The Online Social Support Scale: Exploratory Factor Analysis, Validation, and Effects on Psychosocial Outcomes

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CHAPTER 1

Introduction

Although the benefits of in-person social support have been widely studied, the Internet offers a new frontier in which to examine the potentially beneficial and ameliorative effects of social support garnered online. Teens are frequent users of online spaces where social support might be available (e.g., social media, apps, online multiplayer games); however, young and middle-aged adults are also frequent users of these spaces. As of 2015, 65% of adults in the United Stages ages 18 and older used social networking sites, an enormous leap from 7% in 2005. Moreover, 90% of adults ages 18-29 and 77% of adults ages 30-49 use these sites (Perrin, 2015). The question arises, does online social support confer similar benefits as in-person social support? Addressing this question necessitates strong, theory-driven measurement of online social support and its potential subtypes. The current study was designed to (1) create a measure of online social support based on subtypes of social support found in the in-person literature, (2) make preliminary efforts to validate the measure, and (3) use the measure to answer questions about the effect of online social support on psychosocial outcomes and comparability to in-person social support.

Social support, defined as tangible and intangible assistance from friends, family, and others in one's social circle, has well established benefits, including the reduction of stress, enhanced wellbeing, and improvements in health (House, 1981). Both main effects and stress-buffering effects have been demonstrated. In the former, social support provides frequent positive experiences, consistent social roles, and recognition of self-worth. In the latter, social

support alleviates the stressor itself or attenuates one's reaction to stress (Cohen & Wills, 1985). In addition, social support in one social setting has also been shown to offset the effects of victimization in another (Hodges, Malone, & Perry, 1997; Parker & Asher, 1993; Schwartz, Dodge, Pettit, & Bates, 2000).

Researchers and theorists have described a wide variety of in-person social support subtypes. In their highly cited review of social support and stress, Cohen and Wills (1985) drew from others' support typologies and break stress-buffering, in-person social support into four over-arching subtypes: esteem ("receiving information that one is esteemed and accepted"), social companionship ("spending time with others in leisure and recreational activities"), informational ("receiving help in defining, understanding, and coping with problematic events"), and instrumental support ("being provided financial aid, material resources, and needed services," p. 313). Barrera and Ainlay (1983) took a somewhat different view of social support, conceptualizing it as "actions involved in resource provision rather than affective or cognitive responses to social exchanges" (p. 135). In their review of social support subtypes, they investigated types of support with both direct and indirect (stress-buffering) effects. Their conceptual subtypes of social support included material aid ("providing tangible materials in the form of money and other physical objects"), behavioral assistance ("sharing of tasks through physical labor"), intimate interaction ("traditional nondirective counseling behaviors such as listening, expressing esteem, caring, and understanding"), guidance ("offering advice, information, or instruction"), feedback ("providing individuals with feedback about their behavior, thoughts or feelings"), and positive social interaction ("engaging in social interactions for fun and relaxation," p. 135-136). Results from their exploratory factor analyses, however, suggested four rather than six subtypes: directive guidance (combining guidance and feedback),

nondirective support (corresponding closely to intimate interaction), positive social interaction, and tangible assistance. More discussion of subtypes is provided in the next section.

Existing research on online social support, although far less common than work on in-person social support, has offered some important conclusions about its effects and attempts to characterize its potential subtypes. Much of the work in this area has been health-focused. Many research groups have focused on facilitating connections among individuals with similar health issues in the hope that online social support will improve outcomes. For example, Turner-McGrievy and Tate (2013) compared weight loss outcomes in overweight adults; those who used Twitter to engage with a counselor and others in their program lost more weight. Graham, Papandonatos, Kang, Moreno, and Abrams (2011) found that online social support in a forum created for those trying to quit smoking increased the likelihood of smoking abstinence at 6, 12, and 18 months. Other researchers, however, have taken a broader look at online social support. Indian and Grieve (2014) used a modified version of the Interpersonal Support Evaluation List (ISEL; Cohen & Hoberman, 1983) to measure online social support on Facebook. In addition to finding that in-person and online social support were strongly correlated but not collinear, they also found that Facebook support had incremental utility over and above in-person social support in the prediction of well-being, but only for those with high social anxiety. Longman, O'Connor, and Obst (2009) found that greater online social support among World of Warcraft players was associated with lower depression, anxiety, and stress, but that this effect disappeared when in-person social support was added to the model.

Some groups have also attempted to assess subtypes of social support. Braithwaite, Waldron, and Finn (1999) conducted a content analysis of posts in a forum for individuals with disabilities based on Cutrona and Suhr's (1992) subtypes of social support, finding that

emotional and informational support were most frequently offered. Gaysynsky, Romansky-Poulin, and Arpadi (2015) created a private Facebook group for young adults with HIV, also using social support subtypes from Cutrona and Suhr (1992), as well as Braithwaite, Waldron, and Finn (1999), and Coursaris and Liu (2009). In analyzing the content of the group's posts, they found emotional support was most often sought and esteem support was most often given. Other researchers, including Graham et al. (2011) and Oh, Ozkaya, and Larose (2014) asked participants directly about their perceived online social support, basing their questionnaires on established in-person measures.

In light of the existing online social support literature, we hope to build on efforts to measure online social support by reviewing a larger collection of in-person measures on which our items will be based. We also plan to examine the ability online and in-person support to offset the adverse effects of various stressors on psychosocial outcomes, including self-esteem, depressive thoughts, and depressive symptoms.

Development of the Online Social Support Scale

To achieve these goals, we began by reviewing the in-person literature. Table 1 presents names and definitions of subtypes of in-person social support. We categorized according to the similarity of subtype definitions. Across research groups, consensus accrues to some subtypes (e.g., social companionship); however, some groups made distinctions among other subtypes of social support that others would group together into a single type. For example, although many groups consider actions like validating, listening, respecting, caring, and similar as a single type (e.g., esteem, emotional, affect support, etc.), Cutrona and Suhr (1992) and Cobb (1976, 1979) distinguished between emotional (feeling cared about) and esteem (feeling valued) support. Along similar lines, Barrera and Ainlay's (1983) conceptual subtypes of informational support

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Subtypes of In-Person Social Support

Subtype	Authors, Measure (if applicable)			
	Cohen & Wills (1985)	Barrera & Ainlay (1983), Inventory of Socially Supportive Behaviors (theoretical)	Barrera & Ainlay (1983), Inventory of Socially Supportive Behaviors (empirical)	Cohen & Hoberman (1983), Interpersonal Support Evaluation List
Esteem/ Emotional	Esteem: "information one is esteemed and accepted" (p. 313)	Intimate interaction: "traditional nondirective counseling behaviors such as listening; and expressing esteem, caring, and understanding" (p. 136)	Nondirective support: "expressions of intimacy, unconditional availability, and trust…physical affection and listening to talk about private feelings" (p. 140)	Self-esteem: "perceived availability of positive comparison when comparing one's self to others" (p. 104)
Social Companionship	Social companionship: "spending time with others in leisure and recreational activities" (p. 313)	Positive social interaction: "engaging in social interactions for fun and relaxation" (p. 136)	Positive social interaction: "joking and kidding, talking about interests, and engaging in diversionary activities" (p. 140)	Belonging: "the perceived availability of people one can do things with" (p. 104)
Informational	Informational: "help in defining, understanding, and coping with problematic events" (p. 313)	Guidance: "offering advice, information, or instruction" (p. 136) Feedback: "providing individuals with feedback about their behavior, thoughts, or feelings" (p. 136)	Directive guidance: "actions on the part of helpers to provide support of a practical nature, aimed at aiding the recipient in improving his or her performance through increased understanding and skill" (p. 140)	Appraisal: "the perceived availability of someone to talk about one's problems" (p. 104)
Instrumental	Instrumental: "provision of financial aid, material resources, and needed services" (p. 313)	Material aid: "providing tangible materials in the form of money and other physical objects" (p. 135) Behavioral assistance: "sharing of tasks through physical labor" (p. 136)	Tangible assistance: "physical assistance (sharing tasks), and providing shelter, money, or physical objects of value" (p. 140)	Tangible: "intended to measure perceived availability of material aid" (p. 104)
Environmental Action				
Indirect Personal Influence				
Active				
Affirmation				
Nurturance				

Table 1 (page 2 of 4)

Subtypes of In-Person Social Support

Subtype	Authors, Measure (if applicable)			
	Barling, MacEwen, & Pratt (1988)	Jacobson (1986)	Cutrona & Suhr (1992)[a]	Brandt & Weinert (1981), Personal Resource Questionnaire
Esteem/ Emotional	Emotional: "sympathy, listening, and caring" (p. 142)	Emotional: "refers to behavior that fosters feelings of comfort and leads [one] to believe he or she is admired, respected, and loved, and that others are able to provide caring and security" (p. 252)	Esteem: "seeks to make someone feel better via complimenting, validating feelings, or relieving blame of an individual" (p. 288)	Intimacy: "there is someone I feel close to who makes me feel secure" (p. 278)
			Emotional: "addresses a person's emotional state through…encouragement, prayer, listening, understanding, sympathy, confidentiality, physical affection, and close relationships" (p. 288)	Assistance: "the availability of informational, emotional, and material help" (p. 277) (replicated below)
Social Companionship			Network: "when someone offers access to new friends, shows willingness to be with the person, or highlights the availability of others within the social network" (p. 288)	Social integration: "I spend time with others who have the same interests that I do" (p. 278)
Informational	Informational: "general [and specific] advice on ways to approach [one's] problems" (p. 142)	Cognitive: "information, knowledge, and/or advice that helps [one] to understand his or her world and to adjust to changes within it" (p. 252)	Informational: "providing suggestions or advice, referring a person to resources, redefining the situation, or providing new facts or skills" (p. 288)	Assistance: "the availability of informational, emotional, and material help" (p. 277) (replicated below)
	Appraisal: "an objective evaluation of [the] situation, appropriate social comparisons, and an acknowledgement of the difficulties [one] faced" (p. 142-143)			
Instrumental	Instrumental: "helpfulness in taking care of the numerous time-consuming activities that detracted from [one's] studies" (p. 142)	Materials: "refers to goods and services that help to solve practical problems" (p. 252)		Assistance: "the availability of informational, emotional, and material help" (p. 277)
Environmental Action				
Indirect Personal Influence				
Active				
Affirmation				Worth: "people let me know I do well at my work (p. 278)
Nurturance				Nurturance: "to be giving and caring" (p. 278)

[a] As described by Turner Mc-Grievy & Tate (2013)

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Subtypes of In-Person Social Support

Subtype	Authors, Measure (if applicable)			
	Norbeck, Lindsey, & Carrieri (1981), Norbeck Social Support Questionnaire[b]	Gottlieb (1978)	Cobb (1976, 1979)	Kahn & Antonucci (1980)[d]
Esteem/ Emotional	Affect: "the expression of positive affect of one person toward another" (p. 265)	Emotionally sustaining behaviors: "the core of facilitative conditions associated with constructive client change in the classical counseling literature" (p. 108)	Emotional: "cared for and loved" (p. 93) Esteem: "esteemed and valued" (p. 93)	Affect: "expressions of liking, admiration, respect, or love" (p. 16)
Social Companionship			Network: "belongs to a network of communication and mutual obligation" (p. 93)	
Informational		Problem solving behaviors: "providing new information or a new perspective on existing information, and by personally intervening in the problem situation" (p. 108)		Aid: "transactions in which direct aid or assistance is given, including things, money, information, time, and entitlements" (p. 16) (replicated below)
Instrumental	Aid: "the giving of symbolic or material aid to another" (p. 265)		Instrumental: "or counseling" (p. 94)[c] Material: "or goods and services" (p. 94)[c]	Aid: "transactions in which direct aid or assistance is given, including things, money, information, time, and entitlements" (p. 16)
Environmental Action		Environmental action: "various forms of social advocacy taken on behalf of the helpee" (p. 108)		
Indirect Personal Influence		Indirect personal influence: "the helpee's conviction that the helper or helper's resources are available when needed… 'milieu reliability'" (p. 108)		
Active			Active: "or mothering" (p. 94)[c]	
Affirmation	Affirmation: "the affirmation or endorsement of another person's behaviors, perceptions, or expressed views" (p. 265)			Affirmation: "expressions of agreement or acknowledgement of the appropriateness or rightness of some act or statement of another person" (p. 16)
Nurturance				

