Social Media and Peer Relationships in Adolescence:

Current State of Science and Directions for Future Research

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Abstract

With the increasing availability of electronic devices, social media platforms are pervasive in adolescents' lives. Much of adolescents' peer interactions occur virtually—to the point that the line between online and offline relationships has become blurred. This article aims at sharing starting points with researchers who are in the initial stages of incorporating social media into their program of research on peer relationships in the context of adolescent development. We first present promising theoretical frameworks to contextualize research questions on this topic, and we then provide an overview of empirical work documenting the motivations for adolescents to use social media, followed by risks of social media usage for adolescents' wellbeing. Last, as we propose directions for future research, we highlight novel realities that have emerged from the social media, and we suggest methodological approaches to deepen our understanding of adolescents' peer relationships and adjustment in the social media era.

Keywords: adolescence, social media, peer relationships, theory, review

Social Media and Peer Relationships in Adolescence:

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Social media and online communication platforms are increasingly common ways for adolescents to connect with their peers (see boyd, 2014; Underwood et al., 2018). In fact, over 95% of adolescents aged 13 to 17 living in the United States have access to a smartphone, 44% report going online at least "several times per day," and 45% of teens say they are online "nearly constantly" (Pew, 2018). Adolescents' online activities may include information gathering, streaming music and videos, shopping, and connecting with peers. Given the centrality of peers to the adolescent experience (Rubin et al., 2007), it is not surprising that online engagement with peers over social media is a primary activity (Lenhart et al., 2015).

As peer relations researchers, we must acknowledge that adolescents' social lives significantly influence and are influenced by their online communications (Underwood & Ehrenreich, 2017). The integration of adolescents' online and offline interpersonal interactions poses opportunities (and challenges) for researchers. In the last two decades, studies have begun to address the nature and motivations of adolescents' online and social media activities (see Underwood et al., 2018). What has yet to be better understood is how social media has transformed the ways in which youth create and maintain relationships, how social media can support adolescents' healthy social and emotional development, and how adults and institutions can help adolescents use social media in a responsible and constructive manner.

The goal of this article is to share starting points with researchers interested in studying how peer relationships in the context of social media influence adolescent development. Although this objective may appear quite general, we believe it will appeal to peer researchers who have not yet incorporated social media in their own research—a considerable proportion of

our scientific community. In addition to this article, other helpful reviews have been published related to this topic (e.g., Underwood et al., 2018); yet the state of research in this domain evolves quickly, such that several of the new phenomena (e.g., FOMO, FINSTA, drama, and lurking on ex-romantic partners) have gotten little to no coverage in previous reviews. In addition, from a theoretical stance, the Transformation Framework (Nesi et al., 2018a, 2018b) appears as one of the most promising theories to guide future work, but it has not yet been integrated into any general review of the literature on adolescents' use of social media. Because the authors' own empirical research programs have just recently begun to target peer relationships in the context of social media, we trust that we can be useful to researchers who wish to start studying this topic by directing them toward publications which we have found most useful in preparing ourselves for addressing these important questions. The paper also includes directions for future empirical research, including emerging topics and associated methodologies to study them.

Social Media in Adolescents' Daily Lives

The term *social media* refers to a collection of interactive technology applications and internet platforms designed to facilitate communication and social networking (Castells, 2007; Manovich, 2009). Within these online communities, users share information, ideas, interests, and opinions via personal messages, public posts, articles, photos, and videos that they create or relay from other sources. An exhaustive review of current social media platforms is not our focus, and, even if accurately constructed, such a list would quickly become outdated. Indeed, with time and an ever-increasing number of options, adolescents' social media use revolves less and less around a single platform (Pew, 2018). As such, researchers' attention may best be captured by the processes, qualities, and outcomes of adolescents' social media use and not by investigating a

particular platform. Yet, at time of press, examples of popular social media platforms include YouTube, Snapchat, Instagram, Facebook, TikTok, Twitter, Tumblr, and Reddit.

