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This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/1661336> since 2018-03-06T11:01:24Z

Published version:

DOI:10.1016/j.chb.2018.01.003

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Highly-Visual Social Media and Internalizing Symptoms in Adolescence: the Mediating Role of
Body image concerns

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Abstract

Highly-visual social media (HVSM), such as Instagram and Snapchat, have experienced a significant increase in popularity among adolescents in recent years. Findings indicate use of social media is related to body image concerns and poorer mental health in adolescence. However, previous research on HVSM is scant and mainly focus on female samples. In this view, the present study investigated the association between time spent on HVSM, body image concerns and internalizing symptoms, in sample of adolescents attending grades 6-11 in Northern Italy. Data for this study were based on 523 students, 54.2 % female; Mean age (SD) = 14.82 (1.52). Multiple linear regression was used to examine the associations between time spent using social media, body image concerns, and internalizing symptoms. Overall, students reporting using Facebook and HVSM for more than 2 hours were 7.1% and 28.9% of the sample. Students reporting frequent use of HVSM (> 2 hours/day) reported significantly higher body image concerns and internalizing symptoms than peers reporting no use of HVSM. Further, we found the positive link between use of HVSM and internalizing symptoms to be mediated by participants' body image concerns problems. These findings suggest that adolescents reporting high use of HVSM might be at risk for increased body image concerns, which in turn might lead to poorer psychological adjustment.

Keywords: Social Media, Mental Health, Adolescents, Body Image Concern, Internalizing symptoms, Facebook

1. Introduction

1.1. *Body Image Concerns and Internalizing Symptoms in Adolescence*

Probably due to socio-cultural influences and socialization processes, body image is a central feature in adolescent self-concept. Adolescents can develop negative feelings about their body and may be dissatisfied with their body image. Girls tend to seek a thin figure, in line with the socio-cultural model of aesthetic perfection in force in western society; boys are divided between those that perceive themselves as overweight and those that feel they are too thin and may therefore feel dissatisfied with their body and decide to lose weight in order to achieve a lean, muscular body shape (i.e, drive for muscularity) (Hargreaves & Tiggemann, 2004; Longobardi, Prino, Fabris, & Settanni, 2017).

Various studies have found a correlation between body dissatisfaction and internalizing symptoms, such as anxiety and depression, in adolescents, among whom girls appear more at risk than boys (Bucchianeri et al., 2016; Rawana & Morgan, 2014; Stice & Bearman, 2001). Further, findings from longitudinal studies indicate that body image act as a prospective predictor of internalizing symptoms in adolescence: Over time, persistently negative body image perceptions can favor the development of depressed mood in both adolescent boys and girls (e.g., Holsen, Kraft, & Røysamb, 2001; Morin, Maïano, Scalas, Janosz, & Litalien, 2017; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006). The explanation for the relation between the two aspects is not straightforward. Comparisons with the models presented by the mass media and with their peers are likely to increase body image concerns in the young who perceive a gap between their own body image and the aesthetic ideal internalized. Internalizing symptoms may correlate with body dissatisfaction due to the sense of inadequacy experienced by adolescents with negative body image and because of the difficulty in social interaction and concerns about

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peer acceptance often experienced by adolescents (Colunga-Rodríguez et al., 2016). As a result, adolescents trying to cope with these negative feelings are more at risk of being involved in unhealthy behaviors such as restrictive diet, excessive exercise, steroid or illicit drug consumption, excessive tanning etc.

1.2. Use of Social Media, Internalizing Symptoms and Body Image Concerns

Due to the increasing popularity of social media among young people, many studies have investigated its role as factor in their psychological adjustment. Findings indicate that heavy use of social media, such as Facebook, Twitter or Instagram, is associated with poor mental health and increased internalizing symptoms in adolescence (Sampasa-Kanyinga & Lewis, 2015) and young adulthood (Jelenchick, Eickhoff, & Moreno, 2013; Moreno et al., 2011; Rosenthal, Buka, Marshall, Carey, & Clark, 2016; Simoncic, Kuhlman, Vargas, Houchins, & Lopez-Duran, 2014). A recent survey conducted in the UK among young people aged 14-24 found social media platforms, including Facebook, Twitter, Instagram, to have a detrimental effect on many health-related psychological outcomes including sleep problems, anxiety, and depression (RSPH, 2017).

