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Social Media Usage, Physical Activity, Social Physique Anxiety, and Self-Presentation in Exercise Amongst Women: A One-Week Screen-Time Data Tracking Study

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The purpose of the present study was to investigate the effect that social media usage may have on social physique anxiety, and self-presentation in exercise. Specifically, the main research questions answered were whether overall social media usage (total time per week spent across individual social media platforms), online usage tendencies (observer or contributor), age cohort (18-24, 25-29, 30-34, 35-39), and/or physical activity levels (active or inactive), influenced perceptions of social physique anxiety and self-presentation in exercise among women. A total of 214 women between 18-39 years of age were recruited. A final usable sample of 155 women was retained who tracked their online social media usage tendencies for one week using a screen-time app (MyPhoneTime) and completed online surveys which measured social physique anxiety, self-presentation in exercise. Participants provided social media screen-time data tracking which indicated time and type of social media platforms used. Overall, Instagram was the most used platform for those 18-29 years old, while Facebook was the most used platform for those 30-39 years old, and Twitter was the least used platform across all age groups. Further breakdowns revealed Facebook was most used by those 30-34 years old, Instagram and Twitter were most used by those 25-29 years old, and TikTok and Snapchat were most used by those 18-24 years old. The findings revealed that there were no significant relationships between overall social media usage time, social physique anxiety, impression motivation, and impression construction dimensions of self-presentation in exercise. However, increased Twitter usage was related to increased scores in the impression motivation dimension of self-presentation. In addition, those who were more physically active also had increased impression motivation scores for self-presentation. This was most prevalent with those 18-24 years old.

Keywords: social media, screen-time, self-presentation, social physique anxiety, exercise, physical activity

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In recent years, social media platforms have become increasingly popular and are now viewed as a staple aspect within the lives of those who use it (O'Keeffe & Clarke-Pearson, 2011). Young adults utilize popular social media sites as their primary source of media (Bair et al., 2012). They are part of an ever-growing online community of around 3.5 billion users (Tjepkema et al., 2019). According to Emarketer (2019), Gen Y and Gen Z account for 90.4% of all social media users world-wide. This

online digital sphere allows its users to communicate and connect with others and creates a community where societal and cultural norms are developed and widely shared.

LITERATURE REVIEW

Previous research has examined the positive effects of an online community, and findings suggest positive associations with personal growth, relationships, and well-being (Davidson & Cotler, 1991; Obst & Starfurik, 2010). Although some positive effects of social media use have been noted (Pempek et al., 2009), with its rise in popularity, comes a plethora of new-age pressures that are inevitable to those who use it, especially for young people (Spraggins, 2009). These pressures may influence the content that users choose to post and engage with (i.e., portraying of our most idealistic self, photo editing) (Tiggemann & Slater, 2014; Perloff, 2014). Although links have been made between social media usage and body image concerns (e.g., Guizzo et al., 2021), it has been noted that relatively little theoretically driven research had been conducted to examine the processes and effects of social media usage on self-perceptions and body image concerns in women (Perloff, 2014).

Theoretical Models

Perloff's (2014) conceptual model highlights the impact of social media usage, predisposing individual vulnerability characteristics and mediating psychological processes on eating disorders and body image concerns or body dissatisfaction. The content features and interactive aspects of social media (i.e., images and peer presence) suggests that social media, working via social comparison, peer normative processes, and transportation, can significantly influence body image concerns (Perloff, 2014).

Stice's (1994) Sociocultural Model, would suggest that social media can be a strong medium for culturally induced norms and pressures to conform to societal standards. Furthermore, an individual's family, friends, and members of the media can act in the same way (Stice, 1994). The potentially utopian depiction that social media facilitates, can lead to the creation of culturally induced norms for users to conform to and reproduce (Jong & Drummond, 2013). Previous literature has focused mainly on the examination of the effects of mass media on body image and eating disorders among young women (Bell & Dittmar, 2011; Stice et al., 1994). However, the forms of mass media examined in past research are different to the more common forms of media used today having focused mainly on magazines (Harper & Tiggemann, 2007) and television (Berry & Howe, 2004).

Social Media and Body Image

The shift in popularity from these forms of media to a more convenient online social media (Bair et al., 2012; Tiggemann & Slater, 2013) gave way for an opportunity to conduct research regarding the effects of social media on decreased social well-being caused by online social comparison and negative associations with body image concerns, self-esteem issues, eating disorder symptoms, and overall psycho-social well-being (Frison & Eggermont, 2015; Santarossa & Woodruff, 2017; Woodruff et al., 2019). Overall, the evidence examining social media and its problematic effects across variables is still emerging and differs from the aforementioned media of print and television. Of what evidence that is available, numerous limitations (i.e., lack of direct measure of social media usage both overall and through multiple platforms) may have limited the conclusions one could draw in the results.

The literature suggests that women are more likely to compare their physique to others, particularly in relation to their weight and attractiveness and therefore causing body image dissatisfaction and social physique anxiety (Franzoi & Klaiber, 2007). However, whether or not social media influences the occurrence of social comparison and in turn, influences social physique anxiety levels and self-presentation among those who have higher social media usage (i.e., women) continues to be assessed (Duggan & Brenner, 2013; Guizzo et al., 2021). Likewise, previous researchers endeavored to investigate the effects of mass media on social physique anxiety, finding that appearance-based exposure (television advertisement) did not associate with higher social physique anxiety (Berry & Howe, 2004). However, like much of the past literature available, the study focused on what would currently be less commonly used forms of media today, which may not account for contemporary practices.

