

Facing up to a new way of Coping: Development and Psychometric Evaluation of a
Scale to Measure Engagement in Coping Strategies Facilitated by Facebook

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I declare that this report is my own original work and the contributions of others have
been duly acknowledged.

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Abstract

The increasing prominence of social networking site (SNS) use has led to the identification that people may use such sites to cope with stress. However, to date, no measure has been developed to assess coping in a SNS context. This study aimed to develop a scale to measure engagement in coping strategies facilitated by Facebook and to evaluate its psychometric properties. Participants ($N=315$) were Facebook users who completed an online questionnaire consisting of 48 items depicting ways of coping via Facebook and additional measures for validity evaluation. Exploratory factor analysis revealed eight Facebook-facilitated coping strategies: Cognitive Coping, Organisation, Spiritual Coping, Information Seeking, Social Support Seeking, Connecting, Disengagement and Venting. Internal consistency, temporal reliability and discriminant validity of the scale were good. Evidence for the scale's convergent validity was mixed. Whilst maladaptive strategies correlated appropriately with other variables, some adaptive strategies did not. Although preliminary, findings suggested that coping via Facebook may have different implications for psychological wellbeing than offline coping. Specifically, Facebook-facilitated coping may encourage disengagement from a stressor, or may not meet the needs of stressed individuals. This study indicates that Facebook facilitates coping, highlighting that coping research, theory and intervention should consider how individuals cope through this medium.

Psychological stress can be elicited through various negative encounters, from traumatic events to daily “hassles” (Aldwin, 2012). How people cope plays a vital role in adaptation to stress and has crucial implications for psychological wellbeing (Riley & Park, 2014). Coping is defined as internal and external efforts made by an individual to manage the demands and emotions associated with a stressful situation (Lazarus & Folkman, 1984). There are myriad ways in which people respond to stress, for example: attempting to resolve, avoid, or positively reinterpret the problem; to seek social support; or to focus on reducing negative emotions (Frydenberg, 2014). Recently, social networking sites (SNSs) have been reported as a common means through which individuals reported coping with stress (Australian Psychological Society [APS], 2013). However, the coping strategies that people might use online are yet to be identified. Given there are more than one billion users now active on Facebook (Facebook, 2015), identifying whether individuals engage in coping strategies in the online context will provide valuable insight into the influence of social media on psychological wellbeing. However, no validated psychological measures of SNS mediated coping exist. This study therefore aimed to develop a scale to measure coping via Facebook, and to provide preliminary evaluation of its psychometric properties.

The New Social Network: A New Coping Medium?

The development of SNSs such as Facebook has created new media for human behaviour and social interaction. Facebook allows users to surf their social network, communicate with others, update statuses, post photos and access content (Joinson, 2008). Early research suggested two primary motivations for Facebook use: the need for self- presentation, and the need to belong (see Nadkarni & Hofmann, 2012, for a review). However, more recent approaches suggest that greater

delineation of motivations is warranted. For example, Aladwani (2014) identified eight motivations for using Facebook, including connecting with others, sharing content, relaxation, publication of the self, expression of the self, organisation of events, monitoring others, and learning. Importantly, these facets of Facebook highlight its potential as a platform for facilitating engagement in coping strategies. For example, individuals might use the site to discuss their feelings with others (“expression of the self”), or to seek information (“learning”) or advice from friends (“connecting with others”).

However, to date, only indirect evidence points toward the possible role of SNSs in coping. For example, Facebook is a source of social capital and social connectedness (e.g. Bohn, Buchta, Hornik, & Mair, 2014; Grieve, Indian, Witteveen, Tolan, & Marrington, 2013). Correspondingly, Sheldon, Abad, and Hinsch (2011) found a positive relationship between frequency of Facebook use and social connection. Sheldon et al. also found that the single item “when I am feeling lonely and out of touch with others, I typically go on Facebook” mediated the relationship between disconnection and Facebook use, and concluded that people may use Facebook to cope with feelings of disconnection.

In line with Sheldon et al.’s (2011) argument, 49% of individuals responding to the Stress and Wellbeing in Australia survey (APS, 2013) endorsed the item “visit social networking sites” as a strategy to manage stress. Similarly, Happell et al.’s (2013) qualitative investigation found that SNSs provided a means to deal with work-related stress in a sample of nurses. However, exactly how individuals use social media to cope was not identified within these studies.

Despite the indications that Facebook may facilitate coping (e.g. APS, 2013; Happell et al., 2013; Sheldon et al., 2011), and the fact that how people cope is

known to be dependent on situation and context (Folkman & Lazarus, 1985), there is a paucity of research examining this. Specifically, the nature of coping via Facebook is yet to be explored.

Translating Coping Theory into the Online World

According to Lazarus and Folkman (1984), stress arises when an individual appraises a situation as entailing threat, harm, loss, or challenge. The interaction between an individual's appraisal and the perceived availability of resources to manage the situation motivates behavioural or cognitive coping efforts to relieve the stress. Coping is considered multifaceted in nature. Some researchers argue for a hierarchical view in which coping dimensions are organised at multiple levels of analysis (Duhachek & Oakley, 2007; Skinner et al., 2003). However, other theorists conceptualise coping primarily in terms of higher order dimensions. This often results in dichotomising coping responses on the basis of a single underlying property, such as whether responses are problem- versus emotion-focused (Folkman & Lazarus, 1980), approach versus avoidant (Roth & Cohen, 1986), cognitive versus behavioural (Ebata & Moos, 1991) or involve primary versus secondary control (Band & Weisz, 1988). Other theorists provide greater distinction between coping responses by focussing on lower order strategies, for example seeking emotional and instrumental social support, problem-solving, distraction, positive reappraisal, wishful thinking and venting emotion (Carver, Scheier, & Weintraub, 1989; Frydenberg & Lewis, 1997).

Despite a lack of consensus within the literature as to the nature and range of core coping dimensions, researchers have long sought to classify specific coping responses in terms of broader categories (Folkman & Moskowitz, 2004). Particular

categories have received considerable attention (Skinner, Edge, Altman, & Sherwood, 2003).

One of the most widely endorsed classifications of ways of coping distinguishes between responses that are problem-focused versus emotion-focused (Folkman & Lazarus, 1980; Pearlin & Schooler, 1978; Skinner et al., 2003). Problem-focused coping refers to direct attempts to modify a situation, either through planning how to solve the problem, taking action, or seeking information. It is possible that individuals may use Facebook to engage in problem-focused coping. Indeed, in an attempt to operationalise information seeking on Facebook, Ashgar (2015) found that using Facebook to seek answers and advice as a means of resolving personal problems emerged as a distinct factor. This indicates that Facebook can facilitate problem-focused coping behaviour. In contrast, emotion-focused coping is primarily concerned with regulating emotion (Schoenmakers, Tilburg, & Fokkema, 2015), and incorporates a range of relatively heterogeneous strategies (Austenfeld & Stanton, 2004) such as wishful thinking, relaxation, positive reinterpretation, self-blame, emotional expression, distancing, and rumination (Carver & Connor-Smith, 2010; Frydenberg & Lewis, 2002). It appears that Facebook might provide diverse ways of engaging in emotion-focused coping. For example, posting statuses offers the opportunity to express a frustration to a broader social network (Wendorf & Yang, 2015), while perusing an ex-partner's profile and photos facilitates engagement in ruminative thoughts about the terminated relationship (Tran & Joorman, 2015).

Another identified coping strategy is avoidance (Suls & Fletcher, 1985). Coping through avoidance involves efforts to relieve stress by escaping or disengaging from an uncomfortable situation (Carver & Connor-Smith, 2010). Given

that Facebook offers relaxation (Aladwani, 2014) and an opportunity to become absorbed in a virtual environment, Facebook may promote disengagement from stress. Indeed, Leiner, Argus-Calvo, Peinado, Keller, and Blunk (2014) have advocated that the domain of avoidance coping may be particularly relevant for individuals engaged in the online world.

Meaning-focused coping is another form of coping aimed at reappraising a situation so as to convert a perception of threat to one that is benign (Gan, Guo, & Tong, 2013). Aspects of meaning-focused coping identified by Gan et al. (2013) include considering the situation from different perspectives, making meaning of the event, adjusting global beliefs, and acceptance. Park and Folkman (1997) proposed that meaning-focused efforts involve reappraising a situation to assimilate its meaning with global beliefs or otherwise adjusting beliefs to bring them in line with reality. In an early study, Pearlin and Schooler (1978) found that individuals could minimise financial stress by devaluing the importance of money. Social media may allow individuals to engage in meaning-focused coping due to the opportunity it affords to share with and learn from others (Aladwani, 2014) and thus potentially gain different perspectives which could facilitate reappraisal and acceptance of one's situation. This may also enable individuals to connect with personal beliefs and values.

Social support seeking has also been identified as a distinct coping strategy (Amirkhan, 1992; Carver et al., 1989). Social support refers to positive interactions with others that provide aid to an individual, and plays an important role in buffering against a range of stressors and in promoting psychological wellbeing (Aslund, Larm, Starrin, & Nilsson, 2014; Kim, Han, Shaw, McTavish, & Gustafson, 2010). There are varying forms of social support. For example, instrumental support may

involve receiving advice or tangible assistance, whereas emotional support may involve discussing feelings or obtaining sympathy (Semmer et al., 2008).

Perceived social support (how supportive one feels their environment to be) and enacted social support (the actual receipt of social support) have also been distinguished (Barrera, 1986), with perceived social support acting as the greatest predictor of psychological wellbeing (Chu, Saucier, & Hafner, 2010; Siedlecki, Salthouse, Oishi, & Jeswani, 2014). Opportunities to obtain social support have expanded with the introduction of online social networks (Indian & Grieve, 2014; Nabi, Preston, & So, 2013), and requests for support can reach a large number of individuals through a single status update, wall post or message (Blight, Jagiello, & Ruppel, 2015).

It follows that Facebook may offer means by which individuals engage in various coping strategies that have been previously been identified offline. However, it should also be noted that while every discrete coping effort serves to attenuate short-term stress, certain strategies are considered more adaptive than others over the long term (Carver & Connor-Smith, 2010; Penley, Tomaka & Wiebe, 2002). Avoidance related coping strategies correspond with lower psychological wellbeing (Kvillemo & Branstrom, 2014; Littleton, Horsley, John, & Nelson, 2007; Yu & Sherman, 2015). This is because unacknowledged stressors are likely to persist, resulting in chronic stress (Holahan, Holahan, Moos, Brennan & Schutte, 2005). However, meaning-focused coping in response to long-term stressors is considered adaptive (Roubinov, Turner, & Williams, 2015) as is social support seeking, given that social support is often only perceived through intentional seeking (Oh, Lauckner, Boehmer, Fewins-Bliss, & Li, 2013). Problem-focused coping is often found to promote greater long-term stress reduction and well-being (Folkman, Lazarus,

Dunkel-Schetter, DeLongis & Gruen, 1986; Nielsen & Knardahl, 2014), whilst emotion-focused coping is generally perceived to be dysfunctional over the long-term (Aldwin & Revenson, 1987). However, the effectiveness of coping seemingly depends on the situation. For example, whilst problem-focused coping appears beneficial in situations perceived as controllable, emotion-focused coping may be more adaptive in uncontrollable circumstances (Zakowski, Hall, Klein, & Baum, 2001). However, it should also be acknowledged that it is unknown as to whether the effectiveness of coping strategies are different when engaged with in an online environment.

