



Full length article

Emotional support during times of stress: Can text messaging compete with in-person interactions?



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ARTICLE INFO

Article history:

Received 14 August 2016

Received in revised form

10 December 2016

Accepted 23 January 2017

Available online 24 January 2017

Keywords:

Social support

Text messaging

Psychological stress

Human-computer interaction

Computer-mediated communication

Interpersonal relationships

ABSTRACT

There has been a recent and dramatic surge in the popularity of text messaging as a means of connecting with our social networks. The current research represents the first randomized controlled studies to directly compare both the social and emotional impact of social support provided in-person versus through text messaging. In two lab-based experiments, emerging adults completed a stressful task and were randomly assigned to receive emotional support either in-person, via text messaging, or no support at all. Support was provided by a close friend in experiment 1 ($n = 64$), and by a similar-aged confederate in experiment 2 ($n = 188$). In both experiments, in-person support was associated with significantly higher positive affect compared to text messaging. In-person support also led to greater satisfaction with support, but only in experiment 2. Overall, this research suggests that there may be emotional costs to a reliance on digital forms of social communication during times of stress.

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1. Introduction

The digital revolution has led to a dramatic shift in the way that humans are able to interact with their social networks. Text messaging or “texting” on mobile phones is one of the most recent technologies to contribute to this shift, with over two trillion texts sent every year in the United States alone (CTIA, 2013). Adolescents and emerging adults are the highest users of text messaging, sending and receiving an average of one text message every 8–10 waking minutes of the day (Smith, 2011; Underwood, Rosen, More, Ehrenreich, & Gentsch, 2013). Among these users, texting is typically considered an essential tool for staying connected with friends, family, and romantic partners, and for exchanging information and support throughout the day (Pettigrew, 2009). Although decades of research has demonstrated the emotional and physical health benefits of supportive social relationships (Cohen, 2004; Holt-Lunstad, Smith, & Layton, 2010), the vast majority has been focused on in-person interactions. It remains unclear whether digital forms of social support, such as those that occur via text messaging, can carry the same benefits as those that occur via in-person communication.

1.1. Conflicting theories of computer-mediated communication and social relationships

A number of conflicting theories have been put forth to explain if and how computer-mediated communication (CMC) impacts social relationships and well-being. A collection of theories referred to as the “cues filtered out” (CFO) approach have proposed that the quality and effectiveness of social interactions decreases as the number of available verbal cues (e.g., tone, volume) and non-verbal cues (e.g., facial expressions, gestures) decreases (Culnan & Markus, 1987). Media naturalness (Kock, 2004) and media compensation (Hantula, Kock, D'Arcy, & DeRosa, 2011) theories take an evolutionary perspective. From this standpoint, the human biological communication apparatus (which includes the brain and other sensory and motor organs) has evolved primarily for the purpose of face-to-face communication, and is generally less adept at processing written text. One central tenet of Kock's (2004) media naturalness theory is that text-based communication requires greater cognitive effort and will therefore be perceived as less pleasant than face-to-face communication. Hantula et al. (2011) further propose that any task that is ‘ancient’ or has evolutionary relevance, which includes social support (Baumeister & Leary, 1995), will be better served through in-person communication.

In contrast, others have argued that digital communication is not inherently less effective than in-person communication. For

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instance, Walther's social information processing (SIP) theory argues that over time, despite a lack of nonverbal cues, users can learn to convey and process personal information via digital communication and can do so as effectively as they can through in-person communication (Walther, 1992, 2011). Adaptive structuration theory (AST) also highlights the ongoing interaction between technology and the social environment (DeSanctis & Poole, 1994). AST claims that technology evolves in concert with those who use it and that it can eventually result in changes to social rules and norms. For example, someone who has never used text messaging before might perceive text messaging to be a curt or impersonal way to receive support; whereas, a frequent and long-time user of texting may perceive a supportive text to be typical, expected, and perhaps even preferable to a phone call or face-to-face conversation.

