



The Perfect Storm: A Developmental–Sociocultural Framework for the Role of Social Media in Adolescent Girls’ Body Image Concerns and Mental Health

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Abstract

In this theoretical review paper, we provide a developmental–sociocultural framework for the role of social media (SM) in adolescent girls’ body image concerns, and in turn, depressive symptoms and disordered eating. We propose that the features of SM (e.g., idealized images of peers, quantifiable feedback) intersect with adolescent developmental factors (e.g., salience of peer relationships) and sociocultural gender socialization processes (e.g., societal over-emphasis on girls’ and women’s physical appearance) to create the “perfect storm” for exacerbating girls’ body image concerns. We argue that, ultimately, body image concerns may be a key mechanism underlying associations between adolescent girls’ SM use and mental health. In the context of proposing this framework, we provide empirical evidence for how SM may increase adolescent girls’ body image concerns through heightening their focus on (1) other people’s physical appearance (e.g., through exposure to idealized images of peers, celebrities, and SM influencers; quantifiable indicators of approval); and (2) their own appearance (e.g., through appearance-related SM consciousness; exposure to idealized self-images; encouraging over-valuing of appearance; and peer approval of photos/videos). Our framework highlights new avenues for future research on adolescent girls’ SM use and mental health, which recognize the central role of body image.

Keywords Social media · Body image · Adolescence · Gender · Depression · Disordered eating

Introduction

Smart phones and social media are central to adolescents’ lives. In 2018, 95% of U.S. teens reported having access to a smartphone, with smartphone ownership nearly universal across gender, race, ethnicity, and socioeconomic background (Anderson & Jiang, 2018a). One of the most common activities in which teens engage via smartphones

is social media use; according to Common Sense Media, 70% of U.S. teenagers report using social media (SM) multiple times per day (Rideout & Robb, 2018). Rates of mental health symptoms, including depression (Keyes et al., 2019), eating disorders (Galmiche et al., 2019), and suicidal ideation and behavior (CDC, 2017) have risen among adolescents, particularly girls, in recent years. In addition, recent revelations, first reported by the *Wall Street Journal* (“The Facebook Files,” 2021), have called attention to social media companies’ internal research findings suggesting that their products may negatively impact the mental health of teens, and particularly teen girls. These factors have contributed to high-profile and controversial public debates regarding the role of SM use in contributing to adolescent mental health, including a series of congressional hearings and legislative proposals aiming to curb the potential negative influence of SM use on teens (Blumenthal & Blackburn, 2022).

Despite conflicting findings across studies examining associations between social media use and mental health, a consensus is emerging that adolescent girls have different experiences with SM than boys. Notably, highly visual

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SM—such as Instagram, Snapchat, Tumblr, Tik Tok, and Facebook—are especially common among adolescent girls (Anderson & Jiang, 2018a). Adolescents view highly edited images of peers, celebrities, and “influencers.” These images and videos often include thin and toned women, promoting exercise and healthy eating (Tiggemann & Zaccardo, 2018), or ultra-thin, sexually suggestive images of women encouraging weight loss (Ghaznavi & Taylor, 2015). An emerging body of work has documented associations between adolescents’ use of SM and heightened body image concerns (e.g., de Vries et al., 2016; Marengo et al., 2018; Rodgers et al., 2020) and has found higher levels of SM-related appearance concerns among girls compared to boys (e.g., Choukas-Bradley et al., 2020; Nesi et al., 2021; Rodgers et al., 2020; Zimmer-Gembeck et al., 2021). Yet this work is often absent from prevailing debates about the potential harms of social media, which frequently reference oversimplified measures of “screen time” (see Granic et al., 2020) and do not take into account the unique appearance-related SM experiences of many adolescent girls. Thus, the field has lacked a unifying theoretical framework for understanding the exacerbation of body image concerns as a potential mechanism underlying associations between adolescent girls’ SM use and mental health. The development of such a framework is vital to the future of research on adolescent SM use.

In this theoretical review paper, we provide an organizing framework for research on the role of SM in contributing to girls’ body image concerns, and in turn, their depressive

symptoms and disordered eating. We integrate theoretical perspectives and empirical findings from developmental, clinical, and social psychology, as well as media and communication studies. Our goal is to provide a developmental–sociocultural framework that addresses why and how SM may affect the body image of adolescent girls in particular. Specifically, we propose that the features of SM (e.g., idealized images of peers, quantifiable feedback) intersect with broader developmental and social processes in adolescence (e.g., salience of peer feedback and social status, heightened self-consciousness in the form of the “imaginary audience”) and sociocultural gender socialization processes (e.g., emphasis on girls’ and women’s physical appearance) to create the “perfect storm” for exacerbating girls’ body image concerns, and for some girls, worsening their mental health. Prior theoretical reviews and empirical papers have proposed specific pathways through which SM use may increase body image concerns, yet existing publications have focused on disordered eating without addressing depressive symptoms and/or have not focused specifically on adolescent developmental considerations (see Perloff, 2014; Rodgers & Melioli, 2016; Rodgers, 2016; Rodgers et al., 2020). No prior theoretical reviews have explored how SM features, cultural factors, and biopsychosocial factors may come together to affect girls’ body image, depressive symptoms, and disordered eating during the adolescent developmental period.

Figure 1 shows our full developmental–sociocultural theoretical framework. In the first part of this paper, we

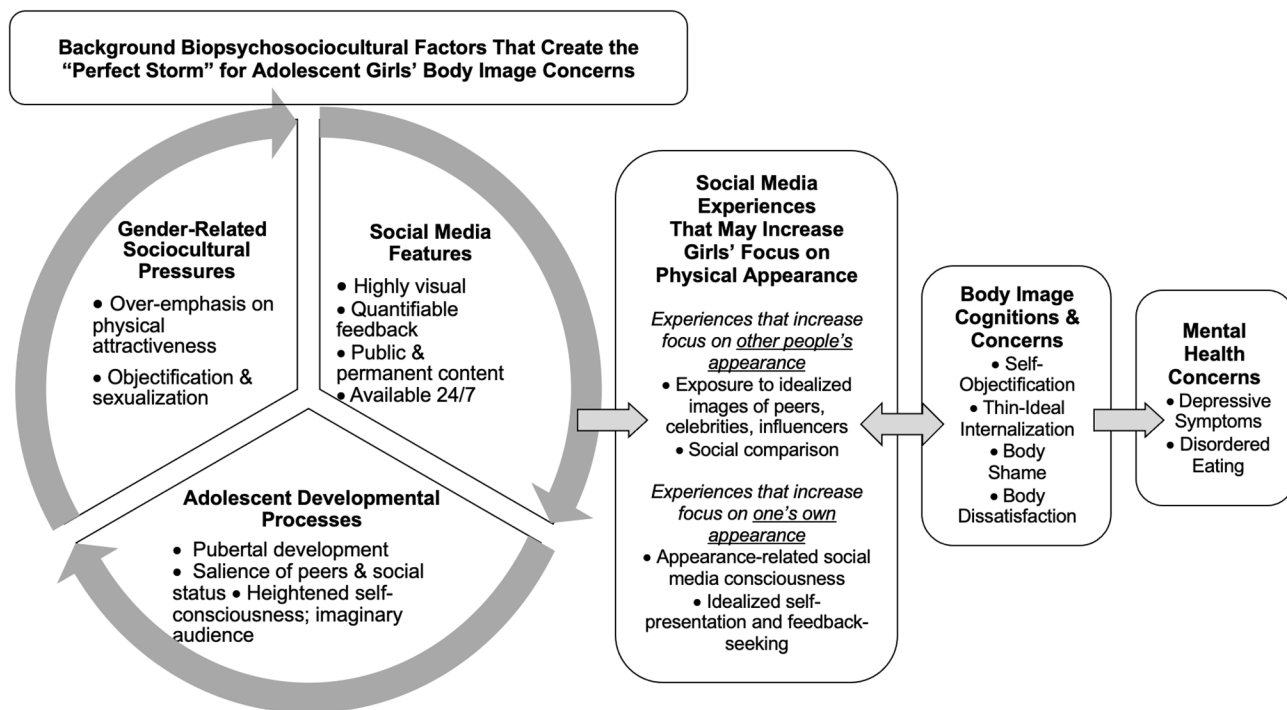


Fig. 1 Developmental–sociocultural framework: adolescent girls’ social media use, body image concerns, and mental health