Interim Summary

In summary, there is lack of consensus among researchers as to the nature and range of core coping dimensions (Skinner et al., 2003). However, it is also clear that individuals use a range of coping strategies, including problem-, emotion-, and meaning-focused, as well as avoidance and social support seeking (e.g. Carver & Connor-Smith, 2010; Frydenberg, 2014; Gan et al., 2013; Nielson & Knardahl, 2014; Schoenmakers et al., 2015). It also appears as though Facebook offers a platform by which these coping strategies might be facilitated (e.g. Aladwani, 2014; Ashgar, 2015; Indian & Grieve, 2014; Sheldon et al., 2011; Wendorf & Yang, 2015). Although existing coping theory may have relevance within the online space, and the need for coping scales that account for the role of electronic media has been identified (Leiner et al., 2014), no measure has yet been developed to assess coping via social media.

Measurement of Coping

It is relatively common in cyberpsychology research to employ existing measures and modify them to the relevant online context (Howard & Jayne, 2015).

Considering this, and the noted parallels between offline coping strategies and potential Facebook coping strategies, it was deemed appropriate to adapt existing measures of coping to be relevant to Facebook for the current study.

Many attempts have previously been made at operationalising coping in order to construct self-report scales for use in stress and coping research, as well as in clinical settings (Frydenberg, 2014). However, as a result of the inconsistencies in conceptualising coping, existing broad measures of the construct vary considerably. Such differences impede effective comparison of previous measures. Therefore, identifying fundamental coping dimensions whilst also providing a framework that captures the complexity of coping is challenging.

For example, the Ways of Coping Checklist (Folkman & Lazarus, 1980) contains 68 items rationally classified as either problem or emotion-focused. The resulting subscales demonstrated good internal consistencies of .80 and .81. However, later factor analysis challenged this two-dimensional view, producing a problem-focused subscale, social support seeking subscale and six emotion-focused subscales including confrontive coping, distancing, self-control, accepting responsibility, escape-avoidance, and positive reappraisal (Folkman et al., 1986). Similarly, Billings and Moos (1981) rationally categorised coping actions as problem or emotion-focussed. Items were further classified as active-cognitive (such as considering different ways to handle a situation), active-behavioural (such as trying to find out more about a situation) or avoidant (characterised by efforts to avoid confronting the situation) responses. However, these scales revealed poor psychometric properties.

Researchers have therefore employed more rigorous empirical, rather than rational, approaches. In developing the Coping Strategy Indicator (Amirkhan, 1990),

participants rated items according to how much each coping action had been used. Exploratory and confirmatory factor analysis on the items suggested retention of three primary factors including problem-focused coping, social-support seeking and avoidance coping. Subscales demonstrated good internal consistencies ranging from .84 for avoidance to .93 for social support seeking, and good test-retest reliability ($r=.81$). However, the scale explained only 37 percent of variance in coping, suggesting that it does not capture all possible coping responses.

Similarly, Endler and Parker (1990) constructed the Coping Inventory for Stressful Situations through empirical means. Principal Components Analysis (PCA) revealed three primary factors relating to task oriented coping, emotion-oriented coping (characterised by wishful thinking and self-blame) and avoidant coping. Moderate to high internal reliabilities ranged from .76 to .91 and acceptable test-retest reliabilities were demonstrated. However, these factors still only explained approximately 36 percent of variance in coping¹. Ultimately, a three-dimensional representation of coping has been considered too simple (Duhachek & Oakley, 2007).

In developing the COPE scale, Carver et al. (1989) recognised the potential importance of examining multiple coping responses separately. For example, the authors considered denial, venting of emotion, and positive reappraisal as unique in nature despite being frequently integrated under the umbrella of emotion-focused coping. The COPE assesses active coping, planning, suppression of competing activities, restraint coping, seeking instrumental social support, seeking emotional

¹ The use of PCA in this study is also questionable (Fabrigar, Wegener, MacCallum, & Strahan, 1999). PCA retains all shared, unique and error variance, which prevents accurate inference as to whether variables' covariance is caused by an underlying factor. PCA is thus not recommended for identifying stable underlying factors, or in this case coping dimensions, that are contributing to observable phenomena (Tabachnik & Fidell, 2007).

social support, positive reinterpretation and growth, acceptance, turning to religion, venting emotions, denial, and behavioural and mental disengagement. A second-order factor analysis demonstrated that the COPE strategies could be best represented as problem-focused, meaning-focused, social support seeking and avoidant, consistent with other scales. The COPE, and its counterpart short form (BriefCOPE, Carver, 1997) are the most frequently used measures in coping research (Kato, 2013).

The Current Study

From review of the literature, it is evident that although social media has been highlighted as a potential medium for coping, this has not yet been properly investigated. Studies that have identified SNSs as a potential means for coping have provided limited insight due to the use of only a single item (APS, 2013; Sheldon et al., 2011) or qualitative approaches (Happell et al., 2013). Although it has also been implied that stressed individuals may use Facebook to seek information (Ashgar, 2015), social support (Indian & Grieve, 2014) and regulate emotion (Wendorf & Yang, 2015), research has not yet broadly considered whether and in what ways individuals do use Facebook to cope.

Therefore, the aim of the current study was to develop a scale to capture the multifaceted nature of coping, specifically as it might occur within the SNS Facebook, and to provide preliminary psychometric evaluation of the measure. A measure of coping via Facebook would enhance understanding of how social media is used as well as inform how social media coping fits within the broader coping framework.

Item Generation. As noted, previous attempts at measuring coping have proved challenging due to its multidimensional nature (e.g. Amirkhan, 1990; Boyle,

Saklofske, & Matthews, 2014; Carver et al. 1989; Endler & Parker, 1990).

Nonetheless, coping strategies that appear to frequently emerge across studies include problem and emotion-focused strategies, social support seeking and avoidance. However, the items that comprise these broader categories vary across instruments. To examine coping via Facebook, it would be worthwhile to sample a wide range of strategies that have the potential to be employed in this context.

Items for the scale were drawn from a pool of items assessing the use of social media in coping that were previously developed by members of the University of Tasmania's HealthCOPE research laboratory. Items were drawn from the COPE (Carver et al., 1989) and Meaning-Focused Coping Scale (Gan et al., 2013) and adapted to refer to coping using social media. However, it is likely that there are other ways of coping online. Consequently, items relating to the use of social media to organise gatherings and connect with friends and family were derived from the GoToFB scale (Aladwani, 2014) in anticipation that these activities may reflect specific ways of coping via Facebook.

For the current study, social media coping items were further modified to refer specifically to Facebook. The resulting 48 items reflected avoidance, emotion-focused coping, problem-focused coping, emotional social support, instrumental social support, connecting, acceptance, meaning-focused coping, spirituality and organising/coordinating all in the context of Facebook use. Examples of items are *I use Facebook to get more information* (information seeking), *I try to lose myself for a while by using Facebook* (avoidance) and *I use Facebook to get emotional support from friends* (emotional social support).

Respondents indicate whether they engage in a particular action using Facebook on a six-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*).

Six anchors captures a desirable range of variance (Comrey, 1988), whilst the absence of a neutral mid-point in a six-point scale also overcomes concerns regarding the overuse of a neutral response option (Nadler, Weston, & Voyle, 2015; Weems & Onwuegbuzie, 2001) and the tendency to select the neutral option in order to respond in a more socially desirable way (Garland, 1991).

Approach to psychometric evaluation. Construct validity was assessed by examining the convergent and discriminant validity of the scale, whereby scores indicating engagement in various coping strategies should appropriately correlate with scores on tests assessing other theoretically relevant variables (Groth-Marnat, 2009). Some researchers argue that construct validity is not one type of validity, but that construct, content and criterion validity should all be collectively considered general validity (Messick, 1995). The basis for this view is that any evidence that informs the accuracy of test score interpretation contributes to the overall investigation of the instrument's ability to measure the construct of interest (Loevinger, 1957). For the purposes of this study, however, construct validity will refer primarily to convergent and discriminant relations between coping strategies and other variables. Internal consistencies of the full scale and subscales were estimated using Cronbach's alpha (Cronbach, 1951). Test-retest reliability was used to provide an indication of the temporal stability of the scale.

Evidence for convergent validity. For the proposed scale to have convergent validity, Facebook-facilitated coping strategies should correlate appropriately with theoretically relevant variables. Facebook coping strategies should also correlate with subscales of a general coping measure, although not to the point of redundancy.

Carver and Connor-Smith (2010) propose that optimistic individuals view stressful situations more positively and are thus perhaps inclined to cope effectively. Optimism shows small to moderate positive correlations with both meaning-focused (Carver et al., 1989) and problem-focused strategies (Carver et al.; Nes & Segerstrom, 2006). Negative correlations are also evident between optimism and disengagement and avoidance (Carver et al.; Nes and Segerstrom, 2006).

Carver (1989) also suggests that a sense of personal control over a situation should correspond with productive coping. Individuals with an internal locus of control attribute events and outcomes to their own behaviour, whereas those with an external locus of control consider events as contingent upon luck (Rotter, 1966). Unsurprisingly, external locus of control relates to less problem-focused coping (Amirkhan, 1990) and more avoidance coping (Crisson & Keefe, 1988; Carver, 1989).

The role of coping in regulating stress implies a likely relationship between the two constructs. For example, Kao and Craigie (2013) found a negative correlation between stress and problem-focused coping ($r = -.31$). Conversely, research finds a positive relationship between stress and both emotion-focused and avoidant strategies (Halama & Bakosova, 2009; Kao & Craigie, 2013).

Maladaptive coping efforts appear to correspond with greater psychopathology. Research finds depression to moderately and positively correlate with emotion-focused coping (McWilliams, Cox, & Enns, 2003; Endler and Parker, 1990), and negatively correlate with meaning-focused strategies (Gan et al., 2013) and social support seeking (Chan, 2012).

Affect is also suggested to vary with different forms of coping (Ben-Zur, 2009; Clark, Bormann, Cropanzano, & James, 1995). High positive affect is

characterised by enthusiasm, energy and pleasure, whilst high negative affect can involve anger, guilt or fear (Watson, Clark & Tellegen, 1988). Ben-Zur (2009) found positive affect to relate more to problem-focused coping ($r=.37$), whilst negative affect related more to avoidance ($r= .31$). Research has also linked emotional venting to negative affect (Ben-Zur, 2009; Fichman, Koestner, Zuroff, & Gordon, 1999) and meaning-focused coping to positive affect (Gan et al., 2013).

Productive coping is considered to correspond with perceptions of greater wellbeing (Clark et al., 1995; Kato, 2013). Kato (2013) found wellbeing to positively correlate with problem-focused coping ($r= .25$) and positive reinterpretation ($r= .32$) and negatively with disengagement ($r= -.31$). Higher subjective wellbeing has also been associated with meaning-focused coping (Gan et al., 2013) and adolescents' social support seeking (Saha, Huebner, Hills, Malone, & Valois, 2014).

