

## ORIGINAL ARTICLE

# Use of social networking sites and perception and intentions regarding body weight among adolescents

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## Summary

### Objective

Social networking sites (SNSs) not only offer users an opportunity to link with others but also allow individuals to compare themselves with other users. However, the link between the use of SNSs and the dissatisfaction with body weight is largely unknown. We investigated the associations between the use of SNSs and the perception of body weight and related behaviours among adolescent men and women.

### Methods

The study sample consisted of 4,468 (48.5% women) 11–19-year-old Canadian students in grades 7 to 12 who participated in the 2013 Ontario Student Drug Use and Health Survey.

### Results

Overall, 54.6% of students reported using SNSs for 2 h or less per day, 28.0% reported using them for more than 2 h d<sup>-1</sup> and 17.4% reported infrequent or no use of SNSs (reference category). After adjustment for covariates, results showed that adolescent women who use SNSs for more than 2 h d<sup>-1</sup> had greater odds of dissatisfaction with body weight (odds ratio = 2.02; 95% confidence interval [CI]: 1.30–3.16). More specifically, they were more likely to perceive themselves as overweight (relative risk ratio [RRR] = 2.20; 95% CI: 1.34–3.60) compared with those who reported infrequent or no use of SNSs. Conversely, men who use SNSs for 2 h or less per day presented a lower risk for perceiving themselves as overweight (RRR = 0.68; 95% CI: 0.47–0.98) but not those who use SNSs for more than 2 h d<sup>-1</sup>. Women who use SNSs for more than 2 h d<sup>-1</sup> reported a greater likelihood of trying to lose weight (RRR = 2.52; 95% CI: 1.62–3.90).

### Conclusions

Our results showed that heavy use of SNSs is associated with dissatisfaction with body weight in adolescent women.

**Keywords:** Adolescents, attitude with body weight, body image, dissatisfaction with body weight.

## Introduction

Social networking sites (SNSs) such as Facebook and MySpace are an opportunity to link with others and share aspects of their lives. SNSs, however, also allow users to post photos, which provide users with an opportunity to compare their appearance with others, thus placing users more at risk of body dissatisfaction and eating disorders (1–3). With an estimated 350 million photos uploaded on

Facebook each day, research studies are needed to examine the possible link between the use of SNSs and the dissatisfaction with body weight among youth. Unlike traditional media such as TV and magazines, everybody can post pictures of themselves on social media. This offers more opportunity to compete against each other for a more attractive appearance, as users of SNSs are exposed to unrealistic and idealized body types that are based on the stereotype of a lean body for women and a

muscular body for men. While perceived weight, or body image, does not always reflect reality (4,5), having a negative body image is usually related to low self-esteem and unhealthy eating and weight control behaviours (6,7).

Research studies on the link between media and body image have largely focused on traditional forms of media (8–10). Exposure to the thin ideal in media has been linked to body dissatisfaction and internalization of the thin ideal. More specifically, exposure to images of attractive women has been indicated to have a negative effect on women's appreciation of their body (10). Posavac *et al.* (11) demonstrated that the extent of the discrepancy women perceive between their own attractiveness and body image representative of ideal feminine attractiveness presented in advertising and the broader media predicts how concerned they are with their weight. Similarly, body dissatisfaction has been reported among men when they view images of attractive male bodies (12,13). However, although SNSs have become part of most adolescents' lives, very few studies have explored the associations between the use of these web-based platforms and the body image, and findings indicate that SNSs, particularly Facebook, have been related to body dissatisfaction and drive for thinness among adolescent women (14–16). For example, Meier and Gray (16) documented significant correlations of the amount of time allocated to photo activity on Facebook with weight dissatisfaction, drive for thinness, thin ideal internalization and self-objectification in a sample of adolescent women aged 12 to 18 years. Similarly, Tiggemann and Salter (14,15) indicated that preadolescent and adolescent female Facebook users report more appearance concerns and dieting behaviour than nonusers and that this link significantly increases with the amount of time spent on SNSs. However, these studies used relatively small sample sizes and were conducted on samples of women only (14–16). No study has examined the link between the use of SNSs and the dissatisfaction with body weight in adolescent men. This is of particular importance because previous studies have shown that exposure to traditional forms of media is related to a desire to build muscle among adolescent men (17,18). It is possible that SNSs would have a similar influence. It is also possible that the use of SNSs of 2 h or more per day, which is just above the screen time recommendation for adolescents (19), would be associated with body-weight dissatisfaction in adolescents.