provide an overview of depression and disordered eating among adolescent girls. Next, we discuss relevant theoretical perspectives on adolescent girls' body image concerns, including theories regarding gender-specific sociocultural appearance pressures, features of adolescence as a developmental period, and features of SM. Next, we provide empirical evidence for how these factors may collectively increase body image concerns in adolescent girls, through two primary processes: body image concerns in relation to adolescent girls' increased focus on (1) *other people's* appearance on SM and (2) *their own* appearance on SM. Throughout the paper, we highlight how these processes contribute to body image concerns and, in turn, depression and disordered eating.

A systematic literature review is beyond the scope of this theoretical paper; however, we highlight relevant empirical studies and reviews where applicable. Additional boundaries of this review are as follows: First, we focus on cisgender girls, although we address the need for more research on SM use and body image concerns of adolescents of other genders. Second, our focus is on adolescents, rather than adult women, and we focus primarily on the developmental periods of early and middle adolescence (roughly ages 11–17), with some empirical findings included from late adolescent and emerging adult samples when especially relevant. Third, we emphasize highly visual SM (e.g., Instagram, Snapchat, TikTok) rather than other types of SM (e.g., primarily text-based sites; multiplayer video gaming). Highly visual SM apps are the types of SM that adolescent girls use most frequently (Rideout & Robb, 2018) and which have been most consistently linked to body image concerns (Saiphoo & Vahedi, 2019).

Finally, while a broad range of other mental health outcomes have been examined in relation to adolescent girls' social media use (e.g., anxiety, suicidal ideation and behavior), we focus here on depressive symptoms and disordered eating as mental health outcomes for two key reasons. First, decades of research prior to the advent of SM documented that depressive symptoms and disordered eating increase at the transition from childhood to adolescence and are higher among adolescent girls than boys (e.g., Maughan et al., 2013; Neumark-Sztainer et al., 2011). Second, these outcomes have received extensive research attention in the context of adolescent girls' and young women's SM use (e.g., Choukas-Bradley et al., 2020; Saunders & Eaton, 2018; Twenge & Farley, 2020; Wilksch et al., 2020). Notably, there may be important ways in which SM use *positively* influences adolescent girls' body image and mental health (see, e.g., Rideout & Robb, 2018; Granic et al., 2020; Hamilton et al., 2021). Our goal in this paper is not to argue that the effects of SM on mental health are exclusively negative but rather to examine body image concerns as mechanisms that could

help explain girls' SM-related mental health challenges when they do emerge.

Adolescent Girls' Body Image Concerns, Depressive Symptoms, and Disordered Eating

Although body image concerns begin in childhood for girls, they spike at the transition to adolescence (Rodgers et al., 2014). U.S. estimates suggest that approximately 81% of adolescent girls and 55–67% of adolescent boys experience at least some dissatisfaction with their bodies (Lawler & Nixon, 2011; Neumark-Sztainer et al., 2006). The increase in body dissatisfaction in adolescence is likely caused by numerous developmental transitions, including biological, social, and psychological changes (Markey, 2010). Girls' body image typically worsens during puberty (Klump, 2013), when increases in body fat move them farther from the thin ideal. Further, their social status becomes determined by physical attractiveness (Mayeux & Kleiser, 2020), while simultaneously, they experience increased self-consciousness (Elkind, 1967). Body-image concerns are a key risk factor for depressive symptoms and disordered eating. Depressive symptoms increase markedly during adolescence, especially among girls (Maughan et al., 2013), and rates of depression among adolescents have increased in recent years (Geiger & Davis, 2019). Disordered eating also increases during adolescence, with nearly half of adolescent girls engaging in disordered eating behaviors, compared to less than a third of boys (Holm-Denoma et al., 2014; Neumark-Sztainer et al., 2011). The perceived discrepancy between the ideal body and one's own body—which results from peer, parental, and media influences (Thompson et al., 1999)—has been associated with adolescents' increased depressive symptoms (Solomon-Krakus et al., 2017) and disordered eating behaviors (Halliwell & Harvey, 2006; Shroff & Thompson, 2006), with findings particularly robust for adolescent girls. Longitudinal studies with adolescents provide robust empirical support for the link between body dissatisfaction and subsequent disordered eating and depressive symptoms, particularly among girls (Ferreiro et al., 2014; Sharpe et al., 2018; Stice et al., 2011).

Theories Regarding Gender-Related Sociocultural Appearance Pressures

Gender differences in the emphasis on and pursuit of physical attractiveness are rooted in gendered norms and roles. Western notions of femininity, into which adolescent girls are socialized, include the pursuit of thinness and (often excessive) investment in one's appearance (Mahalik et al.,

2005; Tolman & Porche, 2000). Feminist social critics and scholars argue that prescriptions of physical beauty function to keep women subordinate to men (Dworkin, 1974; Wolf, 1990), and indeed recent experimental work suggests that support of women's intense pursuit of appearance ideals is motivated by attempts to maintain hierarchical power differentials between men and women (Ramati-Ziber et al., 2020). Despite major sociocultural shifts in gender roles in the past decades (e.g., women in the workforce), the emphasis on appearance remains central to women's role in society. For example, in a study conducted by the Pew Research Center in 2017, when asked what trait U.S. society most values in women, the most common response was physical attractiveness (35% of respondents), whereas respondents believed men were most valued for morality (33%), financial success (23%), and ambition (19%; Parker et al., 2017).

Several theories, proposed before the advent of SM, address how gender-related sociocultural pressures may socialize girls to over-emphasize their physical appearance. For example, the *tripartite influence model of body image* proposes that three sociocultural forces—peers, parents, and the media—influence girls' and women's body image through two primary mechanisms: (1) encouraging internalization of the thin ideal, and (2) fostering appearance comparisons (Thompson et al., 1999). Internalization of the thin ideal refers to the extent to which an individual internalizes culturally defined standards of beauty, which at the time of the tripartite model's publishing focused primarily on thinness (Thompson et al., 1999). Appearance comparisons are connected to Festinger's (1954) *social comparison theory*, which proposes that individuals engage in social comparison in order to estimate their own social status relative to others. Social comparison has been linked to body dissatisfaction in boys and girls, with especially robust findings for girls (Jones, 2001). More broadly, since its proposal in 1999, the tripartite influence model has received widespread empirical support and is used as a guiding framework for eating disorder prevention with adolescents (Pennesi & Wade, 2016).