Although it could appear that delineations between online and offline relationships are clear, the near ubiquitous nature of social media has blurred these lines and rendered simple online/offline categorizations problematic (boyd, 2014; van Dijck, 2013). That is, some adolescent relationships may exist either completely online or offline, but research suggests that many adolescent relationships incorporate elements of both contexts (e.g., Ehrenreich et al., 2020; Ehrenreich & Underwood, 2016; Marwick & boyd, 2011). Moreover, evidence supports strong continuity between adolescents' offline interpersonal relations and their online interactions (e.g., Kowalski et al., 2014; Subrahmanyam et al., 2006; Van Cleemput, 2010; Wright & Li, 2011). As Underwood and colleagues aptly note, "Adolescents are co-constructing their relationships and identities in the digital and offline worlds, and the distinction between offline and online relationships likely exists only in the minds of adults" (2018).

Whether they unfold primarily online or offline, adolescents' *peer relationships* are complex, interconnected, and multifaceted. Yet, they all involve individuals of a similar age and status, who have regular opportunities to interact and to form significant close relationships (e.g., friendships, romantic relationships). Also, as argued by Hartup (1996), the qualities (e.g., conflict; Parker & Asher, 1993) and the context of the relationship (e.g., social status of friends; Witkow et al., 2010) must be taken into account to determine whether peers have positive, negative, or neutral effects on youth adjustment. We argue that these are important variables to consider whether researchers are examining processes, qualities, or outcomes of youth's in-person interactions, online interactions, or relationships that exist both on- and offline. As we further shift our lens toward online peer experiences, we are aware that new concepts must be

introduced to capture online realities that do not have a close equivalent in the offline world, such as lurking (more on this topic under **Directions for Future Research**). Yet, the basic concepts and terminology presented above remain helpful to articulate new research questions about adolescents' peer experiences in the online world.

Theoretical Approaches

Classic theories in developmental and social psychology provide important insights into why adolescents are attracted to social media. A few examples are Erikson's (1994) Theory of Psychosocial Stages, which posits identity formation as a crucial milestone of adolescence; the hypothesis of adolescents' autonomization from their parents (Steinberg & Silverberg, 1986); and the Theory of Social Comparison (Festinger, 1954), suggesting that youth can find in social media some "quantifiable" measures for highly-valued characteristics (e.g., popularity and influence, through number of "followers", shared posts, and "likes"). These and other frameworks aptly connect the needs of adolescents with the affordances that social media can provide, answering questions of why they use it.

However, in line with several authors (George & Odgers, 2015; Underwood & Ehrenreich, 2017; Underwood et al., 2018), we contend that the next generation of research on adolescents' peer relationships and social media usage needs theoretical models that will help researchers articulate hypotheses to answer not just "why" questions, but also "what" and "how" questions. *What* do they find in their online environment? *How* do they interpret it and interact with it? *How* does social media influence their online and offline behavior and their wellbeing? Over the past twenty years, new theories have emerged, each building on several existing frameworks from various disciplines, like communications, psychology, and media studies. We chose to present three theoretical models that provide complementary perspectives on how to address these

questions. A common strength of these models is their potential to be flexibly adapted to different topics in the wide domain of research on adolescent peer relationships and social media.

The Co-Constructionist Perspective. A noteworthy effort to create a modern theoretical framework to study social media in youth's lives is that of Subrahmanyan, Smahel, and Greenfield (2006; Subrahmanyan & Smahel, 2011). In line with other important theories (Bronfenbrenner & Morris, 2006; Sameroff & Mackenzie, 2003), the Co-Constructionist Perspective emphasizes that youth are not just influenced by the social media to which they are exposed; they also actively construct the culture and ever-evolving norms that characterize the online context which they create through their interactions with their peers. Also, the authors aptly point out that, in contrast with the offline world in which adults are around most of the time and play a large role in structuring adolescents' interactions, adult supervision is not consistent in the online world, thus allowing for more autonomy and freedom in the exploration of adolescents' developmental tasks (e.g., identity, sexuality, intimacy) that also drive their offline behaviors. In fact, this theory puts forward that social media offers one more context for adolescents to work through these developmental tasks; thus the role of social media can be best understood if one keeps in mind that it is connected to their offline world.

