Are Facebook "Friends" Helpful?
Development of a Facebook-Based Measure
of Social Support and Examination of Relationships
Among Depression, Quality of Life, and Social Support

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Abstract

Greater social support is predictive of lower depression and higher quality of life (QOL). However, the way in which social support is provided has changed greatly with the expanding role of social networking sites (e.g., Facebook). While there are numerous anecdotal accounts of the benefits of Facebook-based social support, little empirical evidence exists to support these assertions, and there are no empirically validated measures designed to assess social support provided via this unique social networking medium. This study sought to develop an empirically sound measure of Facebook-based social support (Facebook Measure of Social Support [FMSS]) and to assess how this new measure relates to previously established measures of support and two outcome variables: depression and QOL. Following exploratory factor analysis, the FMSS was determined to assess four factors of social support on Facebook (Perceived, Emotional, Negative, Received/Instrumental). The Negative Support factor on the FMSS was most strongly related to both depression and QOL with magnitudes (and direction of relationships) comparable to a traditional measure of perceived social support. However, two FMSS factors (Received/Instrumental and Perceived) were unrelated to both mental health outcomes. Contrary to expectations, elevations in one FMSS factor (Emotional) was associated with worse symptoms of depression and poorer psychological QOL. When taken together, only the absence of negative social support on Facebook is significantly predictive of mental health functioning. Consequently, those hoping to use Facebook as a medium for reducing depression or improving QOL are unlikely to realize significant therapeutic benefits.

Introduction

FACE-TO-FACE SOCIAL SUPPORT is clearly associated with reduced symptoms of depression[1] and improved overall quality of life (QOL).[2,3] However, social interaction is changing with the increasing popularity of social networking Web sites (e.g., Facebook). Research suggests people use Facebook for maintaining previously established, in-person relationships[4,5] and, to a lesser extent, developing new friendships.[6] As such, Facebook may logically be conceptualized as a medium through which social support is provided. There are numerous anecdotal accounts of Facebook "support," and there are more than 200 Facebook created condition-specific support groups. Research findings support anecdotal accounts, with Facebook users reporting a relationship between Facebook users' "number of friends" and perceived support.[6] This association has been shown to be stronger for Facebook users than for users of other online social networking sites (e.g., LinkedIn, MySpace, Twitter).[7] These findings suggests Facebook affords users social support that other avenues do not offer (e.g., ease/speed of contact, simultaneous interaction with multiple friends, unlimited access, news feed, photographs).[8,9]

While Facebook appears to be an important, and unique, medium for provision of social support, research examining this phenomenon is notably absent. No studies to date have used a measure of social support that captures some of the more unique aspects of Facebook as a social medium. As Facebook is booming in popularity and appears to be a unique context for perceived social support provision, this paucity of data is particularly concerning. Therefore, to address these issues, the current study aimed to develop a

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measure of Facebook-based social support, assess the instrument's convergent validity, and examine the effect of Facebook social support on depression and QOL. The literature review that follows will first outline the relationship between social support and two mental health outcomes (depression and QOL). Next, it will outline the nature of social support on the Internet and the absence of a measure developed specifically to assess support on Facebook.

Social support and depression

A widely accepted definition of social support is "the perception or experience that one is loved and cared for and part of a social network of mutual assistance and obligations."[10] There are two related yet distinct types of social support of interest in the current study: perceived and received social support. Perceived social support comprises *aid one believes to be available* if it were to be needed,[11] whereas received social support refers to the social support *actually utilized or obtained* by an individual.[12,13] Received support is composed of several subdomains (Directive Guidance, Non-directive Support, Tangible Assistance, and Positive Social Exchange).[14]

Greater perceived social support is consistently predictive of lower levels of depression.[15–17] Findings are somewhat mixed regarding the association between received social support and depressive symptoms,[15] with some investigations finding a similar buffering effect.[18] However, Finch et al. found two dimensions of received social support (Tangible Assistance and Directive Guidance) were *positively* correlated with depression whereas Positive Social Exchange was *negatively* correlated and, when aggregated, the association between received social support and depression became nonsignificant.[19] These mixed findings suggest received social support is likely a weaker predictor of depressive symptoms relative to perceived social support. Given the rapid growth in online social networking, it is important to assess the possible palliative effects of social support on Facebook. In other words, does social support on Facebook translate into reduced depression?

