UNRAVELING THE EFFECT OF SOCIAL MEDIA-BASED MENTAL HEALTH CAMPAIGNS DURING THE TIME OF COVID-19 PANDEMIC: SOCIAL SUPPORT RECEPTION, EXPRESSION, AND CAMPAIGN EFFICACY

by

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(Under the Direction of Jeong-Yeob Han)

ABSTRACT

Recent research has accumulated evidence for the efficacy of participating in social media health campaigns. However, less is known about what communicative activities within social media campaigns are efficacious and in what ways such activities render their outcomes. With this in mind, this study explored if and in what ways college students' expression and reception of four different social support categories (i.e., informational, emotional, esteem, and network support) within a social media campaign produce health benefits. To do so, this study carried out a Facebook mental health campaign designed to help college students cope with psychological distress during the COVID-19 pandemic. The findings of this study suggest that campaign participants' expression and reception of each support category have unique influences on their utilization of coping strategies, which in turn, could contribute to improvement in depressive symptoms.

INDEX WORDS: Social media health campaign, Message expression, Message reception, Social support, Buffering effect

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CHAPTER 1

INTRODUCTION

The coronavirus disease 2019 (COVID-19) has rapidly spread across the United States and other countries, causing a global pandemic. According to the Centers for Disease Control and Prevention (2022), as of October 6th, 44 million confirmed cases and death exceeding 710,000 were reported in the United States. Although vaccines against COVID-19 had become available in late 2020, the national vaccination rate is far below the level of herd immunity (Bloomberg, 2021), and thus, the pandemic has yet to be controlled. In response to the escalating and threatening impact of the COVID-19 on the welfare of the public, therefore, several states and jurisdictions continue stay-at-home orders besides public health measures, such as quarantine, social distancing, self-isolation, and travel restrictions.

The COVID-19 pandemic and social isolation measures to flatten the curve led to negative psychological consequences among college students in the United States. Higher education institutions have suspended in-person classes, moved to online-only instruction, and closed campuses, leading college students to leave their campus community, friends, classes, and familiar routines. In this situation, college students may struggle with anxiety, frustration, and loneliness due to the disconnection from friends and partners in addition to fear and worry of the COVID-19 infection (Son, 2020). Also, students could experience distress because of the interruption of the semester and remote and online learning (Bozkurt et al., 2020; Pather et al., 2020). Furthermore, the COVID-19 crisis has greatly disrupted students' career-related activities, such as projects and internships, increasing the uncertainty in their academic and graduation plan (Theoret & Ming, 2020). The economic downturn caused by the pandemic may also lead

students to face financial insecurity and uncertain prospects in the job market, fueling anxiety and stress (Maria et al., 2020).

Some early evidence of COVID-19 attributable mental health issues among college students has been published. A study conducted using a sample of college students reported that 71% indicated increased stress and anxiety due to the current epidemic (Son et al., 2020). Another study (Wang et al., 2020) using an online survey of 2031 college students also showed that close to 98% were experiencing stress and anxiety because of the pandemic, 18% had suicidal thoughts, and 48% showed a moderate-to-severe level of depression. Mental health has a profound impact on various dimensions of college students' life. First, mental health conditions have been associated with a wide array of academic outcomes: (a) Depression is an important predictor of lower GPA and higher dropping out rate (Eisenberg, Golberstein, & Hunt, 2009); (b) academic stress contributes to higher levels of academic procrastination (Rahardjo, Juneman, & Setiani, 2013), lower GPA, college retention, and accumulated credits (Zajacova, Lynch, & Espenshade, 2005); and (c) psychological distress symptoms are a significant predictor of low academic self-efficacy and delayed study progress (Grøtan, Sund, & Bjerkeset, 2019). The impact of mental health issues extends beyond college students' academic achievement, jeopardizing college students' health. Mental health conditions, such as anxiety, depression, and panic disorder, have been related to smoking, including the use of e-cigarette, and binge drinking behaviors (Cranford, Eisenberg, & Serras, 2009; Hefner, Sollazzo, Mullaney, Coker, & Sofuoglu, 2019). Empirical evidence also documented that college students with mental health problems were likely to have eating disorder symptoms (Eisenberg, Nicklett, Roeder, & Kirz, 2011), cocaine use disorder (Liu, Ball, Elliott, Jacobs-Elliott, & Nicolette, 2020), self-injurious behaviors (Serras, Saules, Cranford, & Eisenberg, 2010; Wilcox et al., 2012), and suicidal

attempts (Liu, Stevens, Wong, Yasui, & Chen, 2019). Moreover, college students' anxiety, depression, and stress were reported to impair life satisfaction (Mahmoud, Staten, Hall, & Lennie, 2012) and social functioning (Hysenbegasi, Hass, & Rowland, 2005). The fact that the COVID-19 pandemic greatly aggravates the mental health of college students underscores the timely need to inform the development of health campaigns that could effectively support collegiate mental health during this difficult time.

In the time of interactive computer-mediated technologies, public health organizations, such as, CDC and the World Health Organization (WHO), regularly communicate about mental health with their audiences through social media channels. Social media support groups also exist to help people with mental health issues, allowing them to talk about their experiences, seek help, support each other, and obtain advice/information (Chuang & Yang, 2014; DeHoff, Staten, Rodgers, & Denne, 2016). The popularity of social media platforms for communicating and promoting mental health can be explained by several reasons. For one, around 70% of Americans use social media sites today, and more than 70% of Facebook, 63% of Instagram, and 42% of Twitter users visit these sites every day (Pew Research Center, 2019). This widespread public engagement with social media platforms makes them a ready channel for sharing health messages with audiences at a significantly low cost. Second, social media's technologies that facilitate interactivity, collaborative content creation, and sharing enable and empower people in their health and healthcare-related interactions without time and space constraints (Thackeray, Neiger, Hanson, & McKenzie, 2008). Some evidence indicates that college students with mental health issues are increasingly turning to social media to talk about their experiences, seek help, support each other, and obtain information (Naslund, Aschbrenner, McHugo, Unützer, Marsch, & Bartels, 2019; Naslund, Aschbrenner, Marsch, & Bartels, 2016; Miller, Stewart, Schrimsher,

Peeples, & Buckley, 2015). Lastly, increased use of social media for social support and health information during the COVID-19 crisis has been also reported (Drouin, McDaniel, Pater, & Toscos, 2020; Ni et al., 2020). In this light, this study focuses on social media as a useful communication platform for the implementation of mental health campaigns for college students.

To develop an effective social media-based mental health campaign for college students, it is important to understand in what ways campaign outcomes are rendered. To date, the effectiveness of health intervention programs or campaigns has been largely studied under the reception-effects paradigm, which views campaign outcomes as direct results of information exposure and campaign message reception (Fishbein & Cappella, 2006). However, there are reasons to believe that the effects of mental health campaigns are channeled through several factors. A sizable body of empirical evidence suggests that exposure to campaign/intervention messages spurs audiences to seek further information, discuss with other people, and share information and opinions, thereby becoming informed and making sense of the campaign/intervention messages (e.g., Cho et al., 2009; Gil de Zúñiga, Molyneux, & Zheng, 2014; Shah et al., 2007). This might be particularly true for health campaigns implemented in social media, which facilitates campaign-related communication among audiences through creating postings, commenting, or messaging. Therefore, attention has to be paid not only to the content and volume of campaign messages received but also to audiences' communication behaviors as an underpinning of campaign outcomes.

With this in mind, this study aims to investigate the effects of health campaign-related message reception and expression on mental health among college students in the time of the COVID-19 pandemic. To achieve these ends, this study developed and conducted a social media-based mental health campaign for college students on a Facebook group for a fifteen-day

period. Then, three different datasets were collected from this campaign. First, pre-existing states pertaining to participants' mental health, depressive symptoms, and campaign outcome factors, including coping strategies, were measured using a baseline survey. Campaign outcome variables were also measured in the middle and right after the campaign period. In addition to these survey datasets, content analyses of comments and postings that participants made responding to the campaign were conducted. By doing so, it was possible to observe changes in participants' exchange of supports over the course of the campaign period. Lastly, a Facebook group allows its administrators to identify who read which postings, as well as creators of comments and postings. Using this usage data, the act of message expression and reception can be observed.

As per the goals of this study, it starts with a review of relevant theoretical frameworks and models. Based on the literature review, predictions on the effects of expression and reception are advanced. Then, an experiment designed to test the hypotheses is outlined.

CHAPTER 2

LITERATURE REVIEW

Campaign Communication Mediation and Social Media

As outlined, the effects of campaign messages have been largely studied under the notion that communication effects are attributed to information exposure, message reception, and selective consumption (Fishbein & Cappella, 2006). Following this idea, scholarly attention has been heavily paid to the content and amount of health messages and their effects. This approach assumes that passive knowledge gain or arousal of emotion through the reception of facts, descriptions, or images would play a key role in changes in attitudes, perceptions, and behaviors (e.g., Rogers, 1975; Rosenstock, 1974; Witte, 1992). However, it is also reasonable to presume that audiences would reflect and make sense of the campaign messages, engage in interpersonal exchanges, such as talk, and become informed, all of which seem influential to health promotions.

The notion that communication among people mediates communication effects is not new. The Orientation$_1$-Stimulus-Orientation$_2$-Response (O_1-S-O_2-R) model of communication effects (Markus & Zajonc, 1985), which challenges traditional stimulus-response (S-R) perspectives, recognizes the important role of indirect effects or mediation. In this model, the post-orientation factor (O_2) is "what is likely to happen between the reception of the message and the subsequent response (R) or outcome" (McLeod et al., 1994, p. 146-147). Afterward, McLeod et al. (2001) incorporated the O_1-S-O_2-R framework into the communication mediation model. This model suggests that the effects of mass media exposure (S) on outcomes (R) can either be direct or indirect via potential mediators (O_2). The model identifies several possible mediators

(O_2), such as interpersonal discussion, information processing, supportive attitudes, knowledge, and cognitive complexity function, which function as linking mass media effects and participatory behaviors (R) (McLeod et al., 2002).

Building upon the O_1-S-O_2-R model, which offers a more comprehensive framework for exploring how campaigns work than does a traditional S-R perspective, scholars have attempted to further explicate what occurs in between campaign exposure and outcome orientations. For example, the citizen communication mediation model (Shah, Cho, Eveland, & Kwak, 2005) proposes that the influence of mass communication on civic engagement is indirect through discussion and reflection about public affairs of interest. The cognitive mediation model (Eveland, Shah, & Kwak, 2003) also suggests that news use promotes increased political knowledge and awareness of civic opportunities and objectives, indirectly through reflection about public affairs. Drawing insights from both the communication mediation model and the cognitive mediation model, scholars have advanced the O_1-S-R_1-O_2-R_2 model of campaign communication mediation (Cho et al., 2009) to introduce an additional mediator, *reasoning* (R_1), which includes face-to-face conversation, online messaging, and cognitive reflection. The model considers these expressive and cognitive activities as interpersonal exchanges with others, deliberations, and intrapersonal reflection.

The prior discussion about communication mediation has substantive implications for studying the effects of health campaigns carried out in social media platforms, which are characterized by their collaborative, participative, and interactive nature. In social media, expression and exchange of ideas and emotions are facilitated to a great extent by new technologies, such as commenting, posting, animated “emoji” reactions, sharing, and private messaging. In this sense, social media offers a place in which thinking and talking about the

campaign content, and expression of views could take place. With this idea, I will elaborate on the effects of message reception and expression, and their relationship with campaign outcomes.

Effects of Receiving Messages with Social Support

Although a wide variety of concepts can be embedded in campaign messages, one with particular relevance in the current context is the theoretical construct of social support. Social support is conceptualized as verbal and nonverbal communication that could reduce uncertainty about the negative situation and improve perceptions of personal control in one's experience (Albrecht & Adelman, 1987). Research shows that social support is a central concept for health and well-being, supporting people to cope, recover, and adapt during an aversive time (Cohen & Hoberman, 1983). Ample literature documented the physical and psychological benefits of having social support (Albrecht & Adelman, 1987; Burleson, Albrecht, Goldsmith, & Sarason, 1994; Cohen, McGowan, Fooskas, & Rose, 1984; Cutrona, Russell, & Rose, 1986).

During the time of the COVID-19 pandemic when face-to-face social support is constrained due to social isolation measures, social media became a particularly useful alternative for the acquisition of social support. This is because social media serves the primary function of facilitating social interaction (Correa, Hinsley, & De Zuniga, 2010), through which people can seek and offer social support. A growing body of research found that online and social media platforms provide a venue for the provision of social support. For example, a meta-analytic review (Liu, Wright, & Hu, 2018) found that the general use of social media is helpful for informational and emotional support. In the context of online HIV/AIDS self-help groups, Coursaris and Liu (2009) conducted a content analysis of 5,000 postings and found that social support, such as informational support, emotional support, network support, and esteem support,

were exchanged to a considerable extent. Myrick and associates (2016) also reported that of 1,957 tweets using #stupidcancer, nearly two-thirds contained social support, such as information sharing, encouragement, empathy, and religious expression. Early evidence indicates that people with high levels of anxiety and loneliness have increased their use of social media since the early stages of social distancing (Drouin, McDaniel, Pater, & Toscos, 2020; Lisitsa et al., 2020). Importantly, social support has been linked to better mental health outcomes (Cohen, Underwood, & Gottlieb, 2000; George, Blazer, Hughes, & Fowler, 1989; Moak & Agrawal, 2010). Based upon the literature review and the characteristics of social media, I believe that social support is the relevant concept that could effectively help college students going through the COVID-19 pandemic. Thus, the following sections discuss the effect of receiving messages with social support.

Individuals' psychosocial and psychological resources and abilities to cope become depleted as stressors like the current pandemic continue (Lazarus & Folkman 1984). Social support has been considered as a multi-dimensional concept that is comprised of the ways in which people's well-being and coping are improved by providing useful information, assistance, encouragement, or social network (Cutrona & Russell, 1990). In this sense, a reception of social support can be beneficial because it serves as a psychosocial resource that could positively influence individuals' personal resources for adaptive coping with stress (Cohen & Wills, 1985; Thoits, 1995). Among possible coping strategies that receiving social support could benefit, this study focuses on individuals' emotional and cognitive processing to manage stress from the present pandemic situation.

First, the previous literature suggests that active identifications of one's emotions (Saarni, 1990; Salovey, Bedell, Detweiler, & Mayer, 1999) could a significant role when encountered

negative circumstances, emotional processing involves. At this point, it is worth mentioning the distinction between emotional identification and strategies that are commonly described as emotion-focused coping. Although emotion-focused coping is widely conceptualized as an attempt to manage the emotional distress that is associated with the situation (Lazarus & Folkman, 1984), scholarly attention largely views emotion-focused coping as maladaptive coping, such as denial or venting (Carver, 1997). On the contrary, emotional identification is about actively recognizing out and processing one's emotion, thereby enhancing psychological adjustments (Baker & Berenbaum, 2007; Stanton et al., 2000).

It has been reported that social support is associated with effectively managing upsetting feelings (Burleson, 1994), improvements in psychological adjustments (Cramer, 2000), boosted optimism (McNicholas, 2002), reductions in emotional distress (Frankel, 2017), acceptance of aversive emotions and attempts to control over them (Han et al., 2019), emotional management competence (Guan, Han, & Shah, Gustafson, 2020), and improvements in emotional well-being (Namkoong et al., 2010). Based on the conceptualization and empirical evidence, it is expected that people could better adopt emotional identification by having social support within social media campaigns.

Another possible outcome of receiving social support is cognitive processing of negative experiences. Specifically, this study attends to positive reframing, which refers to reevaluating a stressful situation in positive terms and finding meaning out of the situation (Carver, Scheier, & Weintraub, 1989), as a coping strategy. I expect that advice, assistance, and information about possible actions against a problem can serve as a vehicle for positive reframing. Previous research on social support suggests that obtaining social support is associated with a greater

tendency to think about a negative situation in a more positive light (Han et al., 2019; Holland & Holahan, 2003; Kim et al., 2012; Kim, Han, Shaw, McTavish, & Gustafson, 2010).

It is important to note that social support is a multifaceted construct under which multiple sub-factors are included (House, 1981). Typically, social support is theorized to encompass five categories: (a) informational support (e.g., providing useful information including advice, guidance, or suggestions); (b) network support (e.g., presenting networks of people with similar difficulties); (c) tangible support (e.g., offering instrumental support such as loans); (d) emotional support (e.g., providing encouragement, sympathy, or understanding); and (e) esteem support (e.g., sharing compliment, validation, and relief) (Cutrona & Russell, 1990). Among these categories, tangible support, such as providing loans or helping with tasks, may not be relevant in the current context because it could not be easily delivered through a social media message. Previous research also reported that tangible support was rarely exchanged on social media platforms (Coulson, Buchanan, & Aubeeluck, 2007; Coursaris & Liu, 2009). Hence, tangible support was excluded from the current investigation.

Given the conceptualization of each support type, certain supportive messages may work better than others. Supportive messages can remind individuals of coping resources that they can draw on to make an adjustment (Lazarus & Folkman, 1984). In this sense, informational support messages can help recipients evaluate their negative experience in a constructive manner because such support offers useful information about the situation, ideas/suggestions needed to deal with the problem, or reassessments of the circumstance. Emotional support messages could share caring, empathy, understanding, or affection in regards to recipients' well-being, and by receiving such support, people may become feel safe and confident in confronting the aversive experience (Matsunaga, 2011). Previous studies showed that support for one's emotion was

positively associated with a variety of affective, cognitive, and health outcomes (Burleson, MacGeorge, Knapp, & Daly, 2002; Cunningham & Barbee, 2000; Han et al., 2019). Based on the discussion, I predict that:

H1: Reception of informational support messages will be positively associated with emotional identification (H1a) and positive reframing (H1b).

H2: Reception of emotional support messages will be positively associated with emotional identification (H2a) and positive reframing (H2b).

There has not been much evidence for the effects of other supportive messages, and existing studies presented somewhat less clear results. Matsunaga (2010, 2011) found that esteem and network support had marginal impacts on coping or even exhibited undesired outcomes. Oh and associate (2013) also reported a non-significant relationship between esteem support and health outcomes. Given this lack of evidence, the following research question is advanced to explore the effects of esteem and network support message reception on emotional processing and positive reinterpretation.

RQ1: How will reception of esteem and network support messages be associated with emotional identification and positive reframing?

Effects of Expressing Social Support Messages

Ample research recognizes that when a group of people with similar health issues communicate through a computer-mediated environment, social support is often exchanged (Mikal, Rice, Abeyta, & DeVilbiss, 2013; Myrick, Holton, Himelboim, & Love, 2016; Shaw et al., 2000; Wright, Bell, Wright, & Bell, 2003). This frequent exchange of social support may occur because human beings are social creatures and often turn to each other for physical assistance and psychological sustenance (Fiske, 2018).

Expression of social support through messages can be a highly consequential behavior because articulating and composing feelings and ideas in language involve psychologically intense and clarifying exercises (Pingree, 2007). This perspective can be summarized as follows: "the act of expression might change the message sender, that expressed ideas often do not exist intact, if at all, in the sender's mind prior to expression" (Pingree, 2007, p. 439). Hence, previous studies on expression effects have largely focused on cognitive changes associated with writing and expression. That is, expression effects may result from the creation of new understanding, which is thought to be a product of translating feelings and ideas in word (Pennebaker, 1997). With respect to expression effects, Pingree's general model of bi-directional message effects (2007) suggests that cognitive effects of expression can occur in three stages of expression. First, before releasing a message, the expectation of future expression can function as a driver of the cognitive processing of message-related ideas. Second, new ideas can be generated while composing a message, as outlined above. Lastly, releasing a message can lead to commitments to justify or defend views reflected in the released message. This study particularly pays attention to the second perspective, expression effects that occur during the message composition, as such effects can be explored by analyzing postings and comments that college students would make in the social media environment. Based on this argument, I will elaborate on how expression of social support would be related to campaign outcomes.

The above discussion on expression effects suggests that exercising expression in the social media environment would involve in-depth mental elaboration, information processing, and reasoning, therefore creating a new understanding and perspective on stressful situations and mental health conditions. There is a wealth of evidence of such benefits of expression. For example, it has been reported that there was increased learning when students communicate their

ideas and give explanations (Sfard & Kieran, 2001; Webb, 1989). Evidence of expression effects can be also found in the domain of political communication. Eveland (2001) showed that political discussion contributed to increases in political knowledge through elaboration that occurred prior to or during the discussion. Likewise, Finkel and Smith (2008) reported that people who communicated with others about the information received and their personal experiences amplified and reinforced the messages in their minds, leading to greater growth in political knowledge than those who had not communicated their ideas at all. In line with this result, Cho and colleagues (2009) found that more frequent interpersonal political conversations led to greater political knowledge.

In the health context, writing about one's deepest thoughts and feelings about the negative experience has been related to many benefits (e.g., Davis, Gustafsson, Callow, & Woodman, 2020; Han et al., 2019; Kim et al., 2012; Namkoong et al., 2013; Pennebaker, Mayne, & Francis, 1997; Schwartz & Sendor, 2000). In regards to this effect, Pennebaker (1997) asserted that people who benefited from writing began with poorly organized descriptions and progressed to coherent stories over the course of the writing intervention program. Similarly, Young (1996) noted that "in this [writing] process, people's own initial preferences are transformed from subjective to objective claims and the content of these preferences must also change to make them publicly speakable" (p. 125). In line with this argument, Pennebaker and Seagal (1999) suggests that expression in aversive events can help integrate stressful experiences into a cohesive story that may make the stressful experience more meaningful, and by doing so, the experience can be better summarized, stored, or forgotten.

A review of empirical studies lends support for positive effects of the two types of social support message expression. First, previous studies found that giving informational support, such

as advice, can contribute to psychosocial adjustments (Roberts et al., 1999). Namkoong et al. (2010) also reported that expression of treatment-related information positively influenced participants' emotional well-being among those who had a high level of health self-efficacy. Similarly, Roman and colleagues (1999) found that by providing informational support, individuals can make a plan for the future, become confident, and find more resources. Expression of emotional support has been also found to have various emotional, cognitive, and behavioral benefits, such as positive reframing (Han et al., 2019), reduction in risky behaviors (Liu et al., 2019), and quality of life (Yoo et al., 2014). Hence, it is predicted:

H3: Expression of informational support messages will be positively associated with emotional identification (H3a) and positive reframing (H3b).

H4: Expression of emotional support messages will be positively associated with emotional identification (H4a) and positive reframing (H4b).

Because there is a dearth of evidence for the effect of esteem and network support message expression, the following research question is set forth.