[b] Quoting Kahn (1978) p. 85. [c] House (1981) notes that Cobb technically did not see these as social support per se; House instead treats them as subtypes of social support. [d] As described in House (1981)

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Subtypes of In-Person Social Support

Subtype	Authors, Measure (if applicable)		
	Pinneau (1975)	Caplan (1974), Caplan & Killilea (1976)	Barrerra & Ainlay (1983)
Esteem/ Emotional	Emotional: "information which directly meets basic social-emotional needs, for example: a statement of esteem for the person, attentive listening to the person" (p. 2)	Promoting emotional mastery	Intimate interaction: Trust (Brim, 1974), Emotional mastery (Caplan, 1976), Social support (Cobb, 1978), Love (Foa, 1971), Emotionally sustaining behaviors/Indirect personal influence (Gottlieb, 1978), Emotional support (Hirsch, 1980), Intimacy opportunities/Love (Kaplan et al., 1977), Affective support (Pattison, 1977), Intangible support (Tolsdorf, 1976), Emotional integration/Reassurance of worth (Weiss, 1973)
Social Companionship			Positive social interaction: Desired interaction/Value similarity/Concern (Brim, 1974), Rest & recuperation (Caplan, 1976), Socializing (Hirsch 1980), Group solidarity (Kaplan et al., 1977), Social integration (Weiss, 1973)
Informational	Appraisal or information: "a psychological form of help which contributes to the individual's body of knowledge or cognitive system, for example, informing the person about a new job opportunity, explaining a method for solving a problem" (p. 2)	Offering guidance: "regarding the field of relevant forces involved in expectable problems and methods of dealing with them" (p. 41)	Guidance: Trust (Brim, 1974), Information/Problem solving/Reference & Control/Ideology (Caplan, 1976), Instrumental support (Cobb, 1978), Information (Foa, 1971), Problem-solving behaviors (Gottlieb, 1978), Cognitive guidance (Hirsch, 1980), Appraisal opportunities/Persuasion/ Normative fit (Kaplan et al., 1977), Advice (Tolsdorf, 1976), Social integration (Weiss, 1973)
		Providing feedback: "that validates his conception of his own behavior [and] his own identity and fosters improved performance based on adequate self-evaluation" (p. 41)	Feedback: Feedback (Caplan, 1976), Social support (Cobb, 1978), Status (Foa, 1971), Social reinforcement (Hirsch, 1980), Appraisal opportunities/Role-self rewards/Approval (Kaplan, et al. 1977), Feedback (Tolsdorf, 1976), Reassurance of worth (Weiss, 1973)
Instrumental	Tangible: "assistance through an intervention in the person's objective environment or circumstances, for example: providing a loan of money or other resources" (p. 2)		Material aid: Assistance (Brim, 1974), Concrete aid (Caplan, 1976), Material support (Cobb, 1978), Money/Goods (Foa, 1971), Problem solving behaviors (Gottlieb, 1978), Tangible assistance (Hirsch, 1980), Tangible support/Dependable social networks (Kaplan et al., 1977), Instrumental support (Pattison, 1977), Tangible support (Tolsdorf, 1976), Assistance (Weiss, 1973)
			Behavioral assistance: Assistance (Brim, 1974), Practical service (Caplan, 1976), Active support (Cobb, 1978), Service (Foa, 1971), Environmental action/Problem-solving behaviors (Gottlieb, 1978), Tangible assistance (Hirsch, 1980), Tangible support/Dependable social networks (Kaplan et al., 1977), Instrumental support (Pattison, 1977), Tangible support (Tolsdorf, 1976), Assistance/Social integration (Weiss, 1973)
Environmental Action			
Indirect Personal Influence			
Active			
Affirmation			
Nurturance			

distinguish between guidance (advice or information) and feedback (about one's behavior, thoughts, or emotions) and Barling, MacEwen, & Pratt (1988) separated informational (advice on problems) and appraisal support (objective evaluations of the situation at hand). Similarly, Barrera and Ainlay also distinguished in instrumental support between material aid (helping via providing physical objects or money) and behavioral assistance (completing tasks); Cobb separates instrumental and material (goods and services) support.

Some research groups also included somewhat idiosyncratic subtypes, not often represented by others. Brandt and Weinert (1981) described worth (being told one is doing well) and nurturance (the ability to be giving and caring to another) support, whereas Cobb referred to active support ("or mothering," p. 94). Both Norbeck, Lindsey, and Carrieri (1981) and Kahn and Antonucci (1980) referenced affirmation support, which includes actions that reinforce others' statements, behaviors, or perceptions. Finally, some researchers combined subtypes that many others have separated. Brandt and Weinert (1981) grouped informational, emotional, and material help into one category labeled "assistance," whereas Kahn and Antonucci (1980) combined objects, money, information, time, and entitlements into "aid."

Overall, four general subtypes frequently emerged. Supported by our literature review and guiding our next steps, they are defined here. ***Esteem*/*Emotional*** support includes esteem and acceptance; expressions of intimacy, caring, liking, respect, validation, empathy, sympathy; or helping to manage one's emotional state. ***Social Companionship*** support includes spending time with others in leisure and recreational activities; or feeling like one belongs. ***Informational*** support includes help in defining, understanding, and coping with problematic events; advice; appraisal support; providing new information, knowledge, or new perspectives; or reference to resources. ***Instrumental*** support includes provision of financial aid, material

resources, and needed services; help in getting necessary tasks done; providing something of use, performing a task, or taking on a responsibility.

Next, we began to identify representative items for each of these subtypes. Measures represented in Table 1 with items we considered were Barrera and Ainlay's (1983) Inventory of Socially Supportive Behaviors, Barling et al.'s (1988) questions about social support in response to vignettes, Norbeck et al.'s (1981) Norbeck Social Support Questionnaire, Brandt and Weinert's (1981) Personal Resource Questionnaire (PRQ85), and Cohen and Hoberman's (1983) Interpersonal Support Evaluation List. We also looked at Barrera, Sandler, and Ramsay's (1981) earlier version of the Inventory of Socially Supportive Behaviors (1981); Gottlieb's (1978) classification scheme for informal helping behaviors, and Weinert's (2003) later version of the Personal Resource Questionnaire (PRQ2000). In addition, we also pulled items and examples from the online social support literature, including Turner-McGrievy and Tate's (2013) content analysis with online social subtypes based on Cutrona and Suhr (1992) of socially supportive Tweets, Braithwaite et al.'s (1999) content analysis of message board posts (also with subtypes based on Cutrona and Suhr, 1992), Gaysynsky et al's (2015) content analysis of Facebook posts (with subtypes based on Cutrona and Suhr as well as Coursaris and Liu 2009), Graham et al.'s (2011) Online Social Support for Smokers Scale, Krämer, Rösner, Eimler, Winter, and Neubaum's (2014) internet social capital work (2014), and Oh et al.'s (2014) modification of the ISEL (Eastin & LaRose, 2005; Cohen, Mermelstein, Kamarck, & Hoberman, 1985).

With this large group of items, as well as items from our own previous work (Cole, Nick, Zelkowitz, Roeder, & Spinelli, under review; Cole, Nick, Varga, et al., under review), we constructed a list of candidate items that focused on the frequency of others' supportive actions during online interactions. We chose items to represent the four subtypes of social support listed

above, as well as additional, less general items more relevant to social media and gaming. After working through many iterations of our list among our lab's Internet research team, we consulted with others inside and outside the lab (particularly those knowledgeable about social media and online gaming) to refine phrasing. Some of these efforts included consulting and piloting with 51 local high school students from an International Baccalaureate (IB) psychology class for acceptability, intercorrelations among proposed subtypes, and feedback (the small sample size precluded factor analyses). The complete initial version of the questionnaire can be found in Appendix A.

CHAPTER II

Methods

To achieve the goals described above, we recruited participants from two sources: USA adults from Amazon's Mechanical Turk system ("Mechanical Turk Sample"), and undergraduate students from Vanderbilt University ("college Student Sample.").

Mechanical Turk Sample

Participants. Participants were 306 USA adults, aged 18-42 (mean age = 31.98, *SD* = 5.18). Slightly more were male (53.6%) than female. The sample was ethnically diverse: White (77.5%), Asian or Asian-American (11.8%), Black (9.5%), Hispanic or Mexican-American (3.3%), American Indian or Native American (2.6), and other (1%). Participants could select more than one ethnicity. Most had some post-secondary education (mean years of education = 15.03, *SD* = 1.92). Participants reported working outside the home more than working from home (mean number of hours/week = 28.31, *SD* = 17.55 versus mean = 14.53, *SD* = 16.12).

Procedures. Participants accessed the Qualtrics survey via a Human Intelligence Task (HIT) on Amazon's Mechanical Turk ("mTurk") system. On mTurk, registered workers across the world can complete computerized tasks, such as online surveys, for small reimbursements. Our advertisement for the survey read, "Complete an online questionnaire with questions about your use of online social network sites, self-esteem, thoughts, feelings, and stress." The advertisement was restricted to USA Master workers (workers who consistently demonstrate accuracy across requesters and HITs) and we described the survey as intended for workers aged 18-40. We paid each worker $4.00 for their participation, plus a $1.80 fee to Amazon per

participant. We obtained 378 participants, 315 of which completed enough items for compensation. Screening of these participants' data for inclusion in analyses ($N = 306$) is described in the Data Preparation portion of the Analyses section below.

College Student Sample

Participants. Participants were 98 undergraduates at Vanderbilt University, aged 18-23 (mean age = 19.21, $SD = 1.08$). More were female (77.6%) than male. The sample was ethnically diverse: White (77.6%), Asian or Asian-American (14.3%), Hispanic or Mexican-American (9.2%), Black (7.1%), other (4.1%), or American Indian or Native American (0%). Participants could select more than one ethnicity. Most were freshmen (58.3%) while fewer were sophomores (27.1%), juniors (7.3%), or seniors (7.3%) (two participants did not indicate their year).

Procedures. Participants accessed the Qualtrics survey via the Vanderbilt Psychology Department Research Sign-Up System, SONA. Here, Vanderbilt students can sign up for research studies run by labs in the department and schedule their participation or complete online surveys for class credit and/or compensation. The description of the survey in the SONA system read, "[a] study of the connections between online social support and in-person social support. If you wish to participate, you will complete an online questionnaire with questions about your social network use, self-esteem, thoughts, feelings, and stress." We described the survey as intended for Vanderbilt undergraduate students aged 18-25. Recruitment efforts involved distributing IRB-approved flyers and visiting large psychology classes to describe the study. Each participant earned class credit for their participation, which could be used research participation requirements. We obtained 113 participants, all of which earned credit for their work. Screening of these participants' data for inclusion in analyses ($N = 98$) is described in the Data Preparation portion of the Results section below.