1.2. Empirical research comparing digital versus non-digital forms of social support

Empirical research on the effectiveness of social support provided through texting or instant messaging is limited and results have been mixed (Thomé, Eklöf, Gustafsson, Nilsson, & Hagberg, 2007; Wang, Chua, & Stefanone, 2015). In fact, the majority of this research has focused on the quantity, rather than quality, of messages that youth exchange with their friends and family members. Some of these studies have found that more frequent texting is associated with worse relationship and emotional outcomes (Angster, Frank, & Lester, 2010; Murdock, 2013). For example, in a recent study by Goodman-Deane and colleagues, time spent in face-to-face interactions was correlated with greater life and relationship satisfaction, whereas time spent text messaging was correlated with lower satisfaction in these domains (Goodman-Deane, Mieczakowski, Johnson, Goldhaber, & Clarkson, 2016). However, others have found that texting is associated with a greater sense of connection and satisfaction in close relationships (Coyne, Stockdale, Busby, Iverson, & Grant, 2011; Pettigrew, 2009) and that instant messaging is linked with lower depressive symptoms (Morgan & Cotten, 2003), lower emotional distress (Dolev-Cohen & Barak, 2013) and greater friendship quality (Valkenburg & Peter, 2007).

Inconsistencies in past research are likely related to a reliance on qualitative and cross-sectional designs, which preclude a direct, controlled comparison of digital versus non-digital forms of support. However, in a recent quasi-experimental study, female emerging adults were asked to engage in brief conversations with a close female friend using four different modes of communication: in-person, video chat, audio-only chat, and instant messaging (Sherman, Michikyan, & Greenfield, 2013). Although Sherman and colleagues did not examine social support per se, the results favored in-person communication. Specifically, self-reported bonding was found to be highest in the in-person condition, followed by video, audio, and instant messaging. In a similar paradigm, Sacco and Ismail (2014) randomly assigned emerging adults to engage in a five-minute "get to know you" conversation with a same-sex confederate either in-person or via instant messaging. Here again, an advantage for in-person communication emerged, with higher levels of positive mood and basic needs satisfaction in the in-person versus instant messaging group. Discrepancies in physiological responses to digital versus non-digital communication have also been documented. Seltzer and colleagues assigned young girls (aged 8–12) to receive emotional support from their mothers via in-person communication, telephone, instant messaging, or no support at all following a stressful task (Seltzer, Prosofski, Ziegler, & Pollak, 2012). The girls who received maternal support in-person or over the phone displayed significant increases

in oxytocin and decreases in cortisol. In contrast, support via instant messaging failed to produce significant changes in either hormone, and in fact, the hormonal profiles of these girls was akin to those who received no support at all.

1.3. The current study

Emerging findings raise concerns about the potential impact of an increasing reliance on digital communication and highlight the need to better understand whether support through text messaging can compete with "old-fashioned" in-person communication. The current research represents the first randomized controlled studies to compare the impact of emotional support provided in-person versus through text messaging. Two lab-based experiments were conducted. In both studies, emerging adults completed a stressful task and were randomly assigned to receive emotional support either in-person, via text messaging, or no support at all. In Experiment 1, a close friend provided the support, which allowed for a more naturalistic examination of social support processes. In Experiment 2, a similar-aged female confederate provided the support, which allowed us to better standardize the supportive interactions within and across the two support conditions.

Hypothesis 1. *In-person and text message support were both expected to lead to increases in positive affect and decreases in negative affect and perceived stress following the stress task, compared to the control condition.*

Hypothesis 2. *With respect to the relative effectiveness of in-person versus text support, CFO and evolutionary theories would predict that in-person support would be more effective than text messaging at reducing the emotional response to a stressful event, and would lead to greater satisfaction with support. However, from the SIP and AST perspective, texting would have similar benefits as in-person communication, particularly in the context of an established text messaging relationship.*

2. Experiment 1

2.1. Participants

Participants were recruited through an undergraduate psychology research subject pool at a mid-sized Canadian university, through online advertisements on community websites, and via posters on campus and in public locations across the community. The study was advertised as an investigation of how young adults cope with stress. To be eligible, participants were required to be: (a) female, (b) between the ages of 18 and 25, (c) willing and able to bring a close female friend, (d) fluent in English, and (e) able to provide informed consent. Participants were excluded if they had been diagnosed with a mental health disorder or were taking medication for a mental health disorder. As this study was part of a larger study examining psychological and physiological markers of stress, additional exclusion criteria included: (a) a diagnosis of a medical condition that would impact cardiovascular or neuroendocrine function, (b) taking medication that may impact neuroendocrine or cardiovascular functioning, (c) being a smoker, and (d) currently pregnant or lactating. Given known sex differences in the physiological stress response, a female only sample was recruited (Kudielka & Kirschbaum, 2005). Based on past research indicating that females connect more frequently via texting (Kimbrough, Guadagno, Muscanell, & Dill, 2013) and are more likely to discuss emotional experiences via text message (Ling, Baron, Lenhart, & Campbell, 2014; Morrill, Jones, & Vaterlaus, 2013), a female only

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