RQ2: How will expression of esteem and network support messages be associated with emotional identification and positive reframing?

Buffering Effects of Social Support Reception and Expression

Two routes have been proposed to underlie the effects of social support: the main effect and the stress-buffering effect (Cohen & Wills, 1985). As articulated in the arguments for the previous hypotheses on the effects of social support reception and expression, the main effect model proposes that there is a direct effect of social support on physical and psychological outcomes (Aneshensel & Stone, 1982; Thoits, 1982). That is, people with strong, relative to weak, social support are likely to have better health, regardless of their exposure to stressors. For

example, Antonucci and Jackson (1990) found that there were direct effects of social support in terms of reduced stress, lower levels of morbidity and mortality, and improved psychological well-being among older adults. On the contrary, the buffering effect suggests that social support can lead to health benefits by reducing the negative influences of stressful events. Researchers have linked the buffering model to positive health outcomes, such as cancer-related concerns, financial stress, life stress among older adults, and life satisfaction and depression among college students (e.g., Åslund, Larm, Starrin, & Nilsson, 2014; Han et al., 2019; Wright, 2000; Zhang, 2017).

The buffering effect could occur both in the social support reception and expression contexts. First, it has been suggested that receiving support may prevent a stress appraisal, helping people redefine the adverse impact of a negative event and reduce the affective and physical responses to stressors (Cohen & Pressman, 2004). In addition, because expression could confer various benefits, as discussed in the arguments for H3 and H4, expression of social support could serve as a buffer to negative impacts of stressful encounters and vehicle for better coping strategies. Empirical evidence also exists to support the buffering effects of both social support reception and expression. For example, Han and associates (2011) reported a significant buffering effect of expressing one type of social support, namely empathy, on breast cancer concerns among people who reported high levels of the concerns at baseline. Han et al. (2019) found support for the buffering effect of social support reception: Among their study participants who showed high depression levels at baseline, those who received empathy more frequently reported lower levels of depression at follow-ups.

Taking the prior discussion and H1 through H4, which propose the beneficial effect of informational and emotional support message reception and expression, it is expected that people

who express and receive more informational and emotional support messages over time will be more likely to adopt emotional identification and positive reframing. Therefore, the following hypotheses are proposed.

H5: Reception of informational support (H5a) and emotional support messages (H5b) will moderate the relationship between baseline and follow-up levels of emotional identification. That is, an increase in emotional identification over the course of the campaign period will be greater among college students who receive more informational and emotional support messages.

H6: Reception of informational support (H6a) and emotional support messages (H6b) will moderate the relationship between baseline and follow-up levels of positive reframing. That is, an increase in positive reframing over the course of the campaign period will be greater among college students who receive more informational and emotional support messages.

H7: Expression of informational support (H7a) and emotional support messages (H7b) will moderate the relationship between baseline and follow-up levels of emotional identification. That is, an increase in emotional identification over the course of the campaign period will be greater among college students who express more informational and emotional support messages.

H8: Expression of informational support (H8a) and emotional support messages (H8b) will moderate the relationship between baseline and follow-up levels of positive reframing. That is, an increase in positive reframing over the course of the campaign period will be greater among college students who express more informational and emotional support messages.

In addition to these hypotheses, the following four research questions are examined given the prior research questions regarding the roles of reception and expression of social support other than informational and emotional support messages.

RQ3: Will reception of esteem and network support messages moderate the relationship between baseline and follow-up levels of emotional identification?

RQ4: Will reception of esteem and network support messages moderate the relationship between baseline and follow-up levels of positive reframing?

RQ5: Will expression of esteem and network support messages moderate the relationship between baseline and follow-up levels of emotional identification?

RQ6: Will expression of esteem and network support messages moderate the relationship between baseline and follow-up levels of positive reframing?

Coping Strategies and Reduction of Depression Symptoms

Previous research has been largely adopted a dichotomous perspective of coping when studying the relationship between coping and health outcomes (i.e., emotion-focused vs. problem-focused coping) (Doron, Thomas-Ollivier, Vachon, & Fortes-Bourbousson, 2013). Problem-focused coping is about attempting to manage or modifying the problem causing the stress, while emotion-focused coping is strategies for alleviating negative emotional responses to the problem, including the two hypothesized coping outcomes of social support reception and expression (i.e., emotional identification and positive reframing) (Lazarus & Folkman, 1984). Problem-focused coping has been positively correlated with overall health outcomes, whereas the predominant view in the stress and coping literature is that emotion-focused coping strategies tend to be maladaptive (Stanton, Danoff-Burg, Cameron, & Ellis, 1994).

However, emotion-focused coping includes a wide variety of strategies, ranging from denial, to venting of emotions, to reassessment of situations that cause emotions. Some emotion-focused coping tactics are known to result in positive psychological and physical health (e.g., Smith, Lumley, & Longo, 2002; Roth & Cohen, 1986; Stanton et al., 2000). With regard to this, Carver et al. (1989) proposed that "construing a stressful transaction in positive terms should intrinsically lead the person to continue (or to resume) active, problem-focused coping actions." (pp. 269-270) Likewise, Folkman and Lazarus (1985) suggested that positive reinterpretation could facilitate problem-focused coping if it is used to manage negative emotions that would otherwise hamper problem-focused coping. In addition, Stanton and associates (2000) argued that active attempts to acknowledge and understand one's emotions are important approaches to psychological adjustment against stressful encounters, thereby producing desired outcomes. Such arguments are consistent with the psychotherapeutic effect of cognitive restructuring: Through problem identifying and disputing maladaptive thoughts, and replacing them with positive and constructive ones, individuals can improve their mental health conditions (e.g., Hamdan, 2008; Kranke et al., 2017; Mueser et al., 2015).

In support of the above discussion, previous studies have indicated that the aforementioned cognitive works would enhance mental health. Cheshire et al. (2010) reported that focusing on the positive aspects of the situation and finding meaning were negatively associated with anxiety, depression, and stress levels. Lambert et al. (2012) also found that perceiving something previously viewed as negative in a positive light reduced depressive symptoms. Similarly, emotional identification has been reported to contribute to improvements in mood (Hunt, 1998), better psychological adjustment to cancer (Stanton et al., 2000), and reductions in depressive symptoms (Berghuis & Stanton, 2002; Feldman, Harley, Kerrigan,

Jacobo, & Fava, 2009). Based on the review of coping theories and empirical studies, it is anticipated that emotional identification and positive reframing that college students would adopt to cope with stress from the COVID-19 crisis would improve their depressive symptoms. Therefore, the following hypothesis is advanced.

H9: Emotional identification (H9a) and positive reframing (H9b) will be positively associated with a reduction of depressive symptoms.

Taking the above prediction and prior hypotheses concerning the effect of social support reception and expression on the two coping strategies, it is expected that emotional identification and positive reframing will mediate the effects of informational support and emotional support message reception and expression on reductions in depressive symptoms. Hence, the following four hypotheses are proposed.

H10: Emotional identification will mediate the effect of informational support (H10a) and emotional support (H10b) message reception on a reduction of depressive symptoms.

H11: Positive reframing will mediate the effect of informational support (H11a) and emotional support (H11b) message reception on a reduction of depressive symptoms.

H12: Emotional identification will mediate the effect of informational support (H12a) and emotional support (H12b) message expression on a reduction of depressive symptoms.

H13: Positive reframing will mediate the effect of informational support (H13a) and emotional support (H13b) message expression on a reduction of depressive symptoms.

Furthermore, in consideration of RQ1 and RQ2 investigating the roles of esteem and network support reception and expression on emotional identification and positive reframing, the below research questions are set forth.

RQ7: Will emotional identification mediate the effect of esteem and network support message reception on a reduction of depressive symptoms?

RQ8: Will positive reframing mediate the effect of esteem and network support message reception on a reduction of depressive symptoms?

RQ9: Will emotional identification mediate the effect of esteem and network support message expression on a reduction of depressive symptoms?

RQ10: Will positive reframing mediate the effect of esteem and network support message expression on a reduction of depressive symptoms?

Additionally, in consideration of (a) the mediating role of emotional identification and positive reframing, and (b) the role of social support reception and expression in moderating baseline and follow-up levels of the coping strategies, the following four moderated mediation hypotheses are expected.

H14: The positive association between a baseline level of emotional identification and a reduction of depressive symptoms through follow-up levels of emotional identification will be greater among college students who receive more informational support (H14a) and emotional support messages (H14b).

H15: The positive association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing will be greater among college students who receive more informational support (H15a) and emotional support messages (H15b).

H16: The positive association between a baseline level of emotional identification and a reduction of depressive symptoms through follow-up levels of emotional identification will be greater among college students who express more informational support (H16a) and emotional support messages (H16b).

H17: The positive association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing will be greater among college students who express more informational support (H17a) and emotional support messages (H17b).

Lastly, given the research questions exploring the effects of esteem and network support message reception and expression, this study further investigates if and how reception and expression of such social support messages moderate the association between a baseline level of the two coping strategies and a reduction of depressive symptoms through follow-up levels of the said strategies.

RQ11: Will reception of esteem and network support messages moderate the association between a baseline level of emotional identification and a reduction of depressive symptoms through follow-up levels of emotional identification?

RQ12: Will reception of esteem and network support messages moderate the association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing?

RQ13: Will expression of esteem and network support messages moderate the association between a baseline level of emotional identification and a reduction of depressive symptoms through follow-up levels of emotional identification?

RQ14: Will expression of esteem and network support messages moderate the association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing?

CHAPTER 3

METHODS

An Overview of the Study Design

To test the hypotheses and answer research questions, a mental health campaign for college students going through the COVID-19 pandemic was developed and carried out via a private Facebook group during a fifteen-day period. A private Facebook group was selected as a campaign platform for three reasons. First, it not only offers a channel for effective dissemination of health information and campaign messages but also facilitates engagement with audiences in the creation and exchange of user-generated content through its signature features, including commenting and posting. Second, researchers can have an optimal level of controllability over group members' viewing, posting, commenting, and sharing. Specifically, a group administrator can observe (a) who writes certain postings or comments and (b) who read particular postings. Lastly, by using a private Facebook group, privacy concerns or issues that participants may have can be alleviated or resolved because such a group allows only group members to see who is in the group and what they write within the group. As a result, a private Facebook group entitled, "College Student Alliance on Mental Health Awareness (CAMA)," was designed (see Appendix A).

Over the course of the campaign period, eight campaign messages delivering the four dimensions of social support (two campaign messages for each dimension) in the context of coping with mental health issues during the COVID-19 crisis were posted every other day. During the campaign period, participants were encouraged to participate in the campaign in several ways. For example, they were asked to read and react to the campaign messages by

leaving comments, writing postings, or pressing “like.” Participants were also instructed to interact with other group members (i.e., other participants) every day by enacting several different communication activities, such as (a) sharing tips, information, or advice for coping with stress from the pandemic, (b) expressing understanding and encouragement, or (c) complimenting or recognizing others’ skills or abilities. Overall, they were encouraged to engage in any communicative behaviors related to sharing their own experiences, feelings, and thoughts that they have during the pandemic.

Participants

Using Listserv, an electronic mailing list software application, an invitation letter was sent to University of Georgia undergraduate students who enrolled in the Fall 2021 semester. Eligibility criteria were (a) currently living in the U.S., (b) more than 18 years old, (c) having an active Facebook account, and (d) taking courses at the University of Georgia in the Fall 2021 semester. Recruitment of participants started on September 20, 2021 and was completed on October 7, 2021. 151 undergraduate students showed initial interest in the study. Of those students, 121 consented, finished the base-line survey, and participated in the campaign activities. The campaign was conducted from October 11 to October 25, 2021. In addition to the baseline survey that was conducted at the beginning of the campaign period, two follow-up surveys were administrated to participants in the middle (eighth day) and right after the campaign period (fifteenth day). The first follow-up survey was conducted with 106 participants (retention rate = 87.60%), and 94 participants completed the second follow-up survey (retention rate = 77.69%). Participants were given Amazon eGift cards for their participation. The actual balance of eGift cards that participants received was prorated based on (a) the number of surveys they completed and (b) the number of days that they participated in the Facebook group.

Participation here was defined as leaving at least one comment, at least one post, or reading at least one campaign message a day. Participants who completed all surveys and participated in the Facebook group every day were able to receive a $30 eGift card.

Initial Development of Campaign Message Stimuli

A total of eight messages representing the four categories of social support were created in the COVID-19 pandemic and mental health context: informational, esteem, network, and emotional support messages. Following the individual support-intended communication behaviors that fall into four sub dimensions of social support provided in the Social Support Behavior Code (SSBC) (Cutrona & Suhr, 1992; Suhr, 1990), each message was developed to represent certain support-intended communication. Existing social support measures were compiled and used as well (e.g., Ong & Ward, 2005; Xu & Burleson, 2001). Then, the created messages were tailored as a format of Facebook postings, including symbols and images. In composing the campaign messages, information from CDC and WHO about mental health and coping strategies was compiled and used.

Informational support message. Two informational support messages were created to represent two information support-intended communication behaviors suggested by SSBC: (a) offering ideas/actions (i.e., suggestion/advice), and (b) providing detailed information to help for dealing with the situation (i.e., teaching). For example, the suggestion/advice message lists several ways to cope with stress and promote well-being during the pandemic. The teaching message states possible experiences that may signal mental health problems.

Emotional support message. Following SSBC, (a) One message designed to provide the audiences with hope and confidence (i.e., encouragement) and (b) the other message offering physical contact (i.e., physical affection) were created. For example, the encouragement message

reminds audiences of the importance of staying positive in the situation. The physical affect message expresses physical contact verbally, such as "Consider yourself hugged! We hope you feel better!"

Esteem support message. Based on SSBC, two esteem support messages were designed to (a) compliment recipients' ability to overcome this pandemic (e.g., "You are a strong and resilient person who has successfully managed to overcome some of the toughest challenges throughout your life") (i.e., compliment) and (b) alleviate audiences' feelings of guilt about the situation ("There is no need to feel bad about feeling bad or to blame yourself") (i.e., relief of blame).

Network support. Following SSBC, two supportive messages were rendered to remind audiences with access to new companions (e.g., "Because we are all going through a difficult time, we can truly understand the stress that you might be experiencing" and "We welcome you to this wonderful group of people who have caring hearts and open ears to listen to your stories during the COVID-19 pandemic") (i.e., companions).

Focus Group for Campaign Message Development

The eight campaign messages containing the four social support categories were further explored through the focus group method. Because the messages were developed based on the theory and existing scales, the goal of this focus group was mainly testing acceptance, readability, and legibility of the messages. A focus group with fifteen students studying advertising and public relations at the University of Georgia was conducted. They were mostly female (86.7%), and the average participant was 21 years old (SD = .66). The majority of the participants described themselves as Caucasian (66.7%), with the remainder identifying as Asian

(20.0%), Hispanic/Latino (6.7%), and multiracial (6.7%). They received extra credits for their participation.

Once informed consent was obtained, the goal of the focus group study was announced, and a brief explanation of how the draft messages were developed was provided to participants. Then, a focus group leader led the focus group session for about 50 minutes and request specific feedback on the draft messages and potential ideas for improving the messages.

Informational support messages-teaching. Two students agreed that the content of the message is appropriate and helpful for college students with mental health issues. Some participants (n = 4) noted that the message needs to be improved in a way that attracts more attention. To achieve that end, one participant recommended using a different color on the heading, "KNOW YOUR MENTAL HEALTH," and another participant suggested reducing the amount of texts so that the message could read better. Another student proposed to enlarge the icons used in the message.

Informational support messages-advice/suggestion. Participants' feedback and ideas were mostly focused on the arrangement and color of the headline and text. Four students suggested using a different color on the heading, "MANAGE YOUR STRESS," making it contrast with the rest of the text. One participant proposed to increase the font size of the subheading, and the other participants stated that it is better to increase the font size of the text and heading. One student highlighted that the color used in the text is good.

Emotional support message-encouragement. One student stressed that the phrase, "Keep your chin up and focus on the positive aspects of your life," sounded good and suggested the remove the phrase, "If you stay positive in a negative situation, you win!" because it sounded redundant. Another student proposed to remove the hashtags, "COVID-19" and "CAMA," and

put them into the caption. One student recommended making an illustration below the text smaller, creating more space for the text above.

Emotional support message-physical affection. One student recognized that the heading, "SENDING THE VIRTUAL HUGS," is good. Three students agreed that the text is too long and needs to be shortened. Regarding this point, one participant suggested removing the first phrase of the text, "During this time apart from each other." Two participants pointed out that the line spacing is too narrow. One student noted that the colors on the heading and text are too contrasting. Lastly, another student suggested changing the color used on the hashtag bar at the bottom of the message to a more pinkish one.

Network support message-companions. Participants' feedback and suggestions were mainly pertaining to the spacing and line-breaking of the text. One participant suggested enlarging the space between the lines of the text, and another student mentioned that it might be better to add a line break before the part of the phrase, "your story during the COVID-19 pandemic."

Network support message-companions. One student noted that she did not like the illustration showing people holding hands together at the bottom of the image because of the dark shadow of the people. Two students pointed out that there should be more space between the lines of the text, and one student suggested making the illustration smaller. One participant proposed to increase the font sizes of the sub-heading and bullet-pointed lists.

Esteem support message-compliment. Three students agreed that the spacing between the lines of the text is good and that the content is helpful. Another student also noted that the arrangement of the text is well laid out. One participant suggested two ideas: (a) using a white background for the heading, making it stand out better; and (b) using a different color on the

background for the hashtags. The other students proposed to adjust the position of the phrase, "Remind yourself of this today!"

Esteem support message-relief of guilt. One student noted that she loves the color and illustration used in the message, as well as the content. Another student mentioned that it might be better to reduce the text, by merging the first and second sentences. Another participant suggested using a darker, maybe navy blue, for the main text.

Based on the feedback and ideas provided by focus group participants, the campaign messages were revised and finalized for the pretest (see Appendix B).

Measures

Three different datasets were used for testing the hypotheses and research questions of this study: (a) survey data, (b) coding data from participants' postings and comments, and (c) Facebook group log data.

Survey data. A total of three surveys were conducted throughout the survey period. First, a baseline survey was conducted to measure (a) participants' demographic information, such as age, education, and gender, and (b) the campaign outcome variables, baseline levels of depression symptoms, emotional identification, and positive reframing. Through two follow-up surveys, the campaign outcome variables and perceived reception of social support were also assessed in the middle and after the campaign period

Emotional identification was assessed using two items from Stanton et al. (1994), "I've been taking time to figure out what I'm really feeling" and "I've been delving into my feelings to get a thorough understanding of them" (baseline $M = 3.48$, $SD = 1.07$, Cronbach's $\alpha = .89$; first follow-up $M = 3.55$, $SD = 1.05$, Cronbach's $\alpha = .84$; second follow-up $M = 3.57$, $SD = 1.08$;

Cronbach's α = .94). A 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used.

Positive reframing was measured using two items from the Brief COPE (Carver, 1997): "I've been trying to see it in a different light, to make it seem more positive" and "I've been looking for something good in what is happening," using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (baseline $M = 3.73$, $SD = .88$, Cronbach's α = .71; first follow-up $M = 3.64$, $SD = .94$, Cronbach's α = .85; second follow-up $M = 3.80$, $SD = .88$, Cronbach's α = .83).

Depressive symptoms were measured using twenty items from the Center for Epidemiologic Studies Depression (CES-D) scale (Radloff, 1977). Participants were asked, on a four-point scale ranging from 0 (rarely or none of the time) to 3 (most or all of the time), items such as "I felt that I could not shake off the blues even with help from my family or friends," "I felt depressed," and "I thought my life had been a failure." An index of depressive level was calculated by summing scores of the twenty items and ranged from 0 to 60 (baseline $M = 22.85$, $SD = 11.99$, Cronbach's α = .93; first follow-up $M = 21.82$, $SD = 12.12$, Cronbach's α = .93; second follow-up $M = 20.00$, $SD = 12.91$, Cronbach's α = .94).

Within a social media campaign, participants can receive support not only from central campaign messages but also from other users via posts or comments. In addition, there have been two approaches to studying the effect of social support reception. There has been a line of research suggesting that the actual behavior of support reception predicts salutary outcomes (e.g., Han et al., 2013; Kim et al., 2011; Yoo et al., 2014), while others have documented evidence proposing that it is perception of social support that produces benefits (e.g., Lee, Chung, & Park, 2018; Roberts et al., 1999). To address these issues, this study investigates the effects of social

support message reception considering both campaign message reception and perception of social support from other group members. Twenty-eight items from Xu and Burleson (2001) were modified and used to measure participants' perceived reception of social support from other group members during the campaign period. A five-point scale ranging from 1 (Don't receive at all) to 5 (Received a great deal) was used.

To measure perceived reception of informational support, participants were asked to indicate how much they received or read seven types of postings or comments, including "giving you advice about what to do," "teaching you how to do something that you don't know how to do," and "providing detailed information about the situation or about skills needed to deal with the situation," from group members (first follow-up $M = 2.36$, $SD = .99$, Cronbach's $\alpha = .91$; second follow-up $M = 2.50$, $SD = 1.01$, Cronbach's $\alpha = .91$).

Perceived emotional support message reception was measured by asking how much they received or read seven types of postings or comments, including "offering physical contact, including hugs, kisses, hand-holding, shoulder patting," "providing you with hope and confidence," and "expressing sorrow or regret for your situation or distress," from group members (first follow-up $M = 3.00$, $SD = .91$, Cronbach's $\alpha = .86$; second follow-up $M = 2.88$, $SD = .83$, Cronbach's $\alpha = .83$).

Perceived reception of esteem support messages was measured by asking how much they received or read seven types of postings or comments, including "expressing esteem or respect for a competency or personal quality of yours," "telling you that you are still a good person even when you have a problem," and "telling you that a lot of people enjoy being with you," from group members (first follow-up $M = 2.62$, $SD = .97$, Cronbach's $\alpha = .89$; second follow-up $M = 2.59$, $SD = .94$, Cronbach's $\alpha = .89$).

Perceived reception of network support messages was measured by asking how much they received or read seven types of postings or comments, including "offering to provide you with access to new companions," "connecting you with people whom you may turn to for help," and "helping you find the people who can assist you with things," from group members (first follow-up $M = 2.36$, $SD = 1.08$, Cronbach's $\alpha = .93$; second follow-up $M = 2.38$, $SD = 1.00$, Cronbach's $\alpha = .92$).

