
C H A P T E R 3

Online Social Interaction, Psychosocial Well-Being, and Problematic Internet Use

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RESEARCHERS FROM a variety of different disciplines have sought to better understand online social interaction and its relationship to both problematic Internet use (PIU) and psychosocial well-being. In this chapter, PIU refers to a constellation of thoughts, behaviors, and outcomes, rather than to a disease or addiction. Specifically, this chapter employs PIU to describe a syndrome of cognitive and behavioral symptoms that result in negative social, academic, and professional consequences (Caplan, 2002; see also Davis, 2001; Davis, Flett, and Besser 2002; Morahan-Martin & Schumacher, 2003). Rather than limiting its scope to problems rising to the level of addiction or clinical disorder, this chapter conceptualizes PIU as a broader form of deficient self-regulation that results in negative outcomes (LaRose, 2001; LaRose, Eastin, & Gregg, 2001; LaRose, Lin, & Eastin, 2003; LaRose, Mastro, & Eastin, 2001). Throughout the chapter, the terms *Internet abuse* (Morahan-Martin, 2008); *Internet addiction* (Young, 1998; Young & Rogers, 1998); *pathological Internet use* (Morahan-Martin & Schumacher, 2000); *excessive Internet use* (Wallace, 1999); *compulsive Internet use* (van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008); and *Internet dependence* (Scherer, 1997; Young, 1996) are viewed as more extreme examples of the broader concept of PIU.

This chapter examines the relationship between PIU and the interpersonal functions of the Internet. Online social interaction differs from ordinary face-to-face (FtF) conversations in important ways that may be especially appealing to people who exhibit PIU (Caplan, 2003; McKenna & Bargh, 2000; Morahan-Martin & Schumacher, 2000). As this chapter explains, compared

to FtF contexts, computer-mediated interpersonal communication affords greater anonymity, more time creating and editing verbal messages, and more control over self-presentation and impression management (Walther, 1996). It is not surprising, then, that research indicates a positive association both between PIU and online social behavior and between PIU and interpersonal problems such as social skill deficiency, loneliness, and social anxiety (Caplan, 2005, 2007; Morahan-Martin & Schumacher, 2000, 2003). Valkenburg and Peter (2007) asserted that "if the Internet is to influence well-being it will be through its potential to alter the nature of communication and social interaction" (p. 44). In one review of the literature, Morahan-Martin (2007) observed that "there is a growing consensus that the unique social interactions made possible by the Internet play a major role in the development of Internet abuse" (p. 335). This chapter seeks to present a theoretical account of the relationship between interpersonal Internet use and PIU and to propose directions for future studies to explore. The following sections examine research supporting the claim that interpersonal Internet use is associated with psychosocial well-being and PIU. Later sections articulate a detailed cognitive behavioral model of *how* and *why* online social interaction, psychosocial well-being, and problematic Internet use are related to one another.

ONLINE SOCIAL INTERACTION, PIU, AND WELL-BEING

This section reviews research indicating relationships among mental and social well-being, online interpersonal behavior, and PIU. In this particular literature, there are three important points relevant to the current chapter. First, studies show a link between interpersonal uses of the Internet and problematic outcomes of Internet use. Next, the literature also suggests that people who experience psychological problems are particularly drawn to the interpersonal features of online behavior. And, finally, a number of reports illustrate an association between interpersonal difficulties and levels of PIU. Taken together, the studies reviewed here provide substantial evidence of an association among well-being, online social behavior, and PIU.

ONLINE SOCIAL INTERACTION AND PIU

People who report negative outcomes associated with their Internet use are especially drawn to the interpersonal functions of the Internet (Caplan, 2002, 2003, 2005, 2007; Chak & Leung, 2004; Davis, Flett, & Besser, 2002; McKenna & Bargh, 2000; Morahan-Martin, 1999, 2008; Ngai, 2007; Young, 1996, 1998; Young & Rogers, 1998). In one recent review of this literature, Morahan-Martin (2008) noted that "research consistently has supported that the unique social interactions made possible by the Internet are important in the development of both generalized and specific IA [internet abuse]" (p. 51). Morahan-Martin (2007) explained that those who report negative outcomes due to their

Internet use are more likely to use the Internet for interpersonal activities and to go online to meet people, form relationships, and seek emotional support. Similarly, Wallace (1999) observed “synchronous spaces are not the only compelling Internet environments, but they do seem to be chief culprits in excessive Internet use” (p. 182).