Evidence for discriminant validity. For the scale to have discriminant validity, it will need to demonstrate independence from variables it does not intend to measure. Social desirability, which refers to the desire to portray one's self positively, has often been found to be uncorrelated with measures of coping (Amirkhan, 1990; Carver et al., 1989) thus it was anticipated a similar pattern of results would emerge here. Despite the influence of personality on coping (Connor-Smith & Flachsbart, 2007; McWilliams et al., 2003), little research depicts the role of honesty-humility in determining coping behaviour. This trait, identified by Lee and Ashton (2004), is characterised by sincerity, modesty, loyalty and fairness and a lack of greed, conceit and slyness. Given the absence of research suggesting an association between honesty-humility and coping strategies, it was expected to produce minimal correlation with coping scales.

Hypotheses. Hypotheses regarding the relationship between online coping strategies and psychological variables were formulated based on offline conceptualisations of coping. It was hypothesised that Facebook coping strategies that are flagged as adaptive offline, such as problem-focused coping, meaning-focused coping and social support seeking, would positively correlate with subjective well-being, optimism and positive affect. Adaptive strategies were also predicted to negatively correlate with depression, stress, negative affect and external locus of control. In contrast, it was hypothesised that coping strategies acknowledged as maladaptive offline, such as emotional venting and disengagement, would correlate moderately and positively with depression, stress, negative affect and external locus of control. Maladaptive strategies were also predicted to negatively correlate with subjective well-being, optimism and positive affect. Specific uses of Facebook that may serve as coping strategies, including organising gatherings and connecting with others, were hypothesised to correlate positively with adaptive variables and negatively with maladaptive variables.

Method

Participants

Participants were recruited from the University of Tasmania and the general community. A sample of 315 participants (233 females) with a mean age of 25.28 ($SD=1.26$) completed the 48 items for factor analysis. The full survey was completed by 284 participants (211 females). Of the complete sample, 248 were university students. On average, participants reported using Facebook once or twice per day for 25.96 ($SD=34.69$) minutes per log-on, with the exception of two people who reported never logging off.

Test-retest sample. A smaller sample ($N=24$; 5 males, 9 females) of

undergraduate Psychology students, with a mean age of 27.41 years ($SD=8.94$), were recruited to assess the test-retest reliability of the scale.

Selection criteria. Selection criteria were that participants were Facebook users and aged 18 years or older.

Design and Analytical Approach

The study was predominantly cross-sectional. A longitudinal element for evaluation of test-retest reliability was separated by a two-week interval. Exploratory factor analysis (EFA) was employed to determine the factor structure of the Facebook coping items. The Maximum Likelihood method was used for factor extraction to enable greater generalisability of results (Thompson, 2004). Due to the exploratory nature of this study, the minimum acceptable cut-off value of .32 (Tabachnick & Fidell, 2007) was used for interpreting factor loadings, in order to avoid missing items of potential importance. A factor loading of this magnitude is considered significant with sample sizes over 300 and explains approximately 10 percent of a variable's variance (Hair, Black, Babin, Anderson, & Tatham, 2006).

Based on the results of the EFA, items that loaded on each factor were summated to create subscales for subsequent use in validity analysis. Bivariate regression analysis was used to evaluate convergent and discriminant validity. Correlations between Facebook coping subscales and optimism, depression, stress, locus of control, subjective well-being, social desirability, honesty-humility and subscales of the BriefCOPE were conducted.

Internal reliability of the scale and its subscales was assessed using Cronbach's alpha (Cronbach, 1951). For test-retest reliability, data were collected at two time points, two weeks apart.

A priori power analyses. In accordance with Kline's (1994) advice, a

sample of 240 was targeted to ensure a minimum of five participants per item were included in the factor analysis. The final sample exceeded this requirement and further met a recommended overall sample size of 300 (Comrey & Lee, 1992). For the evaluation of both validity and test-retest reliability, a sample size of 28 was targeted as this is adequate to detect a large effect ($r = .50$) with the alpha level set at .05 (Cohen, 1992).

Measures

Full versions of all measures are presented in Appendices A1-A10.

Demographics. Demographical information was obtained with questions related to age, gender, and status as a university student or other.

Coping via Facebook. Coping via Facebook was measured by items developed for the new scale, as described above.

Offline/traditional coping. The 28-item BriefCOPE (Carver, 1997) was used to test the relationship between offline coping and coping facilitated by Facebook. The BriefCOPE is a shorter version of the original COPE (Carver et al., 1989). Two items measure each of 14 coping dimensions: active coping, planning, positive reframing, acceptance, humour, religion, instrumental and emotional support, self-distraction, denial, venting, substance use, behavioural disengagement and self-blame. Sample items include *I've been blaming myself for the things that have happened* (self-blame) and *I've been concentrating my efforts on doing something about the situation I'm in* (active coping). Responses are provided on a four-point scale from 0 (*I haven't been doing this at all*) to 4 (*I've been doing this a lot*). Carver (1997) reported generally satisfactory subscale reliabilities, however, reliability for venting, denial and acceptance were questionable (Cronbach's $\alpha = .50, .54$ and $.57$, respectively).

Depression and stress. Depression and stress were measured using the relevant subscales of the Depression, Anxiety, Stress Scales- 21 (Lovibond & Lovibond, 1995). Each subscale consists of seven statements. Individuals indicate how much each statement applied to them over the preceding week from 0 (*did not apply at all*) to 3 (*applied very much or most of the time*). Sample items are *I felt I had nothing to look forward to* (depression) and *I found it difficult to relax* (stress). The depression and stress scales have been found to possess good validity and internal reliability, with Cronbach's alphas ranging between .88 and .94, in both clinical and general adult samples (Antony, Bieling, Cox, Enns, & Swinson, 1998; Henry & Crawford, 2005).

Positive and negative affect. The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) was used. Ten adjectives characterise each of positive and negative affect. Respondents indicate the degree to which they experienced each mood state over the preceding week on a five-point scale from 1 (*very slightly*) to 5 (*very much*). High internal reliabilities were reported for both the positive ($\alpha = .86$) and negative ($\alpha = .87$) affect subscales, along with good validity (Crawford & Henry, 2004; Merz et al. 2013).

Optimism. Scheier, Carver and Bridges' (1994) 10-item Life Orientation Test-Revised (LOT-R) was used. Six items measure optimistic and pessimistic attitudes, and four filler items are included. Examples of scored items include *in uncertain times I usually expect the best* (optimism) and *I hardly ever expect things to go my way* (pessimism). Responses are made on a scale from 0 (*strongly disagree*) to 4 (*strongly agree*). The scale shows acceptable internal reliability ($\alpha = .78$) (Scheier et al., 1994).

Subjective well-being. Subjective well-being was measured by the

Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) which is a five item global assessment of an individual's overall satisfaction with life. A sample item is *in most ways, my life is close to ideal*. Individuals rate each statement according to their level of agreement from 1 (*strongly disagree*) to 7 (*strongly agree*). Diener et al. (1985) reported very good internal consistency of the measure ($\alpha = .87$).

Locus of control. Locus of control was assessed by Rotter's (1966) Internal-External Locus of Control Scale. This measures beliefs about whether situations are contingent upon one's own behaviour (internal locus) or whether they are determined by chance or fate (external locus). It is a forced-choice questionnaire which requires respondents to choose which from a set of two statements they agree with the most. For example, one question may present the statements: *becoming a success is a matter of hard work, luck has little or nothing to do with it* and *getting a good job depends mainly on being in the right place at the right time*. There are 29 sets of statements, including six sets of filler statements. Acceptable internal ($\alpha = .74$) reliabilities of the scale have been documented (Lange & Tiggenmann, 1981).

Social Desirability. Social desirability was measured with the Marlowe-Crowne Social Desirability Scale- Short Version C (Reynolds, 1982). Thirteen items assess tendencies to respond in a socially desirable manner, for example *I'm always willing to admit when I make a mistake*, with respondents required to indicate whether a statement is true or false for them. Reynolds (1982) reported good concurrent validity of the short form with the 33-item original scale as well as adequate internal reliability ($\alpha = .76$).

Honesty-Humility. Scores of honesty-humility were obtained using the corresponding scale of the HEXACO-60 (Ashton & Lee, 2009). This subscale

contains ten statements that broadly measure the facets of sincerity, fairness, greed avoidance, and modesty (for example, *I wouldn't pretend to like someone just to get them to do favours for me*). Participants respond to each statement by indicating their agreement from 1 (*strongly disagree*) to 5 (*strongly agree*). This scale demonstrates acceptable reliability ($\alpha=.74$; Ashton & Lee, 2009).

Procedure

After obtaining ethics approval (reference number: H0014894) the study was advertised via noticeboards around the university campus, on Facebook and in lectures (see Appendices B and C1).

Main sample. Potential participants were invited to take part in research examining whether people use Facebook to help them cope with stress. A link was provided to a secure electronic data service (LimeSurvey). Participants were informed about the study and provided consent online (see Appendices C2 and C3) and were then directed to the first question of the survey. The final page of the survey thanked participants and provided two links: one to receive course credit (eligible students) and one to enter the prize draw to win one of three Coles-Myer gift vouchers valued from \$50 to \$150AUD (other participants).

Test-retest sample. In line with ethical approval (H0014894), participants gave informed consent, provided demographic information and completed the 48 Facebook coping items. Participants generated their own unique identifying code, so that data from the two time points could be linked, while participation remained anonymous. Two weeks later, participants provided their code again, and completed the Facebook coping items via an online survey.

Results

Exploratory Factor Analysis

All relevant assumptions were tested. Inspection of histograms and normal probability plots, as well as calculation of skewness and kurtosis statistics indicated non-normality for some items. Although item skewness was not overly severe and normality tests in samples larger than 300 tend to be overly sensitive (Kim, 2013), items were transformed to observe whether this would influence the factor analysis solution. Conducting both square root and log transformations (Field, 2013) on these items reduced skewness and kurtosis, however, re-running the factor analysis with the transformed items did not affect the pattern of the factor solution. Therefore, untransformed items were analysed.

Observation of boxplots and histograms indicated no extreme univariate outliers. Deletion of cases with potentially outlying scores merely resulted in the next highest or lowest participants moving into the tails of the distribution, thus all scores were considered to be genuine data points and were retained. Considering the impracticality of assessing linearity between all 48 variables, a spot check was conducted on a sample of normal and skewed items as recommended by Flora, LaBrish, and Chalmers (2012). Bivariate scatterplots depicted no evidence of curvilinearity, therefore, satisfactory linear relationships between variables were assumed.

A significant Bartlett's test of sphericity, $\chi^2(1128) = 10405.44, p < .001$, and a "marvellous" (Kaiser, 1974) Kaiser-Meyer-Olkin (KMO) value of .95 indicated that there were sufficient correlations among the variables to justify the use of factor analysis. All correlations were below .85. Therefore, no issues with multicollinearity or singularity were identified (Tabachnik & Fidell, 2007).