Measures

Demographics. Respondents provided their gender, age, race, year in school (college sample only), years of education (mTurk sample only), and occupation and work details (mTurk sample only).

Support measures

Online Social Support Scale (OSSS). As described above, we developed the OSSS (see Appendix A) to measure four subtypes of social support typically described in the in-person literature in an online context: Esteem/Emotional, Social Companionship, Informational, and Instrumental support. We also included items specific to social media or gaming contexts that we hypothesized may or may not contribute to online support (e.g., "People respond to something I've posted online by sharing, reblogging, retweeting, etc." and "Other players give me items, or forge or craft items for me during gameplay," respectively). Instructions and items focused on how other people online have shown social support to the respondent over the past two months during *connections or interactions* with them (to distinguish from more indirect means, e.g., through posting a status not directed toward the respondent that the respondent finds encouraging). We measured each of the four subtypes of online social support with 12 items, 48 in total; we also included an additional 10 social media items and 8 gaming items, for a grand total of 66 items. Respondents rated items that described other people's supportive interactions online (e.g., "People show that they care about me online") from never (0) to a lot (4). Higher scores reflected greater online social support. Participants also rated how frequently they used a number of popular social media sites, apps, and game types from never (0) to a lot (4).

Perceived Social Support Scale (PSSS). The PSSS (Procidano & Heller, 1983) measures the extent to which an individual perceives that his or her needs for support,

information, and feedback are fulfilled by friends and by family. Twenty statements refer to feelings and experiences that occur to most people at one time or another in their relationships with friends and 20 refer to feelings and experiences that occur with family. Respondents rate answers to the items as yes (2), no (0), or don't know (1). Higher scores reflect greater support. Both the friends and family subscales have a high degree of internal consistency with Cronbach's alphas of .88 and .90, respectively (Procidano & Heller, 1983). For our analyses, we recoded answers as yes (1), no (0), and don't know (missing) and we only used the friends subscale. The KR-20 was .94 in the mTurk sample and .86 in the college sample.

Stressors measures

mTurk only: Modified Negative Acts Questionnaire – Revised (NAQ). The NAQ (Einarsen, Hoel, & Notelaers, 2009) is a self-report of workplace victimization in adults. Twenty-two items measure victimization behaviorally, with no references to the terms "bullying" or "harassment." Respondents rate the frequency of experiencing these behaviors over the past six months on a five-point Likert scale from never (1) to daily (5); higher scores reflect greater harassment. Items load onto three related factors: work-related bullying, person-related bullying, and physically intimidating bullying. Cronbach's alpha for the full scale was .90, and it had good construct validity, correlating highly with measures of mental health, psychosocial work environment, and leadership (Einarsen, Hoel, & Notalaers, 2009). Our modification of the instrument re-words items to ensure the survey can be used with adults of varying reading levels. Cronbach's alpha was .94 in the mTurk sample.

College only: Ostracism Experiences Scale for Adolescents (OESA). The OESA (Gilman, Carter-Sowell, DeWall, Adams, & Carboni, 2013) assesses an individual's perceptions of two things: being ignored or excluded from their social group. Eleven items represent general

perceptions of being ostracized and are not specific to any one source (i.e., a particular friend, romantic partner, relative, etc.). Respondents rate items on a five-point Likert scale from never (1) to always (5); higher scores reflect greater ostracism. Cronbach's alphas have been high for both subscales (.93) and they have correlated moderately (.45, Gilman et al., 2013). Cronbach's alpha for the total scale was .92 in the college sample.

Cyberbullying Experiences Survey (CES). The CES (Doane, Kelley, Chiang, & Padilla, 2013) assesses cyberbullying victimization and perpetration in emerging adults. Twenty-one victimization items and 20 perpetration items make up two subscales. Each assesses the same four factors: malice, public humiliation, unwanted contact, and deception. Respondents rate items for frequency of occurrence on a seven-point Likert scale from never (0) to every day/almost every day (6); higher scores reflect greater cyberbullying. The CES has demonstrated adequate internal consistency (with Cronbach's alphas above .70) and convergent validity with other measures of cyberbullying (Doane et al., 2013). Our studies only used the victimization items. Cronbach's alpha was .94 in the mTurk sample and .90 in the college sample.

Life Experiences Survey (LES). The LES (Sarason, Johnson, & Siegel, 1978) assesses the presence, timing, and impact of a variety of potentially stressful and positive life events in adults. Sixty-three items, ranging from outstanding personal achievements to death of a spouse, are rated for presence within 0-6 months or 7 months to one year. If present, their impact is rated on seven-point Likert scales ranging from extremely negative (-3) to extremely positive (3). The LES has demonstrated sufficient reliability correlates with a variety of relevant dependent measures (Sarason, Johnson, & Siegel, 1978). As the LES includes events that can be negatively or positively rated, for our analyses we summed each participant's negative ratings. Larger negative scores reflect greater stress.

Outcome measures

Rosenberg Self-Esteem Scale (RSE). The RSE (Rosenberg, 1965) measures individual self-esteem. Ten items assess positive and negative ideas one can have about oneself. Respondents rate items on four-point Likert scales from strongly agree (1) to strongly disagree (4). Higher scores reflect greater self-esteem. Cronbach's alphas are high (.88) and exploratory factor analysis has resulted in a unidimensional solution (Gray-Little, Hancock, & Williams, 1997). Cronbach's alpha was .95 in the mTurk sample and .90 in the college sample.

Cognitive Triad Inventory (CTI). The CTI (Beckham, Leber, Watkins, Boyer, & Cook, 1986) assesses respondents' view of the self, view of the world, and view of the future via positively and negatively phrased items. If negative, these views constitute a depressive cognitive triad. Thirty-six items total (10 for each view plus six filler items that are not scored) are rated on a seven-point Likert scale from totally agree (1) to totally disagree (7). Higher scores reflect healthier cognitions. Individual subscales and the total score have good to excellent reliability, with Cronbach's alpha at .95 for the total score (Beckham et al., 1986). Cronbach's alpha was .97 in the mTurk sample and .95 in the college sample. To correct for skew, the square root of the inverse of each CTI total score was used in regressions (descriptives and intercorrelations were based on original CTI total scores). Higher scores reflect more depressive cognitions.

Beck Depression Inventory II (BDI). The BDI (Beck, Steer, & Brown, 1996) is a commonly used and well-validated measure designed to assess the severity of depressive symptoms in a variety of populations. Twenty-one items describe different symptoms respondents may have experienced over the last two weeks. Respondents rate the severity of these symptoms on a 0 to 3 scale; higher scores reflect greater depressive symptoms. The BDI

has been independently validated in a university population and showed strong internal consistency (Cronbach's alpha was .91) and reliability (Dozols, Dobson, & Ahnberg, 1998). Per IRB requirements, the suicidality item was removed, resulting in 20 items. Cronbach's alpha was .96 in the mTurk sample and .89 in the college sample. To correct for skew, the square root of each BDI total score was used in regressions (descriptives and intercorrelations were based on original BDI total scores).

Other measures

Marlowe-Crowne Short Form C (MCSF-C). The MCSF-C (Reynolds, 1982) is one of the three short forms of the Crowne & Marlowe Social Desirability Scale (Crowne & Marlowe, 1960) developed by Reynolds, which measures culturally approved but infrequent behaviors. High scores on social desirability scales indicate that participants answer items as they think researchers want them to. Thirteen items on Form C are answered as true (1) or false (0); higher scores reflect greater social desirability. Internal consistency for form C was KR-20 = .76 and it has correlated well with the full Crowne and Marlowe Social Desirability Scale (r = .93; Reynolds, 1982). The KR-20 was .76 in the mTurk sample and .63 in the college sample.

Revised Eysenck Personality Questionnaire – Short Form – Lie Scale (EPQR-S). The EPQR-S (Eysenck, Eysenck, & Barrett, 1985) is a short form of the Revised Eysenck Personality Questionnaire (EPQR; Eysenck & Eysenck, 1975). Both questionnaires have the same subscales (extraversion, neuroticism, psychoticism, lie scale). Although the EPQR has 100 total items, the EPQR-S has only 48. The Lie Scale of the EPQR-S, the only subscale we used from the measure, includes 12 yes or no items that measure the extent to which participants deliberately attempt to control their scores (e.g., "Are all your habits good and desirable ones?"). Higher scores reflect greater deliberate control. Reliability coefficients for the Lie scale ranged

from .73 to.77 in its original sample (Eysenck, Eysenck, & Barrett, 1985) and was .60 in a large Welsh sample (Francis, Craig, & Robbins, 2008). The KR-20 was .78 in the mTurk sample and .67 in the college sample.

Time Spent Online (TSO). Participants reported how many hours per week they spent using the following categories of online spaces: text/photo/video sharing sites (e.g., Facebook, Instagram, Twitter, Snapchat, Tumblr, Vine, Google+), text communication sites (e.g., Texting, Email, Kik, Groupme, Whatsapp), anonymous discussion apps (e.g., YikYak, Whatsgoodly), forums (e.g., Reddit, 4chan), dating sites (e.g., Match.com, eHarmony), dating/hookup apps (e.g., Tinder, Bumble), sports/fighting/racing games (e.g., FIFA, Call of Duty, Need for Speed, Grand Theft Auto), and role player/battle arena games (e.g., World of Warcraft, League of Legends).

CHAPTER III

Results

Data Preparation

Data were stored, cleaned, and filtered in IBM's SPSS Statistics 23. Participants who elected to terminate the survey before completing the OSSS were removed from the datasets, leaving 325 of 378 mTurk participants and 109 of 113 college participants. Participants who completed the full survey more quickly than we deemed possible, had MCSF-C (social desirability) or EPQR-S (lie scale) scores two standard deviations above the mean, or provided the same value for every item on at least one questionnaire were filtered out of all analyses, resulting in a final sample of 306 mTurk participants and 98 College participants. Computing sum scores for each measure required completion of at least 85% of the items. If participants skipped a significant portion of items, they did not receive a sum score for that measure.

Means and standard deviations for the frequency of use of online sites, apps, and games for each sample are in Tables 2 and 3. Means, standard deviations, and intercorrelations among all major variables for each sample are in Table 4.