The main objective of this observational, cross-sectional study was to investigate the associations between the use of SNSs and the perception of body weight and related behaviours among Canadian adolescent men and women using province-wide representative data from the Ontario Student Drug Use and Health Survey (OSDUHS). It was hypothesized that both male and female heavy users of

SNSs (i.e. more than 2 h a day) would be more likely to report negative body image and a desire to do something about their body weight, differentially depending on sex.

## Methods

### Study design

Carried out biennially in Ontario since 1977, the OSDUHS is the longest ongoing school survey in Canada and one of the longest in the world. The survey assesses the prevalence of self-reported health-risk behaviours among students in grades 7 to 12 (aged 11 to 20 years) (20). The OSDUHS uses a two-stage cluster sample design involving a random selection of classes from within a random selection of schools (probability proportional to size) stratified by region and school type. The study was approved by the Research Ethics Board of the Centre for Addiction and Mental Health and York University, as well as existing research review committees of participating school boards. Written informed consent was obtained from parents/guardians, and consent/assent was obtained from students prior to participating in the survey. Further methodological details are available online (20).

### Sample

A total of 10,272 students from 42 school boards, 198 schools and 671 classrooms completed the 2013 cycle of the OSDUHS. The student response rate was 63%, which is above average for a survey of students that requires active parental consent (21). Student nonresponse was due to absenteeism (11%) and unreturned consent forms or parental refusal (26%) (20). Only the random half sample of students who were selected to complete the Form B questionnaire ( $N=4,794$ ) that included questions on body-weight perception and weight-related attitude was included in the current study. The analytic sample comprised the 4,468 students (93.2%) for whom there were no missing data on measures including outcomes, explanatory variables and covariates.

### Measures

#### *Outcome variables*

Perception and intentions regarding body weight were measured using items that were adapted from the Centres for Disease Control and Prevention's Youth Risk Behaviour Survey. Both questions have demonstrated good reliability and validity among students.

*Perception of body weight.* Students were asked about how they perceived their body weight by identifying whether they felt that they were too thin, about the right weight or too fat. A second measure was constructed to represent dissatisfaction with body weight such that responses of 'too thin' or 'too fat' reflected the presence of dissatisfaction with body weight, whereas responses of 'about the right weight' reflected the absence of such dissatisfaction.

*Intentions regarding body weight.* Students were asked what they were doing about their body weight and identified whether they were (i) not doing anything; (ii) trying to lose weight; (iii) trying to keep from gaining weight or (iv) trying to gain weight. All four response options were used for analyses with 'not doing anything' treated as the reference category.

### *Explanatory variable*

*Use of social networking sites.* Students were asked how many hours a day they usually spend on social media websites such as Facebook, Twitter, MySpace and Instagram, either posting or browsing. The answer options were as follows: 'less than 1 h a day', 'about 1 h a day', '2 h a day', '3 to 4 h a day', '5 to 6 h a day', '7 or more hours a day', 'visit these websites, but not daily', 'use the internet, but never visit these' and 'do not use the internet'. A three-category measure was constructed wherein the three latter response options were combined to reflect infrequent or no use of SNSs (reference category); the first three categories were combined to reflect daily use of 2 h or less (regular use), and the remaining categories reflected daily use of more than 2 h (heavy use). The category of 2 h or less for daily recreational screen time among youth is the recommended cutoff from the current Canadian Sedentary Behaviour Guidelines (19) and a previous study (22).

### *Covariates*

*Sociodemographic characteristics.* Sociodemographics included sex, age (measured in years), ethnicity, subjective socioeconomic status (SES) and parental education. Ethnicity was measured using responses to a question asking students to select one or more categories that best described their ethnic background. The categories listed were similar to those used in the 2006 Canadian Census (23). Students who selected only one ethnic background were grouped into five categories including Caucasian, African-American, East or Southeast Asian, South Asian and other. Students who selected multiple ethnic backgrounds were coded as other. Subjective

SES was measured using the youth version of the MacArthur Scale of Subjective Social Status (24). Minor modifications were made to the youth scale to assess the family's place within society. The question was presented with a drawing of a ladder with 10 rungs that was described as follows:

Imagine this ladder below shows how Canadian society is set up. At the top of the ladder are people who are the 'best off' – they have the most money, the most education, and the jobs that bring the most respect. At the bottom are the people who are 'worst off' – they have the least money, little education, no job or jobs that no one wants. Now think about your family. Please check off the numbered box that best shows where you think your family would be on this ladder.