Another key theory for understanding body dissatisfaction is *objectification theory*, which proposes that in a culture that sexually objectifies women's bodies, girls and women learn to adopt an observer's perspective of their bodies and to habitually monitor their bodies—i.e., to engage in *self-objectification* (Fredrickson & Roberts, 1997). Fredrickson and Roberts (1997) proposed that these experiences usually begin at the transition from childhood to adolescence, as girls' bodies begin to attract the gaze, sexualization, and evaluation of others. Furthermore, they proposed that women's disproportionate rates of depression and eating disorders may be explained in part by experiences related to sexual objectification and self-objectification (Fredrickson & Roberts, 1997). Contemporaneously, McKinley and Hyde (1996) proposed the related construct of *objectified*

body consciousness, which describes women's tendencies to view their bodies as others see them (i.e., *body surveillance*), to internalize cultural beauty standards, and to experience *body shame* when appearance ideals are not achieved. Both theories emphasized how Western cultural contexts socialize young women to over-value physical attractiveness; to devote substantial cognitive, emotional, and financial resources toward attempts to achieve cultural beauty standards; and to experience body image concerns, shame, and distress when these standards cannot be achieved (Fredrickson & Roberts, 1997; McKinley & Hyde, 1996). Dozens of studies have provided empirical support for adolescent girls' self-objectification and body surveillance as risk factors for mental health concerns (see Daniels et al., 2020). For example, multiple longitudinal studies find support for self-objectification as a prospective predictor of adolescent girls' depressive symptoms and disordered eating (e.g., Impett et al., 2011; Slater & Tiggemann, 2012).

In the more than two decades since these sociocultural theories related to physical appearance concerns were published, Western beauty standards for women and girls have continued to prioritize thinness, while evolving to also encompass toned muscles and curviness (e.g., Deighton-Smith & Bell, 2018). Importantly, psychological research on body image has focused predominantly on White women and girls and on Eurocentric beauty ideals including thinness, light skin, Eurocentric facial features, light-colored eyes, and straight hair. While scholars have increasingly called for attention to culturally specific appearance ideals and greater diversity in research on body image and disordered eating (e.g., Beccia et al., 2019; Burke et al., 2020; McEntee et al., 2020; Watson et al., 2019; Wilfred & Lundgren, 2021), the majority of studies cited in the current paper relied on predominantly White samples from Western nations, reflective of the current research literature on social media use and body image among young women. The role of diverse sociocultural appearance ideals and the intersection of social media use and body image for Girls of Color is a critical area of future work, discussed further in our Limitations and Future Directions section.

Theories Regarding Features of Adolescence as a Developmental Period

The processes discussed above may be relevant to girls and women of various ages, but perhaps especially during adolescence—a developmental period characterized by complex biopsychosocial changes that promote identity exploration, the initiation of romantic and sexual relationships, sensation and reward seeking, and increased self-consciousness (see Dahl et al., 2018). During adolescence, rapid development occurs in the socioaffective circuitry of the brain (i.e.,

amygdala, striatum, medial prefrontal cortex), and pubertal hormones may disproportionately affect neurotransmitter activity within these regions (Somerville, 2013). Such neural changes are thought to heighten teens' emotional reactivity and social sensitivity. Indeed, the adolescent developmental period is marked by increased salience of social norms and importance of peer feedback for an individual's self-evaluation and identity development (Brechwald & Prinstein, 2011). Furthermore, pubertal development leads to alterations in body weight and shape, bringing girls farther from the sociocultural body ideal of thinness (Markey, 2010). Additionally, adolescents experience *imaginary audience* ideation, a cognitive experience involving heightened self-consciousness in which adolescents believe they are the focus of others' attention (Elkind, 1967). In the context of these complex biological, cognitive, and interpersonal changes, an *appearance culture* develops during adolescence that dictates normative appearance-related behaviors and reinforces beauty ideals, in which peers frequently discuss physical attractiveness and how to improve it, ultimately encouraging social comparison and exacerbating body dissatisfaction (Jones et al., 2004). Moreover, these developmental processes are exacerbated for girls, who are simultaneously being socialized into adult gender roles (Hill & Lynch, 1983) that include women's investment in their physical appearance (Mahalik et al., 2005; Tolman & Porche, 2000). For example, relative to adolescent boys, girls are more likely to view their self-worth as contingent on appearance (e.g., Burwell & Shirk, 2009; Li & Mustillo, 2020). Additionally, during adolescence, physical attractiveness becomes important for social status among girls (Mayeux & Kleiser, 2020). Given that adolescent girls are socialized to prioritize physical appearance and are highly attuned to peers, social comparisons may be particularly impactful during this developmental stage. These features of adolescence make it a developmental period of especially high risk for body dissatisfaction and associated mental health concerns.

Theories Regarding the Features of Social Media

In the decades since the theories above were introduced, SM has become a primary source through which young women receive and transmit information about beauty standards and engage in self-objectification and social comparison (Perloff, 2014; Rodgers, 2016). Theoretical perspectives on SM have increasingly moved away from considerations of specific platforms and instead have emphasized an “affordances” approach—i.e., considering specific facets of SM that impact individuals' experiences (boyd, 2010; Granic et al., 2020; Moreno & Uhls, 2019). The idea that the online environment shapes individuals' experiences and behaviors

has a long tradition in computer-mediated communication (CMC) theories. In particular, these theories rely on the premise that individual communication patterns are “mediated” by the technological context in which they occur (see Walther, 2011). Building on these principles, psychology and media effects scholars have argued that SM sites are made up of unique features (e.g., “24/7” availability, publicness) that impact, or even transform, adolescents' social experiences and developmental processes (boyd, 2010; Nesi et al., 2018a; Subrahmanyam & Šmahel, 2011; Valkenburg & Peter, 2011).

In our theoretical *transformation framework*, Nesi et al., (2018a, 2018b) synthesize and build on affordances identified in prior literature to describe seven features of social media: *visualness*, *quantifiability*, *availability*, *publicness*, *permanence*, *asynchronicity*, and *cue absence* (Nesi et al., 2018a, 2018b). The framework describes how specific features of SM may intersect with developmental characteristics of adolescence to transform interpersonal relationships. *Permanence*, for example, is a feature of SM describing the permanent accessibility of content, which draws on prior discussions of persistence (boyd, 2010) and retrievability (Valkenburg & Peter, 2011) and may increase adolescents' attention to their appearance in SM photos. The *visualness* feature of SM encourages a focus on one's own and one's peers' physical appearance; its *public* nature and *24/7 availability* allow constant access to peers' and one's own photos; and its *quantifiability* encourages peer feedback (often based on adolescents' appearance in photos/videos). In this paper, we revisit the seven features described in the *transformation framework* and discuss their important role in adolescent girls' body image. In Table 1, we provide definitions of each feature, as well as examples of how each feature may impact adolescents' experiences of body image.