According to one early study, whereas nondependent Internet users spent most of their time online using e-mail and surfing web sites, dependent users spent most of their time online using synchronous interpersonal communication applications (Young, 1996). In another study, Scherer (1997) reported that Internet-dependent college students were 26% more likely than other students to go online in order to meet new people. Scherer observed that Internet-dependent students had different motives for using the Internet than did the other students. Specifically, the dependent students were attracted to the opportunities for unique social experiences available online. Similarly, Morahan-Martin and Schumacher (2000, 2003) found that people who exhibited PIU were more likely than others to go online to meet new people, talk to others with similar interests, seek emotional support, and use interpersonal functions such as chat rooms, forums, and interactive games. A study by Kubey, Lavin, and Barrows (2001) revealed a similar pattern of results. The researchers surveyed 572 college students, measuring Internet usage (type and frequency), study habits, academic performance, and personality variables. The results of Kubey et al.’s research revealed that Internet-dependent students used synchronous chat applications significantly more frequently than did nondependent students.

A more recent study (van den Eijnden et al., 2008) employed a longitudinal design to test the hypothesis that “online communication, more than other Internet applications, is related to increases in compulsive use” (p. 658). During the first wave of the study, researchers measured adolescents’ frequency of use of a variety of different Internet functions, including downloading, gaming, e-mailing, instant messaging, chat rooms, information seeking, pornography, and surfing. At a six-month follow-up, the same participants completed a measure of compulsive Internet use. The results revealed that, compared with the noninterpersonal Internet functions, instant messaging and chat room participation were the strongest predictors of adolescents’ future levels of compulsive Internet use (there was no effect for e-mail). The authors concluded that “only real time communication functions, that is, instant messaging and chatting, had higher incidences of compulsive Internet use 6 months later” (p. 662).

In another recent study of 4,000 massively multiplayer online (MMO) game players, Caplan, Williams, and Yee (2009) reported significant positive correlations between PIU and instant messaging use, using the Internet to meet new people, and using the Internet to visit forums. Whereas the same study revealed a positive association between PIU and deriving a sense of community from people met online, a negative association emerged between PIU and deriving a sense of community from FtF relationships. In other words, the more players derived a sense of community from online relationships

rather than face-to-face interaction, the greater their level of PIU. These results are similar to those obtained by Kim and Davis (2009), who reported that “for those participants who used the Internet to communicate with family and friends, heavy usage had little negative implications for PIU. In contrast, those who used the net to make new friends were much more likely to have high PIU scores” (p. 496). Taken together, the studies reviewed here suggest that those who report PIU seem to be particularly drawn to interpersonal Internet functions.

Although the literature just reviewed clearly indicates a relationship between online social behavior and PIU, a closer look reveals that this relationship may apply to only some groups of people—namely, those with psychosocial difficulties. The argument in this chapter is that psychosocial difficulties predispose some people to develop a preference for online social interaction (POSI) over face-to-face conversation, which, in turn, leads to deficient self-regulation of Internet use and negative outcomes (Caplan, 2003, 2005, 2010).

ONLINE SOCIAL INTERACTION AND WELL-BEING

Studies suggest that people with psychological problems and social difficulties appear to be drawn to online social interaction. With regard to depression, for example, a national survey of adolescents found that adolescents who reported depressive symptoms were more likely than their nondepressed counterparts to talk with strangers online, use the Internet most frequently for interpersonal communication, and be more self-disclosive online (Ybarra, Alexander, & Mitchell, 2005). The study by van den Eijnden et al. (2008), mentioned earlier, also found that instant messaging use among adolescents predicted increased depression, but lower loneliness, six months later.