Several potentially confounding variables were statistically controlled. First, participants' gender, past experience with COVID-19, race, and past experience of being diagnosed or treated by a professional with mental health-related conditions were dummy-coded and controlled. Also, participants' exposure to mental health-related campaigns or advertising before and during the campaign was statistically controlled. Five items form Kam and Lee (2013) were modified and used (baseline $M = 3.48$, $SD = 1.07$, Cronbach's $\alpha = .86$; first follow-up $M = 3.55$, $SD = 1.05$, Cronbach's $\alpha = .86$; second follow-up $M = 3.57$, $SD = 1.08$, Cronbach's $\alpha = .86$). Sample items include, "about how often have you seen advertising or campaigns that are intended to promote mental health on TV, or heard them on the radio?" and "about how often have you seen advertising or campaigns that are intended to promote mental health on the internet, including social media?" A five-point scale ranging from 1 (Not at all) to 5 (More than 9 times) was used. See Appendix C for detailed information about the measurements for the key variables used in this study.

Facebook usage data. A private Facebook group permits an administrator to observe several actions made by group members. Using this function, I, as an administrator, was able to identify who have seen specific postings, and have written postings and comments. The dataset regarding authors of postings and comments was combined with a coding dataset that will be

described below to create participants' social support expression indices. Facebook usage information about viewing of postings and comments was used to create indices of campaign message reception. On average, participants viewed 1.45 informational support campaign messages (*SD* = .90), 1.32 emotional support campaign messages (*SD* = .95), 1.21 esteem support campaign messages (*SD* = .98), and 1.45 network support campaign messages (*SD* = .90).

Coding data. Human-coding content analysis was administrated to examine expression of social support reflected in postings and comments that participants made in the group. Two graduate research assistants who were unaware of the study objectives and setting were trained to code the messages for social support categories. After two hours of the initial training session, the two assistants independently coded randomly selected fifteen percent of the comment/postings (*n* = 146). Krippendorff's α was used to measure inter-coder reliabilities (α ≥ .67 is acceptable, Krippendorf, 2004).

Each sentence served as a unit of analysis. Therefore, one or more support categories could appear in a single posting or comment. In coding participants' expression of social support, the coders used SSBC. SSBC comprises five social support categories, information support, emotional support, esteem support, network support, and instrumental support, and provides 23 specific supportive communication behaviors that fall into the five main categories. Many studies have used SSBC and its 23 subcategories to examine expression of social support in an online setting (Braithwaite et al., 1999; Coulson et al., 2007; Coulson & Greenwood, 2012; Coursaris & Liu, 2009).

Expression of informational support was coded when its four subcategories were present in a posting or comment: suggestion/advice (i.e., offering ideas and suggesting actions), referral

(i.e., referring the recipient to some other source of help), situation appraisal (i.e., reassessing or redefining the situation), and teaching (i.e., providing detailed information, facts, or news about the situation or about skills needed to deal with the situation) (First follow-up $M = 1.98$, $SD = 2.61$; Second follow-up $M = 5.61$, $SD = 5.56$, Krippendorff's $\alpha = .90$).

When coding emotional support expression, the coders examined if eight subcategories of emotional support appeared: relationship (i.e., stressing the importance of closeness and love in relationship with the recipient), physical affection (i.e., offering physical contact, including hugs, kisses, hand-holding, shoulder patting), confidentiality (i.e., promising to keep the recipient's problem in confidence), sympathy (i.e., expressing sorrow or regret for the recipient's situation or distress), listening (i.e., attentive comments as the recipient speaks), understanding/empathy (i.e., expressing understanding of the situation or disclosing a personal situation that communicates understanding), encouragement (i.e., providing the recipient with hope and confidence), and prayer (i.e., praying with the recipient) (First follow-up $M = 4.32$, $SD = 4.63$; Second follow-up $M = 6.80$, $SD = 8.31$, Krippendorff's $\alpha = .87$).

Esteem support expression was coded considering its three sub-categories, compliment (i.e., saying positive things about the recipient or emphasizing the recipient's abilities), validation (i.e., expressing agreement with the recipient's perspective on the situation), and relief of blame (i.e., trying to alleviate the recipient's feelings of guilt about the situation (First follow-up $M = .76$, $SD = 1.40$; Second follow-up $M = 1.56$, $SD = 2.22$, Krippendorff's $\alpha = .76$).

Expression of network support was coded when its four subcategories emerged in a posting or comment: access (i.e., offering to provide the recipient with access to new companions), presence (i.e., offering to spend time with the recipient), and companions (i.e., reminding the recipient of availability of companions, of others who are similar interests or

experience). Notably, since neither of the two coders found expression of network support from the data selected for assessing inter-coder reliabilities, no variation emerged. Therefore, Krippendorff's α coefficient could not be calculated for network social support (First follow-up $M = .06$, $SD = .25$; Second follow-up $M = .13$, $SD = .42$).

CHAPTER 4

RESULTS

Pretest

A pretest was conducted to examine if each campaign message addressed the intended category of social support. Thirty-five undergraduates studying advertising and public relations at the University of Georgia were recruited to the pretest (94.1% female). Participants ranged in age from 19 to 22 years ($M = 20.91$, $SD = .74$) and varied in racial/ethnic background (Caucasian [80.0%], Hispanic/Latino [8.6%], Asian [2.9%], African American [2.9%], and others [5.8%]).

Social support message manipulation was assessed by testing differences in post exposure levels of perceived social support types (i.e., informational support, emotional support, esteem support, and network support). Results of one sample *t*-tests showed that after exposure to informational support message (teaching), levels of perceived informational support ($M = 2.53$, $SD = 1.45$) were significantly higher than levels of perceived emotional support ($M = 1.61$, $SD = .73$), $t(34) = 7.42$, $p < .001$, esteem support ($M = 2.17$, $SD = 1.25$), $t(34) = 1.69$, $p < .05$, and network support ($M = 1.64$, $SD = .94$), $t(34) = 5.60$, $p < .001$. Exposure to the other informational support message (advice) also resulted in levels of perceived informational support ($M = 4.59$, $SD = .56$) that were significantly higher than levels of perceived emotional support ($M = 2.51$, $SD = .65$), $t(34) = 18.94$, $p < .001$, esteem support ($M = 3.31$, $SD = 1.05$), $t(34) = 7.16$, $p < .001$, and network support ($M = 2.89$, $SD = 1.12$), $t(34) = 8.99$, $p < .001$. Hence, the informational support message manipulations were successful.

After exposure to the emotional support message (encouragement), participants' levels of perceived emotional support ($M = 3.94$, $SD = .94$) were significantly higher than their levels of

perceived informational support (M = 3.03, SD = 1.08), $t(34) = 4.99$, $p < .001$, esteem support (M = 3.26, SD = 1.27), $t(34) = 3.20$, $p < .01$, and network support (M = 1.86, SD = 1.03), $t(34) = 12.03$, $p < .001$. Results of one sample t-tests also indicated that after viewing another emotional support message (physical affection), participants' levels of perceived emotional support (M = 3.23, SD = 1.54) were significantly higher than their levels of perceived informational support (M = 2.27, SD = 1.09), $t(34) = 5.18$, $p < .001$, esteem support (M = 2.80, SD = 1.16), $t(34) = 2.19$, $p < .05$, and network support (M = 2.40, SD = 1.17), $t(34) = 4.20$, $p < .001$. Therefore, the two emotional support message manipulations were successful.

Viewing the esteem support message (compliment) led to levels of perceived esteem support (M = 4.14, SD = .77) that were significantly higher than levels of perceived informational support (M = 2.96, SD = 1.05), $t(34) = 6.71$, $p < .001$, emotional support (M = 2.80, SD = .69), $t(34) = 9.94$, $p < .001$, and network support (M = 2.22, SD = 1.14), $t(34) = 11.55$, $p < .001$. In addition, after exposure the other esteem support message (relief of guilt), participants' levels of perceived esteem support (M = 4.23, SD = 1.17) were significantly higher than their levels of perceived emotional support (M = 2.60, SD = .75), $t(34) = 12.92$, $p < .001$, informational support (M = 2.60, SD = 1.22) $t(34) = 7.88$, $p < .001$, and network support (M = 2.09, SD = 1.08), $t(34) = 11.73$, $p < .001$. Hence, the esteem support message manipulations were successful.

Results of one sample t-tests showed that after seeing the network support message (companions), participants' levels of perceived network support (M = 4.21, SD = .97) were significantly higher than their levels of perceived informational support (M = 3.29, SD = 1.34), $t(34) = 4.10$, $p < .001$, esteem support (M = 3.49, SD = 1.03), $t(34) = 4.18$, $p < .001$, and emotion support (M = 3.57, SD = .90), $t(34) = 4.22$, $p < .001$. Exposure to the other network support

message (companions) also resulted in perceived network support levels ($M = 4.09$, $SD = .92$) that were significantly higher than levels of perceived informational support ($M = 3.69$, $SD = 1.08$), $t(34) = 2.19$, $p < .05$, esteem support ($M = 3.21$, $SD = .93$), $t(34) = 5.57$, $p < .001$, and emotional support ($M = 3.27$, $SD = 1.02$), $t(34) = 4.70$, $p < .001$. Therefore, the two network support message manipulations were successful.

Data Preparation

Before testing the hypotheses and research questions, the normality of the data was assessed by examining skewness and kurtosis indices. Results showed that four variables, informational support expression, emotional support expression, esteem support expression, and network support expression, did not exhibit normal distribution at the first follow-up, $\text{Skewness}_{\text{Informational Support Expression}} = 2.05$, $\text{Kurtosis}_{\text{Informational Support Expression}} = 5.97$, $\text{Skewness}_{\text{Emotional Support Expression}} = 1.35$, $\text{Kurtosis}_{\text{Emotional Support Expression}} = 1.52$, $\text{Skewness}_{\text{Esteem Support Expression}} = 2.97$, $\text{Kurtosis}_{\text{Esteem Support Expression}} = 10.95$, $\text{Skewness}_{\text{Network Support Expression}} = 3.63$, $\text{Kurtosis}_{\text{Network Support Expression}} = 11.40$, and the second follow-up, $\text{Skewness}_{\text{Informational Support Expression}} = 1.40$, $\text{Kurtosis}_{\text{Informational Support Expression}} = 1.72$, $\text{Skewness}_{\text{Emotional Support Expression}} = 2.79$, $\text{Kurtosis}_{\text{Emotional Support Expression}} = 10.79$, $\text{Skewness}_{\text{Esteem Support Expression}} = 2.43$, $\text{Kurtosis}_{\text{Esteem Support Expression}} = 6.68$, $\text{Skewness}_{\text{Network Support Expression}} = 4.97$, $\text{Kurtosis}_{\text{Network Support Expression}} = 30.91$, To address their skewness, log transformations of three variables, informational support expression, emotional support expression, and esteem support expression, were performed. Log transformation is a widely used treatment to make a highly skewed variable approximately conform to normality (Benoit, 2011). After log transformations, these variables were normally distributed at the first follow up, $\text{Skewness}_{\text{Informational Support Expression}} = .45$, $\text{Kurtosis}_{\text{Informational Support Expression}} = -.97$, $\text{Skewness}_{\text{Emotional Support Expression}} = -.02$, $\text{Kurtosis}_{\text{Emotional Support Expression}} = -1.16$, $\text{Skewness}_{\text{Esteem}}$

Support Expression = 1,31, Kurtosis Esteem Support Expression = 1.02, and the second follow-up, Skewness Informational Support Expression = .04, Kurtosis Informational Support Expression = -1.28, Skewness Emotional Support Expression = .18, Kurtosis Emotional Support Expression = -1.02, Skewness Esteem Support Expression = .90, Kurtosis Esteem Support Expression = -.16. A log transformation of network support expression did not improve its skewness significantly. Instead, network support expression was dummy coded (0 = no network expression, 1 = network expression) because only 10 out of 121 participants left any comments or postings that were coded as network support expressions. Dummy coding of network support expression resulted in better normality properties at the first follow-up, Skewness Network Support Expression = 2.86, Kurtosis Network Support Expression = 5.32, and the second follow-up, Skewness Network Support Expression = 2.88, Kurtosis Network Support Expression = 6.41.

Descriptive Statistics

In testing the proposed hypotheses and research questions, a total of 94 participants who completed the baseline and two follow-up surveys were included. The majority of the sample was female (90.4%). They ranged in age from 18 to 23 years (M = 19.99, SD = 1.34) and varied in racial/ethnic background (White/Caucasian [62.8%], Asian [18.1%], Hispanic/Latino [6.4%], Black/African American [7.4%], and others [5.3%]). Notably, 37.2% of participants have diagnosed or treated by a professional with mental health-related conditions, such as stress, anxiety, or depression in the last 12 months prior to the study. Also, 34% of participants have had COVID-19.

Hypothesis Testing

The hypotheses and research questions were tested at two follow-up periods. Also, the effects of social support message reception were investigated considering both campaign message reception variables and perceived social support reception variables. Note that

campaign message reception variables and perceived social support reception variables were tested separately, meaning that in the analyses where campaign message reception variables were included, perceived social support reception variables were excluded, and vice versa. This analytical decision was made to test if perceived reception variables assessed by self-reports and campaign message reception variables measured using behavioral measures have differential effects. The five covariates outlined above (i.e., gender, race, media exposure, past experience with COVID-19, past diagnosis or treatment with mental health issues) served as covariates. In addition, when testing each social support reception (expression) category, the four social support expression (reception) variables and the remaining three reception (expression) categories were entered as covariates along with other control variables and baseline measures of each dependent variable. For example, when testing the effect of informational support expression on positive reframing, the remaining three expression variables, the four campaign message reception variables, and baseline positive reframing served as covariates along with the aforementioned five variables concerning participants' demographic information and pre-existing status. Lastly, collinearity diagnostics were performed on all regression models, and no significant multicollinearity was observed.

H1, H2, H3, H4, RQ1, and RQ2 deal with the main effects of social support message expression and reception on the two coping strategies, emotional identification and positive reframing. Multiple regression analyses were employed to test these hypotheses and and answer research questions. The results of the regression analyses are presented in Table 1, 2, and 3.

H1 predicts that reception of informational support messages will be positively associated with emotional identification (H1a) and positive reframing (H1b). Results showed that reception of informational support campaign messages was not related to emotional identification at first

follow-up, β = -.01, p = ns, while it was positively associated with emotional identification at second follow-up, β = .32, p < .05. Perceived reception of informational support messages was not related to emotional identification at both the first follow-up, β = -.09, p = ns, and the second follow-up β = -.21, p = ns. Hence, H1a received partial support. Reception of informational support campaign messages was not positively related to positive reframing at both the first follow-up, β = .18, p = ns, and the second follow-up, β = .09, p = ns. Perceived reception of information support messages also was not related to positive reframing at both the first follow-up, β = -.17, p = ns, and the second follow-up β = .19, p = ns. Therefore, H1b was disconfirmed.

H2 expects that reception of emotional support messages will be positively associated with emotional identification (H2a) and positive reframing (H2b). Results of multiple regression analyses revealed that reception of emotional support campaign messages was not positively related to emotional identification at the first follow-up, β = -.10, p = ns. However, it was positively associated with emotional identification at the second follow-up, β = .25, p < .05. Perceived reception of emotional support messages was not related to emotional identification at both the first follow-up, β = .01, p = ns, and the second follow-up, β = .33, p = ns. Therefore, H2a was partially supported. Reception of emotional support campaign messages was not positively related to positive reframing at both the first follow-up, β = -.04, p = ns, and the second follow-up, β = .10, p = ns. Perceived reception of emotional support messages was not related to positive reframing at both the first follow-up, β = .15, p = ns, and the second follow-up β = .27, p = ns. Therefore, H2b was disconfirmed.

RQ1 concerns if reception of esteem and network support messages is associated with emotional identification and positive reframing. First, reception of esteem support campaign messages was not positively related to emotional identification at the first follow-up, β = .05, p =

ns, and the second follow-up, β = -.10, p = ns. Also, perceived reception of esteem support messages did have a significant relationship with emotional identification at the first follow-up, β = .06, p = ns, and the second follow-up, β = -.09, p = ns. Additionally, esteem support campaign message reception was not positively related to positive reframing at the first follow-up, β = .16, p = ns, and the second follow-up, β = .15, p = ns. Perceived reception of esteem support messages was not significantly associated with positive reframing at the first follow-up, β = .24, p = ns, and the second follow-up, β = -.10, p = ns. Second, network support campaign message reception was not positively associated with emotional identification at the first follow-up, β = .17, p = ns, and the second follow-up, β = -.20, p = ns. Also, perceived reception of network support messages was not related to emotional identification at the first follow-up, β = .12, p = ns, and the second follow-up, β = -.02, p = ns. Also, network support campaign message reception was not positively associated with positive reframing at the first follow-up, β = -.11, p = ns, and the second follow-up, β = -.24, p = ns. Also, perceived reception of network support messages was not related to positive reframing at the first follow-up, β = -.10, p = ns, and the second follow-up, β = -.10, p = ns.

H3 postulates that expression of informational support messages will be positively associated with emotional identification (H3a) and positive reframing (H3b). Results revealed that expression of informational support messages was not positively related to emotional identification at the first follow-up, β = -.17, p = ns, and the second follow-up, β = -.11, p = ns, rejecting H3a. Results also showed that informational support message expression was not related to positive reframing at both the first follow-up, β = -.08, p = ns, and the second follow-up, β = -.22, p = ns. Thus, H3b did not receive support.

H4a, which predicts that expression of emotional support messages will be positively associated with emotional identification, was not supported at both the first follow-up, $\beta = .18$, p = ns, and the second follow-up, $\beta = -.02$, p = ns. H4b, which expects that emotional support messages expression will be positively associated with positive reframing, also did not receive support at both the first follow-up, $\beta = .07$, p = ns, and the second follow-up, $\beta = .14$, p = ns.

RQ2 was advanced to explore if and how expression of esteem and network support messages is associated with emotional identification and positive reframing. First, expression of esteem support messages did not have a significant relationship with emotional identification at the first follow-up, $\beta = -.06$, p = ns, and the second follow-up, $\beta = .04$, p = ns. Esteem support message expression was not related to positive reframing at the first follow-up, $\beta = .13$, p = ns, and the second follow-up, $\beta = .06$, p = ns, as well. Network support message expression was not positively associated with emotional identification at the first follow-up, $\beta = .04$, p = ns, and the second follow-up, $\beta = -.03$, p = ns. In addition, it was not associated with positive reframing at the first follow-up, $\beta = .03$, p = ns, and the second follow-up, $\beta = .02$, p = ns.

H5 through H8 and RQ3 through RQ6 concern the role of support message reception and expression in moderating the changes in emotional identification and positive reframing levels over the course of the campaign period. To test these hypotheses and answer research questions, moderation analyses were performed using Hayes (2018) PROCESS Macro Model 1. In the analyses, the baseline and follow-up measures of each coping strategy were entered as an independent variable and dependent variable, respectively, and each message reception or expression variable served as a moderator.

H5a predicts that an increase in levels of emotional identification over the course of the campaign period will be greater among college students who receive more informational support.

The results showed that the effect of interaction between base-line levels of emotional identification and emotional support campaign message reception was not significant on first follow-up levels of emotional identification, b = .06, t = .22, p = ns, and second follow-up levels of emotional identification, b = -.08, t = -.75, p = ns. In addition to informational support campaign message reception, H5a was also tested in consideration of perception of informational support reception. The results indicated that perceived informational support reception moderated the relationship between baseline levels of emotional identification and first follow-up levels of emotional identification, b = -.19, t = -2.00, $p < .05$. However, the direction was opposite to the expectation. An increase in levels of emotional identification was greater when levels of perceived information support reception decreased: one standard deviation below the mean (1.37), effect = .75, SE = .13, $p < .001$, mean (2.36), effect = .56, SE = .09, $p < .001$, and one standard deviation above the mean (3.36), effect = .37, SE = .13, $p < .01$ (See figure 1). The moderation effect was not significant at the second follow-up, b = .00, t = -.09, p = ns. Hence, H5a was rejected.

H5b anticipates that an increase in levels of emotional identification will be greater among college students who receive more emotional support messages. First, the effect of interaction between base-line levels of emotional identification and emotional support campaign message reception was not significant at the first follow-up, b = .04, t = .35, p = ns, and second follow-up, b = .02, t = .23, p = ns. The results also revealed that perceived emotional support reception did not have a moderation effect at any follow levels (first follow-up b = -.08, t = -.85, p = ns; second follow-up b = .02, t = .38, p = ns). Therefore, H5b was disconfirmed.

H6a expects that an increase in levels of positive reframing will be greater among college students who receive more informational support messages. The results showed the effect of

interaction between base-line levels of positive reframing and informational support campaign message reception was not significant on first follow-up levels of positive reframing, $b = .17$, $t = 1.07$, $p =$ ns, and second follow-up levels of positive reframing, $b = .16$, $t = 1.43$, $p =$ ns. However, perceived informational support reception had a significant moderation effect at the first follow-up, $b = .27$, $t = 2.55$, $p < .05$, indicating that an increase in levels of positive reframing was greater as levels of perceived informational support reception increased, as shown in Figure 2: one standard deviation below the mean (1.37), effect = .24, $SE = .14$, $p =$ ns, mean (2.36), effect = .50, $SE = .11$, $p < .001$, and one standard deviation above the mean (3.36), effect = .77, $SE = .16$, $p < .001$. At the second follow-up, there was no moderation effect, $b = .08$, $t = 1.51$, $p =$ ns. Taken together, H6a was partially supported.

H6b expects that an increase in levels of positive reframing will be greater among college students who receive more emotional support messages. The results showed the effect of interaction between base-line levels of positive reframing and emotional support campaign message reception was not significant on first follow-up levels of positive reframing, $b = .07$, $t = .60$, $p =$ ns, while it was significant on second follow-up levels of positive reframing, $b = .23$, $t = 2.24$, $p < .05$. As represented in Figure 3, specifically, an increase in levels of positive reframing was greater when levels of emotional support campaign message reception increased: the value of zero, effect = .28, $SE = .16$, $p =$ ns, and the value of two, effect = .75, $SE = .15$, $p < .001$. Perceived emotional support reception also had a significant moderation effect at the first follow-up, $b = .28$, $t = 2.57$, $p < .05$. An increase in levels of positive reframing was greater when levels of perceived emotional support reception increased: one standard deviation below the mean (2.09), effect = .26, $SE = .13$, $p =$ ns, mean (3.00), effect = .52, $SE = .11$, $p < .001$, and one standard deviation above the mean (3.90), effect = .77, $SE = .16$, $p < .001$. See Figure 4.

However, there was no moderation effect at the second follow-up, b = .12, t = 1.97, p = ns. Therefore, H6b received partial support.