Body Image Concerns as a Key Mechanism Linking Social Media Use with Mental Health

In this section, we provide theoretical perspectives and empirical evidence for how SM may increase adolescent girls' body image concerns, and in turn, depressive symptoms and disordered eating (see Table 2). As noted previously, we did not undertake a systematic review of the literature. Rather, our goal was to propose a theoretical framework, and to highlight key findings from the research literature on adolescents' social media use, appearance concerns, and mental health in service of this framework. To identify relevant articles, we conducted literature searches in PsycInfo, with an updated search completed in November 2021. These searches were designed to identify papers that focused on adolescence or emerging adulthood, social media use, appearance-related concerns and processes,

Table 1 Theoretical overview of how social media features may exacerbate adolescent girls' body image concerns

Social media feature	Definition	Application to adolescent girls' body image concerns
Visualness	Extent to which photos and videos are emphasized	<ul style="list-style-type: none"> • Emphasizes physical appearance as dominant feature of the self • Allows for carefully curated and edited images • Exacerbates self-objectification and social comparison
Quantifiability	Allowance for countable social metrics	<ul style="list-style-type: none"> • Creates clear reinforcement (or lack thereof) for physical appearance, in the form of numbers of likes, comments, views, retweets, etc. • Encourages social comparison between feedback received by self and others
Availability	Ease and speed with which content can be viewed and shared, regardless of physical location or time of day ("24/7")	<ul style="list-style-type: none"> • Content shared by self and others can be viewed 24/7 • Immediate reinforcement (or lack thereof) of content posted • No break from possibility of one's images being posted or viewed; adolescents must be "camera-ready" • Allows for social comparison 24/7
Publicness	Accessibility of information to large audiences	<ul style="list-style-type: none"> • Access to broader peer network creates exposure of self and others to a larger audience • Exacerbates the imaginary audience phenomenon • As with availability, allows opportunity for social comparison with greater numbers of peers, exacerbates the need to be "camera-ready"
Permanence	Permanent accessibility of content	<ul style="list-style-type: none"> • Allows revisiting of one's own and others' content and feedback • Underscores the importance of attractive photos/videos • As with availability and publicness, increases the opportunity for social comparison and exacerbates the need to be "camera-ready"
Asynchronicity	Time lapse between aspects of communication	<ul style="list-style-type: none"> • Allows greater opportunity for careful curation and editing of content
Cue Absence	Degree to which interpersonal cues are absent	<ul style="list-style-type: none"> • Can further emphasize physical appearance, given the absence of other cues

Adapted from Nesi et al. (2018a, 2018b) and Choukas-Bradley and Nesi (2020). Some examples may be related to multiple social media features

and indicators of well-being or mental health symptoms related to depression or disordered eating. We prioritized incorporating studies that included participants in the early and middle adolescent developmental periods (roughly aged 11–17) and which used longitudinal or experimental designs. We included studies with late adolescent or emerging adult samples (roughly ages 18–25) when the findings were especially relevant and/or when rigorous empirical evidence from younger samples was lacking (e.g., rigorously controlled experimental studies were more common in college samples than in younger adolescent samples). When stronger evidence was not available, we incorporated cross-sectional study designs. Whenever possible, we cited studies from multiple nations and cultural contexts. We also incorporated qualitative research findings when possible, as these studies allow us to center adolescents' voices regarding rapidly evolving phenomena for which researchers often lack validated quantitative measures.

In this section, we first describe how the features of SM may exacerbate girls' body image concerns in relation to exposure to the physical appearance of *other people* (i.e.,

exposure to idealized images of peers, exposure to images of celebrities and influencers, quantifiable indicators of approval). Second, we describe how the features of SM may exacerbate girls' focus on their *own* physical appearance.

Social Media and the Physical Appearance of Others

With its combination of peer and media cultures, and its 24/7 presentation of curated and edited images, SM likely increases adolescent girls' focus on other people's physical appearance. A growing body of work suggests that focusing on other people's photos, more so than overall time on SM, is associated with adolescent girls' and young women's body dissatisfaction, and in turn, depressive symptoms and disordered eating (e.g., Cohen et al., 2018; Meier & Gray, 2014). Furthermore, a meta-analytic review of 63 independent samples of adolescents and adults found that the relationship between SM use and body image disturbance is particularly strong for appearance-focused SM use (Saiphoo &

Table 2 Examples of theorized processes through which social media may increase adolescents' body image concerns

Description	Examples that illustrate relevance to body image
<i>Increased Focus on Physical Appearance of Others</i>	
Exposure to Idealized Images of Peers	<p>SM encourages upward social comparisons with curated and edited images of attractive peers</p> <ul style="list-style-type: none"> • Comparing one's weight, shape, and attractiveness to edited images of friends and other peers on SM. Images have been edited to increase attractiveness using filters, blemish correctors, and/or reshaping/resizing tools
Exposure to Images of Celebrities and Influencers	<p>SM increases exposure to images of celebrities and influencers</p> <ul style="list-style-type: none"> • Observing how a "typical adolescent girl" becomes a famous SM influencer through posting beauty tutorials • Exposure to ads on one's SM feed showing models selling beauty products, designed to look like posts from peers • Following a celebrity's daily posts makes the celebrity feel like a more realistic point of comparison
Quantifiable Indicators of Approval	<p>SM provides quantifiable indicators of how popular/well-liked peers' and influencers' images are</p> <ul style="list-style-type: none"> • Observing that peers' photos/videos receive more "likes" or comments when they wear more makeup or pose in objectifying ways • Tracking how influencers gain followers through posting images that showcase their physical attractiveness
<i>Increased Focus on One's Own Physical Appearance</i>	
Appearance-Related Social Media Consciousness	<p>SM encourages consciousness of one's appearance on SM</p> <ul style="list-style-type: none"> • Looking at one's own photos/videos on SM again and again • Imagining how one will look to an online audience, even when offline
Posting and Editing Selfies	<p>SM increases adolescents' exposure to their own image, including edited images of oneself</p> <ul style="list-style-type: none"> • Chronically checking one's images for compliance with beauty norms • Comparing one's actual body to an edited photo of oneself • Sexy self-presentations
Peer Approval of One's Selfies	<p>SM provides quantifiable indicators of how popular/liked one's own photos/videos are, increasing the focus on the "self as a brand"</p> <ul style="list-style-type: none"> • Tracking which selfies receive more likes • Posting at "high traffic" times of day • Feeling shame or disappointment if one's photo/video does not receive enough likes, and deleting it from one's account

Vahedi, 2019). Images of others on social media may be of peers whom adolescents know in their offline lives, unknown same-aged peers or those they only know online, celebrities, or a novel SM-specific reference group: *influencers*, defined as individuals who gather large followings based on their SM presence (De Veirman et al., 2019). Consistent with the tripartite influence model of body image (Thompson et al., 1999), and Perloff's (2014) and Rodgers' (2016) theoretical frameworks for SM use and body dissatisfaction, the two primary processes by which exposure to others' images may affect girls' body image and mental health include *social comparison*, whereby adolescents compare themselves to the physical appearance of others, and *internalization of appearance ideals*, whereby the prevailing sociocultural norms and values relating to physical appearance are conveyed to SM users through attractive images. These ideals are further conveyed via quantifiable feedback (e.g., number of "likes"), as well as the comments others post on those images.

Focus on Others' Appearance: Peers, Celebrities, Influencers

Within adolescents' known, offline peer groups, SM likely exacerbates adolescent "peer appearance culture," which was first articulated prior to the advent of modern SM (Jones et al., 2004). Peers' SM photos are often curated and edited via filters, blemish correctors, and reshaping/resizing tools (Chua & Chang, 2016). By engaging in social comparison with these idealized images of one's friends and peers, adolescent girls may increase the perceived discrepancy between their ideal and actual appearance, resulting in body dissatisfaction (e.g., Scully et al., 2020). In an experimental study with British young women aged 17–25, participants who were assigned to browse their Facebook feed reported significantly worse mood following this exposure than a control group, and for women high in social comparison tendencies, exposure to their Facebook feed predicted greater dissatisfaction with their own face, hair, and skin (Fardouly et al., 2015). In a longitudinal study of adolescents in Norway, higher levels of "other-oriented social media use" (e.g., liking and commenting on others' posts) were found to predict worse appearance self-esteem across ages 10–14 for girls but not boys (Steinsbekk et al., 2021). According to social comparison theory (Festinger, 1954), individuals are more likely to compare themselves to similar others. Comparisons to known peers—the most similar targets—could enhance the potential detrimental effects of SM on adolescent girls' body image by providing highly edited images that still depict an unattainable standard of beauty. Social comparison theory also states that individuals are motivated to compare themselves to others in self-relevant domains (Festinger, 1954). Given the sociocultural importance placed on girls' and women's appearance (Fredrickson & Roberts,

1997), adolescent girls, compared to boys, may be particularly motivated to evaluate their SM appearance relative to their friends' and peers'.