For analysis purposes, a dichotomous measure was constructed to represent low (<7) and high ( $\geq 7$ ) subjective SES, wherein low scores represent those below the mean (25). Parental education was measured using the following items: 'How far did your father go in school?' and 'How far did your mother go in school?' Response options referred to attended or graduated high school, college or university and did not attend high school. For analysis purposes, response options were grouped to reflect the education of the parent with the highest level of education: university degree, some college/university degree, high school or less or do not know.

### *Statistical analysis*

Taylor series linearization methods within STATA (version 13.0, Stata Corp, College Station, Texas, USA) were used in all analyses to adjust for the stratified and clustered complex survey design. Sampling weights were included in analyses to adjust for unequal probability of selection (20). Descriptive characteristics of participants by time spent using SNSs and bivariate associations between time spent using SNSs and perceived body weight and weight-related attitudes were tested by Pearson chi-square adjusted for the survey design and transformed into an *F*-statistic for categorical data and by an adjusted Wald test for continuous data. Given that sex by the use of SNSs interaction was significant for the outcome variable of perceived body weight, all analyses were stratified by sex. Multivariate associations between time spent using SNSs (independent variable where infrequent or no use of SNSs was treated as the reference category) and dissatisfaction with body weight, perceived body weight and intentions regarding body weight (dependent

variables) were tested with both binary and multinomial logistic regressions. Covariates included age, ethnicity, subjective SES and parental education. Statistical analyses were conducted at a threshold of  $\alpha = 0.05$ .

## Results

Descriptive characteristics of the study sample according to the amount of time spent on SNSs are provided in Table 1. Of the 4,468 students who were included in our analysis, 48.5% were women, 58.8% identified themselves as Caucasian, and 68.7% were from higher SES families. Overall, 54.6% of students reported using SNSs for 2 h or less per day, 28.0% reported using them for more than 2 h day<sup>-1</sup>, and 17.4% reported infrequent or no use of SNSs. Women were more likely than men to report using SNSs for more than 2 h day<sup>-1</sup> (36.6% vs. 19.9%,  $p < 0.001$ ). Students of African-American ethnic background were more likely than Caucasian to report using SNSs for more than 2 h day<sup>-1</sup> (39.8% vs. 26.8%,  $p = 0.04$ ).

Table 2 presents the prevalence of dissatisfaction with body weight and related attitudes by sex. Overall, 35.5% of students were dissatisfied with their body weight,

23.7% perceived themselves as overweight, and 23.8% were trying to lose weight. Women were more likely than men to be dissatisfied with their body weight (40.0% vs. 31.2%,  $p < 0.001$ ). They were more likely to perceive themselves as overweight than men (32.6 vs. 15.3%,  $p < 0.001$ ), while men were more likely than women to perceive themselves as underweight (15.9% vs. 7.4%,  $p < 0.001$ ). Women were more likely to try to lose weight than men (39.0% vs. 21.2%,  $p < 0.001$ ), while men were more likely to try to gain weight than their female counterparts (21.9% vs. 5.2%,  $p < 0.001$ ).

Table 3 presents the results of multivariate logistic regression analyses testing the associations between the use of SNSs and the perceptions and intentions regarding body weight among adolescent women. After adjustment for age, ethnicity, subjective SES and parental education, results from logistic regression analysis showed that adolescent women who use SNSs for more than 2 h day<sup>-1</sup> had greater odds of dissatisfaction with body weight (odds ratio = 2.02; 95% confidence interval [CI]: 1.30–3.16). More specifically, results from multinomial logistic regression indicated that women who use SNSs for more than 2 h day<sup>-1</sup> were more likely to perceive themselves as overweight (relative risk ratio [RRR] = 2.20; 95% CI = 1.34–3.60)

**Table 1** Time spent using social networking sites by demographic characteristics

	Total sample ( <i>N</i> = 4,468) %	Infrequent or no use ( <i>N</i> = 927) %	Daily use of 2 h or less ( <i>N</i> = 2,359) %	Daily use of more than 2 h ( <i>N</i> = 1,182) %
Total		17.4	54.6	28.0
Sex <sup>***†</sup>				
Men	51.5	21.7	58.4	19.9
Women	48.5	12.8	50.6	36.6
Ethnicity <sup>**†</sup>				
Caucasian	58.8	14.9	58.4	26.8
African-American	7.1	19.9	40.4	39.8
East/Southeast Asian	10.4	20.9	50.0	29.1
South Asian	11.4	22.1	53.9	24.0
Other	12.3	20.9	49.4	29.7
Subjective SES <sup>†</sup>				
Low	31.3	17.7	50.6	31.6
High	68.7	17.3	56.4	26.3
Parental education <sup>***†</sup>				
University degree	22.7	18.8	58.4	22.7
Some college/university	27.3	16.5	57.5	26.0
High school or less	27.4	12.7	52.7	34.6
Do not know	22.5	22.7	49.6	27.7
Age <sup>***‡</sup> mean (years) ± SD	15.3 ± 1.9	14.5 ± 1.7	15.4 ± 1.9	15.6 ± 1.7

Data are shown as column or row % (depending on total sample or split), unless otherwise indicated.