The 48 FCS items were subject to exploratory factor analysis using Maximum Likelihood factor extraction. Examination of the scree plot suggested

retaining between two and nine factors. Employing Kaiser's criterion, eigenvalues greater than one supported the extraction of nine factors, which altogether explained 68.06% of variance in coping via Facebook. All models ranging from two to nine factors were tested using oblique (oblimin) rotation to allow factors to correlate. A nine-factor solution displayed the least amount of cross-loading and was the most interpretable (see Appendix D for the nine-factor solution pattern matrix).

However, only a single item ('I use Facebook to initiate new relationships with people I haven't met before') loaded on Factor 9. Two cross-loading items were also identified. Item 44 ('I get sympathy and understanding from others on Facebook') moderately loaded onto factors relating to the use of Facebook for self-expression and social support seeking, possibly as a result of variation in how this item was interpreted: whilst some respondents may have interpreted sympathy as relating to social support, others may have focused on the element of understanding as having their voice heard. For more ambiguous reasons, item 42 ('using Facebook helps me learn to live with things') moderately cross-loaded on factors one and nine, providing no clear indication of a latent variable (Tabachnick & Fidell, 2007). Two items ('I use Facebook to develop relationships with people I've met before' and 'I use Facebook to gain strength from others around me') did not load. Per Hair et al. (2006), the cross-loading and non-loading items were removed and the solution was respecified.

Initial review suggested that the remaining 44 items were factorable, as indicated by a KMO value of .94 ("marvellous") and a significant Bartlett's test of sphericity, $\chi^2(946) = 9130.64, p < .001$. Re-running the factor analysis yielded an initial solution in which eigenvalues advised retention of eight factors (according to Kaiser's criterion) explaining 66.48% variance. Inspection of the scree plot again

suggested extracting anywhere between two and nine factors. All solutions containing between two and nine factors were individually examined. An eight-factor solution was found to display the fewest cross-loading items, no Heywood cases (Costello & Osborne, 2005), and was the most interpretable based on the pattern of the items. The pattern matrix for this final solution is presented in Table 1.

Seventeen items comprised the first factor, with the highest loadings on items 26 ('using Facebook helps me consider why the problems have happened to me') and 43 ('using Facebook helps me reconsider my coping style'). This cluster of items appeared to relate to engagement in problem-focused coping, positive reinterpretation and acceptance via Facebook. Given that most items reflected thinking about the problem in some way, this factor was labelled Cognitive Coping.

Factor 2 consisted of three items relating to use of Facebook for organisation and task coordination, with the highest loading on item 35 ("I use Facebook to organise events"). This factor was labelled Organisation considering the similarity of the factor to that identified by Aladwani (2014). Comprising Factor 3 were items 14 ("Using Facebook helps me to connect with my beliefs") and 9 ("Using Facebook helps me connect with my faith and spirituality"). This factor was named Spiritual Coping.

Factor 4 consisted of six items including item 15 ("I use Facebook to get emotional support from friends") and item 13 ("I use Facebook to talk to someone who could do something concrete about my problems"). The nature of the items suggested the use of Facebook for seeking instrumental and emotional support and was thus labelled Social Support Seeking. Six items also comprised Factor 5, with the strongest loadings on items 24 ("I try to lose myself for a while by using Facebook") and 46 ("I use Facebook in order to think less about my problems"),

suggesting the use of Facebook to avoid or distract one's self from a problem.

Though the items reflected mental disengagement, this factor was broadly named Disengagement.

Factor 6 was labelled Connecting due to the loading of items relating to the use of Facebook to connect and re-connect with others, including items 4 ("I use Facebook to keep in touch with relatives") and 11 ("I use Facebook to reunite with old friends"). Item 19 ("I use Facebook to get emotional support from relatives") cross-loaded on this factor and the Social Support Seeking factor, signalling that revision or possible deletion was needed.

The three items loading on Factor 7 primarily related to using Facebook as an outlet for expressing or venting thoughts and feelings. Considering the two highest loading items were "I use Facebook to speak my mind without reservation" and "I use Facebook to make my voice heard", this factor was labelled Venting.

Items comprising Factor 8 reflected using Facebook to obtain information, and the factor was thus labelled Information Seeking. Of the three items, item 23 ("I use Facebook to get more information") loaded the highest.

Finally, item 41 ('I use Facebook to initiate relationships with people I haven't met before') failed to load. This item had loaded by itself in the original nine-factor solution.

Table 1

Maximum Likelihood Eight-Factor Solution with Oblimin Rotation for Facebook Coping Items

Item	Factor							
	1	2	3	4	5	6	7	8
	Cognitive Coping	Organisation	Spiritual	Social Support	Disengagement	Connecting	Venting	Information seeking
26. Using Facebook helps me consider why the problems have happened to me	.796							
43. Using Facebook helps me reconsider my coping style	.794							
27. I use Facebook to help me come up with a plan of action	.684							
31. I use Facebook to help me think hard about what steps to take	.682							

37. Using Facebook helps me reassess my values	.645
25. Using Facebook has helped me realise that difficulties are a part of my life	.609
36. Using Facebook helps me get used to how things are	.605
5. Using Facebook helps me see things in a different light	.593
34. I use Facebook to help me think about how I might best handle my problems	.558
18. Using Facebook helps me readjust my views on my problems	.551

7. Using Facebook helps me attach special meaning to my problems	.541
6. Using Facebook helps me seize opportunities that can get me out of a bad situation	.537
21. Using Facebook helps me accept my circumstances	.494
17. I use Facebook to find creative ways to deal with my problems	.484
22. Using Facebook has helped me to develop a more positive attitude towards life	.467
10. I use Facebook to help me get through my problems	.402

2. Using Facebook helps me see the positives in my situation	.395		
35. I use Facebook to organize events		.828	
45. I use Facebook to arrange meetings and get together		.811	
39. I use Facebook to coordinate tasks		.515	
14. Using Facebook helps me connect with my beliefs			.974
9. Using Facebook helps me connect with my faith and spirituality			.693
15. I use Facebook to get emotional support from friends			.747

13. I use Facebook to talk to someone who could do something concrete about my problems	.683	
28. I use Facebook to discuss my feelings with others	.677	
38. I use Facebook to talk to others about how I feel	.611	
16. I use Facebook to ask people who have had similar experiences what they did	.551	
33. I use Facebook to get advice about what to do	.415	
24. I try to lose myself for a while by using Facebook		.762
46. I use Facebook in		

order to think less about my problems	.768	
12. I use Facebook to keep myself from getting distracted by other thoughts	.620	
1. I turn to Facebook to take my mind off things	.572	
29. I use Facebook to make myself feel better	.538	
8. I try to find comfort by using Facebook	.433	
4. I use Facebook to keep in touch with relatives		.758
11. I use Facebook to reunite with old friends		.602
19. I use Facebook to	.413	.357

get emotional support from relatives		
40. I use Facebook to speak my mind without reservation	.726	
32. I use Facebook to make my voice heard	.632	
48. I use Facebook to let my feelings out	.521	
41. I use Facebook to initiate new relationships with people I haven't met before		
23. I use Facebook to get more information		.703
3. I use Facebook to improve my knowledge		.476
20. I use Facebook to talk to people and		

find out more about what's going on									.388
Eigenvalue	17.0	3.2	2.1	1.9	1.5	1.3	1.2	1.1	
Variance explained (%)	38.6	7.3	4.8	4.4	3.3	2.9	2.7	2.5	

Note. Values below .32 are suppressed.

As shown in Table 2, sufficient correlations between factors supported the use of oblique rotation.

Table 2

Factor Correlations with Oblimin Rotation

	1	2	3	4	5	6	7	8
1	-	.155*	.574**	-.365**	.462**	.171*	.464**	.304**
2		-	.119	-.359**	.217**	.222**	.266**	.261**
3			-	-.312**	.329**	.171*	.314**	.243**
4				-	-.364**	-.139	-.442**	-.156
5					-	.200**	.312**	.269**
6						-	.158*	.312**
7							-	.190**
8								-

Note. * $p < .01$, ** $p < .001$

Based on the results of the final factor analysis, subscales of the 44-item Facebook Coping Scale (FCS) were created. Descriptive statistics for individual items are displayed in Table 3. Mean total scores, variance and internal consistencies for the full scale and its subscales are presented in Table 4.

Table 3

Means and Standard Deviations for Items of the Facebook Coping Scale

Item	<i>M (SD)</i>
I turn to Facebook to take my mind off things	4.05 (1.28)
Using Facebook helps me see the positives in my situation	3.10 (1.12)
I use Facebook to improve my knowledge	3.41 (1.25)
I use Facebook to keep in touch with relatives	4.58 (1.25)
Using Facebook helps me see things in a different light	3.33 (1.15)
Using Facebook helps me seize opportunities that can get me out of a bad situation	2.78 (1.17)
Using Facebook helps me attach special meaning to my problems	2.44 (1.04)
I try to find comfort by using Facebook	3.21 (1.36)
Using Facebook helps me connect with my faith and spirituality	2.02 (1.15)
I use Facebook to help me get through my problems	2.45 (1.19)
I use Facebook to reunite with old friends	4.74 (1.08)
I use Facebook to keep myself from getting distracted by other thoughts	3.31 (1.43)
I use Facebook to talk to someone who could do something concrete about my problems	2.84 (1.38)
Using Facebook helps me connect with my beliefs	2.29 (1.24)
I use Facebook to get emotional support from friends	3.43 (1.51)
I use Facebook to ask people who have had similar	3.05 (1.52)

experiences what they did	
I use Facebook to find creative ways to deal with my problems	2.69 (1.26)
Using Facebook helps me readjust my views on my problems	2.74 (1.23)
I use Facebook to talk to people and find out more about what's going on	4.39 (1.39)
Using Facebook helps me accept my circumstances	2.80 (1.25)
Using Facebook has helped me to develop a more positive attitude towards life	2.87 (1.23)
I use Facebook to get more information	4.14 (1.26)
I try to lose myself for a while by using Facebook	3.65 (1.57)
Using Facebook has helped me realise that difficulties are a part of my life	2.83 (1.31)
Using Facebook helps me consider why the problems have happened to me	2.37 (1.11)
I use Facebook to help me come up with a plan of action	2.45 (1.13)
I use Facebook to discuss my feelings with others	3.27 (1.43)
I use Facebook to make myself feel better	3.20 (1.32)
I use Facebook to help me think hard about what steps to take	2.45 (1.13)
I use Facebook to make my voice heard	3.25 (1.41)
I use Facebook to get advice about what to do	3.02 (1.38)
I use Facebook to help me think about how I might best handle my problems	2.58 (1.22)

I use Facebook to organise events	4.59 (1.36)
Using Facebook helps me get used to how things are	2.79 (1.22)
Using Facebook helps me reassess my values	2.61 (1.19)
I use Facebook to talk to others about how I feel	3.31 (1.44)
I use Facebook to coordinate tasks	3.37 (1.49)
I use Facebook to speak my mind without reservation	2.61 (1.33)
Using Facebook helps me reconsider my coping style	2.41 (1.16)
I use Facebook to arrange meetings and get together	4.63 (1.34)
I use Facebook in order to think less about my problems	3.24 (1.53)
I use Facebook to let my feelings out	2.68 (1.41)

Table 4

Means, Standard Deviations and Internal Consistencies of the Full FCS and FCS Subscales

	<i>M (SD)</i>	Cronbach's α
44-item Facebook Coping Scale	134.65 (33.90)	.96
<u>Subscales</u>		
Cognitive Coping	45.69 (15.40)	.96
Organisation	12.59 (3.50)	.78
Spiritual Coping	4.30 (2.18)	.80
Social Support Seeking	18.92 (7.09)	.90
Disengagement	20.66 (6.56)	.86
Connecting	12.01 (2.91)	.67
Venting	8.54 (3.43)	.77
Information-seeking	11.93 (3.06)	.69

The full scale mean indicated that respondents in the current sample ‘agreed’ that they used Facebook to cope. However, the use of specific strategies was variable. The FCS had an excellent Cronbach’s alpha value, though this may suggest potential redundancy of some items (Tavakol & Dennick, 2011). Subscales also showed good internal consistency, however, Information Seeking and Connecting were only just approaching an acceptable criterion of .70 (Hair et al., 2006), possibly due to the small number of items comprising these scales.