One of the key aspects of social media that has been under the scrutiny of researchers is that of their role in promoting negative social comparison, and its link with subjective well-being and unhealthy behaviors (Gerson, Plagnol, & Corr, 2016; Walker et al., 2015; Yang, 2016). This link is theoretically based on the notion that upward social comparison decreases happiness. Findings indicate that social media users are prone to impression management practices (Manago, Graham, Greenfield, & Salimkhan, 2008; Settanni & Marengo, 2015; Vogel & Rose, 2016; Zhao, Grasmuck, & Martin, 2008). For example, they may underreport negative experiences (Settanni & Marengo, 2015; Zhao et al., 2008), or digitally edit or limit publication

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of unflattering images on their online profiles (Lang & Barton, 2015; Manago et al., 2008; Toma & Hancock, 2010). This manipulation of their social media presentation may increase the possibility that posted content reflect a highly idealized image (Manago et al., 2008), facilitating upward appearance comparisons among users browsing their social media profiles, and ultimately undermining their emotional wellbeing (Liu et al., 2017). This process might be partially interpreted in light of changes in body image perception. Regular exposure to the vast amount of visual content (image, videos) posted on social media platforms provides users with many situations in which they are led to compare their appearance with that of other users, which in turn can have negative effects on their personal body image, in particular during adolescence (Fardouly & Vartanian, 2016). Indeed, an ever-growing number of findings exist indicating a positive link between social media usage and body image concerns among adolescents and young adults (Kim & Chock, 2015; Manago, Ward, Lemm, Reed, & Seabrook, 2015), in particular among female users (Fardouly, Diedrichs, Vartanian, & Halliwell, 2015a, 2015b; Meier & Gray, 2014; Smith, Hames, & Joiner, 2013; Tiggemann & Miller, 2010; Tiggemann & Slater, 2013, 2014; Vandenbosch & Eggermont, 2012). The majority of these researches focus on Facebook, mostly due its great popularity compared with other social media platforms (Facebook has more than 2 billion active users, rendering it the most used social media in the world, Statista, 2017a). However, highly visual social media (HVSM) platforms, such as Instagram and Snapchat, have recently experienced a rise in popularity, particularly among young people (RSPH, 2017). These social media platforms mainly focus on sharing user-generated visual content, such images and short videos, and allow the use of filters to modify and improve users' looks before upload. Findings concerning the impact of these image-focused platforms on body image concerns and internalizing symptoms are scant, and mostly focus on

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female samples. Recent studies on young women have shown that exposure to other users' Instagram profiles and photos can result in an increase in negative mood (Brown & Tiggemann, 2016) and body dissatisfaction (Hendrickse, Arpan, Clayton, & Ridgway, 2017). Consistent with these findings, usage of two popular HVSM, Instagram and Snapchat, has been linked with worsened body image and mental health by a recent UK-wide survey conducted among adolescents and young adults of both genders (RSPH, 2017). Still, as noted by Fardouly and Vartanian (2016), there is a need for research on more diverse samples to clarify the impact these social media platforms have on users' body image concerns, and ultimately on their psychological well-being.

1.3. The present study

Guided by previous findings, the present study aims at evaluate the association between social media use, and in particular that of HVSM, with body image concerns and internalizing symptoms in a sample of adolescents attending grades 6-11. In particular, in light of the Social Comparison Theory (Festinger, 1954), we hypothesize that frequent use of HVSM could favor the development of internalizing symptoms as a consequence of increased opportunities for upward comparisons with idealized body images posted by other users. Furthermore, we expect that the negative impact of HVSM usage on internalizing symptoms is partially explained by a worsening body image perception. Guided by findings of longitudinal studies (e.g., Holsen, Kraft, & Røysamb, 2001; Morin, Maïano, Scalas, Janosz, & Litalien, 2017; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006), in the analyses we treat body image concerns as a predictor of internalizing symptoms. Specifically, we evaluate the role of body image concerns as mediator of the relationship between time spent on HVSM and internalizing symptoms,

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controlling for age, gender, and time spent on Facebook. We control for gender and age differences due to their expected impact on key study variables in adolescence as recognized by previous studies (i.e., use of social media, e.g., Lenhart, 2015; body image concerns, e.g., O'Dea & Caputi, 2001; and internalizing symptoms, e.g., Natsuaki, Biehl, M & Ge, 2009). Next, the rationale for controlling time spent on Facebook relates to the need to evaluate whether a negative effect of HVSM over body image concerns and internalizing symptoms exists, and if this effect is distinct from the effect of Facebook use.