Social support and QOL

QOL is defined as "an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns."[20] The majority of research examining the relationship between social support and QOL has been conducted in the medical arena[21,22] with greater perceived social support predicting improved QOL.[23] Received social support does not appear to predict the same improvements in QOL[24] but is positively correlated with life satisfaction, a related but not identical construct.[19] So, while it is clear that perceived social support is important in improving QOL, the association with received social support is more dubious. The question remains: does social support provided on Facebook predict improved QOL?

Social support on the Internet

Social networking sites have been expanding in popularity since 1997 with the advent of SixDegrees.com, which was regarded as one of the first mass-appeal social networking sites. Currently, Facebook dominates the landscape (1.3 billion registered users worldwide[25]) of social networking sites in no small part due to the number of options afforded to users that aid in social connectedness, including high utilization by "real-life" friends,[26] speed of communication,[8,26] and the ability to view/comment on user photos.[8] Facebook users report logging onto the site for social support,[27] and research suggests that Facebook is the *only* social networking site to be associated with perceived social support.[8] The actual *mechanism of benefit* of this social support, however, is unclear. For example, research indicates that greater number of Facebook friends is predictive of worse emotional adjustment among first year students but better emotional adjustment among advanced students.[28] Few studies ($N = 11$) have empirically assessed Facebook-based social support. Of these studies, investigators typically assessed Facebook-based social support by using versions of established measures of social support modified to reflect Facebook-specific support (see Table 1). The majority of extant research in this area suggests that Facebook-based social support and "offline" support are highly correlated[29–31] and are associated with both reduced depressive symptoms[32] and improved QOL.[33] It is important to reiterate, however, that the extant research in the area of Facebook-based social support has utilized adapted versions of existing measures to assess social support on Facebook or used "home grown" measures

TABLE 1. EXISTING RESEARCH EXAMINING FACEBOOK-BASED SOCIAL SUPPORT

Study	N	Adapted social support measure	Notes
Akbulut and Gunuc, 2012[46]	255	Multidimensional Scale of Perceived Social Support (MSPSS)	Adolescents
Asbury and Hall, 2013[47]	126	MSPSS	
Carpenter, 2012[33]	292	Self-developed	Seeking/offering social support
Cavello et al., 2012[48]	134	Chogahara's Social Influence on Physical Activity	
High et al., 2014[49]	84	Social Support Questionnaire (SSQ)	6 selected items
Indian and Grieve, 2014[30]	299	Interpersonal Support Evaluation List (ISEL)	Appraisal subscale
Liu and Yu, 2013[31]	330	ISEL	
Oh et al., 2013[34]	291	Self-developed	Health-related social support
Vitak and Ellison, 2012[50]	18	Qualitative Interview	
Wright et al., 2013[32]	361	SSQ	
Wright, 2012[51]	274	Communication-Based Emotional Support Scale (CBESS)	

with unknown psychometric properties.[34,35] While online social support may appear analogous to traditional forms of in-person social support, the unique aspects of support provided using Facebook (e.g., postings, acceptance of friend requests, and ''likes'' of posts) may not be captured by current measures of social support, which highlights the need for a specific measure of Facebook-based social support. To date, there are no empirically validated measures specifically assessing social support provided on Facebook.

The current study

The goals of this study were to develop a measure of Facebook social support, examine the convergent validity of this instrument, and examine the potential buffering effect of greater Facebook social support on symptoms of depression and QOL.

Method

Participants

The participants ($N=633$) for this study were recruited from undergraduate classes at a mid-sized Midwestern university. Participants were required to be at least 18 years old but were not required to have a Facebook account to participate, though the vast majority of participants reported having at least one active Facebook page (91%). A college sample was chosen because of the high prevalence of Facebook use within this population.[35] Participants had a median age of 21 years and were primarily female (70.1%), Caucasian (64.8%), and single (53.4%). Regarding the variables of interest for the study, participants on average reported mild levels of depression (mean PHQ-9 score 6.33; $SD=5.62$). Participants reported average QOL scores for the Physical ($M=27.99$, $SD=4.44$), Psychological ($M=21.25$, $SD=4.35$), and Social ($M=10.68$, $SD=2.61$) domains and above average QOL for the Environmental domain ($M=29.16$, $SD=5.17$) when compared with norms established by an international field trial of the World Health Organization Quality of Life- Short Form (WHOQOL-BREF).[31]

Measures

In-person received and perceived social support. The Inventory of Socially Supportive Behaviors (ISSB)[14] is a 40-item self-report questionnaire of received social support assessing six domains of support: material aid, behavioral assistance, intimate interaction, guidance, feedback, and positive social interaction. Respondents rate the frequency each behavior occurs on a 5-point Likert-type scale (0 = ''not at all'' to 4 = ''about every day''), with higher scores representing more frequent receipt of social support. The ISSB demonstrates strong internal consistency ($\alpha=0.94$), which was replicated in the current study ($\alpha=0.97$).