Prior research also indicates relationships between severe psychological problems and online social interaction. For example, Mitchell and Ybarra (2007) examined data from the Second Youth Internet Safety Survey where 1,500 adolescents were asked about self-harming behaviors and online activities. The results indicated that, compared to youths who did not engage in self-harm, self-harming youths were twice as likely to use Internet chat rooms. In addition, the self-harming youths were significantly more likely to have a close relationship with someone they met online. However, the youths were equally likely to have mediated conversations with people they knew in person. Researchers have also identified associations between online social activity and serious personality disorder. A study by Mittal, Tessner, and Walker (2007) examined the online social behavior of adolescents with schizotypal personality disorder (SPD). The results revealed that people with SPD “reported significantly less social interaction with ‘real-life’ friends, but used the Internet for social interaction significantly more frequently than controls” (p. 50). More specifically, both SPD severity and depressive symptoms were positively correlated with the amount of time people spent in chat rooms

and on Internet gaming. The study also found a negative correlation between participants' number of real-life friends and time spent in Internet chat. Taken together, these studies suggest that for some people, online interpersonal behavior is related to serious psychological difficulties.

Other research links online interpersonal activity to self-esteem, another indicator of psychosocial well-being. For example, one study found a negative relationship between using social network sites and self-esteem. Valkenburg, Peter, and Schouten (2006) found that frequent use of social networking was indirectly associated with adolescents' self-esteem and overall well-being. Moreover, the relationship was moderated by whether the users received positive or negative feedback on their profiles. Negative feedback predicted lower self-esteem and well-being whereas positive feedback predicted healthier outcomes. Thus, the valence of feedback was related to psychological well-being.

INTERPERSONAL DIFFICULTIES AND PIU

Researchers have also documented a correlation between interpersonal difficulties (i.e., loneliness, social anxiety, low social skill, and introversion) and PIU. In a recent review, Morahan-Martin (2008) observed that "those who are chronically lonely and those who are socially anxious share many characteristics, which may predispose them to develop IA [Internet abuse]" (p. 52). Indeed, several studies have reported positive associations between loneliness and PIU (Amichai-Hamburger & Ben-Artzi, 2003; Caplan, 2002; Morahan-Martin & Schumacher, 2003). Similarly, research indicates that social anxiety is positively correlated with PIU (Caplan, 2007). Erwin and colleagues (2004) explain that "in the case of introverted or socially anxious individuals, Internet use may serve as a way to avoid being alone and may intensify disconnection from face-to-face relationships" and that "introverted individuals using Internet communication as a substitute for face-to-face relationships seem unlikely to succeed in getting their interpersonal needs met" (Erwin, Turk, Heimberg, Fresco, & Hantula, 2004, p. 631). Similarly, other researchers report that highly troubled adolescents are more likely to form close online relationships than those who have healthy familial relationships (Wolak, Mitchell, & Finkelhor, 2003). With regard to social skill, Caplan (2005) found that college students' levels of self-presentational social skill were significant negative predictors of their preference for online social interaction.

Additionally, there is evidence that social anxiety is positively correlated with PIU (Caplan, 2007). Erwin and colleagues (2004) explain that "in the case of introverted or socially anxious individuals, Internet use may serve as a way to avoid being alone and may intensify disconnection from face-to-face relationships" and that "introverted individuals using Internet communication as a substitute for face-to-face relationships seem unlikely to succeed in getting their interpersonal needs met" (p. 631). In their study Erwin and colleagues found that people with more severe social anxiety indicated that the

Internet made it easier for them to avoid regular FtF interactions. These authors concluded that “individuals with the most severe social anxiety disorder may gain comfort with cyberspace interactions, particularly if they spend greater amounts of time doing so. However, these gains may prove to be elusive, belying greater isolation, anxiety, and impairment associated with non-cyberspace interactions, and greater misinformation and entrenchment of maladaptive beliefs” (p. 643). In sum, the studies just reviewed lend support to the claim that people with psychological and interpersonal difficulties are drawn to online interaction. Thus far, this chapter has reviewed research indicating a significant positive association among PIU, online social interaction, and psychosocial difficulties. What the literature is less clear about, however, is *how* and *why* these associations occur. The remainder of this chapter presents a theoretical model that explains these relationships and suggests directions for future research.

ONLINE SOCIAL BEHAVIOR AND THE COGNITIVE BEHAVIORAL MODEL

Davis (2001; Davis et al., 2002) introduced a cognitive-behavioral theory of PIU that attempts to model the etiology, development, and outcomes associated with PIU. Since its introduction, this model has been useful in developing a better understanding of PIU and interpersonal Internet use. The cognitive-behavioral model asserts that Internet-related cognitions and behaviors that lead to negative outcomes are *consequences*, rather than *causes*, of broader psychosocial problems (e.g., depression, social anxiety, loneliness, social skill deficit). In other words, this perspective asserts that psychosocial problems predispose individuals to develop maladaptive cognitions that lead to deficient self-regulation, ultimately resulting in negative outcomes associated with Internet use (Davis, 2001; Caplan, 2005, 2010).