Based on previous findings, our hypotheses are the following: h1) Adolescents' HVSM use is linked to an increase in both body image concerns and internalizing symptoms; h2) The effect of HVSM use on internalizing symptoms is mediated by body image concerns.

2. Methods

2.1. *Sample*

Initial sample consisted of 598 adolescents - 54.2 % female, mean age (SD) = 14.82 (1.52) - attending grades 6-11 in two large secondary schools in Northern Italy. After removal of participants with missing data on study measures ($n = 75$), our final sample consisted of 523 participants - 53.5% female, mean age (SD) = 14.82 (1.52).

2.2. *Materials and procedure*

Data used in this study were collected from schools in May of 2017. Participants were asked to fill in a questionnaire using paper and pencil. Participation in the study required informed consent from both parents and students. Ethical approval to conduct research was obtained from the University of Turin IRB (protocol no. 256071).

2.3. Instruments

2.3.1. Use of social media

We asked participants to report about daily use (hours per day) of Facebook and highly visual social media (HVSM, i.e., Instagram, Snapchat). Based on participant reports, we computed two indicators of use of Facebook and HVSM. In order to distinguish between adolescents reporting different patterns of social media use (i.e., no use, moderate and frequent social media use), participants' use of social media platform was categorized based on the recommended 2 hours cut-off for identifying high social media use in adolescence (O'Keeffe, Clarke-Pearson, & Media, 2011; Sampasa-Kanyinga & Lewis, 2015). For the purpose of this study, we grouped participants according to the following categories: no use, moderate use (≤ 2 hours/day), frequent use (> 2 hours/day). Distinguishing between moderate and frequent use of social media has been found to be relevant for this kind of research: Findings indicate that moderate use may in some cases prove beneficial for adolescents' mental health, while frequent use is generally expected to have a negative impact (Frith, 2017).

2.3.2. Body image concerns

We assessed body image concerns using the Italian version of BSQ (Body Shape Questionnaire; Cooper, Taylor, Cooper, & Fairbum, 1987), a self-report instrument evaluating weight and shape preoccupations. Sample items include: "Have you been so worried about your shape that you have been feeling you ought to diet?"; "Have you noticed the shape of others and felt that your own shape compared unfavorable?". The questions are answered on a six-point Likert scale (1 = never, 6 = always); the score ranges from 34 to 204. In our sample, reliability

was excellent ($\alpha = .94$).

2.3.3. *Internalizing Symptoms*

We used the Italian self-rated version (Marzocchi et al., 2004) of the Strength and Difficulties Questionnaires (SDQ; (Goodman, Meltzer, & Bailey, 1998) to assess students' perception of their own difficulties and strengths. Adolescents in the present study compiled the Italian version of the SDQ2, which consists of 25 items measuring five dimensions. The five dimensions are: Emotional Symptoms Conduct Problems, Hyperactivity/Inattention, Peer Relationship Problems, and Prosocial Behavior. All items are rated on a three-point Likert scale (0 = Not True, 2 = Certainly True), and raw scores are used to compute the five subscale scores; a higher score indicates more difficulties or strengths, depending on the subscale. In the present study, the SDQ emotional symptoms subscale was used in the analysis (e.g., "I am often unhappy"). Cronbach's alpha of the SDQ subscale emotional symptoms was adequate ($\alpha = .72$).