The Differential Susceptibility to Media Effects Model (DSMM). This model, proposed by Valkenburg and Peter (2013), evolved in large part from Bandura's Social Cognitive Theory (1986; 2009). The DSMM aims at presenting explicit theoretical propositions regarding moderator and mediator effects underlying the processes of media influence. One important tenet of this model is that it "rejects universal media effects" (p. 223). Thus, social media usage will inevitably lead to different consequences depending on one's personal and social background—hence the need to measure or at least consider the possible role of conditional (moderator) effects when studying social media influences on adolescents.

Furthermore, the DSMM integrates different types of indirect (mediation) effects of media usage. First, the specific social media platforms and content that adolescents will be driven to depends on their own characteristics; thus, media use plays a mediator role between an individuals' characteristics and the possible impacts of social media on their development. Second, adolescents' cognitive, emotional and physiological responses to the content and interactions they are exposed to through social media represent a set of mediators in the association between social media use and its impact on their adjustment. Third, second-order indirect media effects emerge when lasting changes occur in adolescents as a result of their social media use (e.g., increased self-confidence following positive reactions to one's posts) that impacts other areas of their life (e.g., increase self-confidence to speak up in class). Last, social media influences on adolescents feeds back into the first step of the model (that is, individual characteristics that drive differential social media use across the population), as well as possible responses to social media, etc., which means that the DSSM is transactional in nature and acknowledges mutual influences between its components.

The DSMM is broad and relatively complex, and the authors recognize that it has been designed for its various propositions to be used flexibly, either separately or combined. Nevertheless, in line with the Social Cognitive Theory, the authors contend that both moderation and mediation effects need to be integrated in future studies of (social) media effects in order to better understand and eventually intervene to protect or enhance adolescents' well-being.

The Transformation Framework. Building on a broad base of classic as well as novel theories across disciplines (including the DSMM and Co-Constructionist approaches), Nesi et al. (2018a; 2018b) propose a framework aimed at guiding researchers interested in studying adolescent peer experiences on the offline–online continuum. The goal of this model is to help understand how new features of peer relationships which did not exist in the pre-social media era

may affect adolescent development. The authors describe seven key features making online and offline interactions qualitatively different: (1) the *asynchrony* of interactions; (2) the *permanence* of shared content; (3) the *publicness* of content that can be broadcasted, willingly or not, with a large or invisible audience; (4) the constant *availability* of content and (to some extent) of peers themselves; (5) the dampening or absence of certain *nonverbal cues*; (6) the *quantifiability* of "numerical social metrics" such as "likes", "shares", or "views;" and (7) the *visualness* of content, that can be digitally altered. From those features follow a transformation of peer experiences at the dyadic and at the group level. Such transformations affect adolescents' lives both online and offline, given the lack of clear boundaries between the two.

Nesi et al. (2018a, 2018b) explain that when working together, the seven novel features of social media interactions lead to several transformations in youth peer experiences. For example, they describe the *amplification of experiences and demands*, which can create pressure for adolescents to be present for their online contacts in order to maintain their visibility and status, or for being available to friends. *New opportunities for compensatory behaviors* are also discussed, and refer to peer experiences that are not available offline, such as integrating an online community with similar others for youth from a minority group, or maintaining close contacts with friends who have moved away. Last, Nesi et al., mention that *novel opportunities and experiences* have emerged with social media, including the public and explicit display of one's friendships, or new forms of bullying (e.g., spreading embarrassing photos). This theory should be helpful for studying new aspects of peer relationships that did not exist before social media became pervasive, or that are qualitatively different when occurring online versus offline.

Adolescents' Motivations for Using Social Media

As put forward by the Co-Constructionist Perspective, social media is for most adolescents an extension of their offline social world. Therefore, adolescents are expected to be motivated to

use social media in large part for the purpose of working through the normative developmental tasks of adolescence. At the same time, the Transformation Framework suggests that when adolescents' peer experiences involving social media would affect adolescents in a different way than offline peer interactions. Evidence supporting those theoretical premises is provided below.