Exploratory Factor Analyses of the OSSS

To determine whether the mTurk and college OSSS data could be pooled for exploratory factor analyses, Box's test of equality of covariance matrices was completed in IBM's SPSS Amos 23. A Box's test of the OSSS's 48 primary items using full information maximum likelihood estimation (FIML) revealed no substantive differences in the covariances for the mTurk and college samples (χ^2_{1176} = 1982.25, p = 0.000; TLI = .91; CFI = .96; RMSEA = .041,

Table 2
Mechanical Turk Sample: Frequency of Use of Online Sites, Apps, and Games

	Mean	*SD*
Frequency of use of specific online sites, apps, and games[a]		
Facebook	2.52	1.23
Instagram	.90	1.10
Twitter	1.30	1.19
SnapChat	.51	.92
Tumblr	.34	.75
Vine	.23	.63
YouTube	1.14	1.22
Pinterest	.65	.99
Reddit	1.49	1.40
YikYak	.07	.42
Kik	.20	.68
LinkedIn	.68	.88
GroupMe	.09	.46
WhatsApp	.21	.66
Google+	.61	.94
Whatsgoodly	.03	.25
Chat services	1.04	1.36
Email	2.75	1.07
Texting	2.99	1.15
Dating sites/apps (e.g., Tinder)	.23	.61
First person shooter games (e.g., Call of Duty)	.36	.90
Battle arena games (MOBAs) (e.g., League of Legends)	.16	.57
Sports/fighting/racing games (e.g., FIFA, Street Fighter, MarioKart)	.18	.64
Role-playing games (RPGs) (e.g., World of Warcraft)	.42	1.00
Other	.50	1.14
Hours per week spent using online sites, apps, and games		
Text/photo/video sharing sites (e.g., Facebook, Instagram, Twitter, Snapchat, Tumblr, Vine, Google+)	6.82	6.55
Text communication sites (e.g., Texting, Email, Kik, Groupme, Whatsapp)	4.79	6.08
Anonymous discussion apps (e.g., YikYak, Whatsgoodly)	.22	1.34
Forums (e.g., Reddit, 4chan)	5.45	7.08
Dating sites (e.g., Match.com, eHarmony)	.11	.66
Dating/hookup apps (e.g., Tinder, Bumble)	.28	1.20
Sports/fighting/racing games (e.g., FIFA, Call of Duty, Need for Speed, Grand Theft Auto)	1.42	4.20
Role player/battle arena games (e.g., World of Warcraft, League of Legends)	1.91	4.54

[a] Items were rated on the following scale: 0 = never, 1 = rarely, 2 = sometimes, 3 = pretty often, 4 = a lot.

Table 3
College Sample: Frequency of Use of Online Sites, Apps, and Games

	Mean	*SD*
Frequency of use of specific online sites, apps, and games (Online Social Support Scale)[a]		
Facebook	2.91	1.11
Instagram	2.84	1.35
Twitter	1.22	1.32
SnapChat	3.28	1.06
Tumblr	.73	1.17
Vine	.43	.76
YouTube	1.04	1.06
Pinterest	.69	.92
Reddit	.31	.63
YikYak	1.03	1.22
Kik	.09	.32
LinkedIn	.15	.53
GroupMe	3.26	.88
WhatsApp	.35	.75
Google+	.32	.82
Whatsgoodly	.44	.93
Chat services	.51	1.04
Email	3.32	.92
Texting	3.88	.46
Dating sites/apps (e.g., Tinder)	.38	.86
First person shooter games (e.g., Call of Duty)	.17	.52
Battle arena games (MOBAs) (e.g., League of Legends)	.15	.60
Sports/fighting/racing games (e.g., FIFA, Street Fighter, MarioKart)	.34	.88
Role-playing games (RPGs) (e.g., World of Warcraft)	.14	.54
Other	.09	.48
Hours per week spent using online sites, apps, and games		
Text/photo/video sharing sites (e.g., Facebook, Instagram, Twitter, Snapchat, Tumblr, Vine, Google+)	11.78	11.14
Text communication sites (e.g., Texting, Email, Kik, Groupme, Whatsapp)	12.61	12.60
Anonymous discussion apps (e.g., YikYak, Whatsgoodly)	.97	2.55
Forums (e.g., Reddit, 4chan)	.55	1.70
Dating sites (e.g., Match.com, eHarmony)	.13	1.23
Dating/hookup apps (e.g., Tinder, Bumble)	.29	1.40
Sports/fighting/racing games (e.g., FIFA, Call of Duty, Need for Speed, Grand Theft Auto)	.35	1.19
Role player/battle arena games (e.g., World of Warcraft, League of Legends)	.81	3.88

[a] Items were rated on the following scale: 0 = never, 1 = rarely, 2 = sometimes, 3 = pretty often, 4 = a lot.

Table 4

Pooled Sample Correlations and Separate Sample Means, and Standard Deviations for All Study Variables

	OSSS	EE	SC	INF	INS	PSSS	IPV	CEQ	RSE	CTI	BDI	LES	Use	TSO	SD	LS
OSSS	1.00															
EE	.80**	1.00														
SC	.89**	.71**	1.00													
INF	.87**	.56**	.71**	1.00												
INS	.83**	.50**	.59**	.66**	1.00											
PSSS	.38**	.49**	.35**	.24**	.23**	1.00										
IPV	-.10*	-.18**	-.16**	-.07	.05	-.26**	1.00									
CEQ	.17**	.02	.16**	.15**	.22**	-.15**	.50**	1.00								
RSE	.20**	.28**	.17**	.14**	.10*	.48**	-.28**	-.11*	1.00							
CTI	.27**	.37**	.25**	.17**	.12*	.62**	-.40**	-.18**	.80**	1.00						
BDI	-.10*	-.14**	-.10	-.06	-.06	-.42**	.29**	.14**	-.71**	-.75**	1.00					
LES	.02	-.01	.06	.02	.01	.09	-.22**	-.16**	.23**	.25**	-.41**	1.00				
Use	.33**	.46**	.31**	.17**	.20**	.27**	-.02	.10	.11*	.22**	.00	-.10	1.00			
TSO	.23**	.17**	.20**	.18**	.22**	.13*	-.03	.08	.05	.04	.03	-.07	.20**	1.00		
SD	.15**	.14**	.13**	.13*	.12*	.09	-.15**	-.02	.19**	.17**	-.23**	.10	.05	-.04	1.00	
LS	.11*	.06	.10*	.12*	.11*	-.01	-.11*	-.05	.07	.05	-.16**	.13*	-.04	-.08	.73**	1.00
							Mechanical Turk Sample									
M	83.40	**22.69**	**23.99**	**22.32**	**14.45**	**15.51**	29.77	9.81	30.20	**158.5**	9.52	-4.72	**10.42**	**21.00**	4.62	**4.56**
SD	27.71	7.17	7.98	7.73	8.77	5.54	10.72	2.86	7.24	34.19	10.94	6.20	3.42	7.24	3.12	2.76
							College Sample									
M	77.58	**26.45**	**21.27**	**17.45**	**12.08**	**18.29**	24.64	7.87	30.80	**168.2**	10.16	-5.66	**14.13**	**27.48**	4.12	**2.46**
SD	25.56	7.04	8.17	8.27	8.39	2.72	6.88	8.78	5.06	4.28	7.54	4.74	3.12	24.41	2.51	2.11

Note. OSSS = Online Social Support Scale total, EE = OSSS Esteem/Emotional, SC = OSSS Social Companionship, INF = OSSS Informational, INS = OSSS Instrumental, PSSS = Perceived Social Support Scale, IPV = in-person victimization (in mTurk, Negative Acts Questionnaire [NAQ], in college, Ostracism Experiences Scale – Adolescents [OESA]; each was standardized before combining), CEQ = Cyberbullying Experiences Questionnaire, CTI = Cognitive Triad Inventory, RSE = Rosenberg Self Esteem Scale, BDI = Beck Depression Inventory, LES = Life Events Scale, Use = OSSS social media use, TSO = time spent online, SD = Social Desirability Scale, LS = Lie Scale. Numbers in boldface indicate that means are significantly different between the two samples at $p \leq 0.05$; note that IPV variables were not compared (see Appendix E).

* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

90% CI .038 - .044, p_{close} = 1.00). Consequently, exploratory factor analyses were conducted on both samples pooled together (N = 404).

Exploratory factor analyses (EFAs) of the OSSS were conducted in CEFA 3.04 (Browne, Cudeck, Tateneni, & Mels, 2010). EFAs utilized Maximum Wishart Likelihood (MWL) estimation and oblique rotation. Fit indices for the 48 primary items are presented in Table 5. Browne and Cudeck's (1992) criteria suggest that a four-factor solution for the 48 primary items provided a reasonable fit (χ^2_{942} = 273.51; p_{close} < 0.001, $p_{perfect}$ < 0.001; RMSEA = .069, 90% CI .066 - .072). Improvements in RMSEA are minimal with five- (0.064) and six-factor (0.061) solutions, suggesting a four-factor solution is appropriate. We examined Geomin and Varimax (oblique) rotations of the four-factor solution. Loadings discriminated among factors better with the Geomin rotation, and these results are presented in Table 6 along with factor intercorrelations. Factor loadings ranged from moderate to high, with highest loadings ranging between .39 and .87, and all others ranging between -.14 and .42. Factor intercorrelations indicated moderately to strongly related but not redundant factors, ranging between .46 and .69. In investigating individual item loadings, five items (Social Companionship items 1, 2, and 12; Instrumental items 2 and 12) cross-loaded on another factor above the conventional cutoff of .3. Four of these items (all but Social Companionship 12) and two additional items with the lowest factor loading in their subscale (Esteem/Emotional items 3 and 4) were later excluded from OSSS total and subscale sum scores in analyses. Similarly, Informational items 10 and 11 were later excluded as they had the highest loadings on a nuisance factor in a five-factor solution. This left us with 40 items total, or 10 items per subscale, for later analyses.

We also examined the additional social media and gaming items. Further investigation of gaming items revealed low endorsement in our samples relative to social media items (see Tables

2 and 3), so gaming items were excluded from factor analyses. Fit indices for the 48 primary items plus our 10 additional social media items, totaling 58, are also included in Table 5. In four-, five-, and six-factor solutions, the social media items largely loaded onto their own factor, with few sizable cross-loadings. Thus, we are confident our four primary online social *support* subtypes are not confounded with items relating to *exposure to, use of,* or *familiarity with* social media (e.g., frequency of tagging, contact via public or private means, friending or following, etc.), which may be correlated with online social support but not necessarily a direct indicator of any of its four subtypes.

Table 5
Fit Indices for Factor Models of the OSSS with 48 and 58 Items (Pooled Sample $N = 404$)

m	χ^2	*df*	$p_{perfect}$	p_{close}	RMSEA	RMSEA 90% CI
48 items (EE, SC, INF, and INS items)						
2	4793.122	1033	0.000	0.000	0.095	0.092; 0.098
3	3422.485	987	0.000	0.000	0.078	0.075; 0.081
4	2731.509	942	0.000	0.000	0.069	0.066; 0.072
5	2401.127	898	0.000	0.000	0.064	0.061; 0.068
6	2130.766	855	0.000	0.000	0.061	0.058; 0.064
58 items (EE, SC, INF, INS, and social media items)						
3	5266.216	1482	0.000	0.000	0.080	0.077; 0.082
4	4183.297	1427	0.000	0.000	0.069	0.067; 0.072
5	3473.064	1373	0.000	0.000	0.062	0.059; 0.064
6	3113.393	1320	0.000	0.000	0.058	0.055; 0.061
7	2818.563	1268	0.000	0.001	0.055	0.052; 0.058

Note. OSSS = Online Social Support Scale, E/E = OSSS Esteem/Emotional, SC = OSSS Social Companionship, INF = OSSS Informational, INS = OSSS Instrumental, RMSEA = root mean square error of approximation, CI = confidence interval.