Psychometric Evaluation

Assumptions. Scatterplots indicated no curvilinearity. Histograms demonstrated considerable positive skew on maladaptive variables such as depression, negative affect and stress, as well as negative skew on adaptive variables such as subjective wellbeing. However, tests based on the *F* distribution are robust to non-normality in large samples (Keppel & Wickens, 2004), hence no variables were transformed.

Descriptives. The means, standard deviations and internal consistencies of psychological variables used as criteria for validity evaluation are presented in Table 5. All means obtained with the current sample were comparable to those documented by previous studies (Crawford & Henry, 2004; Henry & Crawford, 2005; Joseph et al., 2004; Loo & Thorpe, 2000; Richards, Stewart-Williams, & Reed, 2015; Watson et al., 1988; Vassar, 2008). Whilst locus of control, social desirability and honesty-humility demonstrated less satisfactory internal consistencies, these did not deviate substantially from values previously reported (Ashton & Lee, 2009; Barger, 2002; Loo & Thorpe, 2000). Less adequate alpha values were also demonstrated on some BriefCOPE subscales, though these were relatively similar or sometimes better than

those reported by Carver (1997). Although self-distraction appeared considerably less reliable, this finding is not uncommon (Kato, 2013).

Table 5

Means, Standard Deviations and Internal Reliabilities for Validity Measures

Measure	<i>M</i> (<i>SD</i>)	Cronbach's α
Depression	4.31 (4.38)	.91
Stress	6.96 (4.69)	.90
Subjective Well-being	23.83 (6.62)	.87
Positive affect	31.33 (7.50)	.89
Negative affect	20.74 (7.91)	.90
Optimism	23.77 (5.80)	.91
Locus of Control	11.69 (3.85)	.69
Social Desirability	6.13 (2.84)	.69
Honesty-Humility	25.73 (5.59)	.67
<u>BriefCOPE subscales</u>		
Acceptance	5.12 (1.47)	.60
Planning	5.19 (1.55)	.78
Positive reframing	4.89 (1.45)	.57
Venting	3.94 (1.45)	.60
Disengagement	2.99 (1.26)	.74
Instrumental support	4.79 (1.75)	.82
Emotional support	4.89 (1.67)	.77
Active coping	5.24 (1.46)	.70
Self-distraction	5.07 (1.56)	.50

Evaluation of validity. Correlation coefficients are presented in Table 6. Effect sizes were interpreted in line with Cohen (1992). Appropriate correlations were observed between the BriefCOPE and the validity variables.

Disengagement and Venting subscales indicated acceptable convergent validity, with positive, moderate associations with negative affect, stress and depression. Negative affect, stress, and depression shared approximately 10%, 10%, and 7% of variance in disengagement coping, respectively. Disengagement and Venting both positively correlated with corresponding offline scales, a medium effect. Disengagement and Venting also negatively but weakly correlated with optimism and subjective wellbeing. Disengagement was significantly negatively correlated with external locus of control, again with only small effect.

Information Seeking, Organisation and Connecting demonstrated positive but small correlations with positive affect, subjective wellbeing and optimism, as well as small to medium-sized correlations with active coping and social support from the BriefCOPE. Spiritual Coping significantly correlated only with positive affect, which was negligible in effect size. However, there was a strong association between Spiritual Coping and the BriefCOPE religion subscale.

Cognitive Coping and Social Support Seeking positively correlated with negative affect, depression and stress. Cognitive Coping also positively correlated with BriefCOPE planning, positive reframing, and acceptance. All effect sizes were small. However, Social Support Seeking was moderately, positively correlated with the instrumental and emotional social support BriefCOPE subscales.

Facebook coping strategies were virtually unrelated to optimism and locus of control, but had significant positive correlations with offline social support and distraction. Effect sizes were small to medium. Cognitive Coping, Social Support

Seeking, Venting, Spirituality and Disengagement were moderately, positively related to BriefCOPE disengagement and venting.

Correlations between honesty-humility, social desirability and Facebook coping subscales were small in effect size. Whilst there was a significant positive correlation between Cognitive Coping and honesty-humility, honesty-humility explained only 4% of variance in cognitive coping.

	17	18	19	20	21	22	23
1.Cognitive Coping	-.112	.262**	.063	.175**	.153**	.263**	.229**
2. Organisation	-.135*	.128*	.137*	.251**	.210**	.029	.076
3. Spiritual Coping	.050	.148*	.098	.136*	.143*	.143*	.209**
4. Social Support	-.081	.219**	.089	.416**	.335**	.273**	.294**
5. Disengagement	-.176**	.336**	.030	.297**	.202**	.230**	.312**
6. Connecting	.097	.135*	.243**	.233**	.197**	-.002	.048
7. Venting	-.134*	.216**	.120*	.287**	.197**	.224**	.306**
8. Information Seeking	-.150*	.181**	.139*	.263**	.201**	.039	.173**
9. Positive affect	.230**	-.007	.277**	.130*	.189**	-.231**	-.044
10. Negative affect	-.313**	.346**	.024	.158*	.149*	.423**	.335**
11. Depression	-.314**	.328**	-.019	.099	.055	.406**	.305**
12. SWB	.215**	-.190**	.054	.048	.082	-.361**	-.179**
13. Stress	.315**	.375**	.058	.172**	.137*	.351**	.261**
14. Optimism	.277**	.050	-.039	-.062	.030	.124*	.041
15. Locus of control	-.230**	.192**	-.076	.145*	.080	.202**	.145*
16. Honesty-Humility	.366**	.050	-.039	-.062	-.030	.184*	.041
17. Social desirability	-	-.079	.134*	-.006	.033	.141*	-.159**
18. Distraction		-	.279**	.262**	.212**	.324**	.352**
19. Active coping			-	.413**	.415**	-.016	.261**
20. Emotional support				-	.728**	.177**	.448**
21. Inst. support					-	.084	.449**
22. Disengagement						-	.332**
23. Venting							-
24. Positive reframing							
25. Planning							
26. Acceptance							
27. Religion							

	24	25	26	27
1. Cognitive Coping	.188**	.178**	.151*	.225**
2. Organisation	.124*	.080	.027	.035
3. Spiritual Coping	.207**	.132*	.156**	.502**
4. Social Support	.117*	.152*	.139*	.152*
5. Disengagement	.132*	.217**	.176**	.120*
6. Connecting	.188**	.189**	.182**	.120*
7. Venting	.064	.176**	.172**	.108
8. Information Seeking	.160**	.248**	.142*	.053
9. Positive affect	.272**	.208**	.231**	.177**
10. Negative affect	.008	.195**	.072	.114
11. Depression	-.078	.134*	.050	.003
12. SWB	.199**	.003	.066	.055
13. Stress	.021	.225**	.105	.057
14. Optimism	-.054	-.041	-.113	-.125*
15. Locus of control	.039	.007	.049	-.089
16. Honesty-Humility	-.054	-.041	-.113	-.125*
17. Social desirability	.102	.008	.084	.094
18. Distraction	.241**	.276**	.365**	.182**
19. Active coping	.401**	.649**	.382**	.112
20. Emotional support	.338**	.417**	.309**	.204**
21. Inst. support	.394**	.476**	.383**	.239**
22. Disengagement	.040	.024	.103	.117*
23. Venting	.262**	.334**	.320**	.257**
24. Positive reframing	-	.429**	.390**	.210**
25. Planning		-	.490**	.147*
26. Acceptance			-	.222**
27. Religion				-

* $p < .05$, ** $p < .01$

Temporal Stability. Test-retest reliability was high ($r = .84$), suggesting good temporal stability (Cronbach's alpha at both time-points was very high at .974 and .973, respectively).

Discussion

This research aimed to extend coping research into the social media domain. A scale was developed to measure engagement in coping strategies facilitated by Facebook (the FCS). Preliminary psychometric evaluation was undertaken.

Items for the FCS were generated and factor analysed, resulting in a 44-item instrument. Strategies that emerged included using Facebook to seek emotional and instrumental social support; to think in some way about the problem (cognitive coping); to disengage from the problem; to connect with spirituality; to vent thoughts and feelings; to seek information; to organise/coordinate events and tasks; and to connect with family and friends. With the exception of Cognitive Coping, the nature of these strategies reflected those identified in previous factor analytic research on offline coping (Amirkhan, 1990; Carver et al., 1989; Endler & Parker, 1990) and patterns of Facebook use (Aladwani, 2014). Confirmatory factor analysis should be undertaken to verify the eight factor structure that emerged here (Tabachnik & Fidell, 2007).

The FCS appears to possess adequate reliability. Internal consistency was excellent for the full scale. However, with alphas between .96 and .97, this may indicate potentially redundant items (Tavakol & Dennick, 2011). Internal consistency was acceptable for the subscales. Test-retest reliability was excellent.

Whilst the scale demonstrated good discriminant validity, evidence for convergent validity was mixed. The prediction that Facebook coping strategies perceived as dysfunctional offline would positively correlate with maladaptive

psychological variables was supported. Further, the FCS subscales correlated with subscales of an offline coping measure, suggesting appropriate and non-redundant convergent validity.

However, only some Facebook coping strategies considered to be adaptive produced the expected correlations and effect sizes were small. This finding suggests two possibilities. Firstly, these results may simply reflect an inadequacy of the measure. Secondly, this may provide insight into the nature of the coping construct in an online context. Although an interaction between the two may also explain the unexpected results, the following discussion will primarily consider what these findings may imply about coping via Facebook, throughout which recommendations for the addition and revision of FCS items for future research will also be made.