Exposure to idealized images of unknown, same-aged peers via social media may have similar effects. For example, a recent experimental study in the Netherlands demonstrated that adolescent girls exposed to edited Instagram photos of roughly same-aged peers reported worse body image, particularly if they showed higher social comparison tendencies, than those exposed to unedited photos. Furthermore, girls in the edited photos condition described these photos as realistic, preferred them to those in the unedited condition, and had trouble detecting that the bodies had been reshaped (Kleemans et al., 2018). These findings demonstrate that adolescent girls may engage in upward social comparisons without recognizing that their comparison targets are unrealistic (or simply unreal) portrayals of peers. Given that SM provides adolescents opportunities to follow anyone with a public profile, their access to attractive online peer comparison targets—including unknown same-aged peers and online-only friends—may be essentially unlimited. Future research should disentangle the effect of social comparisons to known peers vs. unknown, distant peers. It is possible either (1) that adolescent girls are better able to identify photo-editing techniques in known peers' photos, recognizing the discrepancy with what the peer looks like in "real life," or (2) that known peers seem to be particularly relevant comparison targets, whose appearances seem attainable and realistic, despite photo-editing techniques.

Adolescents using SM likely also view idealized images of celebrities and influencers. Prior to the advent of SM, celebrity images were available to adolescents only via traditional media. In research on mass media effects, investigators have found that even brief exposure to beauty-focused magazines leads to increases in women's body dissatisfaction (Groesz et al., 2002). Through these sources, adolescents had already been highly attuned to the physical appearance of celebrities. As previously noted, the "peer appearance culture" also has implications for body image (Jones, 2001; Jones et al., 2004). SM blends these two reference groups, as users scroll through "feeds" that showcase content from both peers and celebrities, all in one place (Johnson et al., 2019). Celebrities may begin to feel like more relevant and realistic sources of social comparison to the adolescents who follow them (Bond, 2016). SM sites have also introduced the novel reference group of influencers. Some are first "discovered" through non-SM channels, such as reality TV, while others are "everyday people" who become famous based on their SM content (van Eldik et al., 2019). Among young women, one of the most common routes to becoming a SM influencer is through physical attractiveness, such as by demonstrating beauty routines or simply by being "hot" (Knorr, 2017; Leskin, 2019).

Emerging evidence suggests that exposure to influencer content focused on beauty or fitness is associated with increased negative mood, anxiety, and body dissatisfaction among young adults (Kohler et al., 2020; Lowe-Calverley & Grieve, 2021). In an experiment with Canadian college women aged 18–25, those assigned to compare the size of their body parts to the body parts of attractive Instagram models reported worse confidence, and elevated appearance and weight dissatisfaction, relative to participants in an appearance-neutral condition (McComb & Mills, 2021). Furthermore, SM influencers may post “thinspiration” and “fitspiration” content (i.e., content idealizing thin or fit bodies that is purported to “inspire” thinness or fitness; Boepple & Thompson, 2016), which tends to increase young women’s body dissatisfaction (Robinson et al., 2017). Experimental work indicates even brief exposure to such content may have negative effects on young women’s state body satisfaction and mood (e.g., Prnjak et al., 2020; Rounds & Stutts, 2021). In more extreme cases, SM content may be “pro-ana” or “pro-mia,” developed specifically to encourage eating disorders such as anorexia nervosa or bulimia nervosa (Bardone-Cone & Cass, 2007). Although we are not aware of published peer-reviewed work in this space, a recent report from the non-profit organization Tech Transparency Project (2021) suggests that when adolescent girls search for dieting content, SM’s algorithms may lead them toward extreme “thinspiration” or even “pro-ana” content. Importantly, with the blurring of peer and celebrity culture, adolescents viewing SM images are likely consuming media from diverse social comparison targets. Thus, research that examines adolescents’ exposure to their own SM feeds (e.g., Fardouly et al., 2015; Steinsbekk et al., 2021) may not be equipped to differentiate between the effects of viewing known peer, unknown same-aged peer, celebrity, and influencer images.

Processes by Which Social Media Increases Focus on Others’ Physical Appearance: Social Comparison and Quantifiable Indicators of Approval

One of the primary ways that SM image exposure affects adolescents’ body image and mental health is through social comparison (see Perloff, 2014; Rodgers, 2016). A systematic review of 20 studies, focused on the impact of SM on body image and disordered eating within adolescent and adult samples, concluded that social comparison mediates the association between SM use and worsened body image and eating concerns (Holland & Tiggemann, 2016). Since that time, many more studies have examined social comparison related to appearance-focused SM use. For example, appearance comparisons were found to mediate the association between selfie behaviors and body esteem among adolescent girls in Singapore, regardless of

whether the social comparisons were downward, lateral, or upward (Chang et al., 2019). Among adolescent girls in Ireland, social comparison with one’s friend group on SM mediated the association between SM use and body dissatisfaction, particularly when girls perceived themselves to be less attractive than their friend group (Scully et al., 2020).

The other major process through which exposure to others’ images on social media may affect body image and mental health is through internalization of sociocultural appearance ideals, particularly the thin ideal (see Thompson et al., 1999; Perloff, 2014). SM has become a primary source through which young women receive information about beauty standards, with unprecedented access to advertisements and posts from peers, celebrities, and SM influencers (Perloff, 2014), as well as personalized ad content (Knoll, 2016). As proposed by Rodgers (2016), SM may increase the pressure to be thin, which can lead to thin-ideal internalization and social comparison, and in turn, body dissatisfaction and disordered eating. Consistent with these assertions and with the tripartite influence model of body image, which focused on traditional media use (Thompson et al., 1999), empirical support has mounted for the roles of thin-ideal internalization and, simultaneously, social comparison, as mediators of the link between SM use and body dissatisfaction. For example, in an Australian sample, SM use was associated with adolescent girls’ body dissatisfaction via social comparison, thin-ideal internalization, and internalization of appearance ideals (Rodgers et al., 2020). Additionally, among Australian adolescents, both social comparison and appearance-ideal internalization mediated the association between higher SM engagement and lower body satisfaction and well-being (Jarman et al., 2021).

SM’s quantifiable indicators of approval may further exacerbate the focus on others’ appearance. Emerging evidence with adult women suggests that the number of “likes” on others’ idealized photos may not directly lead to body image concerns (Lowe-Calverley & Grieve, 2021; Tiggemann et al., 2018). However, many adolescents interpret “likes” as indicators of attractiveness (e.g., Mascheroni et al., 2015). A recent experimental study found that exposure to positive appearance-focused comments on Instagram led to young adults’ more positive appraisal of the attractiveness of the person in the photo (Kim, 2020). If adolescents witness peers, influencers, and celebrities receiving appearance-focused comments or high numbers of “likes” for photos that highlight physical beauty, they may learn to associate physical attractiveness with approval, validation, and status. Appearance-focused comments, “likes,” and other quantifiable metrics may reinforce cultural norms regarding the importance of beauty.