Previous findings in relation to online usage tendencies found that participating in 'lurking' activities (i.e., spending time viewing the profiles, statuses, and photographs of other users) occurred frequently among a sample of undergraduate students (Sponcil & Gitimu, 2012; Pempek et al., 2009). These authors found that those who engaged in lurking behaviors were more likely to have decreased levels of body image dissatisfaction.

However, these studies predominantly focused on Facebook usage and since their publication, numerous additional social networking sites have been developed, and have become more popular. This encourages the study of these other popular social media platforms that predominantly do not depend on relationships that are pre-established.

A further link between social media usage, and body image concerns may also be influenced by one's own physical activity engagement. The benefits of physical activity are well documented (e.g., Biddle et al., 2021). Engaging in physical activity can lead to mainly adaptive outcomes such as greater fulfilment of basic psychological needs (Gunnell et al., 2013; Paradis et al., 2014) better performance at work (Clohessy et al., 2021), improved mental health (e.g., Biddle & Asare, 2011; Weatherson et al., 2020) and physical health (e.g., Taylor et al., 2004; Rhodes et al., 2017). However, maladaptive outcomes can also be present such as exercise dependence (e.g., Hausenblas & Symons Downs, 2002; Paradis et al., 2013), body image dissatisfaction and social physique anxiety (e.g., Gammage et al., 2016) and disordered eating (Cook & Hausenblas, 2008; Tod & Edwards, 2015). These maladaptive outcomes could be exacerbated by some of the aforementioned negative influences of social media. Thus, researchers should take into consideration the interaction of physical activity engagement, social media usage, and body image concerns.

Purpose

Thus, the purpose of the present study was to investigate the effect that social media usage may have on social physique anxiety, and self-presentation in exercise, using an objective direct measure for social media usage across a wide variety of social media platforms. Specifically, the main research questions answered were whether overall social media usage (total time per week spent across individual social media platforms), online usage tendencies (observer or contributor), age cohort (18-24, 25-29, 30-34, 35-39), and/or physical activity levels (active or inactive), influenced perceptions of social physique anxiety and self-presentation in exercise among women. It was hypothesized that there would be a relationship between social media usage, social physique anxiety, self-presentation in exercise, and physical activity engagement.

METHODS

Participants

A total of 214 female adults (18-39 years of age) were recruited through online methods. This age bracket encompasses both Generation Y and Generation Z who were found to be most active in terms of usage (time/week) on the social media platforms being examined within the study (i.e., Facebook, Twitter, Instagram, Snapchat, and Tik Tok; Nwokeabia, 2019). The total of 214 women completed the online survey. However, a final usable sample of 155 was retained who were those that completed both the online survey and also returned their social media usage data tracking (72% completion rate). Of the usable sample group (n = 155), 69% (n = 106) were 18-24 years old, 15% (n = 23) were 25-29 years old, 7% (n = 11) were 30-34 years old, and 9% (n = 14) were 35-39 years old.

Procedure

Ethical approval was granted from the University Research Ethics Committee. Information in relation to the present study and its inclusion criteria were distributed across social media platforms (Twitter, Instagram, and Facebook) to recruit participants to participate in the study. The survey was shared electronically via SurveyMonkey on the aforementioned social media platforms. Completion of the survey took ~15 minutes.

A random sample of participants were recruited online. Participants could access the survey through the provided link posted and shared online. All participants provided informed consent before completing the surveys. Participants were also informed that a direct measure of their social media usage time and tendencies would be tracked and required to be returned along with completion of the survey. All participants used at least one of the platforms being examined (Twitter, Facebook, Snapchat, Instagram, and TikTok) on their android or iOS device. This screen time monitoring measure is built into all iOS devices. However, those participants who used Android devices were asked to download a time usage app known as 'MyPhoneTime'. Both measures provided in-depth data across any given seven days, detailing the duration of time spent on each application that is downloaded to the device. Finally, all participants were asked to send a screenshot of their screen time usage over a stated seven-day period to the researcher's email address that was provided in the participant letter of information.

Measures

Social Physique Anxiety Scale (SPA). The 9-item Social Physique Anxiety Scale (Hart et al., 1989) was used to assess the levels of social physique anxiety. Responses for this measure were reported on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (extremely). All scores were summed and the mean scores for each participant were calculated. Higher scores on this scale indicated a higher likelihood to avoid situations in which your physique can be scrutinized or judged. Both item 5 and item 8 were reverse scored. The Cronbach's alpha value was .74 for a unidimensional scale respectively.

Self-Presentation in Exercise Questionnaire (SPE). The 14-item Self-Presentation in Exercise Questionnaire (Conroy et al., 2000) consists of a two-component model of impression management within the context of exercise. These components are Impression Motivation (development of a desirable public identity) and Impression Construction (the alteration of behavior to influence others' impressions of them) which are influenced by social image. Responses are provided on a 6-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). The responses were split into their respective components, summed and the mean scores were calculated for each participant. Higher scores in the Impression Motivation component indicated higher levels of desire to appear fit and healthy whereas higher scores in the Impression Construction component indicated higher levels of behavior alteration in order to influence others impression of them. Item 6 was reverse scored. The Cronbach's alpha values were .77 for Impression Motivation and .84 for Impression Construction, respectively.