Affiliation. Gatherings of friendly peers known as *cliques* naturally emerge in peer groups early in adolescence (Brown, 1990; Crockett et al., 1984). Knowing the strong continuity between offline and online relationships (Underwood & Ehrenreich, 2017; Subrahmanyam et al., 2006), it is not surprising that adolescents have invested social media to consolidate such affiliations. According to Barker (2009), adolescents who hold their own social group in high esteem use social media mostly to enhance offline peer relationships. However, Barker found that a different picture emerges for adolescents who have a negative view of the social group with whom they identify offline. These youth report using social media for the sake of social compensation and social identity gratification. They tend to seek out online interactions to take a distance from the group they view negatively and develop a positive sense of identification to a new group who is not available to them offline.

Identity. When reviewing past research on adolescents' motivations for social media usage, the theme of identity development is recurring (e.g., boyd, 2014; Ehrenrich et al., 2019; George et al., 2019; Subrahmanyan & Smahel, 2006). If offline peer interactions are crucial to work through identity issues (Meeus & Dekovic, 1995), online interactions further offer new ways and audiences for identity exploration to take place. In fact, some teenagers feel safer testing out new or uncertain aspects of their personality and identity on a social media platform where other people do not know who they are, as a preliminary step before presenting their new selves offline (Uhls et al., 2017).

Intimacy. Building intimacy is one of the most important motivations for adolescents to form emotional bonds with close friends, with whom they experience positive affect and mutual understanding (Newcomb & Bagwell, 1995; Rubin et al., 2007). Thus, it is not surprising that finding opportunity to discuss intimate or sensitive topics in a context perceived as less intimidating than face-to-face conversations has been discussed at length as another possible motivation of social media usage (Ehrenreich et al., 2019; George, 2019; Nesi et al., 2018a; Subrahmanyan & Smahel, 2006). Relatedly, youth use social media in part for romantic purposes (Ehrenreich et al., 2020), mostly as a complement to in-person interactions (Fox et al., 2013; Len-Ríos et al., 2016; R. Young et al., 2017). In contrast, using social media to find and grow a romantic relationship is less likely, except for sexual minority youth, whose offline contacts with potential partners may be limited (Korchmaros et al., 2015).

Aggression. Contrary to the needs for affiliation, identity formation and intimacy, aggressing others is not a developmental need of adolescents; however, it may indirectly fill their need to establish their status in the group (e.g., gaining fearful respect from the target or bystanders). In a similar vein, peer researchers have been studying antipathies long before the advent of social media. *Antipathies* refer to certain peers disliking each other because of marked differences in behavior or values (Güroglu et al., 2009; Laursen et al., 2010). Because social media can be used as a vector of verbal or social aggression, it has the power to multiply the visibility of antipathies, and possibly increase their known consequences such as antisocial behavior, bullying, and victimization (Abecassis et al., 2002). In their review of developmental risks associated with adolescents' online peer interactions, Underwood and Ehrenreich (2017) highlight that even though engaging in aggression is not the main purpose of online interactions for a majority of youth, its consequences are sufficiently serious that it should not be ignored.

This point is important, considering that online aggression can set the stage for or amplify offline aggression (Vollet et al., 2019). This topic is further discussed under **Risks for Adolescent Functioning**.

Other motivations. Several studies reviewed have also suggested other motivations for social media involvement. These include seeking autonomy from parents (Ehrenreich et al., 2020); creating different self-representations targeting various audiences, such as a LinkedIn profile for potential employers and a Facebook profile for friends (boyd, 2014); and finding standards for self-evaluation and comparison (Vogel et al., 2015). As this review centers on peer relationships, readers interested in these other topics are referred to the above-cited references.