H7a predicts that an increase in levels of emotional identification will be greater among college students who express more informational support messages. The results of moderation analyses indicated that the effect interaction between base-line levels of emotional identification and informational support expression was not significant at both follow-up levels (first follow-up b = .09, t = .92, p = ns; second follow-up b = -.02, t = -.21, p = ns), rejecting H7a. H7b predicts that an increase in levels of emotional identification will be greater when levels of emotional support message expression are higher. The results showed that the effect interaction between base-line levels of emotional identification and emotional support expression was not significant at the first follow up, b = .03, t = .30, p = ns, and the second follow up, b = .00, t = .00, p = ns. Thus, H7b was not supported.

H8a anticipates that an increase in levels of positive reframing will be greater among college students who express more informational support messages. The results of moderation analyses indicated that an interaction between base-line levels of positive reframing and informational support expression was not significant at the first follow-up, b = .08, t = .72, p = ns, while there was a significant interaction at the second follow-up, b = .60, t = 2.58, $p < .05$. Specifically, an increase in levels of positive reframing was greater when levels of informational support message expression increased: one standard deviation below the mean (.23), effect = .32, SE = .14, $p < .05$, mean (.65), effect = .57, SE = .11, $p < .001$, and one standard deviation above the mean (1.06), effect = .82, SE = .16, $p < .001$. Thus, H8a was support at the second follow-up (see Figure 5). H8b predicts that an increase in levels of positive reframing will be greater when levels of emotional support message expression are higher. The results showed that an

interaction between base-line levels of positive reframing and emotional support expression was not significant at the first follow-up, b = -.06, t = -.66, p = ns. However, its impact was significant at the second follow-up, b = .40, t = 2.05, p < .05, indicating that an increase in levels of positive reframing was greater when levels of emotional support message expression increased: one standard deviation below the mean (.24), effect = .33, SE = .15, p < .05, mean (.68), effect = .51, SE = .11, p < .001, and one standard deviation above the mean (1.12), effect = .69, SE = .14, p < .001. Thus, H8b was support at the second follow-up (see Figure 6).

RQ3 and RQ4 were put forth to investigate if reception of esteem and network support messages moderate the relationship between baseline and follow-up levels of emotional identification (RQ3) and the relationship between baseline and follow-up levels of positive reframing (RQ4). The results of moderation analyses showed that baseline and follow-up levels of emotional identification was not moderated by esteem support campaign message reception at the first follow-up, b = .07, t = .66, p = ns, and the second follow-up, b = .01, t = .09, p = ns. Perceived reception of esteem support messages also did not have a significant moderation effect at the first follow-up, b = -.15, t = -1.59, p = ns, and the second follow-up, b = .00, t = .02, p = ns.

Reception of network support campaign messages did not moderate baseline and follow-up levels of emotional identification at the first follow-up, b = .05, t = .25, p = ns, and the second follow-up, b = -.10, t = -.93, p = ns. The results further revealed that perceived reception of network support messages had a significant moderation effect at the first follow-up, b = -.18, t = -2.20, p < .05. Specifically, an increase in levels of emotional identification was greater when levels of perceived network support reception decreased: one standard deviation below the mean (1.28), effect = .75, SE = .12, p < .001, mean (2.36), effect = .55, SE = .09, p < .001, and one

standard deviation above the mean (3.44), effect = .36, *SE* = .13, $p < .01$. See Figure 7. At the second follow-up, its moderation impact was not significant, *b* = .00, *t* = -.07, *p* = ns.

RQ4 deals with if reception of esteem and network support messages moderates the relationship between baseline and follow-up levels of positive reframing. Results indicated that reception of esteem support campaign messages did not have a moderation effect at the first follow-up, *b* = .10, *t* = .95, *p* = ns, and the second follow-up, *b* = .16, *t* = 1.53, *p* = ns. On the other hand, perceived reception of esteem support messages showed a significant moderation effect at the first follow-up, *b* = .24, *t* = 2.24, $p < .05$. As displayed in Figure 8, an increase in levels of positive reframing was greater when levels of perceived esteem support reception increased: one standard deviation below the mean (1.64), effect = .29, *SE* = .13, $p < .05$, mean (2.62), effect = .53, *SE* = .11, $p < .001$, and one standard deviation above the mean (3.59), effect = .77, *SE* = .17, $p < .001$. However, perceived reception of esteem support did not moderate the association between baseline and second follow-up levels of positive reframing, *b* = .09, *t* = 1.66, *p* = ns. The moderation analyses further showed that reception of network support campaign messages did not moderate the relationship between baseline and follow-up levels of positive reframing at the first follow-up, *b* = .11, *t* = 1.23, *p* = ns, and the second follow-up, *b* = .18, *t* = 1.53, *p* = ns. Perceived reception of network support also did not have a moderation effect at the first follow-up, *b* = .18, *t* = 1.87, *p* = ns, and at the second follow-up, *b* = .03, *t* = .56, *p* = ns.

RQ5 investigates if expression of esteem and network support messages moderate the relationship between baseline and follow-up levels of emotional identification. The results of moderation analyses showed that expression of esteem support did not moderate the relationship between baseline and follow-up levels of emotional identification at the first follow-up, *b* = -.14, *t* = -1.71, *p* = ns, and the second follow-up, *b* = -.08, *t* = -.89, *p* = ns. Expression of network

support also did not moderate the relationship between baseline and follow-up levels of emotional identification at the first follow-up, b = -.02, t = -.24, p = ns. However, its moderating effect was significant at the second follow up, b = .75, t = 2.51, p < .05, indicating that an increase in levels of emotional identification was greater when levels of network support message expression increased: the value of zero, effect = .43, SE = .10, p < .001, and the value of one, effect = 1.18, SE = .28, p < .001. See Figure 9.

RQ6 explores if expression of esteem and network support messages moderates the relationship between baseline and follow-up levels of positive reframing. The results of moderation analyses showed that expression of esteem support did not moderate the relationship between baseline and follow-up levels of positive reframing at the first follow-up, b = .04, t = .49, p = ns, and the second follow-up, b = .14, t = 1.73, p = ns. The results further indicated that expression of network support did not moderate the relationship between baseline and follow-up levels of positive reframing at the first follow-up, b = .10, t = 1.14, p = ns, and the second follow-up, b = .01, t = .10, p = ns.

H9 proposes that the two coping strategies, emotional identification (H9a) and positive reframing (H9b), will be positively associated with a reduction of depressive symptoms. Multiple regression analyses were employed to test H9. Results showed that emotional identification had a significant and negative impact on depressive symptom levels at the second follow-up, β = -.29, p < .05, but not at the first follow-up, β = -.19, p = ns. Positive reframing was negatively associated with levels of depressive symptoms at both the first follow-up, β = -.27, p < .05, and the second follow-up, β = -.45, p < .001. Hence, H9 received partial support.

H10 and H11 test if emotional identification and positive reframing mediate the effects of informational and emotional support reception on a reduction of depressive symptoms. Similarly,

H12 and H13 explore if positive reframing and emotional identification moderate the effects of informational and emotional support expression on a reduction of depressive symptoms. In addition, RQ7 through RQ10 concern if emotional identification and positive reframing mediate the effect of esteem and network support reception and expression. These mediation hypotheses were tested using PROCESS Macro Model 4. In the analyses, 5,000 bootstrap estimates for the construction of 95% bias-corrected confidence intervals were used (Preacher, Rucker, & Hayes, 2007).

H10 anticipates that emotional identification will mediate the effect of informational support (H10a) and emotional support (H10b) message reception on a reduction of depressive symptoms. The results of mediation analyses indicated that at the first follow-up, the indirect effect of informational support campaign message reception on depressive symptoms through emotional identification was not significant, indirect effect = .05, *SE* = .91, 95% CI (-2.01, 1.92). Specifically, information support campaign message reception did not have a significant impact on emotional identification, b = -.02, t = -.06, p = ns, which was not significantly associated with depressive symptoms, b = -2.15, t = -1.45, p = ns. At the second follow-up, however, an indirect effect of informational support campaign message reception on depressive symptoms through emotional identification was significant, indirect effect = -1.21, *SE* = .80, 95% CI (-3.19, -.05). Specifically, informational support campaign message reception had a positive impact on emotional identification, b = .38, t = 2.52, $p < .05$, which in turn, was negatively associated with depressive symptoms, b = -3.20, t = -2.23, $p < .05$. In terms of perceived reception of informational support, its indirect effect was not significant at the first follow-up, indirect effect = .18, *SE* = .47, 95% CI (-.74, 1.22). Perceived informational support reception did not have a significant effect on emotional identification, b = -.10, t = -.57, p = ns, which was not associated

with depressive symptoms, b = -1.88, t = -1.30, p = ns. Results were similar at the second follow up. An indirect effect was not significant, indirect effect = .41, *SE* = .44, 95% CI (-.35, 1.42). Perceived informational support message reception was not associated with emotional identification, b = -.12, t = -1.06, p = ns, which was significantly and negatively associated with depressive symptom, b = -3.55, t = -2.48, $p < .05$. Taken together, H10a received partial support.

Results of mediation analyses further showed that the effect of emotional support campaign message reception was not mediated by emotional identification at the first follow-up, indirect effect = .61, *SE* = .81, 95% CI (-.85, 2.43). Emotional support campaign message reception did not have a significant impact on emotional identification, b = -.28, t = -.93, p = ns, which was not significantly associated with depressive symptoms, b = -2.15, t = -1.45, p = ns. At the second follow-up, emotional support campaign message reception had a positive impact on emotional identification, b = .28, t = 2.00, $p < .05$, which in turn, had a negative impact on depressive symptoms, b = -3.20, t = -2.23, $p < .05$. The indirect effect was also significant, indirect effect = -.89, *SE* = .73, 95% CI (-2.71, -.03). The results further showed that perceived reception of emotional support did not have an indirect effect, indirect effect = -.02, *SE* = .44, 95% CI (-.89, .99), at the first follow-up. Specifically, perceived emotional support reception did not have a significant effect on emotional identification, b = .01, t = .06, p = ns, which was not significantly associated with depressive symptoms, b = -1.88, t = -1.30, p = ns. At the second follow-up, an indirect effect of perceived emotional support reception was not significant as well, indirect effect = -.80, *SE* = .63, 95% CI (-2.28, .13). Perceived emotional support reception did not have a significant effect on emotional identification, b = .24, t = 1.87, p = ns, which had a negative effect on depressive symptoms, b = -3.35, t = -2.48, $p < .05$. Therefore, H10b was partially supported.

H11 predicts that positive reframing will mediate the effect of informational support (H11a) and emotional support (H11b) message reception on a reduction of depressive symptoms. The results of mediation analyses revealed that at the first follow-up, the indirect of informational support campaign message reception on depressive symptoms through positive reframing was not significant, indirect effect = -1.66, *SE* = 1.80, 95% CI (-5.88, 1.09). Specifically, informational support campaign message reception did not have a significant impact on positive reframing, $b = .55$, $t = 1.48$, p = ns, which was not associated with depressive symptoms, $b = -3.04$, $t = -1.95$, p = ns. At the second follow-up, the indirect effect was not significant, indirect effect = -.62, *SE* = .82, 95% CI (-2.37, .94): informational support campaign message reception did not have a significant impact on positive reframing, $b = .10$, $t = .74$, p = ns, which was significantly and negatively associated with depressive symptom, $b = -6.11$, $t = -4.03$, $p < .001$. The mediating role of positive reframing was also investigated in light of perceived informational support message reception. At the first follow-up, an indirect effect was not significant, indirect effect = .53, *SE* = .62, 95% CI (-.44, 1.98): perceived informational support message reception did not have a significant impact on positive reframing, $b = -.16$, $t = -1.00$, p = ns, which was significantly and negatively associated with depressive symptom, $b = -3.28$, $t = -2.14$, $p < .05$. At the second follow-up, an indirect effect was not significant as well, indirect effect = -.59, *SE* = .64, 95% CI (-1.96, .63). Perceived informational support message reception was not associated with positive reframing, $b = .10$, $t = 1.05$, p = ns, which was significantly and negatively associated with depressive symptoms, $b = -5.78$, $t = -3.77$, $p < .001$. As a result, H11a was rejected.

The mediation analyses further indicated that an indirect effect of emotional support campaign message reception was not significant at the first follow-up, indirect effect = .31, *SE*

= .90, 95% CI (-1.45, 2.22). Specifically, emotional support campaign message reception did not have a significant impact on positive reframing, b = -.10, t = .35, p = ns, which did not have a significant effect on depressive symptoms, b = -3.04, t = -1.95, p = ns. At the second follow-up, the results were similar, indirect effect = -.61, SE = .78, 95% CI (-2.22, .92). Again, emotional support campaign message reception did not have a significant impact on positive reframing, b = .10, t = .12, p = ns, which in turn, was significantly and negatively associated with depressive symptom, b = -6.11, t = -4.04, p < .001. Perceived emotional support message reception also did not have a significant indirect effect at the first follow-up, indirect effect = -.51, SE = .61, 95% CI (-1.86, .57): perceived emotional support message reception did not have a significant impact on positive reframing, b = .15, t = .95, p = ns, which in turn, was significantly and negatively associated with depressive symptom, b = -3.28, t = -2.14, p < .05. At the second follow-up, an indirect effect of perceived emotional support message reception was not significant as well, indirect effect = -1.05, SE = .78, 95% CI (-2.80, .21). Specifically, perceived emotional support reception did not have a significant impact on positive reframing, b = .18, t = 1.67, p = ns, which had a negative impact on depressive symptoms, b = -5.78, t = -3.77, p < .001. All in all, H11b was rejected.

H12 expected that emotional identification will mediate the effect of informational support (H12a) and emotional support (H12b) message expression on a reduction of depressive symptoms. Results revealed that informational support message expression did not have a significant indirect effect at the first follow-up, indirect effect = 1.13, SE = 1.26, 95% CI (-.79, 4.23). Specifically, informational support expression did not have a significant impact on emotional identification, b = -.53, t = -1.56, p = ns, which did not have a significant effect on depressive symptoms, b = -2.15, t = -1.45, p = ns. At the second follow-up, an indirect effect was

not significant, indirect effect = .95, *SE* = 1.41, 95% CI (-2.09, 3.76). Informational support expression was not associated with emotional identification, *b* = -.30, *t* = -.71, *p* = ns, which had a negative effect on depressive symptoms, *b* = -3.20, *t* = -2.23, *p* < .05. Taken together, H12a was rejected.

Results also showed that at the first follow-up, emotional support message expression did not have a significant indirect effect, indirect effect = -1.02, *SE* = 1.24, 95% CI (-3.98, 1.00). Emotional support expression did not have a significant impact on emotional identification, *b* = .47, *t* = 1.42, *p* = ns, which did not have a significant effect on depressive symptoms, *b* = -2.15, *t* = -1.45, *p* = ns. At the second follow up, there was no indirect effect as well, indirect effect = .17, *SE* = 1.36, 95% CI (-2.99, 2.76). Specifically, emotional support expression did not have a significant impact on emotional identification, *b* = -.05, *t* = -.14, *p* = ns, which exhibited a significant and negative impact on depressive symptoms, *b* = -3.20, *t* = -2.22, *p* < .05. Considering these results, H12b was not supported.

H13 anticipates that positive reframing will mediate the effect of informational support (H13a) and emotional support (H13b) message expression on a reduction of depressive symptoms. Results showed that informational support message expression did not have a significant indirect effect at the first follow-up, indirect effect = .66, *SE* = 1.30, 95% CI (-1.49, 3.92). Specifically, informational support expression did not have a significant impact on positive reframing, *b* = -.22, *t* = -.65, *p* = ns, which did not have a significant effect on depressive symptoms, *b* = -3.04, *t* = -1.95, *p* = ns. At the second follow-up, an indirect effect was not significant as well, indirect effect = 3.23, *SE* = 2.11, 95% CI (-.64, 7.94). Informational support expression was not associated with positive reframing, *b* = -.53, *t* = -1.31, *p* = ns, which had a

negative effect on depressive symptoms, b = -6.11, t = -4.04, p < .001. Hence, H13a was rejected.

Results also showed that at the first follow-up, emotional support message expression did not have a significant indirect effect, indirect effect = -.48, *SE* = 1.23, 95% CI (-2.75, 2.40). Emotional support expression did not have a significant impact on positive reframing, b = .16, t = .47, p = ns, which did not have a significant effect on depressive symptoms, b = -3.04, t = -1.95, p = ns. At the second follow up, similarly, there was no indirect effect, indirect effect = -1.88, *SE* = 1.95, 95% CI (-6.23, 1.40). Specifically, emotional support expression did not have a significant impact on positive reframing, b = .31, t = .86, p = ns, which had a significant and negative impact on depressive symptoms, b = -6.11, t = -4.04, p < .001. Therefore, H13b was not supported.

RQ7 tests if emotional identification mediates the effect of esteem and network support message reception on a reduction of depressive symptoms. The results of mediation analyses revealed that at the first follow-up, the indirect of esteem support campaign message reception on depressive symptoms through emotional identification was not significant, indirect effect = -.23, *SE* = .66, 95% CI (-1.73, 1.00). Esteem support campaign message reception did not have a significant impact on emotional identification, b = .11, t = .42, p = ns, which was not associated with depressive symptoms, b = -2.15, t = -1.45, p = ns. At the second follow-up, the indirect effect was not significant as well, indirect effect = .33, *SE* = .57, 95% CI (-.50, 1.80): Esteem support campaign message reception did not have a significant impact on emotional identification, b = -.10, t = -.77, p = ns, which was significantly and negatively associated with depressive symptom, b = -3.20, t = -2.23, p < .05. Likewise, perceived esteem support reception did not have an indirect effect at the first follow-up, indirect effect = .09, *SE* = .57, 95% CI (-

1.16, 1.33). Perceived esteem support message reception did not have a significant impact on emotional identification, b = -.05, t = -.24, p = ns, which did not have a significant association with depressive symptom, b = -1.85, t = -2.29, p = ns. At the second follow-up, an indirect effect was not significant too, indirect effect = .18, SE = .54, 95% CI (-.96, 1.28). Perceived esteem support message reception was not associated with emotional identification, b = -.05, t = -.36, p = ns, which was significantly and negatively associated with depressive symptoms, b = -3.35, t = -2.48, $p < .05$.

Results of mediation analyses further indicated that at the first follow-up, the indirect of network support campaign message reception on depressive symptoms through emotional identification was not significant, indirect effect = -2.13, SE = 2.31, 95% CI (-7.32, 1.53). Network support campaign message reception did not have a significant impact on emotional identification, b = .99, t = 1.74, p = ns, which was not associated with depressive symptoms, b = -2.15, t = -1.45, p = ns. At the second follow-up, similarly, the indirect effect was not significant, indirect effect = .75, SE = .62, 95% CI (-.16, 2.23): Network support campaign message reception did not have a significant impact on emotional identification, b = -.23, t = -1.47, p = ns, which was significantly and negatively associated with depressive symptoms, b = -3.20, t = -2.23, $p < .05$. Results also showed that perceived network support reception did not have an indirect effect at the first follow-up, indirect effect = -.21, SE = .39, 95% CI (-1.09, .59). Perceived network support message reception did not have a significant impact on emotional identification, b = .11, t = .80, p = ns, which did not have a significant association with depressive symptoms, b = -1.88, t = -1.30, p = ns. At the second follow-up, an indirect effect was not significant too, indirect effect = .03, SE = .40, 95% CI (-.78, .85). Perceived network support message reception was not associated with emotional identification, b = -.01, t = -.09, p = ns,

which was significantly and negatively associated with depressive symptoms, b = -3.35, t = -2.48, $p < .05$.

RQ8 was proposed to test if positive reframing mediates the effect of esteem and network support message reception on a reduction of depressive symptoms. The results of mediation analyses showed that at the first follow-up, the indirect of esteem support campaign message reception on depressive symptoms through positive reframing was not significant, indirect effect = -1.03, SE = 1.34, 95% CI (-4.50, .67). Specifically, esteem support campaign message reception did not have a significant impact on positive reframing, b = .34, t = 1.36, p = ns, which was not associated with depressive symptoms, b = -3.04, t = -1.95, p = ns. At the second follow-up, the indirect effect was not significant, indirect effect = -.91, SE = .80, 95% CI (-2.74, .43): esteem support campaign message reception did not have a significant impact on positive reframing, b = .15, t = 1.24, p = ns, which was significantly and negatively associated with depressive symptoms, b = -6.11, t = -4.04, $p < .001$. Perceived esteem support reception also did not have an indirect effect at the first follow-up, indirect effect = -.77, SE = .86, 95% CI (-2.91, .38). Perceived esteem support message reception did not have a significant impact on positive reframing, b = .24, t = 1.23, p = ns, which had a negative impact on depressive symptoms, b = -3.28, t = -2.14, $p < .05$. At the second follow-up, an indirect effect was not significant again, indirect effect = .32, SE = .84, 95% CI (-1.23, 2.10). Perceived esteem support message reception was not associated with positive reframing, b = -.06, t = -.44, p = ns, which was significantly and negatively associated with depressive symptoms, b = -5.78, t = -3.77, $p < .001$.

The results of mediation analyses showed that at the first follow-up, the indirect of network support campaign message reception on depressive symptoms through positive

reframing was not significant, indirect effect = 1.79, *SE* = 2.11, 95% CI (-1.43, 6.95). Specifically, network support campaign message reception did not have a significant impact on positive reframing, *b* = -.59, *t* = -1.08, *p* = ns, which was not associated with depressive symptoms, *b* = -3.04, *t* = -1.95, *p* = ns. At the second follow-up, the indirect effect was not significant too, indirect effect = 1.58, *SE* = .84, 95% CI (-.17, 3.53): network support campaign message reception did not have a significant impact on positive reframing, *b* = -.26, *t* = -1.79, *p* = ns, which was significantly and negatively associated with depressive symptom, *b* = -6.11, *t* = -4.04, *p* < .001. Furthermore, perceived network support reception also did not have an indirect effect at the first follow-up, indirect effect = .29, *SE* = .46, 95% CI (-.53, 1.32). Perceived network support message reception did not have a significant impact on positive reframing, *b* = -.09, *t* = -.67, *p* = ns, which had a negative impact on depressive symptoms, *b* = -3.28, *t* = -2.14, *p* < .05. Similarly, at the second follow-up, an indirect effect was not significant, indirect effect = .29, *SE* = .49, 95% CI (-.72, 1.28). Perceived network support message reception was not associated with positive reframing, *b* = -.05, *t* = -.60, *p* = ns, which was significantly and negatively associated with depressive symptoms, *b* = -5.78, *t* = -3.77, *p* < .001.