Researchers have suggested that one cognitive symptom of PIU is a preference for online social interaction (POSI) over FtF social interaction (Caplan, 2003; Davis, 2001; Morahan-Martin & Schumacher, 2000; for a review see Morahan-Martin, 2008). POSI is “a cognitive individual-difference construct characterized by beliefs that one is safer, more efficacious, more confident, and more comfortable with online interpersonal interactions and relationships than with traditional FtF social activities” (Caplan, 2003, p. 629). Individuals who prefer online social interaction also believe they possess interpersonal advantages online. Research indicates that POSI is associated with both psychosocial well-being and behavioral elements of PIU (i.e., compulsive use). For example, Morahan-Martin and Schumacher (2000) found that college students who engaged in Internet abuse were more likely than other students to say they preferred online social interaction over FtF exchanges:

Social aspects of Internet use consistently differentiated those with more Internet use problems from others. Pathological users were more likely to use

the Internet for meeting new people, emotional support, talking to others sharing the same interests, and playing socially interactive games. . . . [Pathological users] are friendlier, more open, and more themselves and they report it is easier to make friends when online. They have more fun with people online than non-pathological users and are more likely to share intimate secrets online as well . . . for them, the Internet can be socially liberating, the Prozac of social communication. (Morahan-Martin & Schumacher, 2000, p. 26)

A study by Caplan (2003) found that, consistent with the cognitive-behavioral model, POSI mediated the relationship between psychosocial problems and negative outcomes of Internet use. More specifically, Caplan (2003) found that participants' self-reported levels of loneliness predicted their levels of POSI, which in turn predicted the extent to which they reported experiencing negative outcomes due to their Internet use. In another study on impression-management skill, Caplan (2005) found that POSI mediated the negative association between social skills and compulsive Internet use. This particular study examined college students' self-presentational skill, which Riggio (1989) defined as one's ability to be "adept, tactful, and self-confident in social situations" and to "fit in comfortably in just about any type of social situation" (p. 3). Caplan (2005) hypothesized that "in order to increase their perceived self-presentational ability and to decrease social risk, people with [self-presentational] skill deficits are likely to seek out communicative channels (such as CMC [computer-mediated communication]) that minimize potential costs and enhance their limited abilities" (p. 724). The results revealed that college students' level of self-presentational skill was inversely related to their levels of POSI, compulsive Internet use, and levels of negative outcomes due to Internet use. That is, the lower one's self-presentational skill, the greater one's level of POSI and compulsive Internet use and the more one experienced negative outcomes for online activity. In that study, POSI mediated the association between social skill deficit and negative outcomes of Internet use.

Additionally, there is also empirical evidence that social anxiety is associated with POSI (Caplan, 2007; Erwin et al., 2004; Morahan-Martin, 2008). In a review of this literature, Morahan-Martin (2008, pp. 5253) observed that "the preference for online over [FtF] interaction may be a key factor in the relationship between [Internet abuse] and both loneliness and social anxiety. Those who are chronically lonely and those who are socially anxious share many characteristics which predispose them to develop IA. Both are apprehensive in approaching others, fearing negative evaluations and rejection. They tend to be self-preoccupied with their perceived social deficiencies, which leads them to be inhibited, reticent, and withdrawn in interpersonal situations and avoid social interactions."

A study by Erwin et al. (2004), mentioned earlier, examined Internet use among people with social anxiety disorder. Participants with social anxiety disorder reported that they use the Internet because they experience greater

comfort interacting on the Internet than face-to-face. The participants' social anxiety levels were positively correlated with "endorsement of most aspects of using the Internet that may enable avoidance of face-to-face interactions" (p. 640). Highly anxious individuals actually felt it was easier for them to interact in CMC than in FtF situations. Even more, socially anxious individuals spent most of their time passively observing online social interactions, rather than actively engaging in these activities. Thus, there appears to be a specific relationship among social anxiety, POSI, and PIU.