Risks for Adolescent Functioning

The Transformation Framework and the DSMM are particularly relevant for research on the risks associated with peer experiences through social media. Both models suggest that social media can be good and bad, depending on the characteristics of the user, the context of use, and the purpose. Indeed, Best et al.'s (2014) review did not reveal any clear positive or negative effects of social media on adolescents—probably because few studies so far have delved into complex moderation and indirect effects that need to be investigated in order to make predictions about its consequences. Based on these considerations, we chose to present two risky aspects of youth's digital life that are have been better documented than others: online aggression and addiction.

Online aggression. In the early 1990's, Olweus (1993) and Salmivalli et al. (1996), among others, raised awareness in the scientific community on the issues of bullying and victimization in schools and on the need to intervene. Just a few years later, in the early 2000's, the concepts of online aggression, victimization, and bullying made their way into the scientific literature

(Brochado et al., 2016; John et al., 2018; Selkie et al., 2016; Underwood & Ehrenreich, 2017). The term *cyberbullying* is often used, but it refers specifically to repeated aggression through direct insults to the target or through social aggression, like spreading rumors or private personal information. Other forms of cyberaggressions that are not repetitive can nevertheless be severely harmful. Not only can direct personal attacks affect self-esteem, but the uncontrollable nature of online content, which can spread more widely and quickly than it did before social media platforms existed, can cause significant anxiety and lead to depression (Campbell et al., 2012; Kowalski & Limber, 2013). According to a meta-analysis by Kowalski et al. (2014), cyberbullying may have detrimental impacts on both the victim and the perpetrator, in the realms of self-esteem, academic achievement, substance use, and others.

Addiction. In the 1990's, researchers documented *internet addiction* (Griffiths, 1996; K. S. Young, 1998), or excessive internet use that resembled maladaptive substance use and negatively influenced individuals' lives. Changes in the frequency of online behaviors have now made what used to be seen as excessive relatively commonplace and rather a reflection of yet another context in which adolescents normatively enjoy interacting with their peers (boyd, 2014). Yet, there still appears to be a small subgroup of users who show signs of dependence on online engagement (Griffiths, 2005), such as increased salience, mood modification, tolerance, withdrawal, conflict, and relapse related to internet use, including social media (Ershad & Aghajani, 2017; Kuss & Griffiths, 2017). Although social media addiction is not recognized in the current Diagnostic and Statistical Manual of Mental Health Disorders (DSM-5; APA, 2013), a growing body of research indicates that adolescents may be especially vulnerable to powerful reinforcement processes at work when engaging with their peers through social media, even at a neural level.

Developmental neuroscience studies support the notion that peers influence adolescents'

behavior related to risk and reward via activation of particular brain regions (Albert et al., 2013). Being observed by peers results in heightened activity in reward-processing regions (e.g., ventral striatum) which can enhance risk-taking behavior (Chein et al., 2011) and does not appear to influence adults' behavior to the same degree (Smith et al., 2015). With regard to social media in particular, fMRI studies of adolescents suggests that viewing well-"liked" images on Instagram (their own photos and their peers' photos) was particularly triggering to the brain's reward regions, and adolescents viewing images of well-"liked" risk-taking photos of their peers showed decreased activation in brain regions related to cognitive control (Sherman et al., 2018; Sherman et al., 2016). Moreover, adolescents providing "likes" to their peers' photos on Instagram also triggered reward circuitry (Sherman et al., 2018). Taken together, studies suggest that social media and its high degree of peer visibility may be an especially reinforcing and influential context for adolescents' behavior, and interrupting its cycle of reinforcement may prove difficult.

Other risks. Many other areas of adolescent development could potentially be negatively affected by adolescents' choice to use social media to connect with peers. For example, Nesi and Prinstein (2015) found that adolescents who use social media for social comparison and feedback-seeking purposes experienced an increase in depressive symptoms, especially if they were females or if they were perceived as unpopular by their schoolmates. Another example is the possible sleep disruption that could emerge from social media interactions with peers. LeBourgeois et al. (2017) argue that this activity might reduce available sleeping time, disturb natural sleep cycles, and increase exposure to light from electronic devices that could have physiological effects that affect sleep (Scott et al., 2019; Woods & Scott, 2016). Parents, teachers, and other adults are preoccupied by many other possible negative influences of peer relationships through social media, including exposure to sexualized content, depiction of

substance use, or unrealistic body standards (George & Odgers, 2015). All of these potential risks deserve attention from future empirical investigations.