Social Media and One's Own Physical Appearance

SM not only exposes adolescents to other people's images; it also increases the focus on one's own appearance. According to self-presentation theories, adolescents are motivated to use impression management strategies to present themselves in a positive light, particularly in relation to their physical appearance (Leary, 1996; Schlenker & Pontari, 2000). Furthermore, objectification theory posits that girls and women learn to value their appearance and sexual appeal above other attributes, due in large part to sexually objectifying media (Fredrickson & Roberts, 1997). Given that SM allows for constant self-presentation to an ever-present audience, SM use is likely to increase girls' focus on—and perhaps concerns about—their own physical appearance.

Appearance-Related Cognitions and Self-Presentation on Social Media

In the era of SM, the “imaginary audience” (Elkind, 1967) may no longer be imaginary; even when offline, adolescents may monitor their bodies to prepare for the possibility of being photographed or filmed (Choukas-Bradley et al., 2019, 2020). SM offers the ideal platform for adolescents to fastidiously monitor and evaluate their own attractiveness, engaging in self-presentation strategies to increase the likelihood that peers will provide positive appearance-based feedback. Numerous studies have now linked adolescents' and young adults' SM use with traditional measures of self-objectification (e.g., Manago et al., 2015; Salomon & Brown, 2020; Skowronski et al., 2020; Vandenbosch & Eggermont, 2016). Additionally, empirical evidence from adolescent girls in China suggests that those who post more selfies and have high imaginary audience ideation engage in more self-objectification (Zheng et al., 2019).

Adolescents may also experience appearance-related cognitions that are *specific* to SM, with possible implications for body image and mental health. For example, at the beginning of the COVID-19 pandemic, we found that U.S. adolescent girls who evaluated their own appearance during video-chat interactions (e.g., Zoom) were more likely to report depressive symptoms concurrently and two weeks later (Choukas-Bradley et al., 2022). Furthermore, recent work from our team has examined adolescents' *appearance-related SM consciousness (ASMC)*, defined as a set of thoughts and behaviors reflecting individuals' ongoing awareness of whether they might look attractive to a SM audience (Choukas-Bradley et al., 2019, 2020).

These experiences include thinking about how attractive one's SM photos look to others and imagining how one's body would look in a SM picture even when alone (Choukas-Bradley et al., 2020). In two samples of high school-aged U.S. adolescents, girls reported higher levels of ASMC than boys (Choukas-Bradley et al., 2020). Importantly, controlling for time on SM, ASMC was cross-sectionally associated with higher body surveillance, body shame, and body comparison, suggesting that the subjective experience of preoccupation with one's appearance on SM may indeed supersede the impact of “screen time” (Choukas-Bradley et al., 2020). Moreover, ASMC was associated with depressive symptoms and disordered eating when controlling for body surveillance and time on SM (Choukas-Bradley et al., 2020). Our recent longitudinal work found that higher ASMC predicts adolescents' higher depressive symptoms one year later (Maheux et al., 2022).

Posting and Editing Selfies

Whether or not girls become preoccupied with their appearance on SM, the frequent taking, editing, and posting of images of the self (or “selfies”) may directly impact body image. Experimental work with young adult women has found that taking a selfie leads to greater anxiety, less confidence, lower feelings of physical attractiveness (Mills et al., 2018), greater self-objectification (Salomon & Brown, 2020), and greater negative mood and facial dissatisfaction (Tiggemann et al., 2020). Notably, these findings have held whether or not the selfie was edited (Mills et al., 2018; Tiggemann et al., 2020) and whether or not the participant posted the selfie (Salomon & Brown, 2020). However, some longitudinal research with adolescents has found that selfie editing, but not selfie posting, predicts body and face dissatisfaction over time (Wang et al., 2021a, 2021b). In experimental research in which adults are able to take and edit selfies, the extent to which the selfie was edited predicted increases in the individual's facial dissatisfaction (Tiggemann et al., 2020), and posting an edited selfie on one's Instagram caused increased weight/shape concerns and the urge to restrict food intake (Wick & Keel, 2020). Other research has found no associations between selfies, body image, and mental health outcomes, or in some cases revealed improvements in self-esteem and body esteem (see McLean et al., 2019 for review). Thus, although evidence is mixed regarding the effects of the simple act of posting a selfie, several behaviors and cognitions associated with selfie-posting may influence body image outcomes.

For some adolescents, the act of editing one's photo may encourage a focus on the ways in which they do not fit cultural appearance ideals. It is possible that engaging with one's own edited images not only increases self-objectification and body dissatisfaction, but also leads to a desire

to change one's physical appearance "in real life." Indeed, eye-tracking research with young women suggests that SM users focus on the parts of their bodies and faces that they dislike (Couture Bue, 2020). Many SM apps allow users to alter their appearance through easy photo-editing software, resulting in an unrealistic standard of beauty that may seem attainable. A longitudinal study of Dutch adolescents found that more frequent SM use predicted increases in appearance investment, which, in turn, was associated with increased desire for cosmetic surgery (de Vries et al., 2014). Another longitudinal study of Chinese adolescents found that selfie editing, mediated by facial dissatisfaction, predicted cosmetic surgery consideration six months later (Wang et al., 2021a, 2021b). Given the complexities of selfie behaviors, more research is needed to disentangle potential negative effects of interacting with one's own idealized images.

SM also provides girls with new ways to engage in "sexy self-presentation," primarily by posting photos or videos in which one's dress and/or pose is sexually suggestive (Daniels & Zurbriggen, 2016b; Kapidzic & Herring, 2015). Among both adolescent boys and girls, sexy self-presentation on SM is associated with appearance conversations on SM, wanting attention on SM, and actually receiving more attention in the form of likes and followers/friends (Trekels et al., 2018). However, girls are more likely than boys to engage in sexy online self-presentation (e.g., Trekels et al., 2018), and in turn to experience relational costs, due to the gendered sexual double standard (Daniels & Zurbriggen, 2016a, 2016b). For example, qualitative work highlights how adolescent girls contend with the contradiction that they must appear sexy and sexually confident online to gain peer approval, yet must also avoid appearing too sexually available in order to avoid being called "desperate," "slutty," or a "whore" (e.g., Daniels & Zurbriggen, 2016b; Mascheroni et al., 2015).

Peer Approval of Selfies

Quantifiable indicators of peer approval may enhance the effects of peers' reactions to one's photos. Peer feedback is highly rewarding to adolescents. In an fMRI study, adolescents showed heightened activity in the NAcc (a hub for reward circuitry) when viewing photos with high numbers of "likes" (Sherman et al., 2016). Although this study did not focus on physical appearance specifically, adolescents may interpret "likes" as indicating peers' evaluation of their appearance. A recent narrative review of research on selfie practices found that adolescents' body image and feelings of self-worth were associated with how many "likes" they received on a photo (McLean et al., 2019). Furthermore, recent research found that Australian adolescents who reported greater photo investment (e.g., concern about numbers of "likes") were more likely to meet criteria for eating

disorders such as anorexia nervosa and bulimia nervosa (Lonergan et al., 2020), and, among girls in the U.S., experience poorer body esteem (Nesi et al., 2021). In a recent experimental study, U.S. adolescents who received fewer "likes" reported more negative affect and negative thoughts about themselves, and those who experienced more negative reactions in the experiment reported greater depressive symptoms over time (Lee et al., 2020). A post's number of comments may also provide a numeric indicator of popularity, though the language within the comments can be positive or negative in nature. In a qualitative study, Swedish girls reported that receiving comments attacking their weight or appearance was particularly harmful (Berne et al., 2014). Positive comments may also be associated with increased self-objectification, as shown in a study of Australian adolescent girls (Slater & Tiggemann, 2015), and with increased appearance-related SM consciousness (ASMC), as found in a study of U.S. college students (Burnell et al., 2021).