<sup>†</sup>Pearson chi-square adjusted for the survey design and transformed into an *F*-statistic.

<sup>‡</sup>Adjusted Wald test.

<sup>\*\*\*</sup> $p < 0.001$ ,

<sup>\*\*</sup> $p < 0.01$ ,

<sup>\*</sup> $p < 0.05$  with time spent using social networking sites.

SES, socioeconomic status; SD, standard deviation.

**Table 2** Perception and intention regarding body weight by sex

	Total sample (N = 4,468) %	Men (N = 2,014) %	Women (N = 2,454) %
Dissatisfaction with body weight <sup>***†</sup>			
No	64.5	68.8	60.0
Yes	35.5	31.2	40.0
Perceived body weight <sup>***†</sup>			
About right weight	64.5	68.8	60.0
Underweight	11.8	15.9	7.4
Overweight	23.7	15.3	32.6
Intention regarding body weight <sup>***†</sup>			
Not doing anything	33.7	38.0	29.3
Trying to lose weight	29.8	21.2	39.0
Trying to keep from gaining weight	22.6	18.9	26.6
Trying to gain weight	13.8	21.9	5.2

Data are shown as row %.

<sup>†</sup>Pearson chi-square adjusted for the survey design and transformed into an *F*-statistic.

<sup>\*\*\*</sup>*p* < 0.001 between men and women.

**Table 3** Associations between the use of social networking sites and the perception and intentions regarding body weight among adolescent women

	Unadjusted <sup>†</sup>		Adjusted <sup>†</sup>	
	Daily use of 2 h or less OR/RRR (95% CI) <sup>§</sup>	Daily use of more than 2 h OR/RRR (95% CI)	Daily use of 2 h or less OR/RRR (95% CI)	Daily use of more than 2 h OR/RRR (95% CI)
Dissatisfaction with body weight <sup>¶</sup>				
No	1	1	1	1
Yes	1.05 (0.70–1.58)	2.18 (1.45–3.29) <sup>***</sup>	1.05 (0.68–1.62)	2.02 (1.30–3.16) <sup>**</sup>
Perceived body weight <sup>  </sup>				
About right weight	1	1	1	1
Underweight	0.70 (0.35–1.40)	1.55 (0.81–2.99)	0.81 (0.39–1.67)	1.67 (0.84–3.32)
Overweight	1.18 (0.76–1.83)	2.40 (1.51–3.83) <sup>***</sup>	1.13 (0.70–1.84)	2.20 (1.34–3.60) <sup>**</sup>
Attitude about body weight <sup>  </sup>				
Not doing anything	1	1	1	1
Trying to lose weight	1.58 (0.97–2.57)	2.95 (1.95–4.49) <sup>***</sup>	1.45 (0.86–2.45)	2.51 (1.62–3.90) <sup>***</sup>
Trying to keep from gaining weight	1.48 (0.94–2.35)	1.87 (1.17–2.99) <sup>**</sup>	1.31 (0.81–2.11)	1.61 (0.99–2.61)
Trying to gain weight	1.33 (0.60–2.92)	2.25 (0.98–5.17)	1.56 (0.71–3.41)	2.31 (0.99–5.37)

<sup>†</sup>The reference category is those who reported infrequent or no use of social networking sites.

<sup>‡</sup>Models adjusted for age, ethnicity, subjective socioeconomic status and parental education.

<sup>§</sup>OR if binary logistic regression and RRR if multinomial logistic regression.

<sup>¶</sup>Binary logistic regression (data are shown as OR).

<sup>||</sup>Multinomial logistic regression (data are shown as RRR).

<sup>\*\*\*</sup>*p* < 0.001,

<sup>\*\*</sup>*p* < 0.01,

<sup>\*</sup>*p* < 0.05.