Directions for Future Research

Given the pervasive nature of social media in the lives of adolescents (boyd, 2014) and evidence of its effects on adolescents' social and emotional development, we, as others have previously (Underwood et al., 2018), urge peer relations researchers, if and where feasible, to integrate adolescent social media use into their research programs. In industrialized countries, the very high rate of social media use in the adolescent population makes it a major influence on all adolescents' social relationships, including those who have no online presence, by the virtue of transforming the life of peers with whom they interact on a daily basis. Peer researchers can no longer blindly exclude online peer experiences from their research, even in studies focusing on in-person interactions (Nesi et al., 2018b). Finding new measures of online peer experiences suited to various research designs (e.g., self-report, observation) will require attention to emerging technological trends, appreciation and understanding of adolescents' perspectives on social media and its meaning to them, and a readiness to incorporate multiple methods of assessment and novel analytic strategies to answer emerging questions. Below are several considerations and directions for future research on social media, for those eager to tackle the challenge.

Talk to the source(s), and cast a wide net

While a general point, it bears noting: getting consistent input from stakeholders is sure to continue to enrich and catalyze our research ideas against the ever-changing landscape of social media. As detailed in this review, there has been excellent quantitative work documenting the motivations of social media use and its associations with socioemotional adjustment. Moreover, rich qualitative work is available (e.g., boyd, 2014; Borca et al., 2015; Len-Ríos et al., 2016) that

has been crucial to tether researchers' endeavors to the adolescent behaviors they are keen to understand. When studying other aspects, such as perceptions of use (e.g., What is normal? What is excessive?) and the meaning of use (e.g., In what ways are online and offline communications experienced differently?), we will do better to hear directly from youth than to attempt to impose our interpretations. Platforms and ways of using them are ever-evolving, and adolescents are eager to keep up with such innovations. Thus, we will continuously need to talk with teenagers to learn what they use, why, and how. Naturalistic observation, focus groups, and qualitative interviews are familiar methods for many developmental researchers that may lend themselves well to this endeavor.

Relatedly, social media researchers are faced with important questions regarding at what level to focus their investigations. Studying specific platforms can provide rich information but each of them will become outdated sooner or later. Focusing on social media at a very broad level may be widely applicable but lack utility and detail. We suggest utilizing measures that can gather comprehensive, as well as textured, information about forms, functions, and the evolving usage of multiple platforms. For example, utilizing software that captures the entirety of online activity within adolescents' devices (e.g., phone monitoring apps) provides a detailed picture of their overall patterns of usage, like time spent within each app, as well as their contributions to and digestion of online content (e.g., text and images posted, search terms entered). Capturing such a breadth of activity sidesteps problems of accuracy and social desirability related to relying on adolescents' self-reports of usage (Underwood et al., 2018). Yet, such an approach requires considerable data management and statistical expertise to aggregate and analyze large datasets, a strength of developmental peer relations researchers (e.g., Underwood et al., 2012).

Longitudinal, Observational, and Experimental Methods

Although novel longitudinal, observational, and experimental studies of social media have emerged (e.g., Choukas-Bradley et al., 2015; Ehrenreich & Underwood, 2016; Ehrenreich et al., 2014; Subrahmanyam et al., 2006), we underscore the assertion of Keles et al. (2020) that a majority of studies are cross-sectional and rely on adolescents' self-reports of perceptions and behavior. Longitudinal studies will help us better understand immediate, longer-term, and cumulative effects of social media usage. For example, the Transformation Framework suggests that the positive effects of support received online may be fleeting and drive adolescents to continue to seek such benefits by repeated engagement, while negative effects may linger due to the permanent nature of online content and the publicness of many posts.