As expected, Venting and Disengagement positively correlated with dysfunctional indices of psychological wellbeing. These relationships were consistent with previous research that has associated emotion-focused coping with depression (Endler & Parker, 1990), and more specifically associated venting with negative affect (Fichman et al., 1999) and stress (Halama & Bakosova, 2009). Findings were also in line with the reported positive relationship between disengagement and negative affect (Ben-Zur, 2009) and disengagement and stress (Kao & Craigie, 2013). Although Disengagement correlated negatively with optimism and subjective wellbeing, this was weaker than identified by previous studies (Kato, 2013; Nes & Segerstrom, 2006), as was the positive but significant association between Disengagement and external locus of control (Carver et al., 1989; Crisson & Keefe, 1988). Nonetheless, these results suggest that the maladaptive nature of emotional venting and avoidance as coping strategies in the offline context translates into a Facebook context.

Information Seeking, Organisation and Connecting were the only strategies considered adaptive that demonstrated significant positive correlations with positive affect, subjective wellbeing and optimism. Consistent with previous research examining problem-focused coping, Information Seeking correlated positively with subjective wellbeing (Clark et al., 1995) and positive affect (Ben-Zur, 2009), but with small effect sizes. Although information seeking is considered a form of problem-focused coping in the offline context (Skinner et al., 2003), in the current study, it loaded separately to other problem-focused items, suggesting distinct differences between the two strategies. A possible explanation is that whereas other problem-focused items reflected thinking about the problem and thus loaded on the Cognitive Coping factor, Information Seeking items may reflect more active attempts to approach a problem. This may also explain why Information Seeking had stronger associations with positive affect, subjective wellbeing and offline active coping than did items reflecting thinking about how to manage a problem.

That both Organisation and Connecting also demonstrated their strongest associations with the social support scales of the BriefCOPE is unsurprising given that items on these factors reflected attempts to seek out others. However, on reflection, it is also worth noting that the wording of the Information, Organisation and Connecting items (for example, “I use Facebook to reunite with old friends”) may have reflected patterns of general Facebook use rather than specific, coping-driven behaviours. Therefore, it is unclear as to whether the relationships between these strategies and validity variables are a valid representation of the psychological implications of engaging in these strategies as a means of coping. Possible revision of the items is therefore recommended. Making coping as the reason for the behaviour more explicit (for example, “when I am stressed, I organise events that

will help relieve my stress”) may increase the validity of responses.

The Nature of Coping Online

The Cognitive Coping items pertaining to using Facebook to focus on a problem or the meaning of a situation are generally reflective of adaptive coping as it occurs offline (Gan et al., 2013; Riley & Park, 2014). Therefore, it is surprising that this subscale correlated positively with depression, stress and negative affect. This finding opposes previous evidence that problem-focused coping and meaning-focused coping are negatively related to poor psychological outcomes (Endler & Parker, 2009; Gan et al., 2013; Kao & Craigie, 2013), and positively associated with adaptive psychological variables such as optimism (Carver et al., 1989), positive affect (Ben-Zur, 2009) and wellbeing (Gan et al., 2013; Kato, 2013).

A possible explanation for Cognitive Coping emerging as a maladaptive strategy is that individuals experiencing higher distress might subsequently use Facebook to think about ways to deal with their problems. If so, psychological distress would predict engagement in cognitive coping. Mindful that the cross-sectional design of this study prevents determining causality (Sedgwick, 2014), it cannot be certain that engagement in this strategy is actually associated with poorer outcomes.

Nonetheless, there may be other theoretical explanations for the relationship between Cognitive Coping and depression, stress, and negative affect. First, because all Cognitive Coping items depict thinking about a problem in some way, this may suggest that engaging in this strategy involves an element of rumination. Kraaij and Gonefski (2015) found rumination to be linked to greater distress, however, positive reappraisal was not. Given that FCS items reflecting positive reappraisal loaded the weakest onto the Cognitive Coping factor, the positive psychological outcomes

associated with positive reappraisal may have been suppressed. It is also possible that perhaps individuals engaging in cognitive coping via Facebook fail to attribute meaning or find solutions to their problems.

Like Cognitive Coping, using Facebook to seek social support correlated positively with maladaptive psychological variables and negatively (albeit weakly) with subjective wellbeing. This is inconsistent with research linking offline social support seeking with higher levels of wellbeing (Oh et al., 2013; Saha et al., 2014). However, emerging research suggests that social support derived from Facebook may not function as effectively as traditional offline social support.

For example, Li, Chen, and Popiel (2015) reported that receiving social support from Facebook was not associated with perceived social support in general. More specifically, Frison and Eggermont (2015) found that when stressed adolescents sought social support from Facebook but did not perceive receiving it, their depressed mood increased. However, the absence of perceived support offline did not predict any significant change in adolescents' mood. These results imply that seeking social support on Facebook—but not perceiving it—can worsen existing psychological distress.

Disparities between Facebook and offline social support may be attributable to the quality of support in these contexts. The potentially superficial nature of social support from weak online social ties may not produce the same positive effects as face-to-face social support derived from strong ties. McCloskey, Iwanicki, Lauterbach, Giammittorio, and Maxwell (2015) found that Facebook emotional support provided in the form of likes, notifications and status comments correlated positively with depression and negatively with quality of life. Li et al. (2015) similarly interpreted the lack of association between Facebook use and perceived

social support as potentially attributable to the less invested gestures of online social support.

The FCS did not correlate with variables predicted to be theoretically unrelated, thus indicating good discriminant validity. However, it is important to note that although the current study found an expected absence of relation between social desirability and Facebook coping strategies, future research may reveal different findings. The Facebook environment allows strategic self-presentation, often to enhance or falsely portray more positive, socially acceptable aspects of their self (Gil-Or, Levi-Belz, & Turel, 2015; Gonzalez & Hancock, 2011). Consideration of other variables not confounded with either coping strategies or Facebook use could therefore strengthen validity assessment of coping measures in SNS contexts.

Facebook: Does the Medium Moderate Coping and Adjustment?

An important finding is that most Facebook coping subscales demonstrated significant, positive correlations with the distraction and disengagement scales of the BriefCOPE. This suggests that Facebook coping may itself be a form of distraction or disengagement. For example, although cognitive coping reflects thinking about (rather than avoiding) a stressor, using Facebook to consider the problem may actually reflect disengaging from the real-world problem.

If using Facebook to cope is in itself a form of distraction, this may also explain why Cognitive Coping and Social Support Seeking did not associate with adaptive variables: the adaptiveness of a particular coping strategy may be potentially moderated by whether the strategy is engaged with via the Facebook medium, thus indicating disengagement. Second-order factor analysis may provide further insight into this possibility by revealing how the Facebook coping strategies relate to broader engagement versus disengagement coping.

Another complementary explanation is that Facebook may intentionally be used to disengage from a stressor. Eisenbarth (2012) notes that individuals may seek out social support merely to disengage from a stressor, rather than seeking actual instrumental or emotional support. Perhaps individuals deliberately use Facebook as a means to access social interaction in order to distract themselves from a stressor. The finding that most Facebook coping strategies correlated with general social support seeking provides some support for this notion.

The significant associations that emerged between all Facebook coping strategies and the social support and venting subscales of the BriefCOPE warrants interpretation. All FCS subscales positively correlated to some degree with the BriefCOPE social support subscales, indicating that coping through this medium is likely to involve connecting with others, in line with the social nature of such sites. This social aspect of coping may also explain why many subscales correlated with offline venting: coping using SNSs is likely to involve communication (for example, posting a status, instant messaging, or commenting, Blight et al., 2015).

Refining the FCS

As previously mentioned, some FCS items would likely benefit from revision that more solidly grounds those items in the context of coping. Similarly, the item “I use Facebook to initiate new relationships with people I haven’t met before” loaded on its own in a nine-factor solution and did not load at all in an eight-factor solution. It is not clear that this item was interpreted by participants as referring to the coping context. Perhaps items such as “when I am stressed, I use Facebook to initiate new relationships with people I haven’t met before” would have better utility.

A number of other items were also identified as potential candidates for revision. For example, the low mean and positive skew of Spirituality indicates that

few participants use Facebook for spiritual purposes. This may be because items were interpreted in terms of religiosity, rather than spirituality (for example, “using Facebook helps me to connect with my faith and spirituality”). Given Australia’s relatively secular culture (Australian Bureau of Statistics, 2013), floor effects on these items are readily explainable. Spirituality (connecting with one’s values and pursuing a sense of meaning) differs from religiosity (Tanyi, 2002). Therefore, including items that better differentiate between religious and spiritual Facebook use may produce different results.

Cross-loading items also warrant attention. For the item “I use Facebook to get emotional support from relatives” (eight-factor solution), revising items that differentiate between close and distant relatives is indicated. This would allow the impact of both strong and weak social ties (e.g. Lin & Utz, 2015) to be considered

Limitations and Additional Considerations

Considering the preliminary stages of this research, the current scale measures discrete coping responses which has allowed more fine-grained analysis of coping via Facebook and how this relates to wellbeing. However, measuring coping in this way competes with a desire for parsimony. Consistent with a hierarchical view of coping (Duhachek & Oakley, 2007), future research conducting second- and third-order factor analyses may provide further insight into how the variance in these basic coping responses can be more generally captured by just a few dimensions or in terms of their adaptiveness.

Like all coping instruments (e.g. Carver et al., 1989; Endler & Parker, 1990), it is almost certain that the FCS does not capture every possible way of coping. For example, humour has been identified as a specific coping strategy offline (Carver, 1997) and has the potential to be facilitated online if an individual uses Facebook to

access videos, memes or to connect with an amusing friend or acquaintance. An example item derived from the BriefCOPE and adapted for the present context may be “when I am stressed, using Facebook helps me to laugh about the situation”. Nonetheless, further generation of items assessing a range of additional coping responses will perhaps contribute to understanding which coping dimensions a measure of coping via Facebook needs to assess.

The use of a cross-sectional design in this study is a primary limitation as it limits the ability to discriminate between cause and effect (Sedgwick, 2014). Therefore, all inferences made with regards to the psychological implications of Facebook-facilitated coping strategies must be interpreted with caution. Although research indicates a bidirectional relationship between coping strategies and psychological wellbeing (Aldwin & Revenson, 1987; Nielsen & Knahdarl, 2014), future longitudinal research may clarify whether Facebook coping strategies do have different consequences for wellbeing compared to offline strategies.

Another limitation of the current scale is its reliance on self-report, which is an issue that extends to coping assessment more generally. Measuring coping as a dispositional style seemingly amplifies the issue of self-report as it requires respondents to broadly and retrospectively consider how they cope (Stone & Neale, 1984). It was considered appropriate to use a dispositional approach in the current study given its preliminary nature. Nonetheless, future research employing a situational approach may yield interesting results, as memorial influences may be overcome by asking respondents how they have coped with a recent, specific stressful event (Folkman & Lazarus, 1980).

The current results should not be generalised to other SNSs, as items were specifically focused on Facebook. Respondents were also predominantly female,

with a relatively young mean age. Considering that an increasing number of older adults are using SNSs (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015), findings should be generalised to all Facebook users with caution.