Adolescents may even begin to think of themselves as a "brand." In qualitative studies in the U.S., Singapore, and Germany, adolescent girls described a broad range of strategies for managing their SM presence. For example, girls described "meticulous backstage planning" (Chua & Chang, 2016, p. 193) and a "production process" (Zillich & Riesmeyer, 2021, p. 7) involving studying beauty norms, carefully posing, taking several photos, and selecting the best photo. Once a photo was selected, girls described a process of extensively editing the photo and asking peers for feedback before posting, as well as posting at "high-traffic times" and asking friends for likes (Chua & Chang, 2016; Yau & Reich, 2019; Zillich & Riesmeyer, 2021).

Summary of Theoretical and Empirical Evidence

In summary, theory and empirical research suggest that SM may provide the "perfect storm" for exacerbating body image concerns. This, in turn, may serve as a key mechanism by which SM use influences adolescent girls' mental health. SM likely exacerbates the emphasis on peers' physical appearance and invites upward social comparisons through its presentation of idealized and edited images, with quantifiable indicators of approval, of both known peers and glamorous celebrities and influencers. SM may also increase girls' focus on their own appearance, by heightening their appearance-related SM consciousness, magnifying the perceived value of physical appearance, and increasing the focus on quantifiable indicators of approval. Of course, these processes will affect girls differently. While some may be less susceptible to appearance-related processes on SM, others may be especially affected if they have underlying vulnerabilities, such as heightened sensitivity to peer feedback or

tendency to engage in social comparison. SM's availability 24/7 presents unprecedented access to one's own and other people's images—and the feedback those images receive—potentially creating an ever-present appearance culture.

Limitations and Future Directions

While our developmental–sociocultural framework provides an important step toward better understanding how SM affects adolescent girls' body image and related mental health concerns, the framework does not provide a comprehensive picture of the role of SM in girls' mental health. For example, SM can have numerous benefits for adolescents' well-being—including opportunities for social connection, creative expression, and identity exploration (Granic et al., 2020; Hamilton et al., 2021; Rideout & Robb, 2018). Furthermore, many online stressors not specific to physical appearance have been found to influence adolescents' mental health, with potentially greater impacts for girls relative to boys, including interpersonal stressors (e.g., cybervictimization, FoMO, online “drama,” digital stress; Nesi, 2020; Steele et al., 2020), interference with sleep (e.g., van der Schuur et al., 2019), and displacement of other activities that promote mental health (e.g., Twenge, 2020). Below, we address key areas for future scholarship to extend and refine our body image-focused framework.

The Body Positive Movement

One emerging line of work, which we have not yet addressed, concerns potentially *positive* aspects of exposure to SM photos/videos. The “body-positive movement” aims to increase body acceptance by broadly defining beauty and depicting diverse body sizes and appearances on SM (e.g., Lazuka et al., 2020). Some experimental studies with young women have found that exposure to body-positive images and captions can improve mood, body satisfaction, and body appreciation relative to viewing thin-ideal images or “fitspiration” captions (Cohen et al., 2019; Davies et al., 2020; Williamson & Karazsia, 2018). However, critics of the movement argue that body-positive messages reassert the importance of physical appearance and may increase shame for individuals who struggle with body acceptance (see Cohen et al., 2020). Indeed, even when images are presented as being “body-positive,” such as images of women with larger bodies and diverse racial/ethnic identities, these images are often photoshopped and feature sexualized presentations of women (e.g., with little clothing or in sexually suggestive poses). A recent experiment found that such digitally altered and sexualized “body-positive” images can lead to increased sexual objectification of self and others among adult women (Vendemia et al., 2021). Moreover, experimental evidence

suggests that even though brief exposure to body-positive content may increase state body satisfaction, it may also increase self-objectification, relative to appearance-neutral content (Cohen et al., 2019). A recent review of studies of body-positive media found that non-appearance-focused media, or content that does not contain an image of an individual whatsoever, may be most effective for supporting positive body image (Rodgers et al., 2021). Longitudinal work is needed to understand long-term outcomes associated with exposure to body-positive content, particularly among adolescent girls.

Individual Differences in Adolescents' Social Media Use Experiences

Both media effects theories (e.g., differential susceptibility model; Valkenburg & Peter, 2013) and theories of developmental psychopathology (e.g., neurobiological sensitivity to context theories; Ellis et al., 2011) emphasize that youth may differ considerably in the degree to which environmental factors influence them. More research is needed to identify individual differences that help explain why some adolescents are more affected by SM than others. Several studies included in the current review provide preliminary empirical support for individual-level moderators that should be investigated in future work, such as social comparison tendencies (Fardouly et al., 2015; Kleemans et al., 2018), investment in appearance (Lonergan et al., 2020; Nesi et al., 2021), sensitivity to peer feedback (Lee et al., 2020), and levels of imaginary audience ideation (Zheng et al., 2019). Individual differences in pubertal status and timing will also be important to consider: pubertal status has been hypothesized to play a role in adolescents' responses to SM (Orben et al., 2022), and early pubertal timing has been associated with risk for poor body image and eating disorders (Mendle et al., 2007). Furthermore, co-construction models of SM use highlight that youth are not merely passive consumers of SM, but rather are actively involved in constructing their online environments (Subrahmanyam et al., 2006); and uses and gratifications theory highlights the agency of individuals in seeking out specific media exposure (see Rodgers, 2016). Thus, individual differences in the ways youth use and experience SM, partially based on sociodemographic and identity factors, likely have profound implications for their body image and subsequent mental health, and more research is needed to better understand these differences. For example, research suggests that sexual minority adolescents use SM in different ways and experience unique challenges compared to heterosexual youth (e.g., identity development and management in online communities; McConnell et al., 2017), but research has yet to examine how SM use may impact sexual minority adolescents' body image.

Gender Identity

While the majority of theoretical and empirical work on SM and body image focuses on adolescent girls and highlights girls' unique vulnerabilities to body image and mental health problems associated with SM use, adolescents of other genders are also vulnerable to these outcomes. Recent work has highlighted the need to further understand the pervasiveness of presentations of male lean and muscular appearance ideals on SM (Gültzow et al., 2020), and potential effects on internalization of the muscular ideal, appearance anxiety, and body dissatisfaction (Fatt et al., 2019; Seekis et al., 2021). Although the association between SM use and appearance concerns may be similar for boys and girls (Fardouly & Vartanian, 2016; Holland & Tiggemann, 2016; Jarman et al., 2021), the majority of studies do find that girls report higher appearance investment and concerns generally (e.g., Choukas-Bradley et al., 2020; Hawes et al., 2020) and higher depressive symptoms related to SM use (e.g., McCrae et al., 2017; Simoncic et al., 2014; Twenge et al., 2018), suggesting that gender differences, such as those resulting from early gender socialization, may predispose girls to both. To our knowledge, no published work has examined the role of SM use in body image concerns among gender minority youth, although research has begun to explore gender minority adolescents' unique body image concerns more broadly (e.g., Romito et al., 2021). Future work should examine how gender minority adolescents experience appearance-related SM use, including how gendered appearance ideals may differentially affect adolescents who identify with binary versus nonbinary identities.