2.3.4. *Analysis strategy*

As noted above, we found a certain amount of observations with missing data in our initial dataset ($n = 75$), i.e., observations for which only incomplete information about BSQ ($n = 65$) and SDQ ($n = 10$) was available, thus not allowing computation of the measures' scores. Prior to subsequent analyses, we tested if the missing data met the Missing Completely at Random (MCAR) assumption. If missing data meets the MCAR assumption, removal of observations with missing data is expected to produce unbiased estimates of coefficient in regression models (Allison, 2002). Results of Little's MCAR test ($\chi^2 = 17.34$, $p = .63$) and the nonparametric MCAR test proposed by Jamshidian and Jalal (2010; as implemented in the

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MissMech R package, Jamshidian, Jalal, & Jansen, 2014) (Hawkins test: $p = .12$; non-parametric test of homoscedasticity: $p = .31$) as performed on the study variables indicated that missing data met the MCAR assumption, thus supporting our decision not to include observations with missing data in the following analyses.

Association between time (hours/day) spent on Facebook and HVSM, and the other study measures was evaluated using Pearson's correlation. Next, Student's t-test was used to explore mean differences between users and non-users of Facebook and HVSM on continuous variables (i.e., age, body image concerns, and internalizing symptoms). Chi-Square tests were used to investigate differences in use of Facebook and HVSM across gender.

Multiple regression analyses were then performed to test the mediating role of body image concerns in the relationship between time spent on HVSM and internalizing symptoms. Specifically, we employed the bootstrapping technique for testing mediation using the Hayes' Process macro for SPSS (2008), creating 5.000 bootstrapped samples for each analysis. This approach required the estimation of three regression models. In each model, the effect of time spent on HVSM was included by using two dummy coded variables (Moderate, and Frequent HVSM use), treating no HSVM use as a reference category in the analyses (Preacher & Hayes, 2004). First, a regression model was run to test the association between time spent on HVSM and the outcome variable, i.e. internalizing symptoms. A second regression model tested the impact of time spent on HVSM on the mediator, i.e., body image concerns. In a third, final model, time spent on HVSM and body image concerns are both entered in the same model as predictors of the outcome, i.e., internalizing symptoms. In each model, we controlled for students' age, gender, and Time spent on Facebook (Moderate and Frequent use). After running the models, mediation was examined by testing significance of indirect effects, representing the

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multiplication of the unstandardized effect of the independent variable (i.e., time spent on HVSM) on the mediator (i.e. body image concerns, with the effect of the mediator (i.e., body image concerns) on the dependent variable (i.e., internalizing symptoms). Significance of the indirect effect was assessed using 95 % bias-corrected confidence intervals. Indirect effects were deemed significant if the associated confidence interval did not span zero.

Except where indicated, all analyses were performed using SPSS version 18.

3. Results

3.1. *Correlations among study measures*

Correlations among study measures are reported in Table 1. We found a significant positive correlation between age and both time spent on Facebook and HVSM. Being female showed a positive correlation with the amount of time participants spent on HVSM, and reported body image concerns, and internalizing symptoms. Both time spent on Facebook and HVSM were positively correlated with body image concerns and internalizing symptoms. Finally, there was a positive correlation between body image concerns and internalizing symptoms.

3.2. *Participant characteristics by social media platform*

In our sample, Instagram emerged as the most used social media (79.9% of participants), followed by Facebook (57%), and Snapchat (49.5%). Users of HVSM (Instagram, Snapchat) were 82.4% of the sample. Table 2 reports participants' characteristics by use of social media platform. We found use of Facebook to be significantly more common among males than females. In turn, females were more likely to use HVSM than males. Use of Facebook and HVSM was significantly more common among high school students. Coherently, Facebook and

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HVSM users were significantly older than non-users.

Concerning body image concerns and internalizing symptoms, we found HVSM users to report significantly higher scores than non-users on both measures, while no significant differences were found when comparing Facebook users and non-users.