RQ9 deals with if emotional identification mediates the effect of esteem and network support message expression on a reduction of depressive symptoms. Results showed that esteem support message expression did not have a significant indirect effect at the first follow-up, indirect effect = .57, *SE* = 1.25, 95% CI (-1.36, 3.83). Specifically, esteem support expression did not have a significant impact on emotional identification, *b* = -.26, *t* = -.60, *p* = ns, which did not have a significant effect on depressive symptoms, *b* = -2.15, *t* = -1.45, *p* = ns. At the second follow-up, the indirect effect was not significant, indirect effect = -.48, *SE* = 1.96, 95% CI (-4.18, 3.94). Esteem support expression was not associated with emotional identification, *b* = .15, *t*

= .32, p = ns, which had a negative effect on depressive symptoms, b = -3.20, t = 2.23, p < .05. Results further confirmed that network support message expression did not have a significant indirect effect at the first follow-up, indirect effect = -.35, *SE* = .97, 95% CI (-2.63, 1.32). Specifically, network support expression did not have a significant impact on emotional identification, b = .16, t = .44, p = ns, which did not have a significant effect on depressive symptoms, b = -2.15, t = -1.45, p = ns. At the second follow-up, again, an indirect effect was not significant, indirect effect = .34, *SE* = 1.37, 95% CI (-2.45, 3.34). Network support expression was not associated with emotional identification, b = -.11, t = -.32, p = ns, which had a negative effect on depressive symptoms, b = -3.20, t = 2.23, p < .05.

RQ10 was advance to explore if positive reframing mediates the effect of esteem and network support message expression on a reduction of depressive symptoms. Results showed that esteem support message expression did not have a significant indirect effect at the first follow-up, indirect effect = -1.56, *SE* = 1.78, 95% CI (-6.01, 1.03). Specifically, esteem support expression did not have a significant impact on positive reframing, b = .51, t = 1.21, p = ns, which in turn, did not have a significant effect on depressive symptoms, b = -3.04, t = -1.95, p = ns. At the second follow-up, an indirect effect was not significant, indirect effect = -1.24, *SE* = 2.90, 95% CI (-6.76, 4.85). Esteem support expression was not associated with positive reframing, b = .20, t = .46, p = ns, which had a negative effect on depressive symptoms, b = -6.11, t = -4.04, p < .001. Further mediation analyses were conducted to test the indirect effect of network support expression. Results showed that network support message expression did not have a significant indirect effect at the first follow-up, indirect effect = -.36, *SE* = 1.38, 95% CI (-3.40, 2.22). Network support expression did not have a significant impact on positive reframing, b = .12, t = .34, p = ns, which in turn, did not have a significant effect on depressive

symptoms, b = -3.04, t = -1.95, p = ns. At the second follow-up, an indirect effect was not significant, indirect effect = -.28, *SE* = 1.42, 95% CI (-3.14, 2.48). Network support expression was not associated with positive reframing, b = .05, t = .15, p = ns, which had a negative effect on depressive symptoms, b = -6.11, t = -4.04, $p < .001$. Table 4 summarizes the results of mediation analyses.

H14 through H17 and RQ11 through RQ 14 were proposed to test if support expression and reception moderate indirect effects of baseline levels of the coping strategies on depressive symptoms through follow-up levels of the coping strategies. For testing these hypotheses and research questions, a set of moderated mediation analyses was performed using PROCESS Macro Model 7. Each analysis was performed with a baseline level of one of the two coping variables (i.e., emotional identification or positive reframing) as an independent variable, a follow-up level of one of the two coping variables as a mediator, one of the social support reception or expression variables as a moderator, and CES-D as a dependent variable.

H14a proposes that the positive association between a baseline level of emotional identification and a reduction of depressive symptoms through follow-up levels of emotional identification will be greater among college students who receive more informational support. Results showed that at the first follow-up, informational support campaign message reception did not moderate the indirect effect of baseline levels of emotional identification, effect = -.12, *SE* = .90, 95% CI (-1.75, 1.53). The indirect effect was not significant at both a low level (0), indirect effect = -1.12, *SE* = 1.22, 95% CI (-3.75, .62), and a high level (1), indirect effect = -1.24, *SE* = .94, 95% CI (-3.02, .64) of informational support campaign message reception. At the second follow-up, a moderated mediation was not significant, effect = .56, *SE* = .83, 95% CI (-.93, 2.45). The indirect effect was significant at a low level (0), indirect effect = -2.27, *SE* =

1.25, 95% CI (-5.07, -.25), and a high level (2), indirect effect = -1.71, *SE* = .88, 95% CI (-3.72, -.26) of informational support campaign message reception. H14a was further investigated considering perceived reception of informational support messages. Results indicated that at the first follow-up, perceived reception of informational support did not moderate the indirect effect of baseline levels of emotional identification, effect = .38, *SE* = .37, 95% CI (-.26, 1.23). The indirect effect was not significant at one standard deviation below the mean (1.37), indirect effect = -1.48, *SE* = 1.16, 95% CI (-3.74, .93), mean (2.36), indirect effect = -1.11, *SE* = .87, 95% CI (-2.81, .67), and one standard deviation above the mean (3.36), indirect effect = -.73, *SE* = .67, 95% CI (-2.24, .41), of perceived reception of informational support. At the second follow-up, similarly, perceived reception of information support did not moderate the indirect effect of baseline levels of emotional identification, effect = .02, *SE* = .24, 95% CI (-.37, .59). The indirect effect was significant at one standard deviation below the mean (3.04), indirect effect = -1.81, *SE* = 1.03, 95% CI (-4.16, -.24), mean (4.87), indirect effect = -1.78, *SE* = .83, 95% CI (-3.61, -.35), and one standard deviation above the mean (6.70), indirect effect = -1.74, *SE* = .84, 95% CI (-3.59, -.26), of perceived reception of information support. All things considered, H14a was not supported.

H14b predicts that the positive association between a baseline level of emotional identification and a reduction of depressive symptoms through follow-up levels of emotional identification will be greater among college students who receive more emotional support messages. Results showed that at the first follow-up, emotional support campaign message reception did not moderate the indirect effect of baseline levels of emotional identification, effect = -.19, *SE* = .67, 95% CI (-1.75, 1.07). The indirect effect was not significant at both a low level (0), indirect effect = -1.15, *SE* = .98, 95% CI (-3.35, .47), and a high level (1), indirect effect = -

1.33, *SE* = .94, 95% CI (-3.22, .58) of emotional support campaign message reception. At the second follow-up, a moderated mediation was not significant as well, effect = -.15, *SE* = .74, 95% CI (-1.81, 1.24). The indirect effect was significant at both a low level (0), indirect effect = -1.54, *SE* = .97, 95% CI (-3.77, -.03), and a high level (2), indirect effect = -1.68, *SE* = .90, 95% CI (-3.71, -.16), of emotional support campaign message reception. H14b was further investigated considering perceived reception of emotional support. Results revealed that at the first follow-up, it did not moderate the indirect effect of baseline levels of emotional identification, effect = .16, *SE* = .24, 95% CI (-.32, .68). The indirect effect was not significant at one standard deviation below the mean (2.09), indirect effect = -1.19, *SE* = .94, 95% CI (-3.05, .68), mean (3.00), indirect effect = -1.05, *SE* = .84, 95% CI (-2.71, .56), and one standard deviation above the mean (3.90), indirect effect = -.91, *SE* = .78, 95% CI (-2.64, .43), of perceived reception of emotion support. At the second follow-up, perceived reception of emotional support did not moderate the indirect effect of baseline levels of emotional identification, effect = -.08, *SE* = .25, 95% CI (-.54, .50). The indirect effect was significant at one standard deviation below the mean (4.41), indirect effect = -1.60, *SE* = .90, 95% CI (-3.74, -.21), mean (5.89), indirect effect = -1.72, *SE* = .80, 95% CI (-3.45, -.34), and one standard deviation above the mean (7.37), indirect effect = -1.84, *SE* = .86, 95% CI (-3.70, -.36), of perceived reception of emotional support messages. Taking the above results into consideration. H14b was not supported.

H15a assumes that the positive association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing will be greater among college students who receive more informational support. Results showed that at the first follow-up, informational support campaign message reception did not moderate the

indirect effect of baseline levels of positive reframing, effect = -1.26, *SE* = 2.52, 95% CI (-5.96, 4.42). The indirect effect was not significant at a low level (0), indirect effect = -.43, *SE* = 2.53, 95% CI (-6.62, 3.79) of informational support campaign message reception. However, it was significant at a high level (1), indirect effect = -1.68, *SE* = .78, 95% CI (-3.16, -.05), of informational support campaign message reception. At the second follow-up, a moderated mediation was not significant, effect = -2.06, *SE* = 1.48, 95% CI (-4.88, 1.15). The indirect effect was not significant at a low level (0) of informational support campaign message reception, indirect effect = -1.95, *SE* = 1.38, 95% CI (-5.28, .07). However, it was significant at a high level (2) of informational support campaign message reception, indirect effect = -4.01, *SE* = 1.26, 95% CI (-6.75, -1.94). H15a was further investigated considering perceived reception of informational support messages. Results indicated that at the first follow-up, perceived reception of informational support did not moderate the indirect effect of baseline levels of positive reframing, effect = -.90, *SE* = .61, 95% CI (-2.27, .06). The indirect effect was not significant at one standard deviation below the mean (1.37), indirect effect = -.81, *SE* = .62, 95% CI (-2.09, .40), mean (2.36), indirect effect = -1.71, *SE* = .82, 95% CI (-3.29, .03), and one standard deviation above the mean (3.36), indirect effect = -2.61, *SE* = 1.30, 95% CI (-5.20, .04), of perceived reception of informational support. At the second follow-up, similarly, perceived reception of information support did not moderate the indirect effect of baseline levels of positive reframing, effect = -.46, *SE* = .37, 95% CI (-1.32, .18). The indirect effect was significant and negative at one standard deviation below the mean (3.04), indirect effect = -2.17, *SE* = 1.11, 95% CI (-4.69, -.37), mean (4.87), indirect effect = -3.01, *SE* = 1.10, 95% CI (-5.51, -1.21), and one standard deviation above the mean (6.70), indirect effect = -3.84, *SE* = 1.46, 95% CI (-7.31, -1.57). All things considered, H15a was not supported.

H15b anticipates that the positive association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing will be greater among college students who receive more emotional support messages. Results showed that at the first follow-up, emotional support campaign message reception did not moderate the indirect effect of baseline levels of positive reframing, effect = -.47, *SE* = 1.18, 95% CI (-2.99, 1.83). The indirect effect was not significant at both a low level (0), indirect effect = -1.05, *SE* = 1.31, 95% CI (-3.93, 1.21), and a high level (1), indirect effect = -1.52, *SE* = .86, 95% CI (-3.25, .16) of emotional support campaign message reception. At the second follow-up, however, a moderated mediation was significant, effect = -2.84, *SE* = 1.46, 95% CI (-6.16, -.35). The indirect effect was not significant at a low level (0) of emotional support campaign message reception, indirect effect = -1.69, *SE* = 1.15, 95% CI (-4.13, .43), while it was significant and negative at a high level (2), indirect effect = -4.54, *SE* = 1.41, 95% CI (-7.76, -2.21). H15b was further investigated considering perceived reception of emotional support. Results revealed that at the first follow-up, it did not moderate the indirect effect of baseline levels of positive reframing, effect = -.92, *SE* = .65, 95% CI (-2.39, .08). The indirect effect was not significant at one standard deviation below the mean (2.09), indirect effect = -.86, *SE* = .62, 95% CI (-2.13, .37), mean (3.00), indirect effect = -1.70, *SE* = .84, 95% CI (-3.29, .11), and one standard deviation above the mean (3.90), indirect effect = -2.53, *SE* = 1.31, 95% CI (-5.13, .15) of perceived reception of emotion support. At the second follow-up, perceived reception of emotional support did not moderate the indirect effect of baseline levels of positive reframing, effect = -.63, *SE* = .42, 95% CI (-1.70, .06). The indirect effect was significant at one standard deviation below the mean (4.41), indirect effect = -2.19, *SE* = 1.08, 95% CI (-4.49, -.34), mean (5.89), indirect effect = -3.20, *SE* = 1.09, 95% CI (-5.62, -1.38), and one standard deviation

above the mean (7.37), indirect effect = -4.20, *SE* = 1.41, 95% CI (-7.40, -1.84), of perceived reception of emotional support messages. Thus, H15b was partially supported.

H16a proposes that the positive association between a baseline level of emotional identification and a reduction of depressive symptoms through follow-up levels of emotional identification will be greater among college students who express more informational support. Results from moderated mediation analyses showed that at the first follow-up, informational support message expression did not moderate the indirect effect of baseline levels of emotional identification on depressive symptoms, effect = -.54, *SE* = .88, 95% CI (-2.74, .84). The indirect effect was not significant at one standard deviation below the mean (.01), indirect effect = -1.05, *SE* = .80, 95% CI (-2.72, .46), mean (.34), indirect effect = -1.23, *SE* = .92, 95% CI (-3.08, .57), and one standard deviation above the mean (.68), indirect effect = -1.41, *SE* = 1.10, 95% CI (-3.73, .67) of information support expression. At the second follow-up, informational support message expression did not moderate the indirect effect of baseline levels of emotional identification on depressive symptoms, effect = .16, *SE* = 1.00, 95% CI (-1.79, 2.33). The indirect effect was significant and negative at one standard deviation below the mean (.23), indirect effect = -1.67, *SE* = 1.06, 95% CI (-4.11 -.07), mean (.65), indirect effect = -1.60, *SE* = .92, 95% CI (-3.71, -.09), and one standard deviation above the mean (1.07), indirect effect = -1.53, *SE* = .96, 95% CI (-3.70, -.07) of informational support expression. Therefore, H16a was rejected.

H16b proposes that the positive association between a baseline level of emotional identification and a reduction of depressive symptoms through follow-up levels of emotional identification will be greater among college students who express more emotional support messages. Results of moderated mediation analyses showed that at the first follow-up, emotional

support message expression did not moderate the indirect effect of baseline levels of emotional identification on depressive symptoms, effect = -.14, *SE* = .63, 95% CI (-1.77, .98). The indirect effect was not significant at one standard deviation below the mean (.16), indirect effect = -1.11, *SE* = .88, 95% CI (-2.89, .69), mean (.55), indirect effect = -1.16, *SE* = .91, 95% CI (-2.96, .68), and one standard deviation above the mean (.95), indirect effect = -1.22, *SE* = 1.01, 95% CI (-3.28, .68), of emotional support expression. At the second follow-up, emotional support message expression did not moderate the indirect effect of baseline levels of emotional identification on depressive symptoms, effect = .00, *SE* = .84, 95% CI (-1.86, 1.65). The indirect effect was significant and negative at one standard deviation below the mean (.24), indirect effect = -1.66, *SE* = .96, 95% CI (-3.84 -.08), mean (.68), indirect effect = -1.66, *SE* = .91, 95% CI (-3.68, -.12), and one standard deviation above the mean (1.12), indirect effect = -1.66, *SE* = .99, 95% CI (-3.88, -.08) of emotion support expression. Hence, H16b was rejected.

H17a expects that the positive association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing will be greater among college students who express more informational support. Results of moderated mediation analyses indicated that at the first follow-up, informational support message expression did not moderate the indirect effect of baseline levels of positive reframing on depressive symptoms, effect = -.69, *SE* = 1.29, 95% CI (-3.31, 2.01). The indirect effect was not significant at one standard deviation below the mean (.01), indirect effect = -1.16, *SE* = .82, 95% CI (-2.93, .32), mean (.34), indirect effect = -1.39, *SE* = .81, 95% CI (-3.00, .27), and one standard deviation above the mean (.68), indirect effect = -1.62, *SE* = 1.01, 95% CI (-3.57, .48) of information support expression. At the second follow-up, on the other hand, informational support message expression had a significant moderated mediation effect: effect = -3.63, *SE* =

1.47, 95% CI (-6.67, -.84). The negative indirect effect was greater as levels of informational support message expression increased: one standard deviation below the mean (.23), indirect effect = -1.89, *SE* = .99, 95% CI (-4.22 -.36), mean (.65), indirect effect = -3.40, *SE* = 1.08, 95% CI (-5.81, -1.60), and one standard deviation above the mean (1.07), indirect effect = -4.90, *SE* = 1.45, 95% CI (-8.01, -2.34). Hence, H17a received support at the second follow-up.

H17b predicts that the positive association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing will be greater among college students who express more emotional support messages. Results of moderated mediation analyses indicated that at the first follow-up, emotional support message expression did not moderate the indirect effect of baseline levels of positive reframing on depressive symptoms, effect = .48, *SE* = 1.10, 95% CI (-1.26, 3.16). The indirect effect was not significant at one standard deviation below the mean (.16), indirect effect = -1.58, *SE* = 1.11, 95% CI (-4.02, .27), mean (.55), indirect effect = -1.38, *SE* = .86, 95% CI (-3.16, .24), and one standard deviation above the mean (.95), indirect effect = -1.19, *SE* = .79, 95% CI (-2.81, .30) of emotional support expression. At the second follow-up, emotional support message expression had a significant moderated mediation effect: effect = -2.40, *SE* = 1.12, 95% CI (-4.58, -.11). The negative indirect effect was greater as levels of emotional support message expression increased: one standard deviation below the mean (.24), indirect effect = -1.95, *SE* = 1.07, 95% CI (-4.41, -.26), mean (.68), indirect effect = -3.01, *SE* = 1.05, 95% CI (-5.33 -1.30), and one standard deviation above the mean (1.12), indirect effect = -4.06, *SE* = 1.25, 95% CI (-6.84, -1.86). Hence, H17b received support at the second follow-up.

RQ11 concerns if reception of esteem and network support messages moderates the association between a baseline level of emotional identification and a reduction of depressive

symptoms through follow-up levels of emotional identification. Concerning the esteem support campaign message reception, results showed that there was no significant moderated mediation at the first follow-up, effect = -.29, *SE* = .57, 95% CI (-1.58, .83). The indirect effect of a baseline level of emotional identification on depressive symptoms through a follow-up level of emotional identification was not significant at both a low level (0), indirect effect = -1.06, *SE* = .90, 95% CI (-2.96, .49), and at a high level (1), indirect effect = -1.35, *SE* = .97, 95% CI (-3.21, .61), of esteem support campaign message reception. Similarly, reception of esteem support campaign messages did not moderate the indirect effect of baseline levels of emotional identification at the second follow, effect = -.06, *SE* = .69, 95% CI (-1.36, 1.55). The indirect effect of a baseline level of emotional identification was significant at both a low level (0), indirect effect = -1.66, *SE* = 1.02, 95% CI (-4.01, -.07), and at a high level (2), indirect effect = -1.72, *SE* = .97, 95% CI (-3.91, -.08), of esteem support campaign message reception.

Results further showed that at the first follow-up, perceived esteem support reception did not moderate the indirect effect of a baseline level of emotional identification on depressive symptoms, effect = .30, *SE* = .33, 95% CI (-.23, 1.08). The indirect effect was not significant at one standard deviation below the mean (1.64), indirect effect = -1.34, *SE* = 1.09, 95% CI (-3.49, .81), mean (2.62), indirect effect = -1.06, *SE* = .85, 95% CI (-2.71, .61), and one standard deviation above the mean (3.59), indirect effect = -.77, *SE* = .68, 95% CI (-2.24, .45) of perceived esteem support. At the second follow-up, perceived esteem support did not moderate the indirect effect of a baseline level of emotional identification on depressive symptoms as well, effect = .00, *SE* = .24, 95% CI (-.39, .61). The indirect effect was significant at one standard deviation below the mean (3.44), indirect effect = -1.64, *SE* = 1.00, 95% CI (-3.99, -.15), mean (5.21), indirect effect = -1.65, *SE* = .82, 95% CI (-3.47, -.21), and one standard deviation above

the mean (6.98), indirect effect = -1.66, *SE* = .85, 95% CI (-3.53, -.15), of perceived esteem support reception.

Results of moderated mediation analyses also showed that network support campaign message reception did not moderate the indirect effect of a baseline level of emotional identification on depressive symptoms through a follow-up level of emotional identification at the first level, effect = -.27, *SE* = 1.23, 95% CI (-3.53, 1.62). The indirect effect of a baseline level of emotional identification on depressive symptoms through a follow-up level of emotional identification was not significant at both a low level (0), indirect effect = -.89, *SE* = 1.33, 95% CI (-3.80, 1.64), and at a high level (1), indirect effect = -1.16, *SE* = .87, 95% CI (-3.00, .47), of network support campaign message reception. At the second follow-up, likewise, network support campaign message reception did not have a moderated mediation effect, effect = .71, *SE* = .99, 95% CI (-.86, 3.02). The indirect effect of a baseline level of emotional identification on depressive symptoms through a follow-up level of emotional identification was significant at both a low level (0), indirect effect = -2.33, *SE* = 1.47, 95% CI (-5.74, -.13), and at a high level (2), indirect effect = -1.62, *SE* = .90, 95% CI (-3.65, -.16) of network support campaign message reception.

Results further showed that at the first follow-up, perceived network support reception did not moderate the indirect effect of a baseline level of emotional identification on depressive symptoms, effect = .37, *SE* = .34, 95% CI (-.19, 1.15). The indirect effect was not significant at one standard deviation below the mean (1.28), indirect effect = -1.52, *SE* = 1.13, 95% CI (-3.79, .73), mean (2.36), indirect effect = -1.12, *SE* = .84, 95% CI (-2.81, .51), and one standard deviation above the mean (3.44), indirect effect = -.72, *SE* = .63, 95% CI (-2.14, .30) of perceived network support reception. At the second follow-up, perceived network support

reception did not moderate the indirect effect of a baseline level of emotional identification on depressive symptoms as well, effect = .01, *SE* = .22, 95% CI (-.40, .53). The indirect effect was significant at one standard deviation below the mean (2.84), indirect effect = -1.70, *SE* = .99, 95% CI (-3.96, -.16), mean (4.75), indirect effect = -1.68, *SE* = .83, 95% CI (-3.50, -.26), and one standard deviation above the mean (6.66), indirect effect = -1.66, *SE* = .87, 95% CI (-3.60, -.22) of perceived network support reception.