Race, Ethnicity, and Intersectionality

An important next step for the field of research on SM use and body image is to carefully consider the role of racial and ethnic identity. We have focused on “adolescent girls” throughout this paper, yet it is important to note that many studies have included predominantly White samples and most have not explored questions about intersectionality—i.e., the ways in which multiple social identities (e.g., race/ethnicity, class, gender) intersect to yield unique experiences related to power, privilege, and oppression, which cannot be understood through “additive” identity models (Crenshaw, 1989). The lack of focus on racial/ethnic identity represents a widespread issue in psychological science (Roberts et al., 2020), and researchers from the body image and disordered eating literatures have recently called for an intersectional perspective and a clearer focus on the experiences of People of Color (e.g., Beccia et al., 2019; Burke et al., 2020; McEntee et al., 2020; Watson et al., 2019). Beauty ideals within a society are culturally constructed, and the dominant cultural beauty ideal for women represented in Western mainstream

media is thin, able bodied, and White. Research suggests that in the U.S., Black and Latinx adolescents are less preoccupied with thinness than their White peers, desiring a curvier appearance or being more tolerant of a higher weight status (Jones et al., 2007; Schooler & Daniels, 2014). However, Girls and Women of Color in the U.S. may still feel pressure to conform to Eurocentric beauty ideals, potentially experiencing dissatisfaction with weight in addition to other, culturally specific appearance concerns, such as dissatisfaction with facial features or skin tone (Lowy et al., 2021; Wilfred & Lundgren, 2021; Winter et al., 2019). The extent to which adolescent Girls of Color endorse various cultural notions of beauty, and the role of these ideals in their body image and mental health, has yet to be fully addressed in research.

Additionally, important questions remain to be answered about how SM may affect the transmission and internalization of beauty ideals among adolescent Girls of Color. To our knowledge, no published work has focused specifically on the role of social media in culturally relevant appearance concerns among Girls of Color. Because SM allows users to generate their own content and to seek out content from others, it is possible that adolescent Girls of Color are exposed to more culturally relevant beauty ideals via SM, compared to traditional media. For example, through SM, Black adolescent girls may be exposed to more images of Black women than are available in mainstream mass media, and these images may depict a broader range of beauty ideals (e.g., related to body size and shape, hair, skin tone). If this is the case, exposure to culturally relevant and representative content may promote more positive body image. On the other hand, it is possible that for some Girls of Color, SM could worsen body image by presenting beauty standards that are still unattainable despite the content being more culturally relevant. Notably, adolescents are able to cultivate their SM feeds to display the content most relevant to their interests or identity, and racial and ethnic minority girls may use SM for racial and ethnic identity exploration (Harlow & Benbrook, 2019; Williams & Gonlin, 2017). It is unclear if photo-based activity that enhances one's identity characteristics could help or harm adolescents' mental health and body image. Future work should examine unique risk and protective factors within racial/ethnic groups that may influence associations among SM use, body image, and other mental health concerns. In our research team's ongoing qualitative interview study, we are hearing from many Black young women in their twenties that social media may indeed be a “double-edged sword”; for example, women have described, on the one hand, increased representation of diverse body types and appearance norms, and on the other hand, heightened appropriation of Black culture and Afrocentric features, with complex implications for appearance norms and pressures for Girls of Color (Ladd et al., 2022).

Need for a Broader Range of Methodologies

Using a broader range of methodologies will advance our understanding of the ways in which body dissatisfaction underlies associations between girls' SM use and mental health. The majority of studies of adolescents' and young adults' appearance-related SM experiences have relied on self-report and single time-point study designs, which do not allow conclusions regarding the temporality of adolescents' SM use, body image, and mental health. More longitudinal and experimental studies are sorely needed. It is important for future research to incorporate multi-method approaches, including multiple levels of analysis and time points. For example, neuroimaging and psychophysiological methods could illuminate the biological underpinnings of SM-related body dissatisfaction, whereas eye-tracking, pupillometry, and facial affect recognition may serve as objective measures of behavioral and cognitive responses to SM during experimental tasks. Furthermore, the use of temporally sensitive measures, such as EMA methods, can be used to assess short-term, dynamic associations among constructs of interest (e.g., Pouwels et al., 2021), while longitudinal studies across multiple years can assess trait-level indicators of SM use, body image concerns, and mental health symptoms. Finally, qualitative methods remain a critically important component of multi-method work in this field, especially given their potential to elucidate the lived experiences of understudied groups of adolescents, such as those with intersecting minoritized identities. For example, in our research team's recent qualitative interviews with U.S. Black young women, we have learned about gendered racialized experiences with social media and body image that are not yet reflected in published work or validated scales (Ladd et al., 2022).

Clinical Implications

Assessing and intervening to promote positive body image remain an important, transdiagnostic component of healthy development among adolescent girls. It is essential for mental health professionals to consider the role of SM in clients' presenting concerns. Given the current state of the literature, we recommend that clinicians not necessarily focus on reducing the overall time adolescent girls spend using SM and instead focus on assessing and intervening on *how they spend* that time. We have focused here on how appearance-related SM behaviors may increase the risk for body image concerns, depressive symptoms, and disordered eating. However, other SM behaviors may promote positive mental health and well-being, such as those that promote identity exploration, creative expression, community building, and meaningful conversations with friends (e.g., Anderson &

Jiang, 2018b; Ma et al., 2021; Maheux et al., 2021; and see Hamilton et al., 2021). We recommend the following as preliminary guidelines for clinicians' work with adolescent girls: (1) If the adolescent client is struggling with body image concerns, the clinician might assess whether she is engaging with SM in ways that may exacerbate these concerns, such as through upward social comparisons, editing selfies, or following beauty-oriented influencer content; (2) if yes, the clinician might try using techniques from evidence-based approaches to treating other problematic behaviors, such as motivational interviewing, urge-surfing, and cognitive restructuring approaches (e.g., Bowen & Marlatt, 2009; Harris et al., 2017; Naar-King, 2011; Sudhir, 2015), to encourage the client to spend more time on SM or offline activities that improve, rather than worsen, her body image and mental health. Notably, these guidelines are preliminary and should be evaluated in future research.

School- and community-based preventive interventions can educate girls regarding SM-related risks for body image concerns, by increasing media skepticism, awareness of advertisers' motives, and rejection of unrealistic appearance ideals (e.g., Gordon et al., 2020; McLean et al., 2016). Initial evaluation of a classroom-based SM literacy intervention showed evidence of modest improvements in girls' dietary restraint and depressive symptoms over time (Gordon et al., 2021). Another single-session classroom-based intervention utilizing cognitive dissonance techniques and SM literacy skills found improved thin ideal internalization one week after the intervention, an effect sustained to the 8-week follow-up, among girls but not boys (Bell et al., 2021). Other promising intervention/prevention approaches to reducing problematic SM use, which are not specific to body image but which have preliminary empirical support, include values alignment and mindfulness approaches (Galla et al., 2018, 2021). The coming years will likely see an increase in the number of evidence-based approaches to helping adolescents use SM in ways that align with their values and promote positive well-being.

Conclusions

Our developmental–sociocultural framework integrates theoretical perspectives from across psychological science and other disciplines, exploring how developmental, sociocultural, and SM-specific factors influence adolescent girls' body image and subsequent mental health. We identify and elaborate on these broad theoretical factors, as well as more specific SM experiences related to physical appearance. The framework emphasizes a focus on examining body image concerns as a mechanism underlying associations between SM use and adolescent girls' mental health concerns. In doing so, we highlight a new avenue

for future research on adolescent girls' social media use and mental health, which recognizes the central role of body image.

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Data Availability This review paper does not include any formal quantitative or qualitative analysis for which data are available. Thus, no relevant data are available to share.

Declarations

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