INSERT HERE TABLE 2

3.3.Effects of time spent on HVSM, and body image concerns on internalizing symptoms

Multiple regression analyses were run to examine body-dissatisfaction as a mediator in the relation between time spent on HVSM and each internalizing symptoms, controlling for gender, age, and time spent on Facebook (No use/Moderate use/Frequent use) (see Figure 1). The first regression ($R^2 = .20$) aimed at examining the impact of time spent on HVSM on adolescents' internalizing symptoms. Results showed that frequent use of HVSM positively predicted internalizing symptoms ($B = 0.69$, $SE = 0.32$, $p = .03$, 95% CI [0.06, 1.33]), while moderate use (< 2 hours/day) did not emerge as a significant predictor ($B = 0.13$, $SE = 0.28$, $p = .64$, 95% CI [-0.42, 0.68]). The second regression model ($R^2 = .20$) tested the impact of HVSM use on body image concerns. Results showed that frequent use of HVSM (> 2 hours/day) positively predicted body image concerns ($B = 0.33$, $SE = 0.13$, $p = .01$, 95% CI [0.07, 0.59]); again, moderate use (≤ 2 hours/day) showed a positive non-significant effect ($B = 0.22$, $SE = 0.11$, $p = .06$, 95% CI [-0.01, 0.44]). Further analyses were performed to verify whether the variance in internalizing symptoms explained by frequent use of visual social media decreases when body image concerns is included in the model as a predictor. As shown in Figure 1, when body-dissatisfaction was included in the model, frequent use of visual social media no longer

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predicted internalizing symptoms. In this final model ($R^2 = .33$), the path coefficient between frequent use of HVSM and internalizing symptoms decreased from 0.69 ($p < 0.05$) to 0.37 ($p = 0.22$). Moreover, body image concerns positively predicted internalizing symptoms ($B = 0.99$, $SE = 0.10$, $p < .01$, 95% CI [0.80, 1.19]). As a final step, the results for the indirect effects analysis were significant for both moderate (effect = 0.22, $SE = 0.09$, 95% CI [.04, .40]) and frequent use (effect = 0.33, $SE = 0.12$, 95% CI [.11, .57]) of visual social media, confirming the mediating role of body image concerns.

All tested effects were controlled for students' age, gender, and time spent on Facebook (No use/Moderate use/Frequent use). Only gender showed significant effects, indicating female had higher body image concerns ($B = 0.79$, $SE = 0.08$, $p < .001$, 95% CI [0.63, 0.95]), and internalizing problems ($B = 2.05$, $SE = 0.21$, $p < .001$, 95% CI [1.64, 2.45]), even after including body image concerns in the model, $B = 1.26$, $SE = 0.21$, $p < .001$, 95% CI [.86, 1.66]).

INSERT HERE FIGURE 1

4. Discussion

Social media is now an integral part of adolescents' social life. In particular, in the last few years social media focusing on visual content, such as Instagram and Snapchat, have been outshining older social media platforms in terms of popularity (e.g., Facebook, Twitter) especially among adolescents (Statista, 2017b). This was echoed in our study, as recruited adolescents were significantly more likely to report use of HVSM than Facebook.

Based on findings from previous studies conducted on different social media platforms, the first aim of this study was to investigate the relationship between use of HVSM and both body image concerns and internalizing symptoms. Our results are in line with previous findings

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indicating that frequent use of social media may have a negative impact on both body image (Fardouly et al., 2015a, 2015b; Kim & Chock, 2015; Manago et al., 2015; Meier & Gray, 2014; Smith et al., 2013; Tiggemann & Miller, 2010; Tiggemann & Slater, 2013, 2014; Vandenberg & Eggermont, 2012) and mental health (Fabris, Longobardi, Prino, & Settanni, 2017; Fardouly et al., 2015a; Jelenchick, Eickhoff, & Moreno, 2013; Moreno et al., 2011; Rosenthal, Buka, Marshall, Carey, & Clark, 2016; Sampasa-Kanyinga & Lewis, 2015; Simoncic, Kuhlman, Vargas, Houchins, & Lopez-Duran, 2014) in adolescence and young adulthood. In our study, we found that adolescents reporting use of social media focusing on visual content (i.e., Instagram, Snapchat) express significantly greater dissatisfaction with their body image and report greater levels of emotional symptoms. Further, these effects appear to be stronger than the effects linked to the use of Facebook, and to be stronger when use is frequent (> 2 hours per day).

Next, we tested for the presence of a mediating effect of body-image concerns on the link between HVSM use and internalizing symptoms. As hypothesized, we found that the effect of HVSM was fully mediated by body image concerns, supporting the hypothesis that frequent use of HVSM favors an increase of body image concerns in adolescents, and that in turn the greater worry for physical appearance results in higher levels of emotional symptoms among HVSM users.