RQ12 was set to explore if reception of esteem and network support messages moderates the association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing. Concerning the esteem support campaign message reception, results showed that there was no significant moderated mediation at the first follow-up, effect = -.64, *SE* = 1.00, 95% CI (-3.06, 1.11). The indirect effect of a baseline level of positive reframing on depressive symptoms through a follow-up level of positive reframing was not significant at both a low level (0), indirect effect = -1.02, *SE* = .95, 95% CI (-3.02, .75), and at a high level (1), indirect effect = -1.67, *SE* = .95, 95% CI (-3.54, .19), of esteem support campaign message reception. Similarly, reception of esteem support campaign messages did not moderate the indirect effect of baseline levels of positive reframing at the second follow-up, effect = -1.87, *SE* = 1.30, 95% CI (-4.71, .43). The indirect effect of a baseline level of positive reframing was significant at both a low level (0), indirect effect = -2.03, *SE* = 1.12, 95% CI (-4.46, -.11), and at a high level (2), indirect effect = -3.90, *SE* = 1.31, 95% CI (-6.90, -1.80), of esteem support campaign message reception.

In addition, results showed that at the first follow-up, perceived esteem support reception did not moderate the indirect effect of a baseline level of positive reframing on depressive symptoms, effect = -.83, *SE* = .60, 95% CI (-2.23, .10). The indirect effect was not significant at

one standard deviation below the mean (1.64), indirect effect = -1.00, *SE* = .64, 95% CI (-2.31, .29), mean (2.62), indirect effect = -1.81, *SE* = .87, 95% CI (-3.43, .08), and one standard deviation above the mean (3.59), indirect effect = -2.62, *SE* = 1.34, 95% CI (-5.25, .10), of perceived esteem support reception. At the second follow-up, perceived esteem support reception did not moderate the indirect effect of a baseline level of positive reframing on depressive symptoms as well, effect = -.53, *SE* = .37, 95% CI (-1.39, .07). The indirect effect was significant at one standard deviation below the mean (3.44), indirect effect = -2.24, *SE* = 1.10, 95% CI (-4.76, -.42), mean (5.21), indirect effect = -3.17, *SE* = 1.09, 95% CI (-5.62, -1.38), and one standard deviation above the mean (6.98), indirect effect = -4.11, *SE* = 1.43, 95% CI (-7.37, -1.81) of perceived esteem support reception.

Results of moderated mediation analyses further showed that network campaign message reception did not moderate the indirect effect of a baseline level of positive reframing on depressive symptoms through a follow-up level of positive reframing at the first follow-up, effect = -.03, *SE* = 1.11, 95% CI (-2.27, 1.92). The indirect effect of a baseline level of positive reframing on depressive symptoms through a follow-up level of positive reframing was not significant at both a low level (0), indirect effect = -1.29, *SE* = 1.31, 95% CI (-3.76, 1.84), and at a high level (1), indirect effect = -1.06, *SE* = .89, 95% CI (-2.54, .51) of network support campaign message reception. Likewise, network support campaign message reception did not have a moderated mediation effect at the second follow-up, effect = -2.22, *SE* = 1.52, 95% CI (-5.20, .86). The indirect effect of a baseline level of positive reframing on depressive symptoms through a follow-up level of positive reframing was not significant at a low level (0), indirect effect = -1.75, *SE* = 1.44, 95% CI (-5.26, .44), of network support campaign message reception,

while it was significant at a high level (2), indirect effect = -3.97, *SE* = 1.23, 95% CI (-6.80, -1.93).

Results further showed that at the first follow-up, perceived network support reception did not moderate the indirect effect of a baseline level of positive reframing on depressive symptoms, effect = -.57, *SE* = .51, 95% CI (-1.80, .18). The indirect effect was not significant at one standard deviation below the mean (1.28), indirect effect = -.98, *SE* = .66, 95% CI (-2.36, .28), mean (2.36), indirect effect = -1.59, *SE* = .86, 95% CI (-3.28, .19), and one standard deviation above the mean (3.44), indirect effect = -2.21, *SE* = 1.28, 95% CI (-4.99, .24), of perceived network support reception. At the second follow-up, perceived network support reception did not moderate the indirect effect of a baseline level of positive reframing on depressive symptoms as well, effect = -.16, *SE* = .34, 95% CI (-.91, .45). The indirect effect was significant at one standard deviation below the mean (2.84), indirect effect = -2.76, *SE* = 1.29, 95% CI (-5.82, -.80), mean (4.75), indirect effect = -3.07, *SE* = 1.12, 95% CI (-5.70, -1.28), and one standard deviation above the mean (6.66), indirect effect = -3.39, *SE* = 1.31, 95% CI (-6.42, -1.32) of perceived network support reception.

RQ13 was proposed to test if expression of esteem and network support messages moderate the association between a baseline level of emotional identification and a reduction of depressive symptoms through follow-up levels of emotional identification. Results from moderated mediation analyses showed that esteem support message expression did not have a moderated mediation effect at the first follow-up, indirect effect = 1.30, *SE* = 1.28, 95% CI (-.78, 4.28). The indirect effect was not significant at one standard deviation below the mean (0), indirect effect = -1.48, *SE* = 1.04, 95% CI (-3.55, .67), mean (.17), indirect effect = -1.26, *SE* = .89, 95% CI (-3.01, .58), and one standard deviation above the mean (.40), indirect effect =

-.95, *SE* = .73, 95% CI (-2.53, .44) of esteem support expression. At the second follow-up, similarly, esteem support expression did not moderate the indirect effect of a baseline level of emotional identification on depressive symptoms as well, indirect effect = .86, *SE* = 1.29, 95% CI (-1.63, 3.65). The indirect effect was significant at one standard deviation below the mean (0), indirect effect = -1.91, *SE* = 1.10, 95% CI (-4.40, -.09), mean (.30), indirect effect = -1.66, *SE* = .95, 95% CI (-3.84, -.09), and one standard deviation above the mean (.60), indirect effect = -1.40, *SE* = .94, 95% CI (-3.66, -.03) of esteem support expression.

Results of moderated mediation analyses also showed that network support message expression did not have a significant moderated mediation at the first follow-up, indirect effect = .16, *SE* = 1.58, 95% CI (-1.61, 4.26). The indirect effect was not significant at the value of 0, indirect effect = -1.26, *SE* = .94, 95% CI (-3.05, .64), and the value of 1, indirect effect = -1.11, *SE* = 1.67, 95% CI (-3.61, 2.91), of network support expression. At the second follow-up, on the other hand, network support expression moderated the indirect effect of a baseline level of emotional identification on depressive symptoms, indirect effect = -2.41, *SE* = 1.66, 95% CI (-6.40, -.04). The negative indirect effect was greater as levels of network support expression increased: the value of 0, indirect effect = -1.36, *SE* = .82, 95% CI (-3.31, -.08), and the value of 1, indirect effect = -3.76, *SE* = 2.18, 95% CI (-8.74, -.09).

RQ14 was advance to investigate if expression of esteem and network support messages moderates the association between a baseline level of positive reframing and a reduction of depressive symptoms through follow-up levels of positive reframing. Results from moderated mediation analyses showed that esteem support message expression did not have a significant moderated mediation effect at the first follow-up, indirect effect = -.50, *SE* = 1.42, 95% CI (-3.15, 2.87). The indirect effect was not significant at one standard deviation below the mean (0),

indirect effect = -1.20, *SE* = .84, 95% CI (-3.00, .24), mean (.17), indirect effect = -1.28, *SE* = .79, 95% CI (-2.95, .20), and one standard deviation above the mean (.40), indirect effect = -1.40, *SE* = .84, 95% CI (-3.07, .21), of esteem support expression. At the second follow-up, similarly, esteem support expression did not moderate the indirect effect of a baseline level of positive reframing on depressive symptoms as well, indirect effect = -3.04, *SE* = 1.68, 95% CI (-6.37, .30). The indirect effect was significant at one standard deviation below the mean (0), indirect effect = -2.18, *SE* = 1.15, 95% CI (-4.93, -.43), mean (.30), indirect effect = -3.08, *SE* = 1.08, 95% CI (-5.58, -1.39), and one standard deviation above the mean (.60), indirect effect = -3.99, *SE* = 1.23, 95% CI (-6.72, -1.98), of esteem support expression.

Results of moderated mediation analyses also showed that network support message expression did not have a significant moderated mediation effect at the first follow-up, indirect effect = -1.29, *SE* = 2.54, 95% CI (-6.89, 2.32). The indirect effect was not significant at the value of 0, indirect effect = -1.27, *SE* = .78, 95% CI (-2.92, .14), and the value of 1, indirect effect = -2.56, *SE* = 2.72, 95% CI (-8.65, 1.57), of network support expression. At the second follow-up, network support expression did not moderate the indirect effect of a baseline level of positive reframing on depressive symptoms, indirect effect = -.20, *SE* = 2.04, 95% CI (-3.87, 4.53). The indirect effect was significant at the value of 0, indirect effect = -3.21, *SE* = 1.14, 95% CI (-5.89, -1.41), of network support expression. On the other hand, it was not significant at the value of 1, indirect effect = -3.40, *SE* = 1.95, 95% CI (-7.32, .33), of network support expression. Table 5, 6, and 7 summarize the results of moderated mediation analyses.

CHAPTER FIVE

DISCUSSION

In addition to fear of COVID-19 infections, the pandemic has brought several stressors to college students' lives, including changes in learning modes, restricted gathering, loss of loved ones, disruption of academic and career trajectory, and disconnection from friends and family, causing significant psychological distress (Son et al., 2020; Want et al., 2020). Mental health problems can jeopardize various dimensions of well-being, reducing quality of life, lowering academic/workplace achievement, reducing productivity, compromising physical health, and weakening relationships with others. Hence, it is imperative to provide insight into how mental health campaigns can be better developed for college student populations.

It has been documented that participating in health campaigns implemented on interactive platforms, such as social media, may have salutary health effects (e.g., Han et al., 2019; Namkoong et al., 2013). Despite the accumulated evidence for the efficacy of participating in health campaigns, relatively little scholarly attention has been offered to exactly what kinds of participation are conducive to health benefits. To address this issue, the goal of this study was to investigate if and how reading and writing social support messages, the two common communicative activities within social media campaigns, are related to a reduction in depressive symptoms. In doing so, two coping strategies, emotional identification and positive reframing, were considered as key factors explaining the effects of supportive message exchange. In addition, this study tested two different routes, the main effect and buffering effect, through which support reception and expression may contribute to the improvement in psychological health. To do so, this study designed and carried out an actual Facebook mental health campaign for fifteen days with college students as participants. This field experimental design allowed (a)

testing participants' coping through the use of social media campaigns in a more realistic setting where they could engage in a campaign and (b) longitudinal analyses of social support exchange effects. Several findings worth discussing emerged from the study.

Theoretical Implications

This study proposed several main effect hypotheses, predicting direct and positive effects of support message exchange on the two coping strategies. When it comes to support message reception, informational and emotional support campaign message reception had a direct and positive effect on emotional identification, which in turn, led to a reduction in depressive symptom levels at the second follow-up. This portion of findings is largely consistent with the previous knowledge suggesting that receiving supportive communication could play a significant role in helping individuals cope with stressful events and experiences, thereby promoting health and well-being. Corroborating these findings, this study suggests that college students may acquire affective benefits of identifying and understanding emotions they have during stressful times by receiving campaign messages designed to share useful information/resources and emotional assistance for mental health in a social media environment.

Two other types of campaign message support reception, esteem and network, were not found to be significant correlates of the coping strategies. Relative to informational and emotional support reception, not much evidence for the efficacy of esteem and network support reception exists. Some studies documented the beneficial role of esteem support reception in the job search (e.g., Holmstrom, Russell, & Clare, 2013) and athletic communication (e.g., Cranmer, Anzur, & Sollitto, 2017) context. Given this, the effect of esteem and network support reception could be context-specific: It may have more relevance to the promotion of athletic satisfaction or jobseekers' self-esteem, rather than coping with psychological distress caused by the global

pandemic and corresponding social isolation. Of course, more future studies are needed to ascertain if acquiring esteem and network support messages through social media campaigns has differential effects according to different stress-causing situations. Another explanation for this portion of the results is pertaining to whether participants' reception of esteem and network campaign messages indeed had a substantial reception impact of these support categories. Because the measures for perceived support reception were employed to assess support from other group members, not from the campaign messages designed and posted by the researcher, further investigations are warranted to evaluate if the reception of campaign messages containing esteem and network support leads to changes in perception of such support categories.

Furthermore, the results showed that the four support expression variables did not have a direct effect on the two coping variables of interest. These results are somewhat inconsistent with previous research suggesting the direct linkage between support expression and better adoption of coping strategies (e.g., Han et al., 2019; Namkoong et al., 2013). However, it is worth mentioning that studies examining expression effects in a computer-mediated or online environment typically employed a longer experimental session than my campaign period. For example, Han et al. (2019) tested the effect of empathy expression at 6-week, 3-month, and 6-month periods. Effects of emotional expression were also investigated at a 6-month period in Namkoong et al. (2013). On the other hand, the campaign implemented in the current study was carried out for a fifteen-day period. This relatively shorter study session might be the reason why social support expression did not bear a direct relationship with the improvement in the coping strategies. This is because the benefits from expression are largely attributed to cognitive changes associated with the intense psychological process of translating thoughts, emotions, and experiences into language. With regard to this argument, Pennebaker (1993) noted that

individuals who benefited from expression appeared to be smarter, more thoughtful, and emotional. Such a demanding and elaborating mental process may require a longer time to produce its effect than a fifteen-day period of time.

The results of the present study also lend support for the buffering effects of support expression. Specifically, two support expression categories, informational support and emotional support, were found to moderate changes in levels of positive reframing at the second follow-up: College student participants who posted more informational and emotional support comments and/or postings reported that they employed the coping strategy of positive reframing to a greater extent at the second follow-up. In turn, these participants' greater utilization of positive reframing was correlated with their lower levels of depressive symptoms. Buffering effects of emotional support expression have been relatively well-documented (e.g., Han et al., 2019), compared with the other types of support expression. Corroborating the findings of previous studies and adding knowledge about the buffering effect of informational support expression, the present project suggests that the stress-buffering hypothesis has particular relevance in understanding how college students cope with psychological distress from the global pandemic through sharing useful information about the situation, ideas/suggestions, caring, empathy, understanding, or affection with others who are having similar difficulties in a social media environment.

Unlike informational and emotional expression, esteem and network support expression did not moderate the relationship between baseline and follow-up levels of positive reframing. Instead, network support expression moderated changes in levels of emotional identification at the second follow-up. Again, relatively less scholarly treatments have been paid to if these two types of support expression bear a stress-buffering effect. The results of this study may suggest

that at least in the current context of coping with stress from the pandemic, esteem may have minimal or no buffering effects on the two coping strategies, while the buffering effect of network support expression is mostly affective, rather than cognitive, in nature. Future research is invited to replicate this portion of findings and explore if these two expression categories could exert buffering effects on other types of coping methods.

Furthermore, three perceived support reception variables (i.e., informational, emotional, and esteem) had a buffering effect on positive reframing at the first follow-up. This is an interesting result given that the two aforementioned campaign support message reception variables had direct impacts on emotional identification, supporting the main effect hypothesis. There could be some explanations for why perceived support reception and campaign support message reception exhibited different effects. One of them is that the campaign support message reception variables were created by counting the number of times participants were actually exposed to the messages created and published by the researcher, while the perceived support reception variables assessed the degree to which participants perceptually received support from other group members, as outlined above. Given this, it is plausible to think that although both types of variables were employed to measure the concept of social support reception, there might be differences in the quality of these two types of measures. For example, exposure to campaign messages might have not led to changes in perception of social support reception. In addition, it can be assumed that the different sources of social support may have different effects: Reception of central campaign messages with informational and emotional support through social media may have a direct impact on active identification and management of emotional distress. On the other hand, perceived social support from other campaign participants who are having similar

difficulties could serve as an agent facilitating a reassessment of negative circumstances and experiences in a more positive light.

In addition to informational and emotional expression variables and three perceived support reception variables, reception of emotional support campaign messages moderated changes in levels of positive reframing at the second follow-up. That is, an increase in levels of positive reframing from the baseline to the follow-up was greater among participants who were exposed to more emotional campaign messages. This part of the results is inconsistent with previous studies reporting that emotional support reception does not have a buffering effect (e.g., Han et al., 2013). Again, different sources of support might have played a role. In this study, messages delivering emotional support were from the campaign, while the source of supportive messages in the previous study (Han et al., 2013) was other users of a computer-mediated social support group. Taking these results into consideration, it would be valuable to pay closer attention to the source effect of support reception in the future.

Notably, the campaign message reception variables were linked to positive reframing only at the second follow-up, while perceived support reception variables were related to the coping strategy only at the first follow-up. Note that participants of this study were able to expose to each type of support campaign message up to once at the first follow-up and twice at the second follow-up. Considering this, this part of the results regarding the effect of campaign message reception could be discussed considering message repetition effects, which suggest that cognitive changes as a result of message exposure increases as exposure frequency increases (Cacioppo & Petty, 1979). In this light, a single encounter with a support campaign message may not create enough opportunities to elaborate upon the message content, and thus, substantial changes in participants' cognitive assessment of the stress-causing situation (i.e., positive

reframing) may have not been likely. On the other hand, perceived social support reception is deemed a mental impression formed as a result of reading and encountering support messages from other group members, thereby exerting more immediate impacts on the coping strategies.

There were two significant associations at the first follow-up, but the directions were opposite to the predictions of this study: An increase in levels of emotional identification from baseline to follow-up levels was greater among participants who perceived less informational and network support at the first follow-up. These opposite effects became not significant at the second follow-up. One possible explanation for these unexpected results would be that with a perceived influx of support from similar others, campaign participants would feel less necessity for coping which may be demanding to adopt or adjust at the beginning of the campaign. However, further reception of support over the course of the campaign may help participants comprehend the difficulties they are facing and therefore improve coping strategies. Given this pattern of relationships between perceived social support and emotional identification, future studies should test if the relationship between perceived social support and coping is indeed curvilinear, such that as perceived support levels increase in the early stages of campaigns, utilization of coping tends to decrease temporarily, but in the later stages, increases in perceived support result in higher levels of coping usage.

The results showed that positive reframing was linked to a reduction of depressive symptoms at both the first and second follow-up, while emotional identification was related lower levels of depression only at the second follow-up. Differences between the two coping strategies may be a possible interpretation for these results: Positive reframing involves thinking about a negative environment, while emotional identification involves recognizing and understanding one's emotions. Although both coping strategies are considered adaptive coping in

this study, the former, which could involve thinking about a benefit or upside, a lesson that can be learned, or something to be appreciated in a negative situation, may have a prompter impact on campaign participants' depressive symptoms. Emotional identification, on the other hand, is deemed as a beginning stage of a larger coping strategy, namely emotional-approach coping (Baker & Berenbaum, 2007). Thus, emotional identification may have a delayed effect on depression conditions.

Overall, the findings of this study suggest that support reception and expression could exert unique influences. The benefits of support reception are mostly affective: Informational and emotional support campaign messages reception reduced one's depressive symptoms through offering the affective benefit of recognizing and understanding emotions. On the contrary, informational and emotional support expression was not related to emotional identification. However, they were positively associated with the cognitive benefit of positive reframing. In addition, these two communicative behaviors took different routes to produce their benefits. Campaign support reception variables had a direct main effect on emotional identification, while support expression exhibited buffering effects, such that it moderated the positive relationship of baseline levels of positive reframing with follow-up levels of positive reframing. Considering these results, it can be argued that outcomes of campaign support message reception are mostly direct and affective in nature, while supportive communication expression produces predominantly cognitive benefits of positive reframing by buffering stress appraisals. These results seem logical considering the nature of behaviors of reception and expression. By consuming supportive messages, individuals may be able to receive psychological resources that could be helpful for identifying and realizing how they are feeling. However, such resources from the mere reception of support messages may not be sufficient for

changes in cognitive assessment of a negative or challenging situation. Compared with supportive message reception, conversely, the act of articulating and composing ideas, feelings, and experiences in language should be highly cognitive. Through supportive expression about health issues, or psychologically stressful events and resultant negative experiences, therefore, campaign participants would be able to gain new ideas and perspectives on the negative circumstance.

All things considered, the findings of this study offer valuable insights into what contributes to the efficacy of social media campaigns by exploring mechanisms through which college students improve their mental health conditions by participating in such campaigns. As discussed earlier, the effectiveness of health campaigns is mostly studied under the reception-effect perspective, which considers campaign outcomes as a direct and immediate product of exposure to campaign messages. In principle, this viewpoint suggests that when individuals receive a persuasive health message, they are either informed or persuaded, followed by changes in attitudes, perceptions, and behaviors. For example, numerous theories and studies have been devoted to explaining how health message features influence one's health-related perceptions and behaviors. One major weakness of this approach is that it neglects other possible paths via which campaign outcomes are rendered considering that the use of campaigns could also encompass communication behaviors other than just reading campaign messages. This is especially the case when campaigns are carried out on social media platforms where users' engagement is enabled and facilitated by such functions as postings, commenting, and interactive messaging. Overall, the findings of this study demonstrate that the amount and types of messages that campaign participants exchange within social media campaigns are the key to understanding

if and in what ways different coping mechanisms are used to enhance mental health conditions. Given these findings, this study could make meaningful theoretical contributions to scholarship.

It should be also noted that this study offers a more comprehensive methodology to investigate the effectiveness of social media campaigns. Specifically, the current study acquired and utilized three datasets. First, Facebook group log data provides information about participants' act of campaign message reception and expression. Using this dataset, it was possible to observe the actual amount of expression and reception, and thus, this study did not have to solely rely on self-reported measurements for message reception and expression. Second, this study employed content analysis, which permitted gathering and sorting qualitative contents that participants provided within the group into the four social support expression categories. Lastly, three surveys, including both baseline and follow-ups, were conducted to assess baseline scores of the dependent variables, external factors, and demographic information. By merging these three types of data, a unique dataset was acquired and used to explore the effects of participants' complex communicative behaviors within the social media campaign.

Practical implications

The findings of this study could provide several useful directions for public health practitioners and campaign planners who seek to utilize social media as a channel for mental health campaigns. First, this study reported several findings demonstrating the effectiveness of social media-based mental health campaigns as a strategy for helping young adults cope with difficulties and improve mental health conditions. Considering this efficacy, the communicative behaviors and coping routes examined in this project should be integrated into social media campaign initiatives.

Specifically, given that both support message reception and expression were shown to be related to adaptive coping and better mental health conditions, creating a more participatory and interactive vehicle where participants could play a role of active contributors, rather than passive message recipients, is equally important as developing and disseminating helpful and informative campaign messages. To achieve this end, social media campaigns should be designed to encourage participants to actively provide information/solutions to problems, and to offer encouragement, reassurance, and compassion, and to connect with companies. By engaging in these communicative activities along with receiving central campaign messages, campaign participants could exchange support, thereby accepting more adaptive coping strategies.