OR, odds ratio; RRR, relative risk ratio; CI, confidence interval.

compared with those who reported infrequent or no use of SNSs. Women who use SNSs for more than 2 h day<sup>-1</sup> had a greater likelihood of trying to lose weight (RRR = 2.51; 95% CI = 1.62–3.90).

Results of multivariate logistic regression analyses on the associations between the use of SNSs and the perception and intentions regarding body weight among adolescent men are provided in Table 4. Unadjusted multinomial logistic regression analyses indicated that men

who use SNSs for more than 2 h day<sup>-1</sup> had a greater likelihood of perceiving themselves as overweight (RRR = 1.86; 95% CI = 1.13–3.04) compared with those who reported infrequent or no SNSs use; however, this association became nonsignificant after adjustment for age, ethnicity, subjective SES and parental education. Conversely, adjusted analyses revealed that men who use SNSs for 2 h or less per day presented a lower likelihood of perceiving themselves as overweight

**Table 4** Associations between the use of social networking sites and the perception and intentions regarding body weight among adolescent men

	Unadjusted <sup>†</sup>		Adjusted <sup>†</sup>	
	Daily use of 2 h or less OR/RRR (95% CI) <sup>§</sup>	Daily use of more than 2 h OR/RRR (95% CI)	Daily use of 2 h or less OR/RRR (95% CI)	Daily use of more than 2 h OR/RRR (95% CI)
Dissatisfaction with body weight <sup>  </sup>				
No	1	1	1	1
Yes	1.04 (0.75–1.43)	1.26 (0.78–2.02)	1.01 (0.73–1.39)	1.14 (0.69–1.88)
Perceived body weight <sup>  </sup>				
About right weight	1	1	1	1
Underweight	1.64 (0.99–2.70)	1.86 (1.13–3.04)*	1.55 (0.94–2.54)	1.65 (0.99–2.76)
Overweight	0.71 (0.49–1.01)	0.93 (0.46–1.85)	0.68 (0.47–0.98)*	0.87 (0.43–1.73)
Attitude about body weight <sup>  </sup>				
Not doing anything	1	1	1	1
Trying to lose weight	1.04 (0.65–1.66)	1.57 (0.78–3.16)	1.11 (0.70–1.76)	1.75 (0.87–3.51)
Trying to keep from gaining weight	0.75 (0.48–1.17)	0.91 (0.52–1.59)	0.77 (0.47–1.25)	0.95 (0.51–1.75)
Trying to gain weight	1.30 (0.87–1.93)	1.67 (0.97–2.86)	1.05 (0.70–1.59)	1.33 (0.74–2.41)

<sup>†</sup>The reference category is those who reported infrequent or no use of social networking sites.

<sup>‡</sup>Models adjusted for age, ethnicity, subjective socioeconomic status and parental education.

<sup>§</sup>OR if binary logistic regression and RRR if multinomial logistic regression.

<sup>||</sup>Binary logistic regression (data are shown as OR).

<sup>||</sup>Multinomial logistic regression (data are shown as RRR).

\* $p < 0.05$ .

OR, odds ratio; RRR, relative risk ratio; CI, confidence interval.

(RRR = 0.68; 95% CI = 0.47–0.98) but not those who use SNSs for more than 2 h day<sup>-1</sup> (Table 4).

## Discussion

Our study provides evidence of associations between the use of SNSs and the negative perception of body weight and weight control behaviours. However, the relationship between SNSs and dissatisfaction with body weight and related attitudes greatly varies by gender and by the amount of time spent on SNSs. Our results showed that adolescent women who use SNSs for more than 2 h day<sup>-1</sup> had greater odds of dissatisfaction with body weight, were more likely to perceive themselves as overweight and were more at risk of trying to lose weight. Men who use SNSs for 2 h or less per day presented a lower risk for perceiving themselves as overweight, and this was the only significant association found. Collectively, these findings suggest that the connection between the use of SNSs and the weight-related attitude is stronger in women than men and future studies should try to better explore this discrepancy in order to better inform health strategies.