In sum, the literature presented in this section demonstrates that, as hypothesized by the cognitive-behavioral model, well-being is correlated with a preference for online social interaction. There is a clear and consistent pattern in the literature indicating that POSI is associated with loneliness, depression, social anxiety, and low social skill. In order to understand why people with psychosocial difficulties might be attracted to online social interaction, the next section reviews the major theories that have shaped our understanding of how CMC and FtF interaction are similar and how they are different.

HOW IS CMC DIFFERENT FROM FTF COMMUNICATION?

As the Internet has changed over the past decades, so have theories seeking to explain the important differences between FtF and computer-mediated conversation (for a review see Walther, 2006). Describing consistent channel differences between CMC and FtF contexts is a difficult task as technologies evolve and people become more skilled users of technology. As such, the literature reveals numerous contradictory findings about channel differences between CMC and FtF contexts.

A number of theories describe ways in which interpersonal processes in CMC applications are distinct from FtF interaction (for more extensive reviews see Hancock & Dunham, 2001; Ramirez, Walther, Burgoon, & Sunnafrank, 2002; Walther, 2006; Walther & Parks, 2002). In general, most theories that recognize differences between FtF and CMC contexts fall into either of two theoretical paradigms. Early CMC theories reflect the *cues filtered out paradigm*, which emphasizes channel limitations and asserts that CMC limits the information people obtain from nonverbal cues. Due to the diminished nonverbal cues online, scholars argued that online interaction does not possess adequate resources for effective relational interaction (Culnan & Markus, 1987; Daft, Lengel, & Trevino, 1987; Kiesler, 1986; Kiesler, Siegel, & McGuire, 1984; Rice & Case, 1983; Short, Williams, & Christie, 1976). Cues-filtered-out theorists contend that CMC's lack of nonverbal cues universally constrains the medium such that it can never match the efficacy of FtF channels.

In contrast, the more modern *cues filtered in* theories contend that CMC is an especially effective channel for interpersonal communication (Postmes, Spears, & Lea, 1998; Postmes, Spears, Lea, & Reicher, 2000; Walther, 1992, 1996, 2006, 2007). Cues-filtered-in theories embrace CMC's diminished nonverbal cues and argue that the limited information transmitted online is actually an

interpersonal advantage for some people. In fact, some theorists assert that CMC's unique properties allow online interactants to achieve more social success online than in FtF interactions (Walther, 1996, 2006). For the purposes of this chapter, cues-filtered-in theories offer the cognitive-behavioral model of PIU a theoretical account of why people with psychosocial problems might be drawn to online social interaction.

Cues-filtered-in theories argue that CMC's features facilitate relational development and help people to achieve meaningful relationships with positive interpersonal outcomes online. For example, *social information processing* (SIP) theory explicitly rejects the assumption that CMC's lack of nonverbal cues limits communicators' capabilities (Walther, 1992). Instead, SIP theory posits that people adapt to the lack of nonverbal information online by putting more weight on the content, style, and timing of verbal messages (Walther, 1992, 1996). From this perspective, the cues that are available online carry information normally transmitted via a host of nonverbal cues in FtF exchanges.

According to SIP theory, the key difference between relational information exchanged online and information exchanged in FtF interaction "has to do not with the *amount* of social information exchanged but with the *rate* of social information exchange" (Walther, 1996, p. 10). Thus, the relative lack of nonverbal information in CMC does not necessarily limit the amount of information users can transmit; however, it does slow the rate of information transmission. SIP theory posits that relational communication takes longer to emerge in CMC than in FtF conversations (Walther, 1992; Walther & Parks, 2002). Yet, the theory argues that, after sufficient time passes and users exchange numerous messages, levels of relational development in CMC will begin to equal those experienced in FtF interactions (Walther, 1993). One important question for PIU researchers to ask is whether SIP's hypothesis that intimacy development in CMC requires more time than in FtF conversations might help explain why POSI may lead to negative outcomes from Internet use. That is, people may need to invest more time in order to manage their online relationships, which would lead them to spend greater amounts of time online.