The Multidimensional Scale of Perceived Social Support (MSPSS)[37] is a 12-item self-report measure designed to assess respondent's perception of available social support from three sources: family, friends, and significant other. Participants rate how supportive they view others on a 7-point Likert-type scale (1 = ''very strongly disagree'' to 7 = ''very strongly agree''), with higher values reflecting greater perceived support. The MSPSS displays good internal consis-

tency in college student samples ($\alpha=0.88$), which was replicated in the current study ($\alpha=0.94$).

Depression. The Patient Health Questionnaire 9 (PHQ-9)[38] is a 9-item self-report measure assessing frequency of depressive symptoms and associated functional impairment. Respondents rate how often they have been bothered by each symptom over the last 2 weeks on a 4-point Likert-type scale (0 = ''not at all'' to 3 = ''nearly every day''), with higher values indicating more severe depressive symptoms. The PHQ-9 showed satisfactory internal consistency reliability in primary care settings ($\alpha=0.89$) and is predictive of health-related QOL scores ($r=0.33$ for bodily concerns, $r=0.73$ for mental health problems[39]) and changes in severity of depression.[40] In the current study, internal consistency of the PHQ-9 was high ($\alpha=0.91$).

QOL. The WHOQOL-BREF[36] is a 26-item self-report QOL scale composed of 24 questions that assess the intensity, capacity, frequency, and evaluation of an individual's QOL and two items assessing overall QOL and general health. Items are scored on a 5-point Likert-type scale with a variety of anchors (1 = ''not at all/very poor/very dissatisfied/never'' to 5 = ''completely/very good/very satisfied/extremely/always''), with higher scores denoting better QOL. Scores on the 24 items are summed into four domains: Physical Health, Psychological, Social Relationships, and Environment. The WHOQOL-BREF showed satisfactory internal consistency reliability on all domains, ranging from $\alpha=0.68$ to 0.82.[36] Internal consistency for the subscales on the WHOQOL-BREF in the present study were similar, ranging from $\alpha=0.76$ (Social) to 0.81 (Physical Health).

Procedures

Subject recruitment occurred in undergraduate psychology courses and via fliers placed in prominent locations across campus. During in-class recruitment, students were informed of the study aims, potential risks/benefits of study participation, and time requirements. Interested individuals completed instruments via online study management software, which has been shown to be a satisfactory alternative to traditional pencil and paper measures.[41,42]

Results

Development of the Facebook Measure of Social Support

The Facebook Measure of Social Support (FMSS) was developed to assess social support on Facebook. The initial item pool consisted of 40 items that roughly corresponded to perceived and received social support. A review of the items by a panel composed of one professor of clinical psychology and four doctoral students yielded a final pool of 23 items to be examined using exploratory factor analysis (EFA). The purpose of the EFA was to (a) identify items for inclusion in the instrument, and (b) identify latent classes (factors) of items.

Prior to conducting the analyses, data were inspected for missingness to ensure that assumptions of statistical tests were met. Missing data were below 2% for each item, so all individuals with missing data were included. Inspection of skew and kurtosis showed moderate non-normality, so weighted

TABLE 2. ROTATED FACTOR LOADINGS AND TEST STATISTICS FOR HYPOTHESIS TESTING

Item	Rotated factor loading	Criterion value for significance testing
Factor: Perceived Support (α=0.74)		
For me, Facebook isn't good for getting any kind of real help or support. (Reverse-scored)	0.59	−10.57
The support I get on Facebook is of practical help to me.	0.53	8.78
The support I get on Facebook makes me feel better.	0.41	6.41
Factor: Emotional Support (α=0.74)		
I'm happy when people comment on my posts.	0.82	25.02
I'm happy when people ''Like'' my posts.	0.81	25.02
I get excited when I get a Facebook notification.	0.72	19.41
I'm disappointed if I log on and don't have any new notifications.	0.51	10.40
Factor: Negative Social Support (α=0.64)		
I get a lot of negative responses on Facebook.	0.80	20.84
It freaks me out if my friend number decreases.	0.64	12.20
I get upset if somebody doesn't accept my friend request.	0.57	12.24
Facebook actually makes me feel less close to people.	0.52	9.81
Factor: Received Informational/Instrumental Support (α=0.75)		
If I needed help with something, I could post it on Facebook and I'd get the help I need.	0.91	30.75
If I needed information about something, I could post it on Facebook and I'd get the information I need.	0.87	27.29
People respond to me on Facebook as much as I want them to.	0.53	11.19