These results are interpretable in the theoretical framework of Social Comparison Theory: As it happens in mass-media in general, the contents of HVSM become a source of comparison both for boys and girls. A more frequent use and interaction on HVSM increases the opportunities for comparison with images posted by other users, pictures that often emulate socially accepted “idealized” body image models (Kim & Chock, 2015). The perception of a gap between the assessment of their own body image and these pictures favors the increase of

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dissatisfaction and concerns about body image, which in turn, makes the development of internalizing symptoms, such as depression and anxiety, more likely.

Even though these results bring a new perspective to the relationship between social media use and internalizing symptoms, they must be interpreted with caution, and the specific research design should be taken into account. We employed a cross-sectional design. Although most studies measuring a mediating effect have adopted this type of research design, longitudinal studies would allow a better understanding of the associations between use of social media, internalizing symptoms, and body image concerns. The next limitation is theoretical and has to do with the hypothesized direction of causality of the link between body image concerns and internalizing symptoms. Longitudinal studies suggest that in adolescence the direction of causality among these two constructs goes from body image concerns to internalizing symptoms, i.e., body image concerns affect adolescents' internalizing symptoms, while the reverse link does not generally hold (e.g., Holsen, Kraft, & Røysamb, 2001; Morin, Maïano, Scalas, Janosz, & Litalien, 2017; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006). Guided by these findings, in our analyses we treated body image concerns as a predictor of internalizing symptoms. However, it is plausible that internalizing symptoms might also play a role in predicting body image concerns (e.g., Aderka, et al. 2014). Collecting longitudinal data, future studies exploring the impact of social use on both body image concerns and internalizing symptoms might help establish the direction of the relationships linking these constructs in adolescence (e.g., by examining different influencing mechanisms using cross-lagged paths). Another limitation relates to the use self-report to assess time spent on social media, which may have introduced potential biases due to social desirability effects and possible lack of awareness. In particular, findings indicate that when users are asked to self-report estimates of social media

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usage, reported data tend to differ from actual usage measures collected by directly tracking users' online activity (e.g., Junco, 2013). Alternative data collection designs allowing for the assessment of adolescents' actual use of social media (e.g., information collected by directly accessing participants' social media profiles) would have provided us with a more reliable estimation of the frequency of participants' online activity on social media. Further concerning the assessment of time spent on social media, in the analyses we distinguished the impact of different patterns of use by recoding self-reports and grouping participants based on a widely used cut-off (>2 hours) for identifying frequent social media use. Although limited, this approach can be viewed as a simplified alternative to more complex regression approaches, such as the estimation of quadratic terms (i.e., polynomial regression), and the segmentation of main effects using breakpoint values (i.e., segmented regression), which can be useful when continuous independent variables are expected to exhibit non-linear relationships with outcomes. Finally, the present study was performed on a sample of Italian adolescents, thus results may not be fully generalizable to other national contexts. However, it is worthy to note that Italy is similar to other Western industrialized countries both in terms of social media usage (Statista, 2017c) and standards of physical attractiveness (McElhone, Kearney, Giachetti, Zunft & Martínez, 1999; Zaccagni, Masotti, Donati, Mazzoni & Gualdi-Russo, 2014). In particular, attractiveness standards are different for males and females, and consist of a cultural ideal of thinness for women (Striegel-Moore & Franko, 2002), and leanness and muscularity for men (Thompson & Cafri, 2007), with no substantial differences emerging between different geographic areas (i.e., North- vs. South-Italy, Jaeger et al., 2002). In light of this, we do expect to find a similar pattern of relationships among study variables in other Western countries, but further studies are needed to test this hypothesis.

5. Conclusions

Our study highlights the mediating effect of body image concerns on the relationship between use of image- and video-based social media (HVSM) and internalizing symptoms among adolescents. In doing this, our study fills a gap in the literature on the impact use of highly-visual social media is having on adolescents regarding body image and mental-health (Fardouly & Vartanian, 2016; RSPH, 2017). This is particularly important given the impressive percentages of social media use among adolescents, and in particular that of social-media platforms focusing on visual content. Given the scarcity of literature on these new social media platforms, it is important that further research is carried out into the consequences of their use on adolescents' health (Brown & Tiggemann, 2016).