Table 6

Standardized Exploratory Factor Analytic Loadings for the Four-Factor Model for the OSSS

Subtype/Items	1	2	3	4
Esteem/Emotional				
1. People show that they care about me online.	**.727**	-.026	.016	.120
2. Online, people say or do things that make me feel good about myself.	**.762**	-.031	.015	.141
3. People see things my way online.[a]	**.633**	.153	.011	-.056
4. When I'm online, people seem to understand where I'm coming from.[a]	**.597**	.142	.019	.027
5. People encourage me when I'm online.	**.633**	-.003	.095	.126
6. People pay attention to me online.	**.732**	.123	.013	-.075
7. I get likes, favorites, upvotes, views, etc. online.	**.653**	.068	.086	-.025
8. I get positive comments online.	**.736**	.050	.018	-.034
9. When I'm online, people tell me they like the things I say or do.	**.727**	.008	.073	.006
10. Online, people are interested in me as a person.	**.788**	.092	.003	.025
11. People support me online.	**.747**	.036	.107	.006
12. When I'm online, people make me feel good about myself.	**.758**	.001	.112	-.005
Social Companionship				
1. I like a lot of people I know online.[a]	**.416**	**.392**	-.028	-.023
2. I connect with people online.[a]	**.427**	**.466**	-.051	.021
3. When I'm online, I talk or do things with other people.	.226	**.627**	-.021	.062
4. People spend time with me online.	.258	**.612**	-.090	.125
5. People hang out and do fun things with me online.	.148	**.617**	-.043	.131
6. Online, I belong to groups of people with similar interests.	-.076	**.804**	.106	-.090
7. People talk with me online about things we have in common.	.067	**.715**	.112	.020
8. Online, I connect with people who like the same things I do.	.092	**.680**	.161	-.075
9. I am part of groups online.	-.140	**.755**	.109	.021
10. When I'm online, people joke and kid around with me.	.094	**.529**	.109	.081
11. People relate to me through things I say or do online.	.239	**.591**	.033	.059
12. Online, people make me feel like I belong.	**.313**	**.491**	.073	.052
Informational				
1. When I'm online, people give me useful advice.	.091	-.099	**.764**	.085
2. Online, people provide me with helpful information.	.060	-.067	**.793**	.060
3. If I had a problem, people would help me online by saying what they would do.	.007	.027	**.827**	-.031
4. Online, people would tell me where to find help if I needed it.	.058	.027	**.771**	.020
5. People help me learn new things when I'm online.	.009	-.040	**.738**	.111
6. People offer suggestions to me online.	.005	.046	**.792**	.009
7. People tell me things I want to know online.	.082	.089	**.720**	-.020
8. When I'm online, people help me understand my situation better.	.036	-.063	**.745**	.154
9. If I had a problem, people would share their point of view online.	-.006	.060	**.750**	-.023
10. If I talked about a problem online, people would help me figure it out.[a]	.021	.079	**.728**	.021
11. If I had a problem, people online would suggest an action I could take to solve it.[a]	-.008	.079	**.792**	-.058
12. People help me see things in new ways when I'm online.	-.046	.063	**.675**	.116
Instrumental				
1. People online would help me with money or other things if I needed it.	.118	-.043	.020	**.676**
2. I can rely on others online to help me with things I'm working on.[a]	.063	.047	**.349**	**.452**
3. When I'm online, people help me with school or work.	-.013	-.003	.065	**.759**
4. Online, people help me get things done.	-.078	.039	.197	**.740**
5. If I needed a hand doing something, I go online to find people who will help out.	-.099	.049	.185	**.722**
6. Online, people offer to do things for me.	.037	.091	.074	**.714**
7. Online, people help me with causes or events that I think are important.	.046	.053	.068	**.711**
8. When I'm online, people have offered me things I need.	.080	.031	.026	**.803**
9. When I need something, I go online to find someone who might lend it to me.	.000	-.017	-.043	**.871**
10. When I need a hand with school or work things, I get help from others online.	-.023	.082	.001	**.808**
11. I contact people online to get help or raise money for things I think are important.	.188	-.128	-.134	**.754**
12. People show me where to find things I need online.[a]	-.015	.089	**.344**	**.502**
Correlations: Factor 1	1.000			
Correlations: Factor 2	0.685	1.000		
Correlations: Factor 3	0.610	0.648	1.000	
Correlations: Factor 4	0.463	0.507	0.606	1.000

Note. OSSS = Online Social Support Scale. Loadings greater than .30 are in boldface. [a] Items were later excluded from OSSS total and subscale sum scores for analyses.

Validation of the OSSS

Cronbach's alphas of the OSSS and its subscales were examined and are as follows: OSSS total .97, Esteem/Emotional .95, Social Companionship .94, Informational .95, and Instrumental .95. Alphas at this level suggest OSSS items are very closely related and reliable.

Correlations and regressions in SPSS tested the relation of the OSSS to other study measures. Note that Table 4 (which presents intercorrelations, means and standard deviations for all study variables) presents variables in their original, more easily interpretable scaling; later regressions in Tables 7-10 centered predictors, except in-person victimization (whose variables were standardized for comparability across samples) and dependent variables were corrected for skew where applicable, as described in the Measures section.

Correlations among the OSSS and its subscales with the MCSF-C (social desirability) and EPQR-S (lie scale) were tested to examine discriminant validity (Table 4). The total OSSS correlated only .15 with the MCSF-C social desirability scale and .11 with the EPQR-S lie scale ($ps < .05$). Correlations among subscales of the OSSS and the MCSF-C social desirability scale and the EPQR-S lie scale ranged from .06 to .14; seven out of eight of these correlations were significant. These significant but low correlations suggest the OSSS can acceptably be discriminated from socially desirable or deliberately controlled responses to manage impressions.

Correlations among the OSSS and its subscales with the PSSS were tested to examine convergent validity. The total OSS correlated .38 ($p < .01$) and correlations among the subscales and the PSSS ranged between .23 and .49 ($ps < .01$). These significant and moderate correlations suggest good convergent validity among online and in-person social support.

Multiple regressions were conducted to determine the incremental utility of the OSSS over and above the PSSS in the prediction of each outcome. To control for potential differences between mTurk and college samples, we also added a dummy variable for group. Hierarchical multiple regressions in which the PSSS predicted each outcome in step one and the OSSS was added in step two did not demonstrate that the OSSS had incremental predictive utility over and above the PSSS (Table 7).

Table 7
Incremental Predictive Utility of the Online Social Support Scale (OSSS) Over and Above the Perceived Social Support Scale (PSSS)

Outcome	Step	Predictor	*B*	*SE(B)*	β	Adjusted R^2
RSE	1	Group	-1.23	0.82	-0.08	0.23**
		PSSS	0.65	0.07	0.50**	
	2	Group	-1.22	0.83	-0.08	0.23**
		PSSS	0.65	0.08	0.49**	
		OSSS total	0.00	0.01	0.00	
CTI	1	Group	0.15	0.25	0.03	0.34**
		PSSS	-0.26	0.02	-0.59**	
	2	Group	0.08	0.26	0.02	0.34**
		PSSS	-0.25	0.02	-0.56**	
		OSSS total	-0.01	0.00	-0.07	
BDI	1	Group	0.87	0.22	0.21**	0.18**
		PSSS	-0.15	0.02	-0.43**	
	2	Group	0.92	0.23	0.22**	0.18**
		PSSS	-0.16	0.02	-0.45**	
		OSSS total	0.00	0.00	0.06	

Note. RSE = Rosenberg Self Esteem Scale, CTI = Cognitive Triad Inventory, BDI = Beck Depression Inventory.
* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

Hypothesis Testing

We conducted a series of correlation and regression analyses to test the relations of the OSSS and its subscales with the various outcome variables. The OSSS correlated significantly and in expected directions with our outcomes: $r = .20$ for the RSE, $r = .27$ for the CTI, and $r =$ -

.10 for the BDI (*p*s < .05). Covarying for group did not substantially affect these relations: β = .20 for the RSE, β = -.30 for the CTI, and β = -.12 for the BDI (see Table 8). Correlations of the OSSS subscales with the outcomes ranged from -.06 to .37; nine of twelve were significant.

Table 8
Main Effect of the Online Social Support Scale (OSSS) on Psychosocial Outcomes

Outcome	Predictor	*B*	*SE(B)*	β	Adjusted R^2
RSE	Group	0.88	0.79	0.06	0.04**
	OSSS total	0.05	0.01	0.20**	
CTI	Group	-0.72	0.26	-0.14**	0.09**
	OSSS total	-0.03	0.00	-0.30**	
BDI	Group	0.41	0.21	0.10	0.02**
	OSSS total	-0.01	0.00	-0.12*	

Note. RSE = Rosenberg Self Esteem Scale, CTI = Cognitive Triad Inventory, BDI = Beck Depression Inventory.
* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

Further regressions tested two additional hypotheses. We first hypothesized that in the prediction of outcomes (self-esteem, depressive thoughts, and depressive symptoms), online and in-person support, respectively, will have either main effects or buffering effects with stressors (in-person victimization, cybervictimization, and stress). Hierarchical multiple regressions testing these hypotheses appear in Tables 9 and 10. Examination of the OSSS results (Table 9) showed that, overall, both the OSSS and stressors had significant main effects in expected directions on all three outcomes. No support accrued to the buffering hypothesis as all OSSS x stress interactions were not significant. The absolute values of significant standardized beta weights for the OSSS were small to moderate, ranging from .10 to .34. Examination of the PSSS results (Table 10) showed that, overall, both the PSSS and stressors have significant main effects in expected directions on all three outcomes. Buffering, evidenced by significant PSSS x stressor interactions, was only consistently indicated across outcomes in the case of CEQ. Slopes of the interactions were in the directions expected and are presented in Figure 1. In analyses

Table 9 (continues below)

Online Social Support Scale (OSSS) Main Effect and Buffering Models Predicting Psychosocial Outcomes

Outcome	Step	Predictor	*B*	*SE(B)*	β	*Adjusted* R^2
RSE	1	Group	0.84	0.77	0.05	0.10**
		OSSS	0.04	0.01	0.18**	
		IPV	-1.76	0.33	-0.26**	
	2	Group	0.80	0.77	0.05	0.10**
		OSSS	0.04	0.01	0.18**	
		IPV	-1.82	0.33	-0.27**	
		OSSS*IPV	-0.02	0.01	-0.06	
RSE	1	Group	0.86	0.78	0.06	0.06**
		OSSS	0.06	0.01	0.23**	
		CEQ	-0.09	0.03	-0.15**	
	2	Group	0.83	0.78	0.05	0.06**
		OSSS	0.05	0.01	0.22**	
		CEQ	-0.08	0.03	-0.12*	
		OSSS*CEQ	-0.00	0.00	-0.09	
RSE	1	Group	1.11	0.83	0.07	0.09**
		OSSS	0.05	0.01	0.20**	
		LES	0.26	0.06	0.23**	
	2	Group	1.04	0.83	0.07	0.09**
		OSSS	0.05	0.01	0.19**	
		LES	0.26	0.06	0.23**	
		OSSS*LES	0.00	0.00	0.07	
CTI	1	Group	-0.70	0.24	-0.13**	0.24**
		OSSS	-0.02	0.00	-0.26**	
		IPV	0.88	0.10	0.39**	
	2	Group	-0.69	0.24	-0.13**	0.24**
		OSSS	-0.02	0.00	-0.26**	
		IPV	0.90	0.10	0.40**	
		OSSS*IPV	0.01	0.00	0.07	
CTI	1	Group	-0.71	0.25	-0.13**	0.16**
		OSSS	-0.03	0.00	-0.34**	
		CEQ	0.06	0.01	0.27**	
	2	Group	-0.70	0.25	-0.13**	0.17**
		OSSS	-0.03	0.00	-0.33**	
		CEQ	0.05	0.01	0.24**	
		OSSS*CEQ	0.00	0.00	0.09	
CTI	1	Group	-0.81	0.27	-0.15**	0.16**
		OSSS	-0.02	0.00	-0.29**	
		LES	-0.10	0.02	-0.25**	
	2	Group	-0.79	0.27	-0.15**	0.16**
		OSSS	-0.02	0.00	-0.29**	
		LES	-0.10	0.02	-0.25**	
		OSSS*LES	0.00	0.00	-0.05	

Note. IPV = in-person victimization (in mTurk, Negative Acts Questionnaire [NAQ], in college, Ostracism Experiences Scale – Adolescents [OESA]; each was standardized before combining), CEQ = Cybervictimization Experiences Questionnaire, LES = Life Experiences Survey, RSE = Rosenberg Self Esteem Scale, CTI = Cognitive Triad Inventory, BDI = Beck Depression Inventory.

* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

Table 9 (continued)

Online Social Support Scale (OSSS) Main Effect and Buffering Models Predicting Psychosocial Outcomes

Outcome	Step	Predictor	*B*	*SE(B)*	β	*Adjusted* R^2
BDI	1	Group	0.42	0.21	0.10*	0.09**
		OSSS	-0.01	0.00	-0.09	
		IPV	0.46	0.09	0.26**	
	2	Group	0.44	0.20	0.11*	0.09**
		OSSS	-0.01	0.00	-0.10*	
		IPV	0.49	0.09	0.27**	
		OSSS*IPV	0.01	0.00	0.10*	
BDI	1	Group	0.42	0.21	0.10*	0.04**
		OSSS	-0.01	0.00	-0.15**	
		CEQ	0.02	0.01	0.14**	
	2	Group	0.42	0.21	0.10*	0.04**
		OSSS	-0.01	0.00	-0.14**	
		CEQ	0.02	0.01	0.12*	
		OSSS*CEQ	0.00	0.00	0.08	
BDI	1	Group	0.31	0.21	0.07	0.17**
		OSSS	-0.01	0.00	-0.11*	
		LES	-0.12	0.02	-0.39**	
	2	Group	0.32	0.21	0.08	0.17**
		OSSS	-0.01	0.00	-0.11*	
		LES	-0.12	0.02	-0.39**	
		OSSS*LES	0.00	0.00	-0.04	

Note. IPV = in-person victimization (in mTurk, Negative Acts Questionnaire [NAQ], in college, Ostracism Experiences Scale – Adolescents [OESA]; each was standardized before combining), CEQ = Cybervictimization Experiences Questionnaire, LES = Life Experiences Survey, RSE = Rosenberg Self Esteem Scale, CTI = Cognitive Triad Inventory, BDI = Beck Depression Inventory

* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

Table 10 (continues below)

Perceived Social Support Scale (PSSS) Main Effect and Buffering Models Predicting Psychosocial Outcomes

Outcome	Step	Predictor	*B*	*SE(B)*	β	*Adjusted* R^2
RSE	1	Group	-1.07	0.81	-0.07	0.25**
		PSSS	0.60	0.07	0.45**	
		IPV	-1.09	0.35	-0.16**	
	2	Group	-1.10	0.81	-0.07	0.25**
		PSSS	0.59	0.07	0.45**	
		IPV	-1.13	0.36	-0.17**	
		PSSS*IPV	-0.01	0.01	-0.04	
RSE	1	Group	-1.23	0.82	-0.08	0.23**
		PSSS	0.65	0.07	0.49**	
		CEQ	-0.02	0.03	-0.03	
	2	Group	-1.15	0.81	-0.07	0.24**
		PSSS	0.64	0.07	0.49**	
		CEQ	-0.06	0.04	-0.10	
		PSSS*CEQ	-0.02	0.01	-0.14*	
RSE	1	Group	-0.97	0.87	-0.06	0.26**
		PSSS	0.63	0.07	0.48**	
		LES	0.21	0.06	0.18**	
	2	Group	0.87	0.86	-0.06	0.27**
		PSSS	0.63	0.07	0.48**	
		LES	0.23	0.06	0.20**	
		PSSS*LES	0.02	0.01	0.12*	
CTI	1	Group	0.06	0.24	0.01	0.41**
		PSSS	-0.23	0.02	-0.51**	
		IPV	0.63	0.10	0.28**	
	2	Group	0.07	0.24	0.01	0.41**
		PSSS	-0.23	0.02	0.51**	
		IPV	0.65	0.11	0.28**	
		PSSS*IPV	0.00	0.00	0.05	
CTI	1	Group	0.14	0.25	0.03	0.35**
		PSSS	-0.25	0.02	-0.57**	
		CEQ	0.03	0.01	0.13**	
	2	Group	0.12	0.25	0.02	0.36**
		PSSS	-0.25	0.02	-0.57**	
		CEQ	0.04	0.01	0.19**	
		PSSS*CEQ	0.01	0.00	0.13*	
CTI	1	Group	0.06	0.27	0.01	0.37**
		PSSS	-0.25	0.02	-0.57**	
		LES	-0.08	0.02	-0.20**	
	2	Group	0.03	0.27	0.01	0.38**
		PSSS	-0.25	0.02	0.57**	
		LES	-0.08	0.02	-0.21**	
		PSSS*LES	-0.01	0.00	-0.08	

Note. IPV = in-person victimization (in mTurk, Negative Acts Questionnaire [NAQ], in college, Ostracism Experiences Scale – Adolescents [OESA]; each was standardized before combining), CEQ = Cybervictimization Experiences Questionnaire, LES = Life Experiences Survey, RSE = Rosenberg Self Esteem Scale, CTI = Cognitive Triad Inventory, BDI = Beck Depression Inventory.

* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

Table 10 (continued)

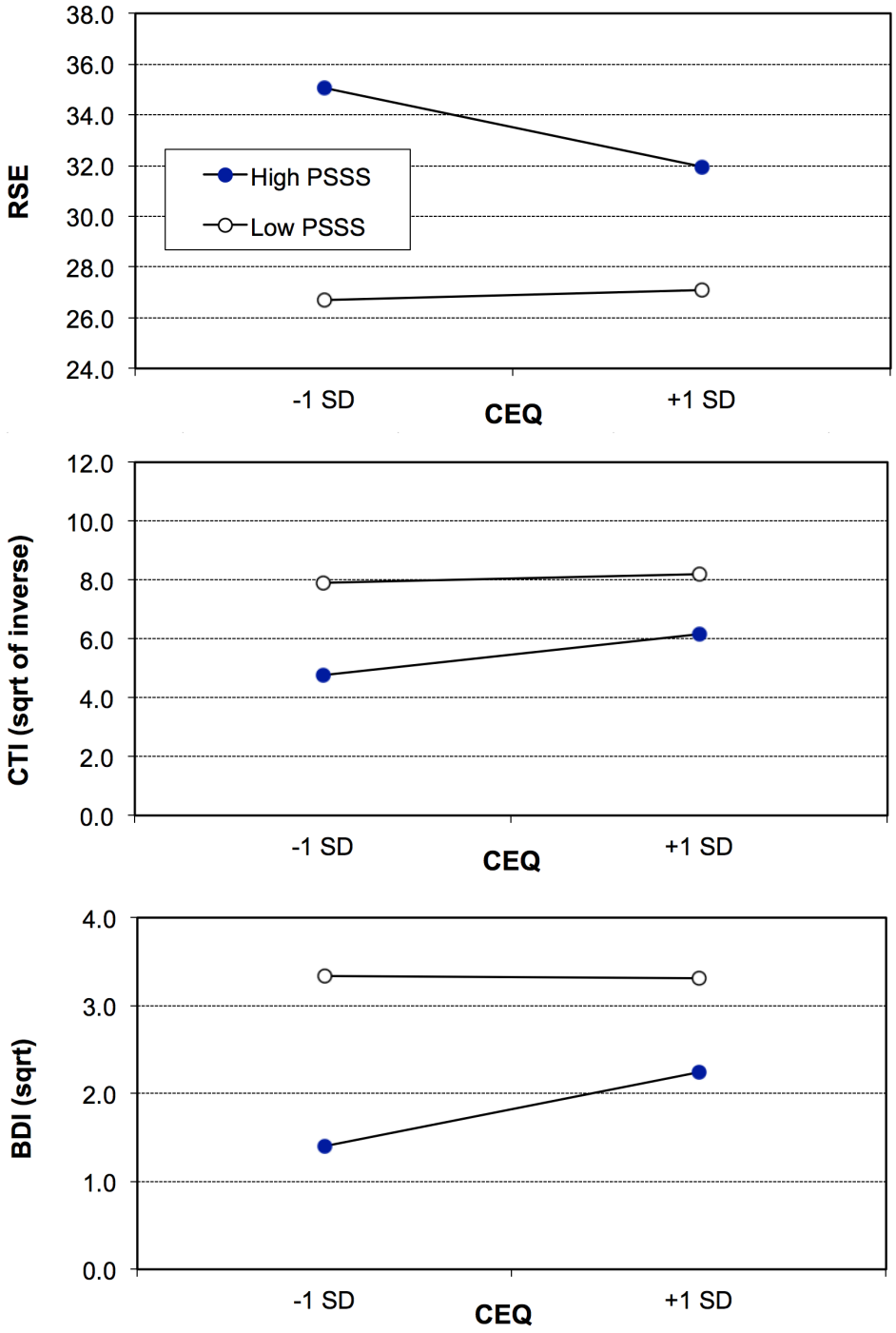
Perceived Social Support Scale (PSSS) Main Effect and Buffering Models Predicting Psychosocial Outcomes

Outcome	Step	Predictor	*B*	*SE(B)*	β	*Adjusted* R^2
BDI	1	Group	0.83	0.22	0.20**	0.20**
		PSSS	-0.13	0.02	-0.38**	
		IPV	0.30	0.10	0.17**	
	2	Group	0.84	0.22	0.20**	0.21**
		PSSS	-0.13	0.02	-0.38**	
		IPV	0.33	0.10	0.18**	
		PSSS*IPV	0.01	0.00	0.09	
BDI	1	Group	0.87	0.22	0.21**	0.18**
		PSSS	-0.15	0.02	-0.42**	
		CEQ	0.01	0.01	0.06	
	2	Group	0.85	0.22	0.20**	0.19**
		PSSS	-0.15	0.02	-0.42**	
		CEQ	0.02	0.01	0.12*	
		PSSS*CEQ	0.00	0.00	0.13*	
BDI	1	Group	0.74	0.22	0.18**	0.30**
		PSSS	-0.14	0.02	-0.39**	
		LES	-0.11	0.02	-0.35**	
	2	Group	0.73	0.22	0.17**	0.30**
		PSSS	-0.14	0.02	-0.39**	
		LES	-0.11	0.02	0.36**	
		PSSS*LES	0.00	0.00	-0.89	

Note. IPV = in-person victimization (in mTurk, Negative Acts Questionnaire [NAQ], in college, Ostracism Experiences Scale – Adolescents [OESA]; each was standardized before combining), CEQ = Cybervictimization Experiences Questionnaire, LES = Life Experiences Survey, RSE = Rosenberg Self Esteem Scale, CTI = Cognitive Triad Inventory, BDI = Beck Depression Inventory

* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

Figure 1
Perceived Social Support (PSSS) Moderates the Effect of Cybervictimization (CEQ) on Psychosocial Outcomes



Note. RSE = Rosenberg Self Esteem Scale, CTI = Cognitive Triad Inventory, BDI = Beck Depression Inventory.

without the interaction, main effects for the PSSS were significant. The absolute values of significant standardized beta weights for the PSSS were moderate to large, ranging from between .38 and .57 (ps < .001).

Second, we hypothesized that the degree of use of online spaces would moderate the positive effect of online social support on outcomes (self-esteem, depressive thoughts, and depressive symptoms). We coded online space use in two ways. From the OSSS, we summed the frequencies with which each person used the combined sample's five most popular online spaces. From the TSO, we used the reported hours spent online per week. Hierarchical multiple regressions revealed no evidence of either a main effect or an interaction involving online space use. Results are presented in Appendix E.