least squares means and variance adjusted (WLSMV) estimation was chosen for the EFA. Both the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy (0.88) and Bartlett's test of sphericity ($\chi^2 = 4006.95$, $df = 253$, $p \leq 0.000$) supported factorability of the 23 items.

Three procedures were employed to determine factor retention: examination of the scree plot, Kaiser's criterion (i.e., eigenvalue >1.0[43]), and parallel analysis using SPSS syntax.[44] Visual inspection of the scree plot revealed a clear break and subsequent leveling at the fifth factor. Based on an unrotated solution, Kaiser's criterion identified four factors accounting for 52.27% of the total variance. However, parallel analysis based on raw data vector permutation suggested retention of seven factors. As a result, geomin-rotated EFA using MLR estimation was conducted to produce solutions between one and seven factors. Model statistics indicated that the four-factor solution was the most parsimonious and best fitting model. Although the absolute fit of the four-factor solution was rejected, $\chi^2(167) = 430.22$, $p < 0.0001$, information and residual fit statistics indicated overall good model fit (CFI = 0.96; RMSEA = 0.06; SRMR = 0.04).

To evaluate further the items in the four-factor model, the individual factor loadings were evaluated using their standard errors to determine whether they were statistically significant. Using a correction procedure from Cudeck and O'Dell for correlated factors, a new α^*-level was computed to be 0.000625 ($z_a^* = 3.42$). Next, items were examined to determine whether to retain or eliminate based on statistical hypothesis testing of the factor pattern loadings (see Cudeck and O'Dell) and magnitude of the factor loadings.[45] In addition to the aforementioned practical rationale, items with a strong theoretical rationale were also retained. The final instrument is a 14-item measure composed of four factors. The final items, rotated factor loadings, and values for Cronbach's alpha are presented in Table 2. Internal consistency of the entire scale was good ($\alpha = 0.81$).

Convergent validity

The strength of relationships between the FMSS and the two traditional measures of social support (MSPSS and ISSB) were examined to assess convergent validity. Three factors of the FMSS (Perceived Social Support, Emotional Social Support, and Instrumental Social Support) were significantly correlated with the ISSB. Two factors of the FMSS (Negative Social Support and Perceived Social Support) were significantly correlated with the MSPSS (see Table 3).

Social support, depression, and QOL

Pearson correlations were computed to assess how perceived (MSPSS) and received (ISSB) social support are related to depression (PHQ9) and QOL (WHOQOL-BREF). As expected, perceived social support was negatively associated with depression severity and positively associated with all domains of QOL. Received social support was not significantly related to depression but was positively related

TABLE 3. CORRELATIONS AMONG FACEBOOK MEASURE OF SOCIAL SUPPORT FACTORS AND TRADITIONAL MEASURES OF SOCIAL SUPPORT

FMSS factor	MSPSS[a]	ISSB[b]
Instrumental social support	−0.017	0.092*
Emotional social support	0.075	0.113*
Negative social support	−0.280**	0.070
Perceived social support	0.151**	0.139**

[a]$n = 504$.
[b]$n = 482$.
*$p < 0.05$; **$p < 0.01$.
FMSS, Facebook Measure of Social Support; MSPSS, Multidimensional Scale of Perceived Social Support; ISSB, Inventory of Socially Supportive Behaviors.

TABLE 4. RELATIONSHIP BETWEEN TYPES OF SOCIAL SUPPORT, DEPRESSION, AND QOL

Social support measure	PHQ-9	WHOQOL-BREF domains			
		Phy. Health	Psych	Social Rel.	Environ.
MSPSS	−0.204**	0.366**	0.358**	0.514**	0.448**
ISSB	0.043	0.024	0.108*	0.202**	0.138**
FMSS:					
Perceived social support	0.070	−0.031	−0.026	−0.014	−0.042
Emotional social support	0.165**	−0.020	−0.169**	−0.067	−0.032
Negative social support	0.107*	−0.303**	−0.243**	−0.172**	−0.229**
Instrumental social support	0.052	0.031	−0.006	0.036	0.038

*$p < 0.05$; **$p < 0.01$.

to three domains of QOL (Psychological, Social Relationships, and Environment; see Table 4).