The *social identity model of deindividuation effects* (SIDE) is another cues-filtered-in theory, which proposes that people adapt to the lack of nonverbal cues online (Postmes et al., 1998; Postmes et al., 2000). Rather than assuming people are constrained by fewer nonverbal cues online, SIDE posits that in cue-limited online interactions, people focus their attention on contextual cues and information related to the social status of interactants (Lea & Spears, 1992; Spears & Lea, 1992). The theory hypothesizes that the anonymous or deindividuated conditions of CMC promote a social identity and strong group-based bonds. In the absence of personally identifying information, SIDE theory contends that people downplay their personal identities and emphasize the social identity they share with their fellow CMC conversants. Accordingly, people might emphasize identities related to shared group memberships or typographical styles. Rather than being an impersonal environment filled with superficial impressions, SIDE frames CMC as a socially rich environment in

which group-based cues are overattributed in the absence of individuating information (Spears & Lea, 1992).

Finally, and perhaps most importantly for the current chapter, the *hyperpersonal perspective* is a cues-filtered-in theory that counters the cues-filtered-out paradigm by arguing that online interaction may be superior to FtF exchanges. Hyperpersonal theory asserts that the relative lack of nonverbals online enhances interpersonal communication such that social goals can be more effectively pursued online than in FtF conversations. As Walther (1996, p. 17) described, hyperpersonal communication is "CMC that is more socially desirable than we tend to experience in parallel FtF interaction." According to the hyperpersonal perspective, mediated interaction affords actors the opportunity to adapt to and exploit the diminished nonverbal cues in CMC in ways that enhance their ability to attain interpersonal goals (Dunthler, 2006; Walther, 1996, 2006). For example, the verbal content that dominates CMC exchanges is easier to control and strategically manipulate than nonverbal behaviors (Ekman & Friesen, 1969). Specifically, CMC requires people to type their responses before sending them; a communicator is able to revise or abandon unfavorable messages more easily than in FtF conversations (Walther, 1996, 2006).

The hyperpersonal perspective also hypothesizes that a positive feedback loop exists in CMC whereby interactants positively reflect upon a partner's selectively presented information and then treat them consistently with these reflections (Walther, 1996). In other words, mediated selective self-presentation may lead partners to form more favorable impressions than in FtF settings, which, in turn, leads to continued positive behavior by the sender. According to Walther (1996), "this may explain how such surprisingly intimate, sometimes intense, and hyperpersonal interactions take place in CMC. CMC provides an intensification loop" (p. 27).

The hyperpersonal perspective offers a useful explanation for why people may prefer online social exchanges, suggesting that CMC enables people to express identity-important characteristics that they are unable to express in parallel FtF situations (Bargh, McKenna, & Fitzsimmons, 2002). Online, interactants can mask or edit undesirable and uncontrollable cues while magnifying preferred cues (Walther, 1996, 1997). According to the hyperpersonal perspective, CMC enables conversational actors to "engage in selective self-presentation and partner idealization, enacting exchanges more intimate than those of FtF counterparts" (Tidwell & Walther, 2002, p. 319). By reducing the nonverbal cues that sometimes contradict verbal messages, partners in CMC are particularly likely to base their impressions of one another on the selectively presented information they exchange online (Walther, 1996). In fact, hyperpersonal theory speculates that receivers often overattribute the selectively presented social information transmitted via CMC (Walther, 1997; Walther, Slovacek, & Tidwell, 2001). These overattributions then result in idealized perceptions of relational partners (Walther, 1996, 1997). From this perspective, people engaging in online social interaction are likely to form

idealized impressions based on limited but strategically filtered personal information. Walther (2006) suggests that hyperpersonal communication may foster higher levels of relational immediacy and affection than normal FtF interactions. Along these lines, scholars have documented that relational intimacy develops faster and reaches higher levels online than FtF (Hian, Chuan, Trevor, & Detenber, 2004). Thus, the hyperpersonal perspective posits several interpersonal benefits to online communication.

The hyperpersonal perspective is especially useful for explaining why people with pre-existing psychosocial problems, such as social anxiety, prefer online social interaction (High & Caplan, 2009). These individuals may be drawn to hyperpersonal communication online because they perceive it to be safer, easier, and more effective than ordinary face-to-face conversation (Caplan, 2007; Erwin et al., 2004; Morahan-Martin & Schumacher, 2003). Morahan-Martin and Schumacher (2003) asserted that "online, social presence and intimacy levels can be controlled; users can remain invisible as they observe others' interactions, and can control the amount and timing of their interactions. Anonymity and lack of face-to-face communication online may decrease self-consciousness and social anxiety" (p. 659). In one study, O'Sullivan (2000) examined preference for different interpersonal communication channels (CMC, FtF, telephone) and found that people's preferences varied depending on how much self-presentational risk they appraised the situation to have. O'Sullivan's participants preferred mediated interpersonal channels when their self-presentation was threatened. As Davis et al. (2002) proposed, "for some individuals, the Internet becomes a buffer for threatening social interactions" (p. 332).

