventions and campaigns that aim to increase media literacy and educate the public on the risks of media images on body image concerns. Previous research has shown that improving media literacy can be effective in reducing media's effect on body image concerns [42]. In this study we assessed young Arab women older than 18 years of age. However, studies in Western societies have also demonstrated media's influence on body image and disordered eating in early adolescence [42–44]. Hence, we believe future studies also should assess younger female adolescents between the ages of 12 and 18 to determine whether exposure to social media images and its association with disordered eating starts at an earlier age. Finally, our findings highlight the significant impact social media platforms have on the behavior of young women. This implies that public health interventions can benefit from the incorporation of social media in the promotion of both healthy body images and eating behaviors among young women.

CONCLUSION

To our knowledge, this is the first study to assess the associations between social media and disordered eating among young women in the Arab Middle East. We found that hourly use of social media, particularly Instagram, was associated with disordered eating behaviors among young women. The findings of this study are important in understanding the role social media plays in disordered eating habits, especially in a rapidly developing country like Qatar. Such an understanding of social media's role is instrumental for the promotion and prevention of disordered eating among young women in Qatar, and the world in general.

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Table 1. Sample characteristics and bivariate association with disordered eating.

	Tertiles of EAT-26*				
	Low (%) (*n* = 506)	**Mid (%) (*n* = 457)**	**High (%) (*n* = 455)**	**Total Sample (%) (*n* = 1418)**	***P* value**
Instagram					0.004
Less than once an hour	72.6	65.7	63.7	67.5	
Once an hour or more	27.4	34.3	36.3	32.5	
Snapchat					0.121
Less than once an hour	50.1	47.2	43.8	47.1	
Once an hour or more	49.9	52.8	56.2	52.9	
Twitter					0.287
Less than once an hour	81.9	78.1	79.5	79.9	
Once an hour or more	18.1	21.9	20.5	20.1	
Facebook					0.016
Less than once an hour	96.6	92.9	94.1	94.6	
Once an hour or more	3.4	7.1	5.9	5.4	
Social media use intensity**					0.003
Low	43.8	38.4	33.3	38.7	
Medium	26.1	24.3	29.2	26.5	
High	30.1	37.3	37.4	34.8	
Citizenship Status					0.570
Qatari	35.1	34.2	32.2	33.9	
Non-Qatari	64.9	65.8	67.8	66.1	
Age					0.156
18-20	43.7	50.4	44.4	46.1	
21- 22	30.3	25.9	26.7	27.7	
23-40	26.0	23.7	28.9	26.2	
Marital Status					0. 928
Never married	79.3	79.9	78.9	79.4	
Others (Married, divorced, separated, widowed)	20.7	20.1	21.1	20.6	
Mother Education					0.946
Less than high school diploma	30.3	28.3	29.5	29.4	
High school diploma	23.4	24.1	25.1	24.1	
Post-secondary	46.4	47.6	45.4	46.5	
Father Education					0.347
Less than high school diploma	21.4	24.6	25.9	23.9	
High school diploma	22.3	19.1	22.4	21.3	
Post-secondary	56.4	56.4	51.7	54.9	
Socioeconomic Status					0.044
Poor/financially challenged	2.7	4.1	4.7	3.8	
Financially stable	29.5	27.9	31.0	29.4	
Financially comfortable	64.5	61.8	56.8	61.1	
Wealthy	3.3	6.3	7.6	5.7	
Social Support					
Mother (Yes)	69.0	67.4	64.2	66.9	0.232
Father (Yes)	55.6	51.4	43.8	50.5	0.001
Sister (Yes)	54.4	51.1	48.0	51.3	0.101
Brother (Yes)	38.6	40.6	33.7	37.7	0.062
Friends (Yes)	56.9	55.9	57.8	56.8	0.825

	Tertiles of EAT-26*				
	Low (%) (*n* = 506)	**Mid (%) (*n* = 457)**	**High (%) (*n* = 455)**	**Total Sample (%) (*n* = 1418)**	***P* value**
BMI Categories					0.000
Underweight	13.1	16.0	6.8	12.0	
Normal	60.1	54.8	39.0	51.6	
Overweight	18.9	18.2	27.8	21.5	
Obese	8.0	11.1	26.5	14.9	
Body Dissatisfaction					0.000
Very satisfied	19.4	16.2	9.9	15.3	
Satisfied	46.7	38.1	21.3	35.8	
Dissatisfied	27.2	31.2	33.9	30.6	
Very dissatisfied	6.7	14.5	34.9	18.3	
Body Shape Concerns Score					0.000
No concern < 19	78.0	64.0	29.2	57.8	
Mild concern 29-25	16.2	22.0	23.8	20.5	
Moderate concern 26-33	5.2	11.6	25.6	13.8	
Marked concern 34-48	0.6	2.5	21.4	7.9	

*Eat-26 score was divided into tertiles and categorized as: Low = 0 to 7, Medium = 8 to 14 and High = 15 to 60
** Overall social media use intensity was classified as 'low' where with none of the social media websites were used hourly, 'medium' where at least one social media website was used hourly, and 'high' whereby 2 or more social media websites were used hourly.

Table 2. Multivariate model (Model 1) for the individual social media outlets.

VARIABLES	OR (SD)	VARIABLES	OR (SD)
Instagram	1.387**	Moderate concern 26-33	6.052***
	(0.186)		(1.169)
Snapchat	0.994	Marked concern 34-48	28.332***
	(0.125)		(9.489)
Facebook	1.530*	Father support	0.826*
	(0.341)		(0.094)
Twitter	1.108	Friend support	1.326**
	(0.167)		(0.152)
Underweight	1.251	Constant cut1	1.127
	(0.208)		(0.161)
Obese	0.771	Constant cut2	6.202***
	(0.146)		(0.957)
Satisfied with weight	0.831	Observations	
	(0.103)	Psuedo R-squared	1,266
Very dissatisfied with weight	1.534**	Ll	0.126
	(0.278)	df_m	-1214
Mild concern 29-25	2.855***	chi2	13
	(0.416)	*** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$	

Table 3. Multivariate model (model 2) for the overall social media use intensity.

VARIABLES	Social Media intensity OR (SE)	VARIABLES	Social Media intensity OR (SE)
	1.207***	Friend support	1.260**
	(0.075)		(0.141)
Obese	0.769	Constant1	1.277
	(0.143)		(0.216)
Satisfied with weight	0.795*	Constant2	6.784***
	(0.095)		(1.213)
Very dissatisfied with weight	1.567**	Observations	1,330
	(0.277)	Psuedo R-squared	0.120
Mild concern 29-25	2.584***	Ll	-1284
	(0.358)	df_m	9
Moderate concern 26-33	5.721***	chi2	351.5
	(1.061)	*** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$	
Marked concern 34-48	25.385***		
	(8.389)		
Father support	0.840		
	(0.093)		

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