Much has been learned from observational studies of social media (e.g., Vollet et al., 2020), and continuing to strive to directly observe adolescents' behavior in this forum is essential. Even before the advent of social networking websites as we know them, Subrahmanyan and Smahel (2006) realized that online platforms (in their case, chat rooms) provide opportunities to study aspects of adolescents' peer interactions that are hidden to researchers who study offline interactions, such as discussions about sexuality and other sensitive topics. The authors were able to show that "observational" measures of online interactions (e.g., recorded exchanges between users) may be less disruptive than offline data gathering involving the physical presence of the observer and may therefore yield particularly valuable insight into adolescents' social environment.

In the future, eye-tracking assessment technology could measure adolescents' engagement with social media content at a micro-level. In line with the DSMM (Valkenburg & Peter, 2011), such approaches may be supplemented with obtaining self-reports of adolescents' attitudes toward and motivations for social media use that may moderate associations of social media use with socioemotional adjustment (e.g., Yang & Brown, 2013). To further test the moderating

hypotheses of the DSMM, future research could capture adolescents' real-time physiological reactivity while digesting or contributing to social media content through assessment of heart rate variability, galvanic skin response, and cortisol response.

The use of experimental tasks (e.g., Choukas-Bradley et al., 2015), perhaps in integration with multiple levels of assessment (i.e., physiological, behavioral, self-report), would provide researchers with the ability to control and even manipulate adolescents' social media experiences to answer particular research questions. For example, researchers interested in the connections between online and offline behavior in vulnerable groups, such as socially anxious youth (e.g., Valkenburg & Peter, 2007), have tested competing ideas about whether vulnerable youth continue to struggle in the online context while well-adjusted youth continue to thrive (i.e., rich-get-richer hypothesis; Kraut et al., 1998) or whether youth with emotional challenges may find a more even playing field online (i.e., social compensation hypothesis; Kraut et al., 2002). We encourage additional experimental work to continue to push our understanding of how social media influence adolescents' peer relationships and adjustment. For instance, future experimental research could randomly assign youth with and without social anxiety to experience a variety of manipulated social media activities (e.g., creating a post, responding to a confederate via chat) in order to explore potential intervention targets to help socially anxious adolescents utilize social media to their maximal benefit. Such work should take into consideration important moderators, such as level of social skills, as socially anxious youth who are socially skilled (see Coplan & Weeks, 2009; Gazelle & Shell, 2017) may be especially likely to benefit from online interactions.

Important, Unanswered Questions

Building on the exciting new research directions proposed by our predecessors (e.g., Underwood et al., 2018; Nesi et al., 2018b), we propose three main areas of future inquiry: (1) new phenomena catalyzed by social media, (2) exacerbation of mental health problems, and (3)

new relationship contexts online (online communities, ex-romantic partners, antipathies).

New phenomena. With the advent of social media came a new popular crowd: the *social media influencers* (Khamis et al., 2017), who are typically self-branded individuals whose following on social media is large and attentive. Long before the pre-social media era, researchers had been studying peer experiences that relate to group status and reputation, including acceptance and popularity (Bukowski et al., 2000; Parkhurst & Hopmeyer, 1998). However, it is only recently that adolescents have had the possibility to quickly achieve large-scale—even worldwide—popularity and social impact (e.g., Jackson, 2016). Given the new potential for adolescents to create an influential online presence that extends beyond their peer group, researchers have not yet delved into understanding the characteristics of such individuals and the consequences of having such social impact on adolescent influencers themselves. We also need to investigate the effects on those adolescents who faithfully follow them (e.g., development of parasocial relationships and gender socialization; Lou & Kim, 2019; Tolbert & Drogos, 2019). We suggest that interested researchers look at the Transformation Framework to guide their work on the topic because of this model's particular interest for studying novel experiences emerging from social media.