Implications

This study provides preliminary insight into coping in a social media context, highlighting Facebook as a medium that facilitates engagement in coping strategies. Importantly, the nature of coping seems to change when translated into a Facebook context, adding further convolution to what is already considered a complex offline construct (Skinner et al., 2003), thus informing a shift in coping theory. Critically, these results suggest that Facebook deserves greater attention in coping research.

Although further refinement is prudent, the FCS has potentially diverse applicability, such as assessing how Facebook may be used to cope by individuals who live away from their social group (Ellison, Steinfeld, & Lampe, 2007; Schmalz, Colistra, & Evans, 2015), older adults who may be becoming more physically limited or isolated (Leist, 2013), adolescents who are facing school and peer pressures, as well as having utility in identifying how people generally use Facebook to cope in response to specific recurrent, short-term or chronic stressors. However, there is also a vital need for longitudinal research to explore the associations between Facebook coping strategies and wellbeing in order to strengthen the FCS' psychometric properties. Ongoing validation is also recommended, to ensure that the FCS is reflective of the ever-changing ways in which SNSs develop and expand.

Conclusion

The aim of this study was to extend coping research into the social media domain by developing an instrument to measure engagement in coping strategies facilitated by Facebook, and providing preliminary evaluation of its psychometric

properties. From the FCS items, eight Facebook-facilitated coping strategies were identified: Cognitive Coping; Social Support Seeking; Disengagement; Venting; Information Seeking; Organisation; Connecting; and Spirituality. The FCS possessed acceptable reliability, temporal stability, and discriminant validity. Although the FCS subscales correlated appropriately with the BriefCOPE, unexpected relationships with other variables also emerged. As such, conclusions regarding the convergent validity of the scale must be made cautiously.

However, results provide insight into the nature of coping in the context of Facebook use. Specifically, coping via Facebook may facilitate disengagement coping, or may not fully meet the needs of stressed individuals, though further research is required to expand upon these preliminary findings. Ultimately, this study has provided a first attempt at developing an instrument to measure coping strategies facilitated by Facebook, highlighting that coping via social media requires greater attention in coping research and intervention.

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Appendix A1

Demographic Questions

What is your gender?

- Male
- Female

What is your age?

Are you a university student?

- Yes
- No

Appendix A2

Facebook Intensity Scale (Ellison, Steinfeld, & Lampe, 2007)

1. Facebook is part of my everyday activity*
2. I am proud to tell people I'm on Facebook*
3. Facebook has become part of my daily routine*
4. I feel out of touch when I haven't logged onto Facebook for a while*
5. I feel I am part of the Facebook community*
6. I would be sorry if Facebook shut down*
7. Approximately how many TOTAL Facebook friends do you have?***
8. Of these Facebook friends, how many would you count as close friends?***
9. In the past week, how often have you used Facebook (many times per day/several times per day/once or twice per day/a few times during the week/once or twice during the week/not at all). **
10. Approximately how much time do you spend on Facebook whenever you logon?***

Note. Items marked * assess attitudes and are rated on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses are summed to obtain total score. Items marked ** are open-ended questions requiring participants to type in a numerical response.

Appendix A3

Facebook Coping Scale

Directions: The following questions are about how you might use Facebook when you are experiencing problems. Please rate how much each applies to you. 1 (*strongly disagree*); 2 (*disagree*); 3 (*somewhat disagree*); 4 (*somewhat agree*); 5 (*agree*); 6 (*strongly agree*).

1. I turn to Facebook to take my mind off things (COPE 2)
2. Using Facebook helps me see the positives in my situation (JW & MQ)
3. I use Facebook to improve my knowledge (Aladwani 34)
4. I use Facebook to keep in touch with relatives (Aladwani 4)
5. Using Facebook helps me see things in a different light (COPE 29)
6. Using Facebook helps me seize opportunities that can get me out of a bad situation (MFC 56)
7. Using Facebook helps me attach special meaning to my problems (13 MFC)
8. I try to find comfort by using Facebook (COPE 48)
9. Using Facebook helps me connect with my faith and spirituality (MFC)
10. I use Facebook to help me get through my problems (COPE 53)
11. I use Facebook to reunite with old friends (Aladwani 3)
12. I use Facebook to keep myself from getting distracted by other thoughts (COPE 15)
13. I use Facebook to talk to someone who could do something concrete about my problems (COPE 30)
14. Using Facebook helps me connect with my beliefs (MFC)

15. I use Facebook to get emotional support from friends (COPE 23a)
16. I use Facebook to ask people who have had similar experiences what they did (COPE 45)
17. I use Facebook to find creative ways to deal with my problems (Aladwani 32)
18. Using Facebook helps me readjust my views on my problems (MFC)
19. I use Facebook to get emotional support from relatives (COPE 23b)
20. I use Facebook to talk to people and find out more about what's going on (COPE 14)
21. Using Facebook helps me accept my circumstances (MFC)
22. Using Facebook has helped me to develop a more positive attitude towards life (PAC 9)
23. I use Facebook to get more information (Aladwani 33)
24. I try to lose myself for a while by using Facebook (COPE 26)
25. Using Facebook has helped me realise that difficulties are a part of my life (MFC)
26. Using Facebook helps me consider why the problems have happened to me (MFC)
27. I use Facebook to help me come up with a plan of action (COPE 19)
28. I use Facebook to discuss my feelings with others (COPE 11)
29. I use Facebook to make myself feel better (COPE 12)
30. I use Facebook to develop relationships with people I've met before (Aladwani 2)
31. I use Facebook to help me think hard about what steps to take (COPE 56)
32. I use Facebook to make my voice heard (30 MFC)
33. I use Facebook to get advice about what to do (COPE 4)
34. I use Facebook to help me think about how I might best handle my problems

(COPE 39)

35. I use Facebook to organize events (Aladwani 19)
36. Using Facebook helps me get used to how things are (COPE 13)
37. Using Facebook helps me reassess my values (MFC 8 second half)
38. I use Facebook to talk to others about how I feel (COPE 52)
39. I use Facebook to coordinate tasks (Aladwani 20)
40. I use Facebook to speak my mind without reservation (29 MFC)
41. I use Facebook to initiate new relationships with people I haven't met before
(Aladwani 1)
42. Using Facebook helps me learn to live with things (COPE 54)
43. Using Facebook helps me reconsider my coping style (19 MFC)
44. I get sympathy and understanding from others on Facebook (COPE 34)
45. I use Facebook to arrange meetings and get together (Aladwani 22)
46. I use Facebook in order to think less about my problems (COPE 35)
47. I use Facebook to gain strength from others around me (MFC55)
48. I use Facebook to let my feelings out (COPE 28)

Appendix A4

Depression, Stress, Anxiety Scales-21 (Lovibond & Lovibond, 1995)

Directions: Please rate how much each statement applied to you over the last week from:

0= Did not apply to me at all (*never*), 1= applied to me to some degree, or some of the time (*sometimes*), 2= applied to me to a considerable degree, or a good part of time (*often*), 3= applied to me very much, or most of the time (*almost always*)

1. I couldn't seem to experience any positive feeling at all
2. I found it difficult to work up the initiative to do things
3. I felt that I had nothing to look forward to
4. I felt down-hearted and blue
5. I was unable to become enthusiastic about anything
6. I felt I wasn't worth much as a person
7. I felt that life was meaningless
8. I found it hard to wind down
9. I tended to over-react to situations
10. I felt that I was using a lot of nervous energy
11. I found myself getting agitated
12. I was intolerant of anything that kept me from getting on with what I was doing
13. I felt that I was rather touchy
14. I found it difficult to relax

Note. Items 1-7 measure depression. Items 8-14 measure stress.

Appendix A5

Satisfaction with Life Scale (Diener, Emmons, Larsem, & Griffin, 1985)

Directions: Please indicate your agreement with each of the following statements from 1 (*strongly disagree*) to 7 (*strongly agree*).

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life.
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing

Note. Item responses are summed to obtain total score.

Appendix A6

Honesty-Humility sub-scale from HEXACO-PI (Lee & Ashton, 2004)

Directions: Please rate how much you agree with the following statements from 1 (*strongly agree*) to 5 (*strongly disagree*).

1. I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed. (6)
2. If I want something from someone, I will laugh at that person's worst jokes *
3. I wouldn't pretend to like someone just to get that person to do favors for me
4. If I knew that I could never get caught, I would be willing to steal a million dollars *
5. I would never accept a bribe, even if it were very large
6. I'd be tempted to use counterfeit money, if I were sure I could get away with it*
7. I would get a lot of pleasure from owning expensive luxury goods*
8. Having a lot of money is not especially important to me
9. I think that I am entitled to more respect than the average person is*
10. I want people to know that I am an important person of high status*

Note. Items marked * are reverse scored. Item responses are summed to obtain total score.

Appendix A7

Life Orientation Test (Scheier & Carver, 1985)

Directions: Please indicate your agreement with the following statements from 0 (*strongly disagree*) to 4 (*strongly agree*).

1. In uncertain times, I usually expect the best
2. It's easy for me to relax
3. If something can go wrong for me, it will*
4. I'm always optimistic about my future
5. I enjoy my friends a lot
6. It's important for me to keep busy
7. I hardly ever expect things to go my way*
8. I don't get upset too easily
9. I rarely count on good things happening to me*
10. Overall, I expect more good things to happen to me than bad

Note. Items marked * are reverse scored. Items 1, 3, 4, 7, 9, 10 are summed to obtain total score. Items 2, 5, 6, 8 are fillers.

Appendix A8

Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988).

Directions: Please indicate the extent to which you have felt each of the following over the past week. 1 (*very slightly/not at all*); 2 (*a little*); 3 (*moderately*); 4 (*quite a bit*); 5 (*extremely*)

- | | |
|------------------|-----------------|
| 1. Interested* | 11. Irritable^ |
| 2. Distressed^ | 12. Alert* |
| 3. Excited* | 13. Ashamed^ |
| 4. Upset^ | 14. Inspired* |
| 5. Strong* | 15. Nervous^ |
| 6. Guilty^ | 16. Determined* |
| 7. Scared^ | 17. Attentive* |
| 8. Hostile^ | 18. Jittery^ |
| 9. Enthusiastic* | 19. Active* |
| 10. Proud* | 20. Afraid^ |

Note. Items marked * measure positive affect. Items marked ^ measure negative affect. Items on each respective scale are summed to provide a total score.

Appendix A9

Locus of Control Scale (Rotter, 1966)

Directions: For each question, please select the statement you agree with the most.

1. a. Children get into trouble because their parents punish them too much.
b. The trouble with most children nowadays is that their parents are too easy with them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.
b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
b. There will always be wars, no matter how hard people try to prevent them.
4. a. In the long run people get the respect they deserve in this world
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries
5. a. The idea that teachers are unfair to students is nonsense.
b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a. Without the right breaks one cannot be an effective leader.
b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. a. No matter how hard you try some people just don't like you.
b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality
- b. It is one's experiences in life which determine what they're like.
9. a. I have often found that what is going to happen will happen.
- b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
- b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
- b. Getting a good job depends mainly on being in the right place at the right time.
12. a. The average citizen can have an influence in government decisions.
- b. This world is run by the few people in power, and there is not much the little guy can do about it.
13. a. When I make plans, I am almost certain that I can make them work.
- b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
14. a. There are certain people who are just no good.
- b. There is some good in everybody.
15. a. In my case getting what I want has little or nothing to do with luck.
- b. Many times we might just as well decide what to do by flipping a coin.
16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

b. Getting people to do the right thing depends upon ability. Luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

b. By taking an active part in political and social affairs the people can control world events.