Social Media Usage (SMU). In order to objectively and directly measure the duration of time spent on social media platforms, all participants were asked to report back to the researcher with an email including a screenshot of their recorded screen-time usage for an agreed upon testing period of seven days. For those participants with iOS devices, a detailed breakdown of time spent on each social media application was a built-in software located in the phone settings. All other Android device users were asked to download an app called 'MyPhoneTime', a time management and productivity monitoring app developed by Smarter Time. Once downloaded, this app ran in the background of the device and recorded the duration of time the user spends on social media apps. All time usage data for each social media platform examined (i.e., Facebook, Twitter, Snapchat,

Facebook, and TikTok) was manipulated to be expressed in total minutes/week spent on each platform, as well as overall total time spent across all platforms through summation of all platform times and labelled Overall Social Media (OSM).

Physical Activity (PA). Physical Activity levels were measured with a simple self-report dichotomous style questionnaire. Participants were presented with a direct definition of the weekly physical activity guidelines for adults sourced from the UK Chief Medical Officers Guidelines for Physical Activity (2019). Participants were asked to either agree or disagree on whether they felt they met the following guidelines:

> 'Each week, adults should accumulate at least 150 minutes (2.5 hours) of moderate intensity activity (such as brisk walking or cycling); or 75 minutes (1.25 hours) of vigorous intensity activity (such as running); or even shorter durations of very vigorous intensity activity (such as sprinting or stair climbing); or a combination of moderate, vigorous, and very vigorous intensity activity.' (UK Chief Medical Officers Physical Activity Guidelines, 2019).

Online Usage Tendencies (OUT). Social Media Usage Tendencies were measured through a dichotomous style self-report questionnaire in which participants were asked to agree with the statement that best describes their presence on social media platforms to determine if they were more of an observer or a contributor in their usage tendencies.

> Statement 1 (Observer): 'I describe myself as a browser across many if not all social media platforms. I find myself often scrolling through these platforms offering little to no interactions, aside from perhaps "liking" but rarely, commenting and/or posting. I am more of an observer than a contributor.'
>
> Statement 2 (Contributor): 'I describe myself as an interactive user across many if not all of my social media platforms. I enjoy posting and/or commenting, in addition to 'liking' other peoples' content on many if not all social media platforms that I am part of and appreciate when others react the same to the content that I post. I am more of a contributor than an observer.'

Data Analysis

Data Screening and Cleaning. Data analysis was conducted using SPSS version 25.0 for Windows (IBM Corp, 2017). All data were examined for missing values and

accuracy. Descriptive statistics were conducted for all variables to check for significant outliers. Overall, no significant outliers were identified. An ANOVA was performed to assess for differences in each dependent variable (SPA, SPEQIM, & SPEQIC) among independent grouping variables (Social Media Usage, Age Cohorts, PA Levels, Observer/Contributor). In addition, paired samples t-tests were performed for each of the social media platforms included (Facebook, Twitter, Instagram, Snapchat, and TikTok) to assess for any significant differences in mean usage time between the social media platforms. Assumptions of independence, measurement, homogeneity of variance, and normality were tested and satisfied.

RESULTS

Descriptive Statistics

Descriptive statistics pertaining to Social Physique Anxiety and the Self-Presentation in Exercise dimensions of Impression Motivation and Impression Construction within the study can be found in Table 1. Furthermore, descriptive statistics in relation to social media usage can be found in Table 2. Bivariate correlations were assessed to evaluate whether statistically significant relationships were shared between the study dependent variables (SPA, SPEIM, & SPEIC) and independent variables (OSM and total times across all platforms examined), which are found in Table 3. Finally, results of paired samples t-tests comparing the means of usage time between social media platforms are found in Table 4.

Table 1

Descriptive Statistics of Social Physique Anxiety and Self-Presentation Among Women

		SPA		SPE(IM)		SPA(IC)	
		M	SD	*M*	SD	*M*	SD
Overall Sample		3.44	.48	3.99	.84	2.22	.88
Age	18-24	3.47	.47	4.07	.78	2.28	.93
	25-29	3.38	.41	3.99	.83	2.17	.72
	30-34	3.31	.44	3.34	1.15	1.96	1.01
	35-39	3.26	.65	3.83	.83	2.02	.60
Observer		3.44	.51	3.88	.94	2.12	.84
Contributor		3.41	.46	4.07	.73	2.30	.91
Physically Active		3.44	.43	4.15	.82	2.31	.89
Physically Inactive		3.40	.57	3.70	.79	2.05	.85

Note. n = 155; SPA: Social Physique Anxiety scored on 1-5 scale; IM: Impression Motivation and IC: Impression Construction scored on 1-6 scale; SPA = Social Physique Anxiety; SPE(IM) = Self-Presentation in Exercise Impression Motivation; SPE(IC) = Self-Presentation in Exercise Impression Construct.