Additionally, the hyperpersonal perspective argues that the lack of non-verbal cues in CMC should enable communicators to free more cognitive resources to devote to message production, reception, and exchange processes (Walther, 1996, 1997). In other words, from this perspective, the cognitive demands associated with social anxiety or interpersonal difficulties might be alleviated in an online context where people feel more socially confident and efficacious. Thus, another reason why people with psychosocial problems might prefer online social interaction is that CMC enables people to devote increased cognitive resources to positive self-presentation and advancement of interpersonal goals. In sum, the perceived ease, effectiveness, and safety of CMC theorized in the hyperpersonal perspective may draw individuals with psychosocial problems to mediated interaction.

Research supports the hyperpersonal perspective and suggests that hyperpersonal communication is common in online social interaction (Chester & Gwynne, 1998; Gibbs, Ellison, & Heino, 2006; Henderson & Gilding, 2004). For example, Dunthler (2006) found that in CMC contexts, communicators had more time to produce messages, were better able to organize their thoughts, and were able to better manage how they presented themselves. Henderson and Gilding (2004) observed that respondents took special care to strategically construct messages in CMC. Researchers have also observed that synchronous

CMC channels appear to be particularly conducive to hyperpersonal communication. In these channels, users benefit from relaxed temporal commitments and can compose their messages when they feel comfortable doing so. More precisely, scholars have noted that asynchronous communication allows people to organize, plan, edit, and develop their thoughts more mindfully and deliberately than they can in temporally immediate media (Dunthler, 2006; Hiemstra, 1982). Walther (1996) contends, "Asynchronous interaction may thus have the capacity to be more socially desirable and effective as composers are able to concentrate on message construction to satisfy multiple or single concerns at their own pace" (p. 26). Accordingly, people are able to produce more polite messages via asynchronous, text-based CMC than they can in synchronous channels (Dunthler, 2006). Asynchronicity allows people to spread the cognitive load of message construction across a longer time period than exists in synchronous contexts. Thus, asynchronicity is likely to be attractive to individuals who find FtF interactions difficult or who experience a high cognitive or emotional demand when managing FtF situations.

Thus far, this chapter has (1) presented research indicating that people with various psychosocial problems prefer online social interaction and (2) argued that the hyperpersonal perspective offers a useful theoretical account of why this may occur. The remainder of the current chapter explores how and why POSI might facilitate the development of other symptoms of PIU. In general, Caplan (2010) proposes that individuals who prefer online social interaction develop a reliance on online social interaction that may result in other symptoms of PIU—going online to alter moods, cognitive preoccupation, compulsive use, and negative outcomes.

Two important cognitive symptoms of PIU are motivation to use the Internet for mood regulation and a cognitive preoccupation with the online world (Caplan, 2003, 2005, 2010; Davis et al., 2002). Mood regulation refers to using the Internet to alleviate a dysphoric affective state such as anxiety, loneliness, or depression. Cognitive preoccupation refers to obsessive thought patterns involving the Internet use (i.e., "I can't stop thinking about going online" or "When I am offline, I can't stop wondering what is happening online"). Caplan (2005, 2010) argues that when individuals exhibit a substantial POSI, they are likely to use computer-mediated communication to regulate their mood. For example, people with high POSI may seek to mitigate the social anxiety they experience in FtF situations by using CMC to meet their interpersonal needs.

Additionally, individuals who have a high POSI may be especially likely to seek out computer-mediated sources of social support to alleviate affective distress. In other words, POSI may lead individuals to use the Internet rather than traditional FtF contexts, when they seek comforting and companionship from members of their support network. A study by Caplan (2010) revealed that POSI positively predicted use of the Internet for mood regulation and that both POSI and using the Internet for mood regulation predicted cognitive preoccupation with the Internet and compulsive Internet use. In other words,

these results suggest that POSI and using the Internet for mood regulation are associated with greater levels of deficient self-regulation of Internet use.