18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

b. There really is no such thing as "luck."

19. a. One should always be willing to admit mistakes.

b. It is usually best to cover up one's mistakes.

20. a. It is hard to know whether or not a person really likes you.

b. How many friends you have depends upon how nice a person you are.

21. a. In the long run the bad things that happen to us are balanced by the good ones.

b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.

b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.

b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.

- b. A good leader makes it clear to everybody what their jobs are.
25. a. Many times I feel that I have little influence over the things that happen to me.
- b. It is impossible for me to believe that chance or luck plays an important role in my life.
26. a. People are lonely because they don't try to be friendly.
- b. There's not much use in trying too hard to please people, if they like you, they like you.
27. a. There is too much emphasis on athletics in high school.
- b. Team sports are an excellent way to build character.
28. a. What happens to me is my own doing.
- b. Sometimes I feel that I don't have enough control over the direction my life is taking.
29. a. Most of the time I can't understand why politicians behave the way they do.
- b. In the long run the people are responsible for bad government on a national as well as on a local level.

Note. One point is scored for each of the following: 2. a, 3. b, 4.b, 5.b, 6.a, 7.a, 9.a, 10.b, 11.b, 12.b, 13.b, 15.b, 16.a, 17.a, 18.a, 20.a, 21. a, 22.b, 23.a, 25.a, 26.b, 28.b, 29.a. Items 1, 8, 14, 19, 24, 27 are filler items. A high score indicates an external locus of control. A low score indicates an internal locus of control.

Appendix A10

BriefCOPE (Carver, 1997)

Directions: Please rate each item according to your level of agreement. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can. Responses are made from 1 (*I haven't been doing this at all*); 2 (*I've been doing this a little bit*); 3 (*I've been doing this a medium amount*); 4 (*I've been doing this a lot*).

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real."
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.

17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.

Note. Items 1 and 19 measure self-distraction; 2 and 7 active coping; 3 and 8 denial; 4 and 11 substance use; 5 and 15 emotional social support; 10 and 23 use of instrumental support; 6 and 16 behavioural disengagement; 9 and 21 venting; 12 and 17 positive reframing; 14 and 25 planning; 18 and 28 humour; 20 and 24 acceptance; 22 and 27 religion; 13 and 26; self-blame.

Appendix B

Tasmanian Human Research Ethics Approval

Social Science Ethics Officer
Private Bag 01 Hobart
Tasmania 7001 Australia
Tel: (03) 6226 2763
Fax: (03) 6226 7148
Katherine.Shaw@utas.edu.au



HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

21 May 2015

Dr Rachel Grieve
Psychology
Private Bag 30

Student Researcher: Caitlin Walker

Sent via email

Dear Dr Grieve

Re: MINIMAL RISK ETHICS APPLICATION APPROVAL
Ethics Ref: H0014894 - **Do people use Facebook to help them cope?**

We are pleased to advise that acting on a mandate from the Tasmania Social Sciences HREC, the Chair of the committee considered and approved the above project on 19 May 2015.

This approval constitutes ethical clearance by the Tasmania Social Sciences Human Research Ethics Committee. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities is required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

Please note that this approval is for four years and is conditional upon receipt of an annual Progress Report. Ethics approval for this project will lapse if a Progress Report is not submitted.

The following conditions apply to this approval. Failure to abide by these conditions may result in suspension or discontinuation of approval.

1. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval, to ensure the project is conducted as approved by the Ethics Committee, and to notify the Committee if any investigators are added to, or cease involvement with, the project.

A PARTNERSHIP PROGRAM IN CONJUNCTION WITH THE DEPARTMENT OF HEALTH AND HUMAN SERVICES

2. Complaints: If any complaints are received or ethical issues arise during the course of the project, investigators should advise the Executive Officer of the Ethics Committee on 03 6226 7479 or human.ethics@utas.edu.au.
3. Incidents or adverse effects: Investigators should notify the Ethics Committee immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
4. Amendments to Project: Modifications to the project must not proceed until approval is obtained from the Ethics Committee. Please submit an Amendment Form (available on our website) to notify the Ethics Committee of the proposed modifications.
5. Annual Report: Continued approval for this project is dependent on the submission of a Progress Report by the anniversary date of your approval. You will be sent a courtesy reminder closer to this date. **Failure to submit a Progress Report will mean that ethics approval for this project will lapse.**
6. Final Report: A Final Report and a copy of any published material arising from the project, either in full or abstract, must be provided at the end of the project.

Yours sincerely

]

Katherine Shaw
Executive Officer
Tasmania Social Sciences HREC

Appendix C1

Advertisement

(Posted as flier and displayed in lectures)

Are you a Facebook user aged 18 years or older?



Chief Investigator: [Dr. Rachel Grieve](#), Lecturer, Division of Psychology

HREC: H0014894

Student Investigator: Caitlin Walker, Honours

We are examining whether people use Facebook to help them cope with stress.

- You are eligible to participate if you use Facebook and are aged 18 years or over.
-
- You will be asked to complete an online questionnaire which will take approximately 30 minutes.
-
- Participants will be given the chance to enter into a draw to win one of three Coles-Myer gift vouchers valued from \$50 to \$150 or first-year Psychology students can receive 30 minutes course credit.
-
- To participate, please follow the electronic link:



<http://tiny.cc/facebookcoping>

- If you have any questions related to this research, please contact Caitlin Walker at cwalker3@utas.edu.au

Appendix C2

Participant Information Sheet

Invitation

We would like to invite you to participate in a study that is investigating whether people use social media to cope with stress and whether people engage in coping strategies online that are similar to those commonly used offline. This research is being conducted in partial fulfillment of an Honours degree for Caitlin Walker at the University of Tasmania (Division of Psychology) under the supervision of Dr Rachel Grieve.

What is the purpose of this study?

The purpose of this study is to develop an instrument that is valid and reliable in measuring whether people use coping strategies facilitated by Facebook.

Why have I been invited to participate?

You are eligible to participate if you are over 18 years of age and are a Facebook user. Participation in this research is voluntary. There are no consequences for declining to participate and this will not affect your relationship with the university or any future research opportunities.

What will I be asked to do?

After providing consent to participate in this research, you will be directed to the first page of the survey. This consists of a series of statements and you will be asked to respond to each one by indicating how relevant it is to you. An example may be “I use Facebook to discuss my feelings with others” and you will indicate on a scale how much you agree with the statement. The survey is expected to take approximately 20-30 minutes. Once you have completed the survey, click submit.

You may choose to exit out of the survey window rather than submit your responses, in which case your data will not be saved or used in the research.

Are there any possible benefits from participation in this study?

Participating in this study will assist in enhancing our understanding of how social media influences psychological health and wellbeing, as increasingly more people are using sites such as Facebook. Your participation will also aid in the development of measures to assess online behavior, which helps form appropriate interventions. Once this study has concluded, the results will be provided to you at your request. As a participant, you will also have the option to obtain 30 minutes of course credit (if you are first-year Psychology student) or go into the draw to win a Coles-Myer gift voucher valued at \$50, \$100 or \$150.

Are there any possible risks from participation in this study?

There are no foreseeable risks from participating in this study. However, in the unlikely event that you experience distress from completing the study, we urge you to contact Lifeline (131114) or your GP.

What if I change my mind during or after the study?

If you wish to withdraw during the study, simply exit out of the survey at any time. Your data will not be received or used in the research and there are no consequences for withdrawal.

What will happen to the information when this study is over?

Data will be kept for a minimum of five years from the publication of this study at the University of Tasmania on a secure database. All data will remain confidential and access will be limited only to the researchers. After five years, the data will be erased.

How will the results of the study be published?

A summary of this study's findings will be published on the Division of Psychology website. It is further anticipated that these results will be submitted to an academic journal for publication. You will remain unidentifiable from published results and at all times throughout the research process.

What if I have questions about this study?

Please do not hesitate to direct any questions or concerns regarding this study to Caitlin Walker (email: cwalker3@utas.edu.au) or to Dr Rachel Grieve (email: Rachel.Grieve@utas.edu.au or phone: 03 6226 2244). This study has been approved by the Tasmanian Social Sciences Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study, please contact the Executive Officer of the HREC (Tasmania) Network on +61 3 6226 6254 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. Please quote ethics reference number H0014894.

Appendix C3

Consent Statement

“I have read and understood the information regarding this study and consent to participate in the research”

Yes

No

7. Using Facebook helps me attach special meaning to my problems	.521	
6. Using Facebook helps me seize opportunities that can get me out of a bad situation	.476	
17. I use Facebook to find creative ways to deal with my problems	.457	
21. Using Facebook helps me accept my circumstances	.413	
2. Using Facebook helps me see the positives in my situation	.397	
22. Using Facebook has helped me to develop a more positive attitude towards life	.374	
10. I use Facebook to help me get through my problems	.366	
45. I use Facebook to arrange meetings and get together	.856	
35. I use Facebook to organize events	.825	
39. I use Facebook to coordinate tasks	.527	
15. I use Facebook to get emotional support from friends		.739
13. I use Facebook to talk to someone who could do something concrete about my problems		.682
28. I use Facebook to discuss my feelings with others		.654

38. I use Facebook to talk to others about how I feel	.562	
16. I use Facebook to ask people who have had similar experiences what they did	.550	
33. I use Facebook to get advice about what to do	.430	
44. I get sympathy and understanding from others on Facebook	.382	.346
30. I use Facebook to develop relationships with people I've met before		
46. I use Facebook in order to think less about my problems	.784	
24. I try to lose myself for a while by using Facebook	.761	
12. I use Facebook to keep myself from getting distracted by other thoughts	.626	
29. I use Facebook to make myself feel better	.551	
1. I turn to Facebook to take my mind off things	.549	
8. I try to find comfort by using Facebook	.430	
23. I use Facebook to get more information		.742
20. I use Facebook to talk to people and find out more about what's going on		.454
3. I use Facebook to improve my knowledge	.405	

14. Using Facebook helps me connect with my beliefs										.868
9. Using Facebook helps me connect with my faith and spirituality										.825
40. I use Facebook to speak my mind without reservation										.688
32. I use Facebook to make my voice heard										.678
48. I use Facebook to let my feelings out										.506
47. I use Facebook to gain strength from others around me										
4. I use Facebook to keep in touch with relatives										.736
11. I use Facebook to reunite with old friends										.620
19. I use Facebook to get emotional support from relatives										.393
41. I use Facebook to initiate new relationships with people I haven't met before										.477
Eigenvalue	18.9	3.5	2.2	1.9	1.5	1.3	1.2	1.1	1.0	
Variance explained (%)	39.3	7.4	4.6	4.1	3.1	2.7	2.5	2.3	2.1	

Note. Values below .32 are suppressed.