Table 2

Descriptive Statistics of Overall Social Media Usage and Different Social Media Platforms

	Overall Social Media Usage		Facebook Usage		Instagram Usage		Twitter Usage		Snapchat Usage		TikTok Usage	
	M	SD	*M*	SD	*M*	SD	*M*	SD	*M*	SD	*M*	SD
Full Sample (n = 155)	207.97	587.45	321.10	333.02	387.54	258.87	56.41	118.38	280.68	231.99	166.12	242.52
Age 18-24 (*n* = 106)	1295.77	543.23	256.08	194.81	432.81	237.43	61.38	115.83	342.73	349.62	209.56	349.62
Age 25-29 (*n* = 23)	851.70	466.15	228.96	164.21	377.96	295.79	63.09	111.72	106.13	92.31	77.39	123.94
Age 30-34 (*n* = 11)	1337.91	863.67	46.27	777.21	323.00	303.39	12.00	28.95	212.09	298.92	48.27	107.42
Age 35-39 (*n* = 14)	1025.57	631.56	630.64	427.46	111.21	109.12	53.50	182.48	151.57	206.26	78.71	194.49
Observer (*n* = 84)	1304.04	550.27	326.92	303.49	420.65	266.09	44.66	74.55	311.75	373.42	205.30	269.85
Contributor (*n* = 71)	1125.65	608.74	316.12	358.10	359.22	250.67	68.28	145.65	254.11	269.93	132.21	211.96
Active (*n* = 98)	1174.09	573.58	267.60	251.14	417.95	262.82	64.70	131.02	291.37	298.06	137.53	218.58
Inactive (*n* = 56)	1267.05	611.69	414.71	428.07	334.32	245.09	44.59	92.48	261.98	362.18	215.66	274.25

Note. M = Mean time usage (in minutes); *SD* = Standard Deviation (in minutes)
('') = Number of Participants included in subgroup/variable.

Table 3

Bivariate Correlations between all Study Variables

	SPAS	IM	IC	Age	O/C	PA	SM	FB	Insta	Twit	Snap	TikTok
SPAS	.	-.01	-.01	-.15	.03	.04	-.10	-.09	-.09	.04	-.04	.01
IM	-.01	.	.56**	-.17**	-.12	-.25**	.05	-.05	.04	.17*	.12	-.08
IC	-.01	.56**	.	-.11	-.10	.15	.05	.04	.06	.13	-.01	-.05
Age	-.15	-.17*	-.11	.	-.11	.01	-.15	.41**	.35**	-.06	-.23**	-.23**
O/C	.03	-.12	-.10	-.11	.	-.17*	.15	.02	.12	-.10	.09	.15
PA	.04	-.25**	.15	.01	-.17*	.	-.08	-.21**	.16	.08	.04	-.16
SM	-.10	.05	.05	-.15	.15	-.08	.	.39**	.48**	.18*	.59**	.51**
FB	-.08	-.05	.04	.41**	.02	-.21**	.39**	.	-.16	-.11	-.10	-.06
Insta	-.09	.04	.06	-.35**	.12	.16	.48**	-.16	.	.11	.10	.12
Twit	.04	.17**	.13	-.06	-.10	.08	.18*	-.11	.11	.	.00	-.01
Snap	-.04	.11	-.01	.23**	.09	.04	.59**	-.10	.10	.000	.	.14
TikTok	.01	-.08	-.05	.23**	.15	-.16	.51**	-.06	.12	-.01	.14	.

Note: ** Correlation is significant at .01 level (two-tailed);
* Correlation is significant at .05 level (two-tailed)

Table 4

Paired Samples t-tests Comparing Time Usage between Different Social Media Platforms

Item	Mean Diff.	Standard Deviation (*SD*)	*t*	*df*	*p*
Facebook & Instagram	-66.44	452.72	-1.82	153	.071
Facebook & Twitter	263.71	365.89	8.94	153	>.001
Facebook & Snapchat	40.42	484.71	1.04	153	.302
Facebook & TikTok	151.03	421.43	4.43	152	>.001
Instagram & Twitter	330.15	272.56	15.03	153	>.001
Instagram & Snapchat	106.86	391.74	3.39	153	>.001
Instagram & TikTok	220.88	333.43	8.19	152	>.001
Twitter & Snapchat	-223.29	343.17	-8.08	153	>.001
Twitter & TikTok	-108.93	270.70	-4.98	152	>.001
Snapchat & TikTok	115.82	375.00	3.82	152	>.001

Differences in Overall Social Media Usage, Social Physique Anxiety, and Self Presentation

There were no statistically significant relationships found between overall social media usage and Social Physique Anxiety; $r(150) = -.097$, $p = .233$, Impression Motivation; $r(151) = .49$, $p = .551$, and Impression Construction; $r(151) = .054$, $p = .506$. However, the bivariate correlations revealed a statistically significant relationship between Impression Motivation and Twitter usage; $r(151) = .169$, $p = .036$. A median split was performed on Twitter time usage (*Median* = 80.00 minutes) in order to categorize usage as either high or low (high = above the median; low = below the median).

A one-way ANOVA was performed which revealed a statistically significant difference between high and low Twitter usage and Impression Motivation scores; $F(1,151) = 3.80$, $p = .050$, $\eta^2 = .03$; High Twitter usage ($M = 210.29$ minutes, $SD = 177.580$); Low Twitter usage ($M = 12.81$ minutes, $SD = 24.313$).