The cognitive-behavioral theory argues that, if the cognitive symptoms of PIU are salient enough, they lead to behavioral symptoms that ultimately result in negative outcomes. For the most part, however, scholars have recognized that excessive use in and of itself is not necessarily problematic (Caplan, 2003; Caplan & High, 2007; Kim & Davis, 2009). In terms of specifying particular online behaviors that give rise to generalized PIU, Davis (2001) argues that “there is not a specific time limit or behavioral benchmark” for identifying Internet use as problematic; instead, the cognitive-behavioral model of PIU “posits a continuum of functioning” (p. 193).

From this perspective, then, the primary behavioral symptom of PIU is *compulsive Internet use*—an inability to control, or regulate, one’s online behavior. Indeed, in a review of research on PIU, Shapira and colleagues (2003) concluded that, “based on the current limited empirical evidence, problematic Internet use may best be classified as an impulse control disorder” (p. 207). Caplan (2003) compared the extent to which excessive Internet use and compulsive Internet use predicted negative outcomes associated with PIU. Excessive and compulsive Internet use were both significant predictors of negative outcomes associated with Internet use; however, “excessive use was one of the weakest predictors of negative outcomes, whereas preference for online social interaction, compulsive use, and [cognitive preoccupation] were among the strongest” (pp. 637–638). In another study, Caplan and High (2007) found that the relationship between excessive Internet use and its negative outcomes was moderated by cognitive preoccupation with the Internet.

The cognitive-behavioral model advanced here predicts that deficient self-regulation of Internet use will result in negative outcomes. Studies support this hypothesis as well. Caplan (2010) found that POSI and using the Internet for mood alteration both were significant predictors of deficient self-regulation (i.e., compulsive use and cognitive preoccupation). The results also revealed that the deficient self-regulation was a significant predictor of negative outcomes. The findings indicated that POSI and mood regulation predicted negative outcomes *indirectly* via their association with deficient regulation. In other words, deficient self-regulation mediated the association both between POSI and negative outcomes and between mood regulation and negative outcomes. Together, the cognitive and behavioral symptoms (POSI, mood regulation, and deficient self-regulation) accounted for 61% of the explained variance in participants’ negative outcome scores. These results support the hypothesis that POSI and mood regulation facilitate deficient self-regulation and, ultimately, negative outcomes from Internet use.

CONCLUSION

To summarize, this chapter sought to explain the association between online social interaction, psychosocial well-being, and PIU. Research reviewed at the

beginning of the chapter demonstrated an association between interpersonal Internet use and both psychosocial difficulties and PIU. In an effort to explain how and why these associations happen, the remainder of the chapter presented a cognitive-behavioral model suggesting that people's psychosocial problems may predispose them to prefer online social interaction and, in turn, lead to mood regulation, deficient self-regulation, and negative outcomes. Overall, the literature reviewed in this chapter supports the claim that interpersonal uses of the Internet are associated with PIU because POSI plays a major role in the etiology of problematic use.

As research on interpersonal Internet use and PIU continues to evolve, there are a number of questions that researchers have yet to answer. The cognitive-behavioral model would benefit from further detail explicating how and why POSI is related to using the Internet for mood regulation (what are the mechanisms at work in this relationship?). Along a similar line, although we know that POSI predicts compulsive use indirectly via mood regulation, studies indicate there is also a direct association between POSI and deficient self-regulation (Caplan, 2010). Here, researchers need to try to better understand the other ways that POSI predicts deficient self-regulation. Future research might also improve the model by considering whether different types of interpersonal Internet use (i.e., instant messaging, chat rooms, e-mail) are more or less strongly associated with POSI, mood regulation, deficient self-regulation, and negative outcomes. And, finally, researchers need to examine why using the Internet for mood regulation predicts deficient self-regulation and negative outcomes. Indeed, we can also identify situations where using CMC for mood alteration might predict more positive outcomes (e.g., online support groups and online therapy) (for a review see Wright, 2009). Why might using online interaction for mood alteration help some and hinder others?

In sum, although the Internet has done much to enhance our ability to engage in interpersonal communication across time and distance, the research presented in this chapter indicates that such interactions may create problems for some people. It is important to emphasize that the literature reviewed here does not suggest that online social behavior per se is dangerous or risky; rather, the literature indicates that people with psychosocial problems are likely to prefer online social interaction and may be particularly vulnerable to using the Internet to manage their moods and to experiencing difficulty controlling their use.

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