CHAPTER IV

Discussion

Five key results emerged from the current study about the measurement, validation, and effects of online social support relative to in-person social support. First, we demonstrated that established subtypes of social support in the in-person relations also pertain in the online world. Second, preliminary efforts to validate a new measure of online social support via internal consistency, discriminant validity, and convergent validity, and incremental predictive utility were largely successful. Third, online social support was significantly correlated with various psychosocial outcomes. Fourth, when examined along with stressors, online social support had ameliorative effects that were similar to, although smaller than, in-person social support. And fifth, the degree of online space use did not moderate the effect of online social support on psychosocial outcomes.

Our first finding was that a four-factor solution fit reasonably for the Online Social Support Scale, which measured four types of social support established in the in-person literature and adapted for the online environment. With moderate to high loadings and most cross-loadings below the conventional cutoff of .3, items represented their intended factors well. Examinations of five- and six-factor solutions revealed only minimal improvements in RMSEA, as well as highlighted a few items clustering onto a nuisance factor. Omission of these items, as well as a few of the lowest-loading items and highest cross-loading items, resulted in a 40-item measure, with 10 items per factor.

As others who study online social support have found, it is notable that subtypes of social support that have shown to exist in person also exist online. Online spaces, particularly social media sites, appear to facilitate a new and important source of social support. Similar subtypes of online social support have been demonstrated in the literature, and have shown to improve efforts at weight loss (Turner-McGrievy & Tate, 2013), support for individuals with disabilities (Braithwaite et al., 1999), and positive social interaction in young adults with HIV (Gaysynky et al., 2015), among others. In addition, our factor analyses showed that online social support subtypes are not confounded with items regarding social media exposure, use, or familiarity; rather, our measure is more directly assessing online social support.

Second, internal consistency, discriminant validity, and convergent validity of the OSSS were all acceptable. Internal consistency of the OSSS and its subtypes between .94 and .97 suggest our items are closely related. Convergent and discriminant validity were measured by correlations with social desirability, lie, and in-person social support measures. Results suggest the OSSS relates well with conventional social support and largely does not relate with socially desirable or deliberately controlled responses. These promising results suggest the OSSS can successfully measure online social support in future research. As older adolescents use online spaces at higher levels and in potentially different ways from adults, we hope to use the OSSS with younger samples, for which online social support (and online victimization) may be more powerful and more important to developmental outcomes.

Third, the OSSS related to self-esteem, depressive thoughts, and depressive symptoms significantly and in expected directions. As Longman et al. (2009) found in the gaming world, online social support does appear to have important implications for psychosocial outcomes, including those relevant to depression. The impact of online social support on emotional

outcomes in particular may relate to the relative ease or frequency of providing emotional or esteem support in an online context. According to Braithwaite et al. (1992) and Gaysynsky et al. (2015), esteem or emotional support were among the types most frequently sought and provided in online contexts. In our samples, however, other subtypes were endorsed at considerable levels, and investigating outcomes relevant to those subtypes (e.g., satisfaction with one's social group or status, knowledge of important information, or ability to mobilize others' instrumental support) may prove important future directions for research. Reflecting Longman et al.'s (2009) findings, our results show that online social support does not appear to have incremental utility *over and above* in-person social support in the prediction of psychosocial outcomes. In-person social support, it seems, still has greater impact on self-esteem, depressive thoughts, and depressive symptoms than its does more distal digital cousin.

Fourth, both online social support and stress had main effects on all three outcomes. Interactions were not significant. This pattern supports Cohen and Wills' (1985) main effects model, but not their buffering model. These results are largely in line with our findings for in-person social support. Both online and in-person social support help to offset the ill effects of in-person victimization, cybervictimization, or various life stressors. As evidence largely did not accrue to the buffering hypothesis, it also seems that social support in-person and online helps to offset the effects of stressors, regardless of the individual's level of stress. It has been well established that in-person social support in one social setting can help ameliorate the effects of victimization in another (Hodges et al., 1997; Parker & Asher, 1993; Schwartz et al., 2000). These preliminary results, then, begin to demonstrate that online social support aids individuals in the same way that in-person social support does, though to a smaller degree. As the use of

online spaces continues to grow, their role as a source of social support may well continue to increase.

Limitations of the current study suggest important directions for future research. First, this preliminary attempt to validate the OSSS and using it to address questions about online social support is only cross-sectional. Further support for the validity of the OSSS and the main effects of online social support require longitudinal research, which we are currently conducting with the 40-item version of the OSSS in an additional North American adult sample. Second, our outcomes pertain to emotional measures of well-being and, in addition, focus primarily on depression. Although emotional and depressive outcomes are certainly crucial to well being, other indicators, like social anxiety, Internet addiction, and school and work outcomes may have important connections to online social support as well. Third, our focus on online spaces was broad, crossing social media platforms, apps, email, texting, and gaming. Particular online spaces (e.g., Facebook, Instagram, Reddit) might be more or less conducive to facilitating online social support. In addition, our samples' low endorsement of gaming precluded our ability to include gaming items in our factor analyses; investigating whether or not gaming items load onto social support subtypes (e.g., social companionship) would be an important direction for future work. As social media is used increasingly and at younger ages, further investigation of these and other topics will be important avenues of research.

Online Social Support Scale (OSSS)

Most sites, apps, services, and games on the Internet can be used in lots of different ways and for different purposes. We're interested in how much you use these online spaces to **connect or interact with other people.**

This means we **are** interested in how much you use these online spaces to talk with people, post, comment, like, send messages, game with others, etc.

This means we are **not** interested in how much you use these online spaces to scroll through other people's posts, watch or read content, or just look up information.

How much do you use the following sites, apps, services, or games to **connect or interact with other people**?

N = Never R = Rarely S = Sometimes P = Pretty Often A = A Lot

	N	R	S	P	A
Facebook	__	__	__	__	__
Instagram	__	__	__	__	__
Twitter	__	__	__	__	__
SnapChat	__	__	__	__	__
Tumblr	__	__	__	__	__
Vine	__	__	__	__	__
YouTube	__	__	__	__	__
Pinterest	__	__	__	__	__
Reddit	__	__	__	__	__
YikYak	__	__	__	__	__
Kik	__	__	__	__	__
LinkedIn	__	__	__	__	__
GroupMe	__	__	__	__	__
WhatsApp	__	__	__	__	__
Google+	__	__	__	__	__
Whatsgoodly	__	__	__	__	__
Chat services	__	__	__	__	__
Email	__	__	__	__	__
Texting	__	__	__	__	__

	N	R	S	P	A
Dating sites/apps (e.g., Tinder)	__	__	__	__	__
I use: _____					
First person shooter games	__	__	__	__	__
(e.g., Call of Duty)					
I use: _____					
Battle arena games (MOBAs)	__	__	__	__	__
(e.g., League of Legends)					
I use: _____					
Sports/fighting/racing games	__	__	__	__	__
(e.g., FIFA, Street Fighter, Mario Kart)					
I use: _____					
Role-playing games (RPGs)	__	__	__	__	__
(e.g., World of Warcraft)					
I use: _____					
If you interact with people using other sites, apps, services, or games, please write them in and rate how often you use them:					
_____	__	__	__	__	__
_____	__	__	__	__	__
_____	__	__	__	__	__
_____	__	__	__	__	__

Now, think about the online spaces you use above. Rate **how often** the following things have happened for you **while you interacted with others** online over the last two months. Use the following scale:

0 = Never 1 = Rarely 2 = Sometimes 3 = Pretty Often 4 = A lot

1	People show that they care about me online.	0	1	2	3	4
2	Online, people say or do things that make me feel good about myself.	0	1	2	3	4
3	People see things my way online.	0	1	2	3	4
4	When I'm online, people seem to understand where I'm coming from.	0	1	2	3	4
5	People encourage me when I'm online.	0	1	2	3	4
6	People pay attention to me online.	0	1	2	3	4
7	I get likes, favorites, upvotes, views, etc. online.	0	1	2	3	4
8	I get positive comments online.	0	1	2	3	4
9	When I'm online, people tell me they like the things I say or do.	0	1	2	3	4
10	Online, people are interested in me as a person.	0	1	2	3	4
11	People support me online.	0	1	2	3	4
12	When I'm online, people make me feel good about myself.	0	1	2	3	4

Again, think about the online spaces you use above. Rate **how often** the following things have happened for you **while you interacted with others** online over the last two months.

0 = Never 1 = Rarely 2 = Sometimes 3 = Pretty Often 4 = A lot

1	I like a lot of people I know online.	0	1	2	3	4
2	I connect with people online.	0	1	2	3	4
3	When I'm online, I talk or do things with other people.	0	1	2	3	4
4	People spend time with me online.	0	1	2	3	4
5	People hang out and do fun things with me online.	0	1	2	3	4
6	Online, I belong to groups of people with similar interests.	0	1	2	3	4
7	People talk with me online about things we have in common.	0	1	2	3	4
8	Online, I connect with people who like the same things I do.	0	1	2	3	4
9	I am part of groups online.	0	1	2	3	4
10	When I'm online, people joke and kid around with me.	0	1	2	3	4
11	People relate to me through things I say or do online.	0	1	2	3	4
12	Online, people make me feel like I belong.	0	1	2	3	4

The following questions are **not** about watching tutorials, reading articles, blogs, forums, or looking up information online. They are about things that have happened online **while you interacted with others**. Rate **how often** these things have happened to you online in the last two months.

0 = Never 1 = Rarely 2 = Sometimes 3 = Pretty Often 4 = A lot

1	When I'm online, people give me useful advice.	0	1	2	3	4
2	Online, people provide me with helpful information.	0	1	2	3	4
3	If I had a problem, people would help me online by saying what they would do.	0	1	2	3	4
4	Online, people would tell me where to find help if I needed it.	0	1	2	3	4
5	People help me learn new things when I'm online.	0	1	2	3	4
6	People offer suggestions to me online.	0	1	2	3	4
7	People tell me things I want to know online.	0	1	2	3	4
8	When I'm online, people help me understand my situation better.	0	1	2	3	4
9	If I had a problem, people would share their point of view online.	0	1	2	3	4
10	If I talked about a problem online, people would help me figure it out.	0	1	2	3	4
11	If I had a problem, people online would suggest an action I could take to solve it.	0	1	2	3	4
12	People help me see things in new ways when I'm online.	0	1	2	3	4

Again, the following questions are **not** about watching tutorials, reading articles, blogs, forums, or looking up information online. They are about things that have happened online **while you interacted with others**. Rate **how often** these things have happened to you online in the last two months.

0 = Never 1 = Rarely 2 = Sometimes 3 = Pretty Often 4 = A lot

1	People online would help me with money or other things if I needed it.	0	1	2	3	4
2	I can rely on others online to help me with things I'm working on.	0	1	2	3	4
3	When I'm online, people help me with school or work.	0	1	2	3	4
4	Online, people help me get things done.	0	1	2	3	4
5	If I needed a hand doing something, I go online to find people who will help out.	0	1	2	3	4
6	Online, people offer to do things for me.	0	1	2	3	4
7	Online, people help me with causes or events that I think are important.	0	1	2	3	4
8	When I'm online, people have offered me things I need.	0	1	2	3	4
9	When I need something, I go online to find someone who might lend it to me.	0	1	2	3	4
10	When I need a hand with school or work things, I get help from others online.	0	1	2	3	4
11	I contact people online to get help or raise money for things I think are important.	0	1	2	3	4
12	People show me where to find things I need online.	0	1	2	3	4

Again, think about the online spaces you use above. Rate **how often** the following things have happened for you **while you interacted with others** online over the last two months.