Age Differences in Social Physique Anxiety and Self-Presentation

A one-way ANOVA was performed which revealed a statistically significant difference between age groups on Impression Motivation and age; $r(151) = -.168$, $p = .038$. The ANOVA revealed a statistically significant difference between age groups and Impression Motivation score; $F(3,149) = 2.85$, $p = .039$, $\eta^2 = .05$. A post-hoc Bonferroni test was conducted to confirm the difference between age groups; 18-24 year-olds ($M = 4.07$, $SD = .78$); 30-34 year-olds ($M = 3.34$, $SD = 1.15$).

Observer/Contributor

Through dichotomous self-report methods, participants reported on their social media online usage tendencies with 54% reporting to identify as an observer while using their social media platforms with 46% identifying as a contributor while using their social media. When examining this in regard to age, a relatively even split for the age bracket 18-24 was found as 51% claimed to be observers, and 49% identified as contributors. For of the participants aged between 25-29, 58% identified as observers and 42% claimed to be contributors. As for the 30-34 age bracket, 55% reported as observers and 45% reported as contributors. Thus, the distribution of observers and contributors was found to be fairly equal between those age groups between 18-34, however, greater discrepancy was found with those within the 35-39 age bracket where 71% identified as observers and only 29% as contributors.

Observer/Contributor Differences in Social Physique Anxiety and Self-Presentation

ANOVAs revealed that there were no statistically significant differences between those who claimed to be observers and contributors in relation to levels of Social Physique Anxiety; $F(1,149) = .119$, $p = .648$, and Self-Presentation in Exercise; Impression Motivation; $F(1,149) = 1.592$, $p = .209$, Impression Construction; $F(1,149) = 1.789$, $p = .183$.

Observer/Contributor Differences in Social Media Usage/Platforms

Likewise, ANOVAs showed no statistically significant differences between observers and contributors in relation to their overall social media usage; $F(1,152) = 3.589$, $p = .060$ and all platforms examined within the study. Facebook: $F(1,152) = .040$, $p = .842$; Snapchat: $F(1,152) = 1.228$, $p = .270$; Instagram: $F(1,152) = 2.171$, $p = .143$; Twitter: $F(1,126) = 1.524$, $p = .119$; and Tiktok: $F(1,132) = 3.513$, $p = .068$.

Physical Activity Levels

Through a self-report dichotomous response questionnaire regarding physical activity levels, it was found that the majority of the participants (63%) felt that they met the UK Chief Medical Officers Weekly Physical Activity Guidelines with the remainder of participants (36%) feeling they did not meet these guidelines. On examining each age group in relation to this topic, it was found that of those aged between 18-24, 61% reported to believe they meet the weekly physical activity guidelines, with 39% claiming to not

meet the guidelines. Of those aged between 25-29 years of age, 78% reported they met the guidelines, while 22% reported they did not meet them. Of those aged 30-34 years old, 63% of women reported that they met the guidelines, with 37% reported not meeting them. Finally, of women aged between 35-39, 57% reported they met the guidelines, while 42% reported not meeting them.

Physical Activity Level Differences in Social Physique Anxiety and Self-Presentation

A statistically significant relationship was also shared between Impression Motivation and Physical Activity levels; $r(151) = -.254$, $p = .002$. An ANOVA also found that there was a statistically significant difference between physical activity levels on Impression Motivation scores; $F(1,151) = 10.42$, $p = .002$, $\eta^2 = .07$; Active ($M = 4.15$, $SD = .82$); Inactive ($M = 3.71$, $SD = .78$).

Physical Activity Level Differences in Social Media Usage/Platforms

An ANOVA also revealed a statistically significant difference between Observers and Contributors in their physical activity levels, $F(1,143) = 4.382$, $p = .039$. Statistically significant relationships were also shared between physical activity levels and those who identified as observers in their online usage tendencies; $r(152) = -.167$, $p = .038$. and Facebook time usage; $r(152) = -.213$, $p = .008$.

DISCUSSION

The purpose of the present study was to investigate the effect of overall social media usage may have on social physique anxiety and self-presentation in exercise among women using an objective direct measure for social media usage across a wide variety of social media platforms. Results of the present study suggest that the overall duration of time spent on social media does not directly influence levels of social physique anxiety and self-presentation in exercise among women. This result somewhat contradicts previous findings stating that increased problematic social networking site usage was associated with decreased self-esteem, life satisfaction, and overall happiness, and increased loneliness and depression (Spraggins, 2009). The findings within the present study partially supports previous findings of a relationship between body image concerns, self-esteem issues, and social media usage (Santarossa & Woodruff, 2017).

Specifically, results within the study indicate that a greater level of Twitter usage was associated with higher levels of Impression Motivation Self-Presentation, that is, the

desire to appear in a favorable way to avoid scrutiny. This result supports previous findings connecting mass media with maladaptive effects on body image concerns among young women (Bell & Dittmar, 2011). Overall, based on the findings of the present study, the duration of time spent on all social networking sites may not directly influence levels of social physique anxiety and self-presentation in women. However, certain social media sites may be more triggering than others. This also may suggest the degree to which social media acts as a medium for pervasive social pressure to appear a certain way, may be less than that of the influence of peers or family noted in the Sociocultural Model (Stice, 1994).