The study has practical implications for the development of interventions aimed at preventing or reducing the negative impact of social media on adolescent health: interventions should aim at promoting critical awareness of the idealized images that are presented on online social media, as well as of the potential impact that exposure to these kind of images can have on adolescents' body image, and consequently on their psychological well-being. This kind of intervention could be targeted not only at adolescents, but also at parents and education professionals in order to favor their involvement in monitoring and supporting adolescents in their social media life.

Finally, from a more general point of view, our study underlines that it is important for research to focus on the differences between the various kinds of social media. This not only allows us to monitor the preferences of adolescents and adults in the wide range of existing social media platforms, but also enables us to make a more adequate study of the psychological

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and psychopathological phenomena associated with online activity, especially with social networks.

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Table 1. Correlations among study measures ($N = 523$)

	1	2	3	4	5
1 Age	-				
2 Gender (1=Female; 0=Male)	-.02	-			
3 Time spent on Facebook (hours/day)	.31**	.05	-		
4 Time spent on HVSM (hours/day)	.13**	.26**	.38**	-	
5 Body image concerns (BSQ)	.07	.41**	.13**	.17**	-
6 Internalizing symptoms (SDQ-SE)	.05	.44**	.09*	.21**	.52**

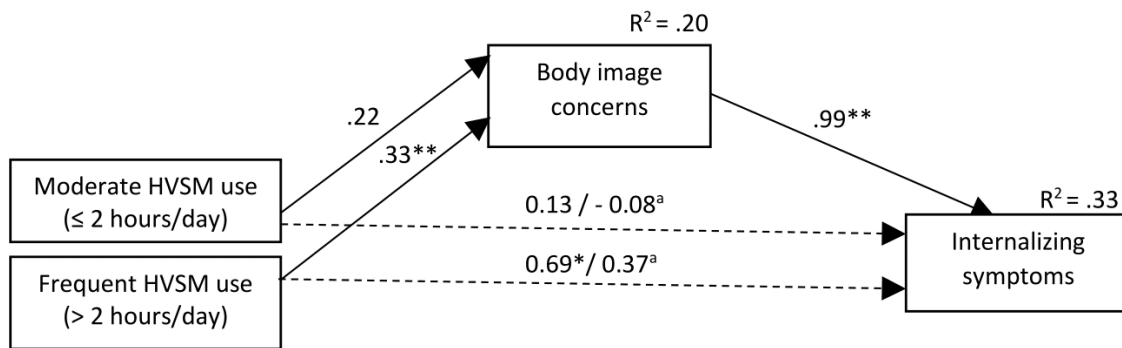
* $p < .05$, ** $p < .01$

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Table 2. Demographic characteristics and prevalence of body shape concerns and internalizing symptoms by type of social media platform (N = 523)

	Uses Facebook			Uses HVSM		
	Yes	No		Yes	No	
N (%)	298 (57.0%)	225 (43.0%)		431 (82.4%)	92 (17.6%)	
	%	%	P	%	%	p
Sex			<.05			<.01
Female	52.5%	47.5%		87.5%	12.5%	
Male	62.1%	37.9%		76.5%	23.5%	
	M (SD)	M (SD)	P	M (SD)	M (SD)	p
Age	15.29 (1.38)	14.20 (1.45)	<.01	14.91 (1.44)	14.39 (1.75)	<.01
Body image concerns	66.99 (32.07)	61.75 (27.97)		67.28 (31.66)	52.78 (20.33)	<.01
Internalizing symptoms	3.72 (2.57)	3.56 (2.39)		3.78 (2.53)	3.02 (2.19)	<.01
Average daily use (Minutes)	73.33 (91.23)			154.12 (208.76)		
Frequent use (> 2 hours/day)	N = 40 (7.6%)			N = 152 (29.1%)		

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Note. * $p < .05$, ** $p < .01$. ^a Effects controlling for body image concerns. Effects of control variables are not shown to improve readability.

Figure 1. Parameter estimates of mediation analyses, controlling for demographic characteristics (age, sex, school-level) and time spent on Facebook (No use/Moderate use/Frequent use).