These results are consistent with previous studies showing that the use of SNSs, particularly Facebook, is related to body dissatisfaction and drive for thinness among adolescent women (14–16). Appearance comparison has been indicated to be a possible mechanism explaining the association between the use of Facebook and the body image concerns (3,14,15). Adolescent women may

become concerned that their own weight is not acceptable when they perceive a discrepancy between their friends' bodies representing an ideal body or accepted standard of female attractiveness and their own bodies (26). Such a comparison occurring on SNSs may be more devastating than that of traditional media because most of the pictures posted on SNSs are of friends or friends of friends. This likely offers adolescents more opportunity to compete against each other for a more attractive appearance. It is worth mentioning that SNSs are not necessarily bad for adolescents, but it depends on how they are using them. For example, Meier and Gray (16) recently reported that elevated appearance exposure, but not overall Facebook usage, was significantly correlated with weight dissatisfaction, drive for thinness, thin ideal internalization and self-objectification. Given that parental influences via verbal messages and active encouragement have been shown to have greater impact on offspring's body concerns and eating behaviours among adolescents (27), future prevention efforts targeting parents are necessary to encourage them to engage in an open conversation with adolescents about the idealized nature of pictures posted on SNSs and the negative impact that comparing such pictures can have on their health.

Our results showed that adolescent men who use SNSs for 2 h or less per day have lower risk of perceiving themselves as overweight. To the best of our knowledge, this is the first study to report an association between the use

of SNSs and the perceived body weight in a subpopulation of adolescent men. These results are somewhat concordant with previous research showing a link between traditional media exposure and perception of body weight among adolescent men (17,28,29). Men are generally concerned about muscularity and engage in behaviours to increase weight and musculature (17,28,29). These findings provide further support for the public health guidelines recommending that children and youth limit their screen time to no more than 2 h day<sup>-1</sup> (19,30). The use of SNSs and dissatisfaction with body weight are both known to be more prevalent among women than men (31–33). Women are typically more likely to use SNSs and use them for more hours than their male counterparts (22). More work is therefore needed to explore the differences between adolescent men and women on the relationships between the use of SNSs and the perception of body weight and weight control behaviours.

Contrary to our findings and those of other correlational studies among female high school and university students (3,14–16), Fardouly *et al.* (34) recently reported in their experimental study of 112 university women that exposure to Facebook was not related to dissatisfaction with body weight or to the desire to change weight and shape. They found that women who tend to make more appearance comparisons on Facebook have a greater desire to change their face, hair and skin-related appearance (34). The discrepant findings are likely to be due to differences in studies' methodology and population. Although observational, the present study used a large and representative sample of middle and high school students in a Canadian province and used a more general measure of use of SNSs, rather than focusing on Facebook only. Further research is needed to disentangle these mixed results on the relationship between the use of SNSs and the body dissatisfaction.

Our results need to be interpreted in light of the following. First, the cross-sectional design limits the ability to make causal inferences about the relationships observed. Second, the data used were based on self-reports, and thus, bias related to such reports may be an issue, particularly for more sensitive measures such as dissatisfaction with body weight. Third, the use of single questions to measure perception and intentions regarding body weight may raise potential issues related to reliability. Additionally, these measures have not been previously validated. Fourth, the SNS measure provides information on the amount of time spent on SNSs but not on the way participants are using those web-based platforms. For example, it does not differentiate passive engagement (simple browsing) from active engagement such as posting, liking and commenting. Another limitation is that the study population does not include approximately 8% of

students within the regular school system in Ontario, mostly from private and alternate schools. It is possible that this excluded group of adolescents differs with respect to the use of SNSs and dissatisfaction with body weight. Thus, the external generalizability of our findings may be restricted to the study population. Finally, although our analyses adjusted for important covariates such as SES, ethnicity and parental education (35–37), we did not include parental weight – a variable not measured in this survey. Tienboon *et al.* (38) reported that adolescent girls who tried to lose weight had significantly heavier mothers, but not fathers, than those who had not attempted to lose weight. Future studies may investigate the role of parental weight within the associations between use of SNSs and adolescent body-weight perception and attitude.

In conclusion, the present study is the first to provide evidence that daily use of SNSs of more than 2 h among adolescent women is related to greater odds of dissatisfaction with body weight and the desire to lose weight and that daily use of SNSs of 2 h or less was related to lower risk of self-perception of being overweight among men. Although replication studies are needed, our findings provide support for education around self-esteem and body image and reduction of time spent on SNSs as a possible means to prevent dissatisfaction with body appearance among adolescents. Prevention and intervention programmes fostering self-esteem and positive body image among adolescents, particularly women, are needed in order to protect them from idealized nature of images posted on SNSs and risk related to comparisons.

## Conflict of Interest Statement

No conflict of interest was declared.

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H. S. K. and J. P. C. conceived the study. H. S. K. performed the statistical analyses and drafted the manuscript. J. P. C. and H. H. contributed to the interpretation of results and provided critical reviews of the manuscript. H. H. is a co-investigator of the survey on which the analyses are based. All authors read and approved the final manuscript.

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