As there is very little empirical evidence assessing these variables, it is arduous to corroborate the claim associated with these findings without further research in this area. Therefore, the findings of the present study warrant future research into social media usage and its possible relationship with social physique anxiety and self-presentation in women and men.

The specific findings of the present study links Twitter usage and increased physical activity levels with increased prevalence of the Self-Presentation subscale of Impression Motivation also somewhat relates to the findings of Tiggeman and Slater (2014), where time spent on social networking sites (i.e., Facebook and MySpace) was linked with higher levels of dieting. Social networking platforms encourage the creation and spread of culturally induced norms (Jong & Drummond, 2013), where there is a greater chance of social comparison among those who use it. Increased Impression Motivation from higher Twitter usage may be due to the multiple social comparisons that are rife among social media platforms.

Findings from Stice (2001) found that body image concerns led to the desire to change their appearance by means of disordered eating. With that in mind, the findings associated with increased Impression Motivation Self Presentation levels within the present sample could be related to time spent on social media platforms. Results showed that 30-34 year-olds spent the greatest amount of overall time across all social media platforms. When mean comparisons were conducted across all platforms, it was found that 30-34 year-olds used Facebook more frequently than all other age groups, and 25-29 year-

olds used Instagram and Twitter more frequently than all other age groups. Finally, 18-24 year-olds used Snapchat and TikTok more frequently in comparison to other age groups. Furthermore, results indicated that Facebook was the most popular social media platform with those participants who were aged 30-34 and 35-39, Instagram was most popular among those aged 25-29, and Snapchat was most popular with those aged 18-24. Finally, Twitter was found to be the least popular platform that was used across all age groups within the sample (see Table 2 for further descriptive statistics on platform usage).

Given that 18-24 year-olds were found to have greater levels of Impression Motivation and higher usage of image driven platforms like Instagram, Snapchat, and TikTok, these users may feel higher levels of body image concerns with the inevitable possibility for social comparison across these platforms. Therefore, as the 18-24 year-olds scored significantly higher on Impression Motivation, they demonstrate the greatest desire to appear healthy.

Those who reported meeting the physical activity guidelines also had greater Impression Motivation scores than those who reported failing to meet these guidelines. Therefore, those who reported to meet the physical activity guidelines also reported higher self-presentational concerns, and thus portraying a higher desire to appear healthy and fit on social media. Furthermore, those who reported to not meet the physical activity guidelines (i.e., were less physically active), also tended to report as observers (i.e., posted less on social media) in their online usage tendencies and used the Facebook platform the most. Contrarily, those who were contributors (i.e., posted more on social media) tended to be more physically active and used the Instagram platform the most.

The findings in the present study concerning self-reported physical activity levels and online usage tendencies (observer/contributor) may expand on the findings within previous research that examined online 'lurking' tendencies (Pempek et al., 2009; Sponcil & Gitimu, 2012). Given that within the current study's findings of observer tendencies (similar to that of lurking tendencies), increased in tandem with lower levels of physical activity, this may act as a mediator for the social media comparison-body image dissatisfaction relationship and therefore gives way for further examination of these variables and the potential relationship they share among women.

One main limitation of the current study was the lack of a direct objective measure of physical activity levels, and instead relying on self-report. This aspect may have induced an element of self-report bias and thus influencing the results based on physical activity levels. However, obtaining a direct measure with participants in a lab setting was not possible due to the restrictions put in place due to the ongoing COVID-19 global pandemic. These restrictions unfortunately altered the way the entire data collection process took place, in that it was modified to a completely online based methodology and thus consisted elements of self-report. Future research should aim to use an objective method of measurement for physical activity levels to improve validity of results.

Although the current research aimed to encompass a wider diversity in age within the sample compared to that of past research (Santarossa & Woodruff, 2017; Uhlir, 2016), through both online and community-based recruitment, the change to an online data collection method across three platforms (Facebook, Twitter, and Instagram) may have contributed to the inability to gather a larger cohort of participants. Of those who took part, the large majority of the participants were represented within the lower range of the age brackets 18-24 and 25-29 with the upper range of the age brackets, 30-34 and 35-39, being under-represented. Demographic information in relation to ethnicity or socioeconomic status was also not collected, which could have provided further insights into the sample. It would be beneficial to attempt to collect this information in order to better understand the diversity, or lack thereof, in the sample which could also provide opportunities for further analysis based on additional demographic factors of social media usage, and how that might influence the study variables of interest.

Despite the strength of using a direct objective measure of social media usage times used in the present study, as was encouraged from previous researchers (Santarossa & Woodruff, 2017; Hummel & Smith, 2015), the specific content that each participant was viewing on each platform was not known due to privacy. Studying the types of content participants engaged with on social media platforms may also be informative, in that the genre and nature of content in which participants are subjected to and the purpose of their online usage (i.e., leisure, employment, marketing, etc.) may be examined and provide further insights into the relationships with the study variables of interest. Thus, future

researchers may consider a longitudinal study to manipulate exposure to different types of online content where social comparison would thrive, may be warranted. However, consenting participants may engage in a levels of self-selection bias and therefore these results would encounter limitations similar to the self-report bias discussed above.