The results of this study also lend support to the legitimacy of employing social media as an effective venue for mental health campaigns. As demonstrated in this study, the key to the success of social media campaigns would be dependent on creating and providing channels through which young populations with mental health issues can freely ask questions, share information, and exchange support. Given their collaborative nature and high usage rate among college students, social media platforms offer a cost□effective venue for achieving this end. Using the signature features offered by social media, such as commenting, posting, animated "emoji" reactions, sharing, and private messaging, people could easily engage in a campaign and interact with other campaign participants.

Limitations and Future Directions

The findings of this study need to be interpreted with some limitations. First, the goal of this study was to investigate the effect of support message reception and expression on campaign efficacy. However, it was difficult to create a condition in which participants can only write comments and postings (i.e., expression condition) and condition in which participants can only

read supportive messages (i.e., reception condition). For example, once a participant publishes comments or postings in the expression condition, such messages will be received by other participants who are supposed to express only. In addition, expression of messages was not directed and mandated by the researcher. Rather, participants were instructed to voluntarily write postings and comments related to their thoughts, feelings, and experiences during the pandemic. Under this circumstance, oftentimes, reading campaign messages or other participants' postings/comments prompted one's message expression. For this reason, the study did not employ a separate experimental and control group. Although the current design could offer a more natural setting, one cannot ascertain that the campaign outcomes were indeed caused by the experimental treatment, namely behaviors of social support expression and reception through postings and comments, and not by other factors. To alleviate this issue, this study included the baseline scores of outcome variables as covariates along with other variables assessing some external factors, such as exposure to mental health-related advertising or campaigns.

Related to the experimental design, there might have been a number of external factors that could have influenced participants' adoption of coping strategies and levels of depressive symptoms during the experimental session. For instance, the campaign was conducted during the Fall 2021 semester, and within the campaign period, participants had to take midterms, and it is plausible to assume that taking midterms during the pandemic could be a significant event causing stress to the participants. Also, few participants shared the demise of their significant others due to COVID-19 infections, and others posted news stories about the pandemic in the group. Facing such a negative personal event or exposure to upsetting news could also be a significant external factor, making it difficult to conclude that efficacy of this campaign is solely attributed to campaign participation.

Even though a private group was selected as an experimental platform to keep comments and posts made in the experimental session confidential, participants' may have felt reluctant or insecure to share their experiences, feelings, and thoughts that they have during the pandemic with group members who are studying at the same university. As mentioned above, the salutary effect of expression is due to the attainment of new insights and changes in understanding associated with composing messages. Given that that mere expression may not be sufficient for health gains (Pennebaker, 1997), participants' concerns about sharing personal experience may have inhibited sharing their willingness to express the deepest personal stories or the actual content of the message shared, thus influencing the resultant expression effect. Relatedly, although the campaign was designed as realistic as possible, the experimental nature of the campaign makes it difficult to determine if participants were naturally and spontaneously involved in the campaign-related activities.

In addition, some issues related to the sample need to be considered. First, the majority of participants were female Caucasian students from a single university studying journalism and mass communication. Thus, the generalizability of the findings to other population groups remains to be examined. In addition, although the dropping out rate of the participants was not significantly high (22.31 %), students who kept participating in the group activities and finished the first and second follow-up surveys may have been more motivated and committed with regards to the campaign and the issue of mental health than those who dropped out. Thus, the results analyzed using responses from these participants may have indicated that campaign efficacy is more beneficial than it actually is.

Lastly, the research topic of mental health and the COVID-19 pandemic needs to be considered when interpreting and applying the findings. For example, psychological distress

from fear of infection and social isolation measures may be significantly different than stress associated with life-threatening illnesses, such as cancer, and chronic mental health conditions, including chronic depression, anxiety, and bipolar disorder. Hence, the health benefits of engaging in a social media mental health campaign should be tested in different mental health contexts.

Conclusion

This study was set to implement and evaluate a social media campaign designed to help college students cope with stress from the pandemic. In doing so, this study paid particular attention to the two communicative behaviors that campaign users commonly engage in, namely reception and expression of social support, and tested several mediational and moderation routes through which support reception and expression produce health benefits of reducing depression. Combining data from the group activity log, content analysis, and one baseline and two follow-up surveys, it was possible to observe various types of social support reception and expression and assess their effects through this study.

The findings of this study shed light on our understanding of in what ways outcomes of social media-based mental health campaigns are produced. This study provides a significant foundation for social media-based mental health campaigns, efficacy of which has been studied mostly under the reception-effect paradigm. As outlined, both supportive reception *and* expression have unique influences on alleviating symptoms of depression. Several important questions and implications emerged for future research. Considering the findings of this study, the future study should test more diverse coping mechanisms and outcome variables in other mental health contexts and novel experimental settings. Also, utilization of the implications in practice would be to devise ways to facilitate support exchange among people within campaigns.

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Table 1.
Results of multiple regression analyses with social support campaign message reception variables as a predictor

	Emotional identification			Positive reframing		
Predictors	β	*t*-value	*p*-value	β	*t*-value	*p*-value
Informational support reception						
1st follow-up	-.01	-.06	ns	.18	1.49	ns
2nd follow-up	.32	2.52	< .05	.09	.74	ns
Emotional support reception						
1st follow-up	-.10	-.93	ns	-.04	-.35	ns
2nd follow-up	.25	2.00	< .05	.10	.80	ns
Esteem support reception						
1st follow-up	.05	.42	ns	.16	1.36	ns
2nd follow-up	-.10	-.77	ns	.15	1.24	ns
Network support reception						
1st follow-up	.17	1.74	ns	-.11	-1.08	ns
2nd follow-up	-.20	-1.47	ns	-.24	-1.80	ns

Note: β = standardized coefficient

Table 2.
Results of multiple regression analyses with perceived support message reception variables as a predictor

	Emotional identification			Positive reframing		
Predictors	β	*t*-value	*p*-value	β	*t*-value	*p*-value
Perceived informational support						
1st follow-up	-.09	-.57	ns	-.17	-1.00	ns
2nd follow-up	-.21	-1.07	ns	.19	1.05	ns
Perceived emotional support						
1st follow-up	.01	.06	ns	.15	.95	ns
2nd follow-up	.33	1.87	ns	.27	1.67	ns
Perceived esteem support						
1st follow-up	.06	.33	ns	.24	1.23	ns
2nd follow-up	-.09	-.36	ns	-.10	-.44	ns
Perceived network support						
1st follow-up	.12	.80	ns	-.10	-.67	ns
2nd follow-up	-.02	-.09	ns	-.10	-.60	ns

Note: β = standardized coefficient

Table 3.
Results of multiple regression analyses with social support message expression variables as a predictor

	Emotional identification			Positive reframing		
Predictors	β	*t*-value	*p*-value	β	*t*-value	*p*-value
Informational support expression						
1st follow-up	-.17	-1.56	ns	-.08	-.65	ns
2nd follow-up	-.11	-.71	ns	-.22	-1.31	ns
Emotional support expression						
1st follow-up	.18	1.42	ns	.07	.47	ns
2nd follow-up	-.02	-.14	ns	.14	.86	ns
Esteem support expression						
1st follow-up	-.06	-.60	ns	.13	1.21	ns
2nd follow-up	.04	.32	ns	.06	.46	ns
Network support expression						
1st follow-up	.04	.44	ns	.03	.34	ns
2nd follow-up	-.03	-.32	ns	.02	.15	ns

Note: β = standardized coefficient

Table 4.
Results of mediation analyses

	First follow-up		Second follow-up	
	Indirect effect	95% CI	Indirect effect	95% CI
Campaign message reception				
Informational support → EI→ CES-D	.05	-2.01, 1.92	-1.21	-3.19, -.05
Emotional support → EI→ CES-D	.61	-.85, 2.43	-.89	-2.71, -.03
Esteem support → EI→ CES-D	-.23	-1.73, 1.00	.33	-.50, 1.80
Network support → EI→ CES-D	-2.13	-7.32, 1.53	.75	-.16, 2.23
Informational support → PR→ CES-D	-1.66	-5.88, 1.09	-.62	-2.37, .94
Emotional support → PR→ CES-D	.31	-1.45, 2.22	-.61	-2.22, .92
Esteem support → PR→ CES-D	-1.03	-4.50, .67	-.91	-2.74, .43
Network support → PR→ CES-D	1.79	-1.43, 6.95	1.58	-.17, 3.53
Perceived message reception				
Informational support → EI→ CES-D	.18	-.74, 1.22	.41	-.35, 1.42
Emotional support → EI→ CES-D	-.02	-.89, .99	-.80	-2.28, .13
Esteem support → EI→ CES-D	.09	-1.16, 1.33	.18	-.96, 1.28
Network support → EI→ CES-D	-.21	-1.09, .59	.03	-.78, .85
Informational support → PR→ CES-D	.53	-.44, 1.98	-.59	-1.96, .63
Emotional support → PR→ CES-D	-.51	-1.86, .57	-1.05	-2.80, .21
Esteem support → PR→ CES-D	-.77	-2.91, .38	.32	-1.23, 2.10
Network support → PR→ CES-D	.29	-.53, 1.32	.29	-.72, 1.28
Message expression				
Informational support → EI→ CES-D	1.13	-.79, 4.23	.95	-2.09, 3.76
Emotional support → EI→ CES-D	-1.02	-3.98, 1.00	.17	-2.99, 2.76
Esteem support → EI→ CES-D	.57	-1.36, 3.83	-.48	-4.18, 3.94
Network support → EI→ CES-D	-.35	-2.63, 1.32	.34	-2.45, 3.34
Informational support → PR→ CES-D	.66	-1.49, 3.92	3.23	-.64, 7.94
Emotional support → PR→ CES-D	-.48	-2.75, 2.40	-1.88	-6.23, 1.40
Esteem support → PR→ CES-D	-1.56	-6.01, 1.03	-1.24	-6.76, 4.85
Network support → PR→ CES-D	-.36	-3.40, 2.22	-.28	-3.14, 2.48

Note: EI = Emotional identification, PR = Positive reframing

Table 5.
Results of moderated mediation analyses with social support campaign message reception variables as a moderator

	First follow-up			Second follow-up		
	b	*SE*	95% CI	*b*	*SE*	95% CI
Moderator: Informational support campaign message reception						
EI baseline → EI follow-up → CES-D	-.12	.90	-1.75, 1.53	.56	.83	-.93, 2.45
PR baseline → PR follow-up → CES-D	-1.26	2.52	-5.96, 4.42	-2.06	1.48	-4.88, 1.15
Moderator: Emotional support campaign message reception						
EI baseline → EI follow-up → CES-D	-.19	.67	-1.75, 1.07	-.15	.74	-1.81, 1.24
PR baseline → PR follow-up → CES-D	-.47	1.18	-2.99, 1.83	-2.84	1.46	-6.16, -.35
Moderator: Esteem support campaign message reception						
EI baseline → EI follow-up → CES-D	-.29	.57	-1.58, .83	-.06	.69	-1.36, 1.55
PR baseline → PR follow-up → CES-D	-.64	1.00	-3.06, 1.11	-1.87	1.30	-4.71, .43
Moderator: Network support campaign message reception						
EI baseline → EI follow-up → CES-D	-.27	1.23	-3.53, 1.62	.71	.99	-.86, 3.02
PR baseline → PR follow-up → CES-D	-.03	1.11	-2.27, 1.92	-2.22	1.52	-5.20, .86

Note: *b* = Moderated mediation effect, EI = Emotional identification, PR = Positive reframing

Table 6.
Results of moderated mediation analyses with perceived social support message reception variables as a moderator

	First follow-up			Second follow-up		
	b	*SE*	95% CI	*b*	*SE*	95% CI
Moderator: Perceived informational support reception						
EI baseline → EI follow-up → CES-D	.38	.37	-.26, 1.23	.02	.24	-.37, .59
PR baseline → PR follow-up → CES-D	-.90	.61	-2.27, .06	-.46	.37	-1.32, .18
Moderator: Perceived emotional support reception						
EI baseline → EI follow-up → CES-D	.16	.24	-.32, .68	-.08	.25	-.54, .50
PR baseline → PR follow-up → CES-D	-.92	.65	-2.39, .08	-.63	.42	-1.70, .06
Moderator: Perceived esteem support reception						
EI baseline → EI follow-up → CES-D	.30	.33	-.23, 1.08	.00	.24	-.39, .61
PR baseline → PR follow-up → CES-D	-.83	.60	-2.23, .10	-.53	.37	-1.39, .07
Moderator: Perceived network support reception						
EI baseline → EI follow-up → CES-D	.37	.34	-.19, 1.15	.01	.22	-.40, .53
PR baseline → PR follow-up → CES-D	-.57	.51	-1.80, .18	-.16	.34	-.91, .45

Note: *b* = Moderated mediation effect, EI = Emotional identification, PR = Positive reframing

Table 7.
Results of moderated mediation analyses with social support message expression variables as a moderator

	First follow-up			Second follow-up		
	b	*SE*	95% CI	*b*	*SE*	95% CI
Moderator: Informational support expression						
EI baseline → EI follow-up → CES-D	-.54	.88	-2.74, .84	.16	1.00	-1.79, 2.33
PR baseline → PR follow-up → CES-D	-.69	1.29	-3.31, 2.01	-3.63	1.47	-6.67, -.84
Moderator: Emotional support expression						
EI baseline → EI follow-up → CES-D	-.14	.63	-1.77, .98	.00	.84	-1.86, 1.65
PR baseline → PR follow-up → CES-D	.48	1.10	-1.26, 3.16	-2.40	1.12	-4.58, -.11
Moderator: Esteem support expression						
EI baseline → EI follow-up → CES-D	1.30	1.28	-.78, 4.28	.86	1.29	-1.63, 3.65
PR baseline → PR follow-up → CES-D	-.50	1.42	-3.15, 2.87	-3.04	1.68	-6.37, .30
Moderator: Network support expression						
EI baseline → EI follow-up → CES-D	.16	1.58	-1.61, 4.26	-2.41	1.66	-6.40, -.04
PR baseline → PR follow-up → CES-D	-1.29	2.54	-6.89, 2.32	-.20	2.04	-3.87, 4.53

Note: *b* = Moderated mediation effect, EI = Emotional identification, PR = Positive reframing

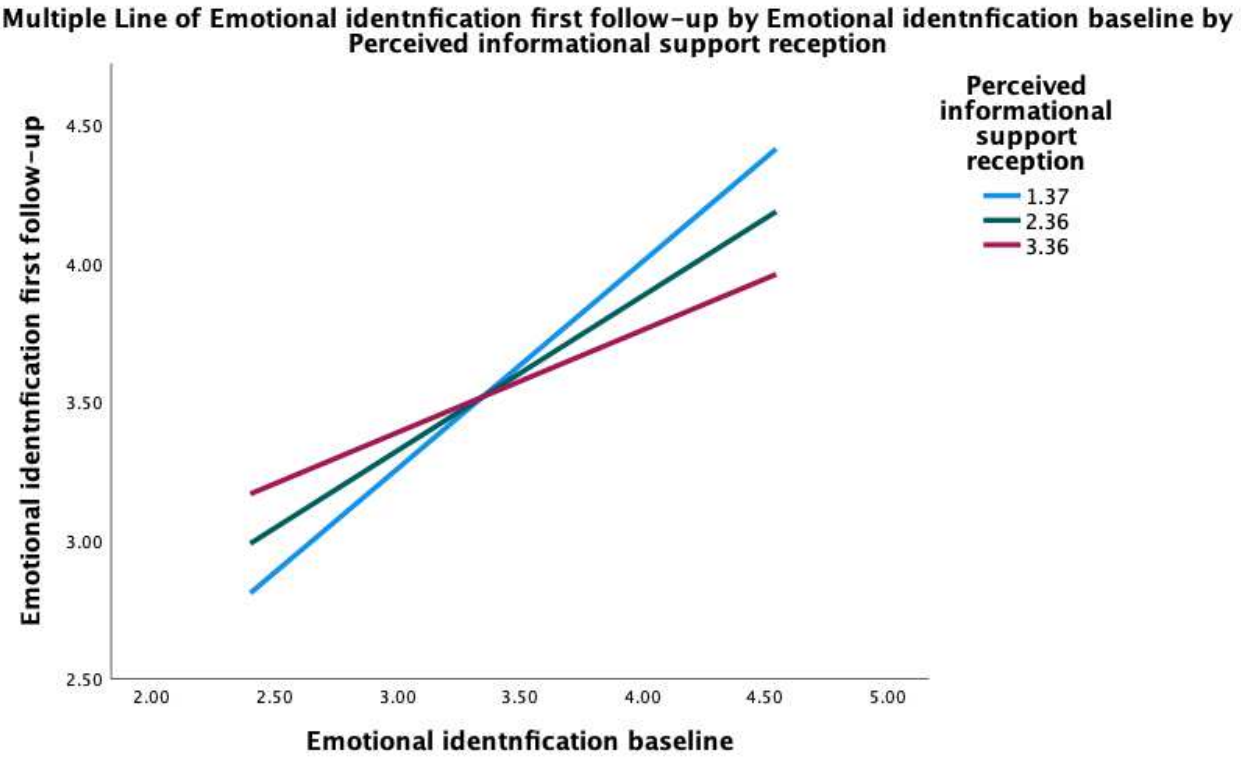


Figure 1. Interaction effect between perceived informational support reception and baseline level of emotional identification on predicting first follow-up levels of emotional identification

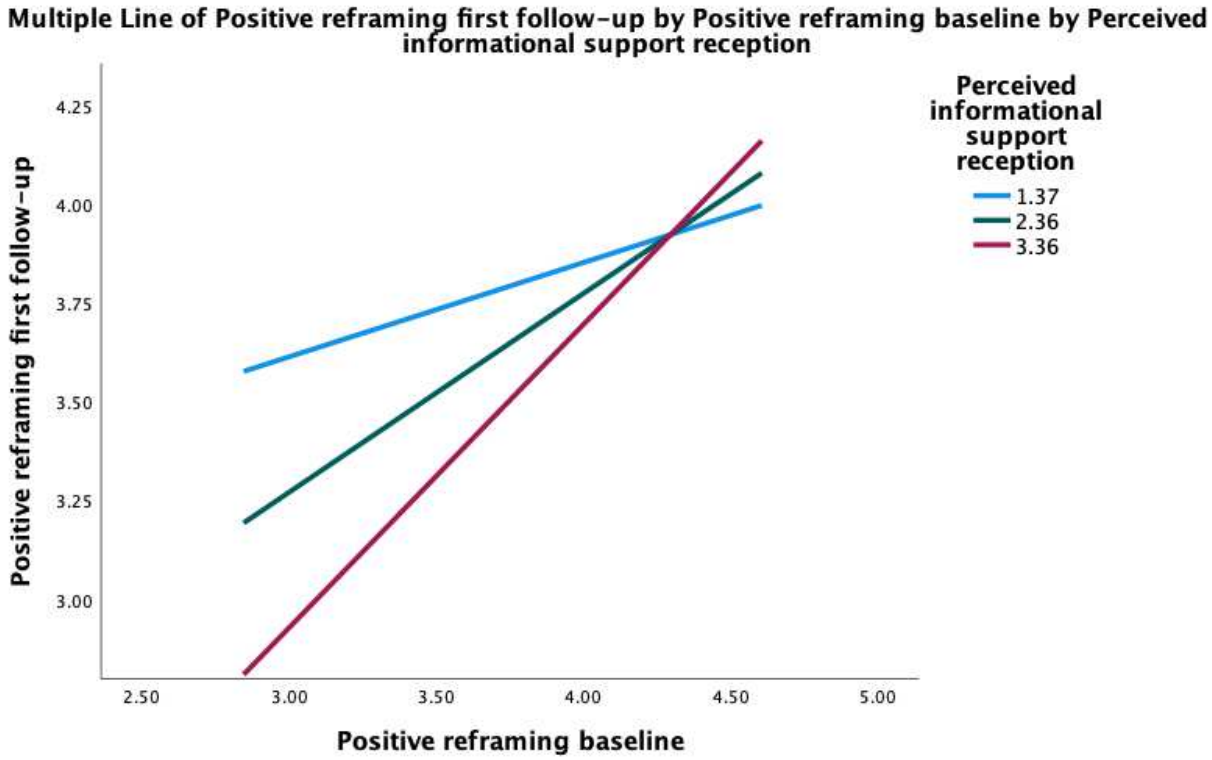


Figure 2. Interaction effect between perceived informational support reception and baseline level of positive reframing on predicting first follow-up levels of positive reframing

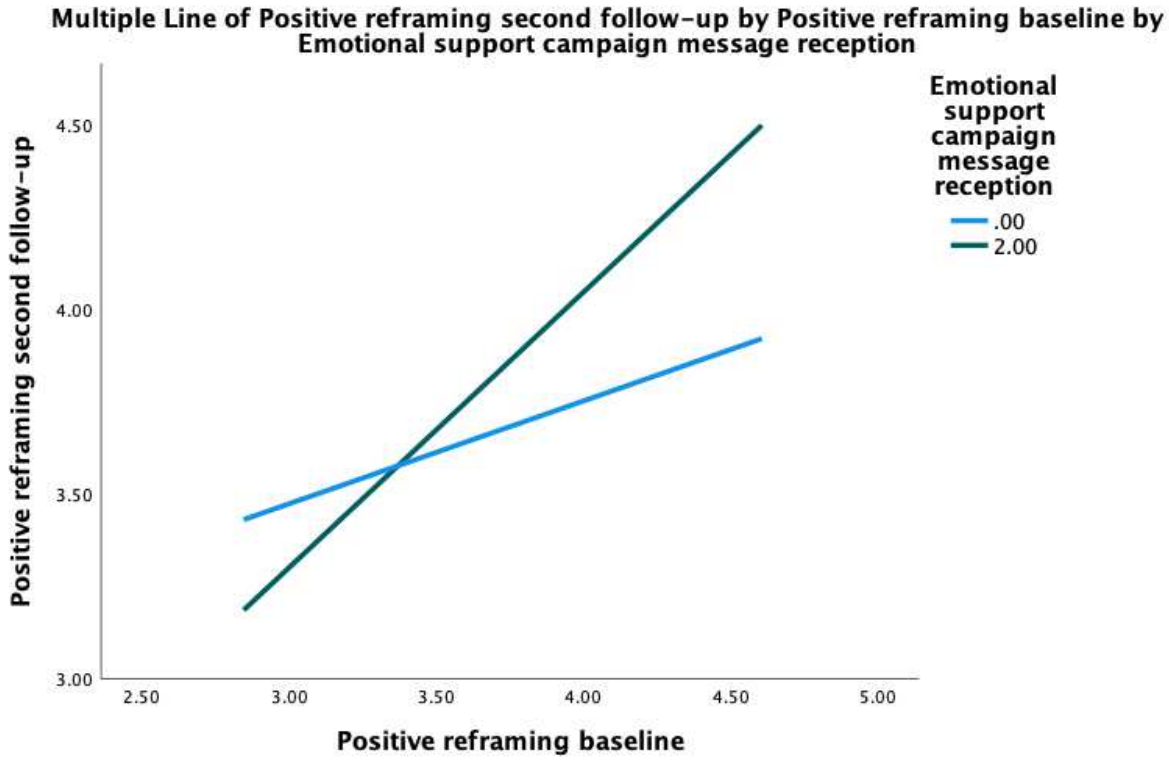


Figure 3. Interaction effect between emotional support campaign message reception and baseline level of positive reframing on predicting second follow-up levels of positive reframing