Additionally, FOMO (i.e., fear of missing out), has become an oft-used catch phrase in and around social media. The increasing frequency of posting of curated (i.e., often attractive, fun-looking) posts and photos documenting social events may leave some adolescents who were not involved with the feeling that they missed out on something important—particularly if the peers depicted in those posts are friends or are popular in their circles. We do not yet understand the emotional and social significance of FOMO from an academic perspective, and future studies should investigate the phenomenon itself, the activities that may prompt this feeling (e.g., lurking; Yang & Brown, 2013), and characteristics of individuals who are most susceptible to

FOMO. What is more, perhaps in backlash against curated (and possibly less-than-realistic) online profiles, the creation of FINSTAs (i.e., fake Instagram accounts; Kang & Wei, 2020) has proliferated. Adolescents may use FINSTAs to project versions of themselves to their audience, and again, we have yet to collect data to understand the motivations behind this trend.

Impact of specific online behaviors on mental health. Social media provides a new context in which to study particular interpersonal behaviors that may exacerbate adolescents' existing mental health difficulties. For example, adolescents' struggling with depressive symptoms may exhibit aversive support-seeking behaviors such as excessive reassurance seeking, negative feedback seeking, and conversational self-focus, that appear to drive negative social outcomes (e.g., rejection by friends) as well as sustained emotional maladjustment (Nesi et al., 2018a). Initial work by Clerkin and colleagues (2013) as well as by Nesi and Prinstein (2015), suggests that social media is indeed an important context in which to study such interpersonal behaviors, and additional work is needed. Even less is known about processes involving socioemotional tradeoffs, such as co-rumination (Rose, 2002), which is linked with both positive relationship functioning and internalizing symptoms. In an initial investigation, Murdoch and colleagues (2015) found that emerging adults do engage in co-rumination online, but its presence and function in the social media context for adolescents is yet unexplored. Such work may add to the growing body of literature supporting strong connections between online and offline functioning and help to clarify whether social media helps the "sick-get-sicker."

New relationship contexts. Finally, we encourage researchers to continue to explore yet understudied relationships in the social media context, including the processes, qualities, and outcomes associated with them. For example, conflict between two individuals online may be highly visible to others, both known and unknown to the dyad, causing "drama" for a large group of peers (Marwick & boyd, 2014). If the dyad is a friendship pair situated within a larger peer

group, what is the effect of the visible conflict between the two on the larger group? Relatedly, what is the form, function, and effect of conflict between antipathies online? Additionally, although studies have begun to investigate links between social media exposure and romantic jealousy in intact relationships (Muise et al., 2009; Rueda et al., 2015), we know next to nothing about the effects of lurking on ex-romantic partners' social media profiles on adolescents' social and emotional outcomes relevant to the breakup process. If the clinical experiences of one author (RSM) are any indication, adolescents' lurking on exes' profiles appears to create a great deal of fodder for discussion among peers and distress processed in therapy.

We are energized about the new directions for research on adolescents' social media experiences. We had to leave out many other topics that went beyond the score of this review, including the consequences of potentially addictive online, real-time gaming (Paulus et al., 2018); the characteristics of youth who are not interested in being present on social media; the differences between parents' monitoring of their adolescents' life online as compared to offline, and many more. Additionally, although existing guidelines provide common sense ideas about responsible and healthy social media use (e.g., Scott et al., 2019; Underwood & Ehrenreich, 2017), to our knowledge, there have been few studies about whether such guidelines have their intended positive effects on the health and wellness of adolescents, especially in the realm of recommendations made to parents of adolescents.

Conclusion

As is clear from this overview, social media platforms are here to stay. Social media is a context in which youth move toward mastery of key developmental tasks such as formation and maintenance of close relationships, communication and self-disclosure, and identity experimentation and assertion. Although generations of researchers may not have had personal experience with social media during their own adolescence, we urge peer relations researchers to

take up the call to design studies to further our understanding of the effects of social media on adolescents' online and offline lives. We hope that this article provides a general background to researchers who are interested in starting a program of study on this topic, and that they have found here some helpful theoretical frameworks as well as ideas of unexplored themes to make their own novel contributions to this emerging field of research.

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