Finally, social desirability bias may have influenced the way in which participants responded within the Social Physique Anxiety Scale and Self-Presentation in Exercise questionnaires. Given that each measure examines a topic that may be sensitive to social desirability bias, participants may have responded to each scale according to how their answers would be viewed by others, portraying themselves in a more favorable manner rather than giving a truthful answer. In order to overcome this, future research could endeavor to use the social desirability scale (Crowne & Marlowe, 1960). This will allow the researcher to assess whether to include/exclude them from the study.

In conclusion, the present study exhibited that overall social media usage did not have a direct effect on social physique anxiety or self-presentation in exercise among women. However, increased Twitter usage, and being physically active (meeting physical activity guidelines) within the age group of 18-24 year-olds, had significant positive relationships with the Impression Management dimension of Self-Presentation, and therefore, had a higher desire to appear fit and healthy. In addition, in terms of age and social media preferences, image driven social media platforms such as Snapchat, TikTok, and Instagram, were more widely used by those under the age of 30, whereas Facebook was the most popular platform used by those over the age of 30, and Twitter was the least used platform across all age groups. As these more image-oriented platforms were most popular among 18-24 year-olds, they therefore may have contributed to increased levels of Impression Motivation Self-Presentation by means of social comparison.

References

Bair, C. E., Kelly, N. R., Serdar, K. L., & Mazzeo, S. E. (2012). Does the Internet function like magazines? An exploration of image-focused media, eating pathology, and body dissatisfaction. *Eating Behaviors*, *13*, 398–401.

Bell, B. T., & Dittmar, H. (2011). Does media type matter? The role of identification in adolescent girls' media consumption and the impact of different think-ideal media on body image. *Sex Roles*, *65*, 478-490.

Berry, T. R., & Howe, B. L. (2004). Effects of health-based and appearance-based exercise advertising on exercise attitudes, social physique anxiety and self-presentation in an exercise setting. *Social Behaviour and Personality: An International Journal*, *32*(1), 1-12.

Biddle, S. J., & Asare, M. (2011). Physical activity and mental health in children and adolescents: A review of reviews. *British Journal of Sports Medicine*, *45*(11), 886-895.

Biddle, S. J., Mutrie, N., Gorely, T., & Faulkner, G. (2021). Psychology of physical activity: Determinants, well-being, and interventions. Routledge.

Clohessy, T., Whelan, E., & Paradis, K. F. (2021). Does passion for physical activity spillover into performance at work? Examining the direct and indirect effects of passion and life satisfaction on organisational performance and innovativeness, *International Journal of Sport and Exercise Psychology*, *19*(5), 794-814.

Cook, B. J., & Hausenblas, H. A. (2008). The role of exercise dependence for the relationship between exercise behavior and eating pathology: mediator or moderator?. *Journal of Health Psychology*, *13*(4), 495-502.

Conroy, D. E., Motl, R. W., & Hall, E. G. (2000). Progress toward construct validations of the Self-Presentation of Exercise Questionnaire (SPEQ). *Journal of Sport & Exercise Psychology*, *22*, 21-38.

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, *24*(4), 349-354.

Davidson, W. B., & Cotter, P. R. (1991). The relationship between sense of community and subjective well-being: A first look. *Journal of Community Psychology*, *19*, 246–253.

Department of Health, UK. (2019). Chief Medical Officers' Physical Activity Guidelines—2019.

Duggan, M., & Brenner, J. (2013). The demographics of social media users—2012. Pew Research Center's Internet & American Life Project. http://pewinternet.org/Reports/2013/Social-media-users.aspx

Emarketer, (2019). US Social Media Users, by Generation (% of population - 2018). https://www.emarketer.com/chart/226029/us-social-media-users-by-generation-2019-of-population

Franzoi, S. L., & Klaiber, J. R. (2007). Body use and reference group impact: With whom do we compare out bodies? *Sex Roles*, *56*(3-4), 205-214.

Frison, E., & Eggermont, S. (2015). Exploring the relationship between different types of Facebook use, perceived online social support and adolescents' depressed mood. *Social Science Computer Review*, *34*(2), 153-171.

Gammage, K. L., Drouin, B., & Lamarche, L. (2016). Comparing a yoga class with a resistance exercise class: Effects on body satisfaction and social physique anxiety in university women. *Journal of Physical Activity and Health*, *13*(11), 1202-1209.

Guizzo, F., Canale, N., & Fasoli, F. (2021). Instagram sexualization: When posts make you feel dissatisfied and wanting to change your body. *Body Image*, *39*, 62-67.

Gunnell, K. E., Crocker, P. R., Wilson, P. M., Mack, D. E., & Zumbo, B. D. (2013). Psychological need satisfaction and thwarting: A test of basic psychological needs theory in physical activity contexts. *Psychology of Sport and Exercise*, *14*(5), 599-607.

Harper, B., & Tiggemann, M. (2007). The effect of thin ideal media images on women's self-objectification, mood and body image. *Sex Roles*, *58*, 649-657.

Hart, E. A., Leary, M. R., & Rejeski, W. (1989). Tie measurement of social physique anxiety. *Journal of Sport & Exercise Psychology*, *11*(1), 94-104.