Pearson correlations were computed to assess the relationship between the FMSS factors, depression, and QOL. Scores on the Emotional Support factor were positively correlated with level of depression, suggesting greater emotional support as measured by the FMSS is associated with *higher* levels of depression. Scores on the Emotional Support factor were negatively correlated with WHOQOL-BREF domain examining psychological QOL and were not significantly related to any other WHOQOL-BREF domains. Scores on the Negative Support factor were positively correlated with level of depression and negatively correlated with all domains of QOL. Neither the Perceived Support nor the Instrumental Support factors of the FMSS were significantly associated with either depression or QOL (see Table 4).

Discussion

One aim of this investigation was to develop a measure of social support received on Facebook that incorporates unique features of support provided in this medium (e.g., liking posts, speed of communication). Further, the researchers hypothesized that social support on Facebook would predict respondents' perception of QOL and depression.

Results of an exploratory factor analysis of Facebook-related social support items yielded a four-factor solution (Emotional Support, Perceived Support, Instrumental Support, and Negative Support). It is encouraging that the hypothesized factors of the FMSS demonstrate convergent validity with traditional measures of social support. Three factors on the FMSS (Instrumental, Emotional, and Perceived Social Support) were significantly correlated with the traditional measure of received social support (i.e., ISSB) in the hypothesized direction, which suggests that the FMSS is an adequate measure of social support received on Facebook. Additionally, two FMSS factors assessing the perception of social support on Facebook (Negative Social Support and Perceived Social Support) were also significantly correlated with the traditional measure of perceived social support (i.e., MSPSS) in the hypothesized direction, which suggests the FMSS also captures perception of social support on Facebook.

Findings suggest support provided on Facebook is related to QOL and depression, although not always in the hypothesized direction. As expected, Negative Support was positively correlated with depressive symptoms, and negatively correlated with QOL. However, the Emotional Support factor of the FMSS was unexpectedly associated with higher depression and lower QOL. These curious findings suggest that while individuals may report that support provided by "friends" on Facebook is beneficial, this support may not translate to measurable reduction in depressive symptoms or improvements in QOL. However, it may be the case that online social support is impacted by an inherent confound of social networking: individuals who are in more distress access social support resources more often when compared with those in less distress.[52,53] So, in cross-sectional research, it is especially difficult to determine if social support predicts worse depression and QOL or whether more distressed individuals access social support resources more frequently to cope with this distress. This uncertainty may account for these seemingly paradoxical study findings.

Limitations of the study and implications of findings

The current study had a number of limitations. Perhaps most notably, the study sample consisted of college students, most of whom have been exposed to Facebook and have a high degree of comfort and familiarity with support provided via this medium. Therefore, these findings may not generalize to groups that are less comfortable/familiar with using Facebook. Second, as the FMSS is newly developed, the measure may not fully capture all types of social support available on Facebook, an important issue given the rapidly evolving nature of the medium. Third, the majority of the sample was female, and it is unclear how findings from the current study will generalize to a sample more representative of the population. Lastly, criterion validity of the FMSS was assessed via comparison with only two outcome measures. Future research should seek to confirm (or disconfirm) the criterion validity of the FMSS using other widely used measures of depression (e.g., BDI-II) and QOL (e.g., Temporal Satisfaction with Life Scale; TSWLS).

Despite these limitations, the development of the FMSS has significant implications for the construct of social support in the 21st century. Research clearly suggests that Facebook use is correlated with improved mental health[30,31] and with in vivo social support.[6,29–31] However, as this study demonstrates, Facebook-based social support is not completely analogous to more traditional constructs of social support and thus may supplement but not supplant in-person support.[9] The FMSS provides a quantitative measure of this new construct, which will enhance understanding of how support may manifest on Facebook. More specifically, the distinct factors of Facebook-based social support delineated on the FMSS may be predictive of enacted coping strategies

on Facebook, as is the case with more traditional forms of social support (e.g., increases in perceived emotional support is predictive of problem-focused coping strategies,[54,55] received social support moderates coping with stress[55]). It is clear that Facebook provides users with an ever-changing social milieu. Therefore, it is crucial that the FMSS remain a ''living'' measure, able to be molded to reflect the state of the science of psychology and changes in social networking sites most accurately.

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