0 = Never 1 = Rarely 2 = Sometimes 3 = Pretty Often 4 = A lot

1	People friend or follow me online.	0	1	2	3	4
2	I friend or follow other people online.	0	1	2	3	4
3	People tag me online.	0	1	2	3	4
4	People respond to something I've posted online by sharing, reblogging, retweeting, etc.	0	1	2	3	4
5	People contact me online publically by tweeting at me, posting on my Facebook wall, etc.	0	1	2	3	4
6	People contact me online privately by sending a direct message, sending a Snapchat, etc.	0	1	2	3	4
7	People respond to something I've posted online by commenting positively.	0	1	2	3	4
8	I receive a high ratio of likes per minute online.	0	1	2	3	4
9	I participate in online fandoms.	0	1	2	3	4
10	I post a lot of things online.	0	1	2	3	4

Again, think about the online spaces you use above. Rate **how often** the following things have happened for you **while you interacted with others** online over the last two months.

0 = Never 1 = Rarely 2 = Sometimes 3 = Pretty Often 4 = A lot

1	I do role-playing games where I talk or text to the people I'm playing with.	0	1	2	3	4
2	Other players "buff" me during gameplay.	0	1	2	3	4
3	Other players donate materials I need to my group during gameplay.	0	1	2	3	4
4	Other players resurrect me during gameplay.	0	1	2	3	4
5	Other players give me items, or forge or craft items for me during gameplay.	0	1	2	3	4
6	Other players help me navigate by pinging or drawing on maps during gameplay.	0	1	2	3	4
7	Other players use emotes to say things to me during gameplay.	0	1	2	3	4
8	Other players agree to play future games or complete future missions with me.	0	1	2	3	4

Appendix B

Mechanical Turk Sample: Correlations, Means, and Standard Deviations for All Study Variables

	OSSS	EE	SC	INF	INS	PSSS	NAQ	CEQ	CTI	RSE	BDI	LES	Use	TSO	SD	LS
OSSS	1.00															
EE	.88**	1.00														
SC	.90**	.81**	1.00													
INF	.89**	.72**	.73**	1.00												
INS	.84**	.60**	.62**	.68**	1.00											
PSSS	.44**	.47**	.44**	.35**	.31**	1.00										
NAQ	-.07	-.13*	-.12*	-.08	.06	-.25**	1.00									
CEQ	.17**	.07	.15**	.14*	.22**	-.15*	.58**	1.00								
CTI	.32**	.35**	.30**	.26**	.20**	.64**	-.39**	-.15**	1.00							
RSE	.23**	.29**	.21**	.19**	.16**	.51**	-.24**	-.08	.81**	1.00						
BDI	-.16*	-.15*	-.10	-.06	-.10	-.48**	.28**	.12*	-.78**	-.72**	1.00					
LES	-.01	-.02	.03	-.02	-.01	.11	-.25**	-.17**	.27**	.23**	-.41**	1.00				
Use	.45**	.39**	.44**	.39**	.34**	.21**	.02	.19**	.17**	.10	-.01	-.08	1.00			
TSO	.32**	.24**	.31**	.29**	.27**	.12	-.08	.09	.09	.09	.00	-.10	.17**	1.00		
SD	.14**	.15**	.13*	.12*	.15*	.12	-.12*	.02	.20**	.21**	-.25**	.13*	.09	.06	1.00	
LS	.10	.10	.09	.07	.11	.04	-.10	-.03	.07	.08	-.15**	.13*	.03	.00	.74**	1.00
M	83.40	22.69	23.99	22.32	14.45	15.51	29.77	9.81	158.5	30.20	9.52	-4.72	10.42	21.00	4.62	4.56
SD	27.71	7.17	7.98	7.73	8.77	5.54	10.72	2.86	34.19	7.24	10.94	6.20	3.42	7.24	3.12	2.76

Note. OSSS = Online Social Support Scale total, EE = OSSS Esteem/Emotional, SC = OSSS Social Companionship, INF = OSSS Informational, INS = OSSS Instrumental, PSSS = Perceived Social Support Scale, NAQ = Negative Acts Questionnaire, CEQ = Cyberbullying Experiences Questionnaire, CTI = Cognitive Triad Inventory, RSE = Rosenberg Self Esteem Scale, BDI = Beck Depression Inventory, LES = Life Events Scale, Use = OSSS social media use, TSO = time spent online, SD = Social Desirability Scale, LS = Lie Scale.

* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

Appendix C

College Sample: Correlations, Means, and Standard Deviations for All Study Variables

	OSSS	EE	SC	INF	INS	PSSS	OESA	CEQ	CTI	RSE	BDI	LES	Use	TSO	SD	LS
OSSS	1.00															
EE	.73**	1.00														
SC	.85**	.63**	1.00													
INF	.85**	.47**	.61**	1.00												
INS	.76**	.31**	.47**	.60**	1.00											
PSSS	.29*	.42**	.13	.29*	.11	1.00										
OESA	-.20	-.38**	-.29**	-.07	.02	-.39**	1.00									
CEQ	.17	-.14	.17	.19	.24*	-.14	.17	1.00								
CTI	.09	.36**	.15	.03	-.19	.42**	-.52**	-.36**	1.00							
RSE	.05	.24*	.06	.04	-.14	.36**	-.46**	-.24*	.79**	1.00						
BDI	-.03	-.17	-.08	-.03	.11	-.23	.35**	.23*	-.64**	-.62**	1.00					
LES	.14	.13	.16	.14	.06	.02	-.10	-.11	.24*	.27*	-.38**	1.00				
Use	.29**	.52**	.32**	.11	.03	.09	-.20**	-.18	.22*	.12	-.01	-.08	1.00			
TSO	.12	-.06	.06	.13	.21*	.11	.07	.09	-.19	-.08	.09	.06	.11	1.00		
SD	.09	.19	.09	.11	-.06	.04	-.23*	-.21*	.13	.10	-.16	-.13	.09	-.29**	1.00	
LS	.09	.15	.03	.09	.04	-.02	-.13	-.22*	.10	.06	-.16	.02	.07	-.23*	.66**	1.00
M	77.58	26.45	21.27	17.45	12.08	18.29	24.64	7.87	168.2	30.80	10.16	-5.66	14.13	27.48	4.12	2.46
SD	25.56	7.04	8.17	8.27	8.39	2.72	6.88	8.78	24.28	5.06	7.54	4.74	3.12	24.41	2.51	2.11

Note. OSSS = Online Social Support Scale total, EE = OSSS Esteem/Emotional, SC = OSSS Social Companionship, INF = OSSS Informational, INS = OSSS Instrumental, PSSS = Perceived Social Support Scale, OESA = Ostracism Experiences Scale for Adolescents, CEQ = Cyberbullying Experiences Questionnaire, CTI = Cognitive Triad Inventory, RSE = Rosenberg Self Esteem Scale, BDI = Beck Depression Inventory, LES = Life Events Scale, Use = OSSS social media use, TSO = time spent online, SD = Social Desirability Scale, LS = Lie Scale.

* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

Appendix D

Independent Group T-Tests of Study Variables

Variable	Mechanical Turk Sample		College Sample		
	Mean	*SD*	Mean	*SD*	*t*
OSSS	83.40	27.71	77.58	25.56	1.83
EE	22.69	7.17	26.45	7.04	-4.52**
SC	23.99	7.98	21.27	8.17	2.91**
INF	22.32	7.73	17.45	8.27	5.31**
INS	14.45	8.77	12.08	8.39	2.33*
PSSS	15.51	5.54	18.29	2.72	-5.81**
CEQ	9.81	2.86	7.87	8.78	0.48
RSE	30.20	7.24	30.80	5.06	-0.89
CTI	158.50	34.19	168.20	4.28	-3.04**
BDI	9.52	10.94	10.16	7.54	-0.47
LES	-4.72	6.20	-5.66	4.74	1.19
Use	10.42	3.42	14.13	3.12	-9.53**
TSO	21.00	7.24	27.48	24.41	-2.42*
SD	4.62	3.12	4.12	2.51	1.53
LS	4.56	2.76	2.46	2.11	4.06**

Note. OSSS = Online Social Support Scale total, EE = OSSS Esteem/Emotional, SC = OSSS Social Companionship, INF = OSSS Informational, INS = OSSS Instrumental, PSSS = Perceived Social Support Scale, CEQ = Cyberbullying Experiences Questionnaire, CTI = Cognitive Triad Inventory, RSE = Rosenberg Self Esteem Scale, BDI = Beck Depression Inventory, LES = Life Events Scale, Use = OSSS social media use, TSO = time spent online, SD = Social Desirability Scale, LS = Lie Scale. Note that IPV variables were not compared.

* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

Appendix E

Online Social Support Scale (OSSS) Main Effect and Buffering Models Predicting Psychosocial Outcomes

DV	Step	Predictor	*B*	*SE(B)*	β	*Adjusted* R^2
RSE	1	Group	0.70	0.91	0.04	0.04***
		OSSS	0.05	0.01	0.19**	
		Use	0.05	0.11	0.03	
	2	Group	0.66	0.91	0.04	0.03**
		OSSS	0.05	0.01	0.19**	
		Use	0.04	0.11	0.02	
		OSSS*Use	0.00	0.00	-0.03	
CTI	1	Group	-0.49	0.29	-0.09	0.10**
		OSSS	-0.02	0.00	-0.26**	
		Use	-0.06	0.04	-0.10	
	2	Group	-0.46	0.30	-0.09	0.10**
		OSSS	-0.02	0.00	-0.25**	
		Use	-0.06	0.04	0.06	
		OSSS*Use	0.00	0.00	0.06	
BDI	1	Group	0.33	0.24	0.08	0.02*
		OSSS	-0.01	0.00	-0.14*	
		Use	0.02	0.03	0.04	
	2	Group	0.33	0.24	0.08	0.02*
		OSSS	-0.01	0.00	-0.14*	
		Use	0.02	0.03	0.05	
		OSSS*Use	0.00	0.00	0.01	
RSE	1	Group	0.89	0.81	0.06	0.03**
		OSSS	0.05	0.01	0.20**	
		TSO	0.00	0.02	0.00	
	2	Group	0.89	0.81	0.06	0.03**
		OSSS	0.05	0.01	0.20**	
		TSO	0.00	0.02	0.00	
		OSSS*TSO	0.00	0.00	0.00	
CTI	1	Group	-0.78	0.26	-0.15**	0.10**
		OSSS	-0.03	0.00	-0.31**	
		TSO	0.01	0.01	0.06	
	2	Group	-0.79	0.26	-0.15**	0.09**
		OSSS	-0.03	0.00	-0.31**	
		TSO	0.01	0.01	0.07	
		OSSS*TSO	0.00	0.00	-0.02	
BDI	1	Group	0.37	0.22	0.09	0.02**
		OSSS	-0.01	0.00	-0.14*	
		TSO	0.01	0.01	0.06	
	2	Group	0.37	0.22	0.09	0.02*
		OSSS	-0.01	0.00	-0.14*	
		TSO	0.01	0.01	0.06	
		OSSS*TSO	0.00	0.00	0.00	

Note. DV = Dependent variable, Use = OSSS top five endorsed online spaces, TSO = Time Spent Online, RSE = Rosenberg Self Esteem Scale, CTI = Cognitive Triad Inventory, BDI = Beck Depression Inventory

* $p < 0.05$ (2-tailed). ** $p < 0.01$ (2-tailed).

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