Hausenblas, H. A., & Downs, D. S. (2002). Exercise dependence: A systematic review. *Psychology of Sport and Exercise*, *3*(2), 89-123.

Hummel, A. C., & Smith, A. R. (2015). Ask and you shall receive: Desire and receipt of feedback via Facebook predicts disordered eating concerns. *International Journal of Eating Disorders, 48(4), 436–442.*

IBM Corp. (2017). IBM SPSS Statistics for Windows, Version 25.0. [Computer Software]. IBM Corp.

Jong, S. T., & Drummond, M. J. (2013). Shaping adolescent girls' body image perceptions: The effect of social media on Australian adolescent girls. In Proceedings of the 28th ACHPER International Conference, Melbourne, Victoria, Australia.

Nwokeabia, B. (2019). Digital Marketing Trends Roundup 2019. http://www.emarketer.com/content/digital-marketing-trend-2019

Obst, P., & Stafurik, J. (2010). Online we are all able bodied: Online psychological sense of community and social support found through membership of disability-specific websites promotes well-being for people living with a physical disability. *Journal of Community & Applied Social Psychology*, *20*, 525–531.

O'Keeffe, G. S., & Clarke-Pearson, K. (2011). The impact of social media on children, adolescents and families. American Academy of Paediatrics, 127(4), 800-804.

Paradis, K. F., Cooke, L. M., Martin, L. J., & Hall, C. R. (2013). Too much of a good thing? Examining the relationship between passion for exercise and exercise dependence. *Psychology of Sport and Exercise*, *14*(4), 493-500.

Paradis, K., Cooke, L. M., Martin, L. J., & Hall, C. R. (2014). Just need some satisfaction: Examining the relationship between passion for exercise and the basic psychological needs. *Health and Fitness Journal of Canada*, *7*(2), 15-28.

Pempek, T. A., Yermolayeva, Y. A., & Calvert, S. L. (2009). College students' social networking experiences on Facebook. *Journal of Applied Developmental Psychology*, *30*, 227–238.

Perloff, R. M. (2014). Social media effects of young women's body image concerns: Theoretical perspectives and an agenda for research. *Sex Roles*, *71*, 363–377.

Rhodes, R. E., Janssen, I., Bredin, S. S., Warburton, D. E., & Bauman, A. (2017). Physical activity: Health impact, prevalence, correlates, and interventions. *Psychology & Health*, *32*(8), 942-975.

Santarossa, S., & Woodruff, S. J. (2017). '#SocialMedia: Exploring the relationship of social networking sites on body image, self-esteem and eating disorders.' *Social Media & Society*, *3*(2), 1-10.

Sponcil, M., & Gitimu, P. (2012). Use of social media by college students: Relationship to communication and self-concept. *Journal of Technology Research*, *4*, 1–13.

Spraggins, A. (2009). Problematic use of online social networking sites for college students: Prevalence, predictors, and association with well-being (Unpublished doctoral dissertation). University of Florida, Gainesville, FL.

Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. *Clinical Psychology Review*, *14*, 633–661.

Stice, E. (2001). A prospective test of the dual-pathway model of bulimic pathology: Mediating effects of dieting and negative affect. *Journal of Abnormal Psychology*, *110*(1), 124–135.

Stice, E., Schupak-Neuberg, E., Shaw, H. E., & Stein, R. I. (1994). Relation of media exposure to eating disorder symptomatology: An examination of mediating mechanisms. *Journal of Abnormal Psychology*, *103*, 836–840.

Taylor, A. H., Cable, N. T., Faulkner, G., Hillsdon, M., Narici, M., & Van Der Bij, A. K. (2004). Physical activity and older adults: A review of health benefits and the effectiveness of interventions. *Journal of Sports Sciences*, *22*(8), 703-725.

Tjepkema, L., Enochs, M., Donlan, K., Barlow, H., & Stewart, B. (2019). Top Social Media Predictions for 2019. http://emarsys.com/learn/blog/top-5-social-media-predictions-2019/

Tiggemann, M., & Slater, A. (2013). NetGirls: The Internet, Facebook, and body image concern in adolescent girls. *International Journal of Eating Disorders*, *46*, 630–633.

Tiggemann, M., & Slater, A. (2014). NetTweens: The Internet and body image concerns in pre-teenage girls. *The Journal of Early Adolescence*, *34*, 606–620.

Tod, D., & Edwards, C. (2015). A meta-analysis of the drive for muscularity's relationships with exercise behaviour, disordered eating, supplement consumption, and exercise dependence. *International Review of Sport and Exercise Psychology*, *8*(1), 185-203.

Uhlir, J. L. (2016). Social comparison and self-presentation on social media as predictors of depressive symptom. Scripps senior thesis Discussion paper no. 37 756. Claremont: Claremont Colleges [Online] https://scholarship.claremont.edu/scripps_theses/756/

Weatherson, K., Gierc, M., Patte, K., Qian, W., Leatherdale, S., & Faulkner, G. (2020). Complete mental health status and associations with physical activity, screen time, and sleep in youth. *Mental Health and Physical Activity*, *19*, 100354.

Woodruff, S., Santarossa, S., & Lacasse, J. (2019). Posting# selfie on Instagram: What are People Talking About? *The Journal of Social Media in Society*, *7*(1), 4-14.

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