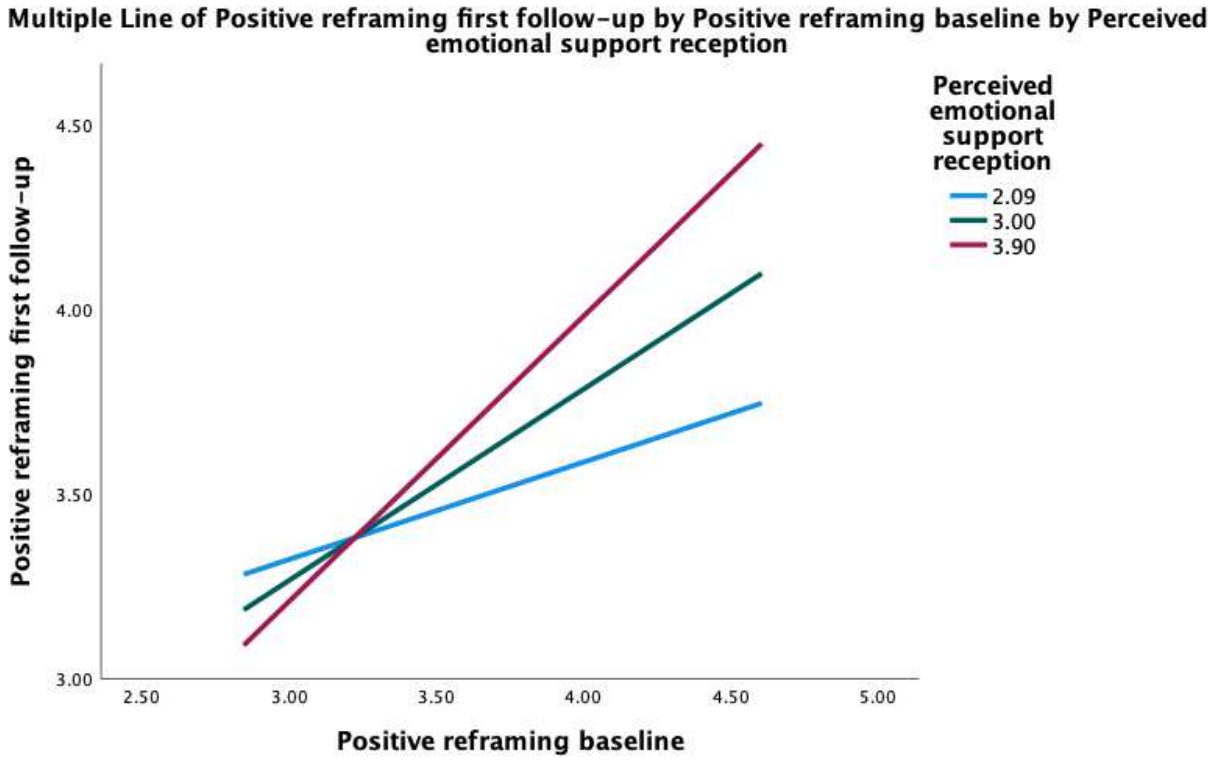


Figure 4. Interaction effect between perceived emotional support reception and baseline level of positive reframing on predicting first follow-up levels of positive reframing

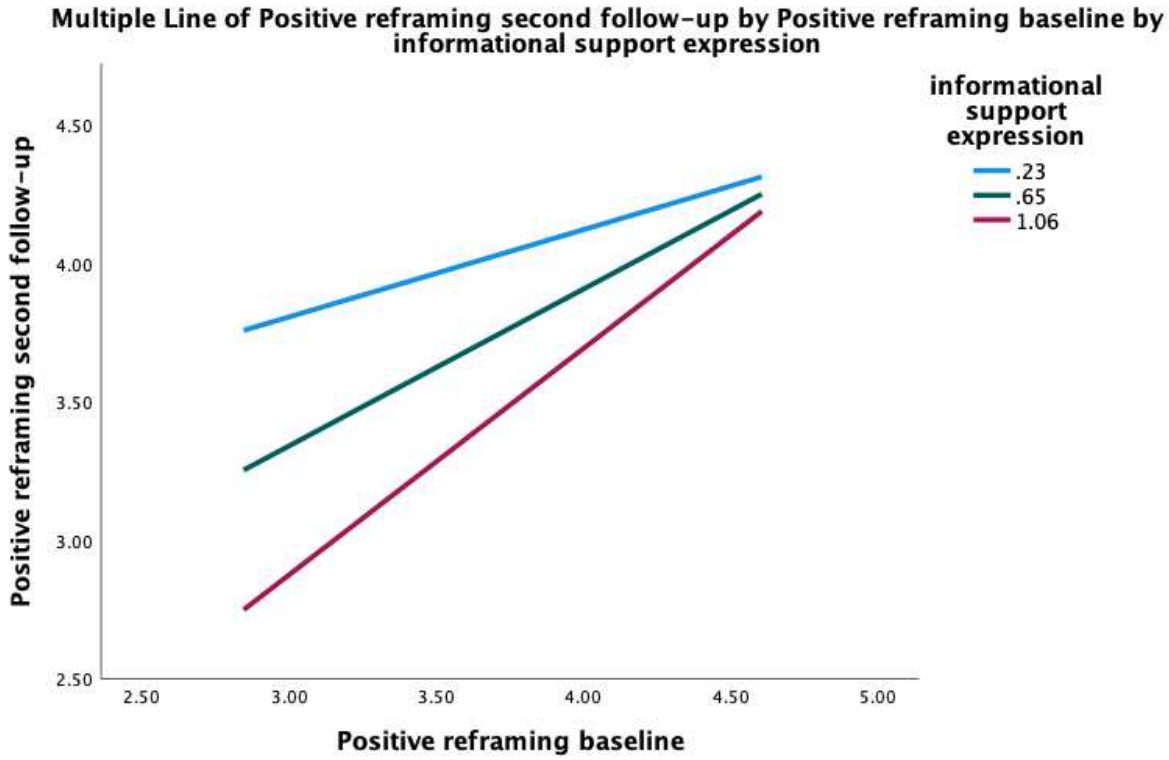


Figure 5. Interaction effect between informational support expression and baseline level of positive reframing on predicting second follow-up levels of positive reframing

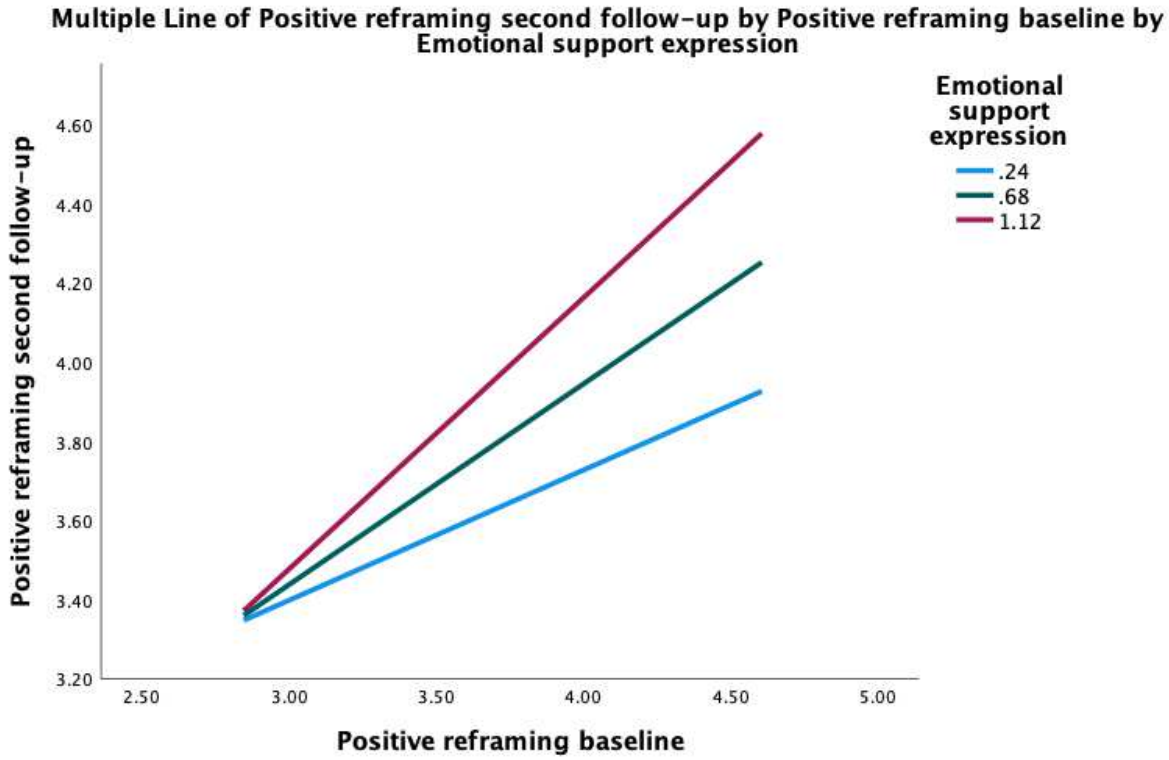


Figure 6. Interaction effect between emotional support expression and baseline level of positive reframing on predicting second follow-up levels of positive reframing

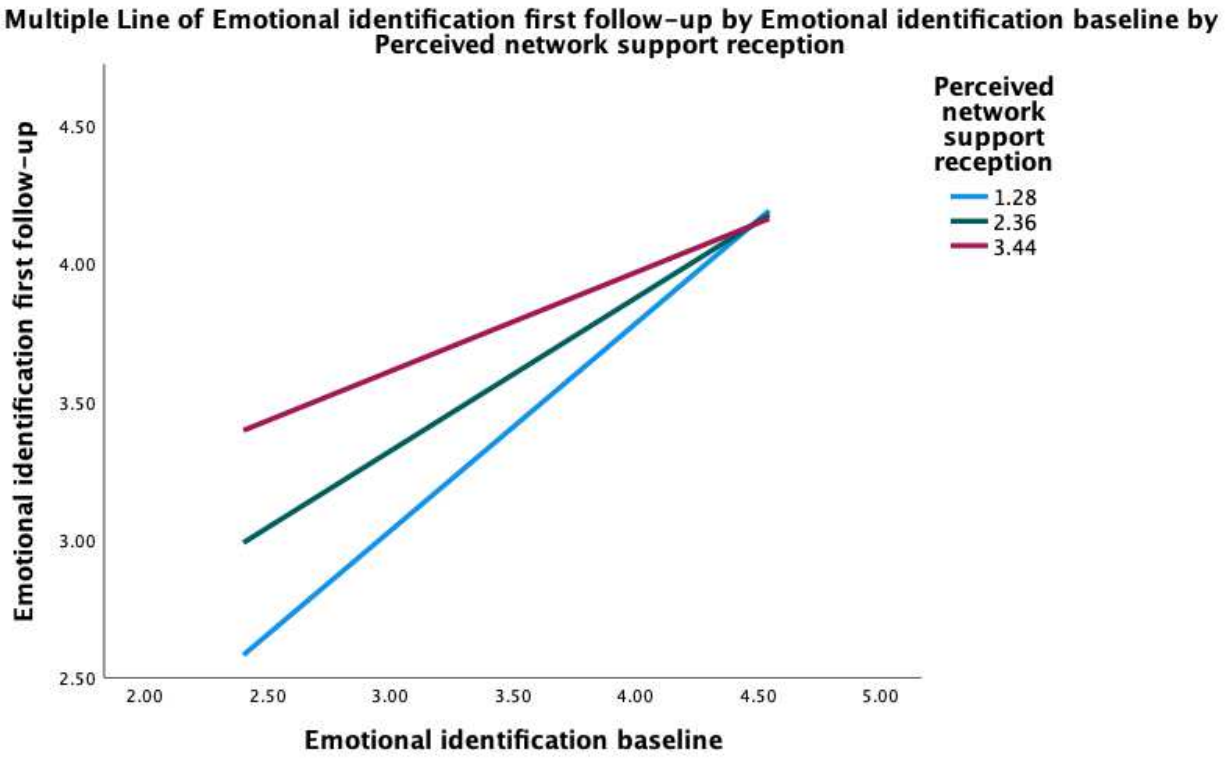


Figure 7. Interaction effect between perceived network support reception and baseline level of emotional identification on predicting first follow-up levels of emotional identification

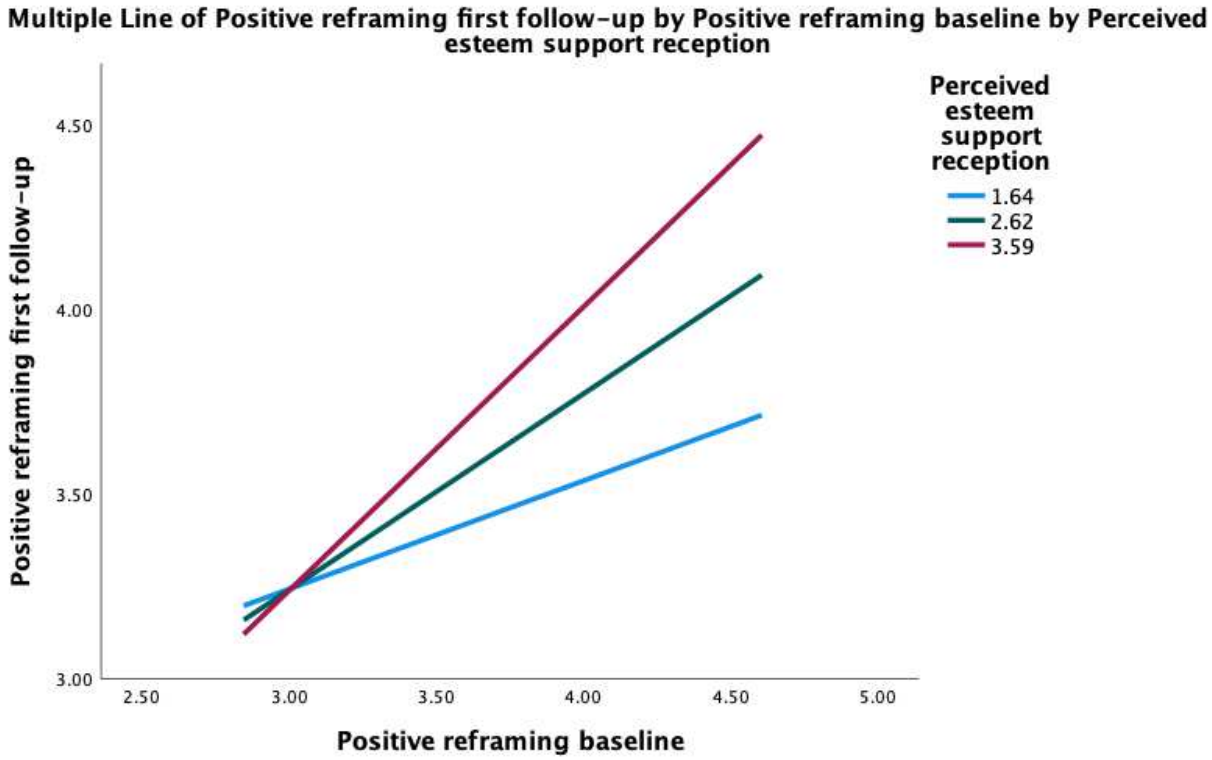


Figure 8. Interaction effect between perceived esteem support reception and baseline level of positive reframing on predicting first follow-up levels of positive reframing

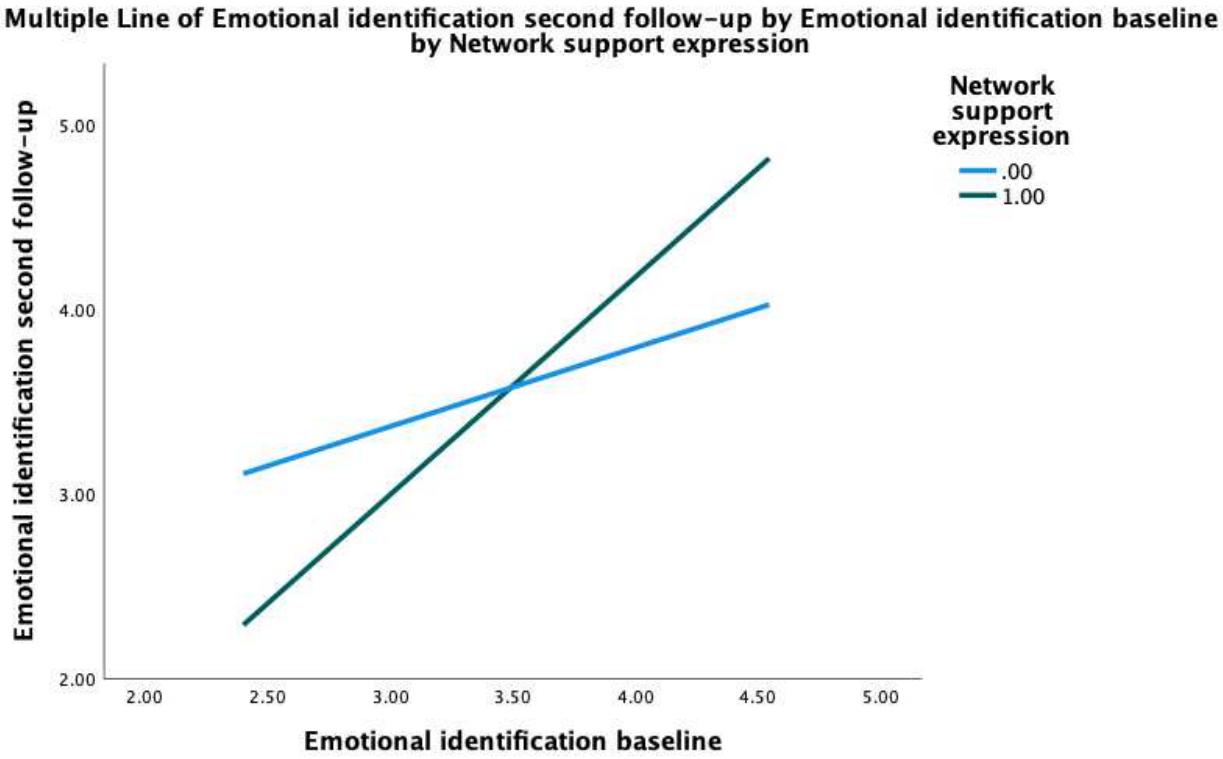
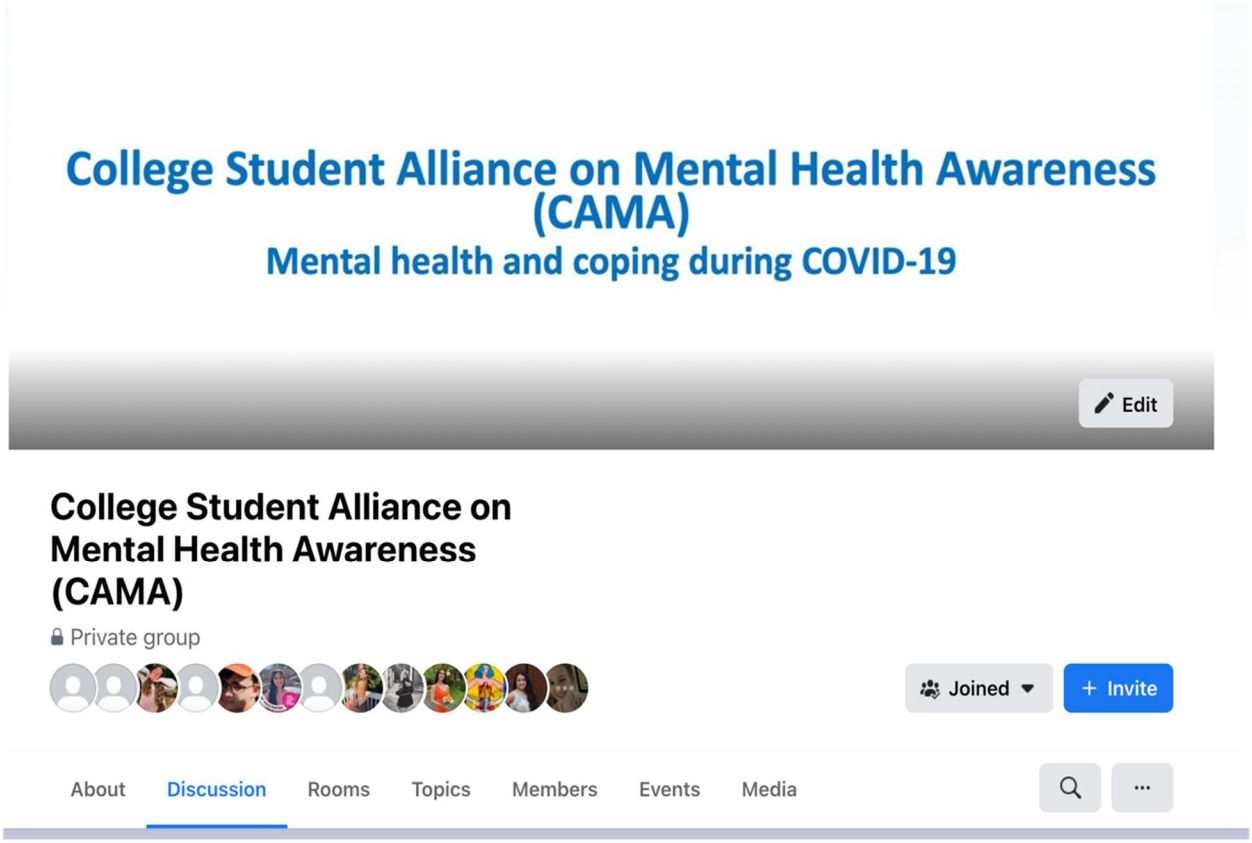


Figure 9. Interaction effect between network support expression and baseline level of emotional identification on predicting second follow-up levels of emotional identification

Appendix A

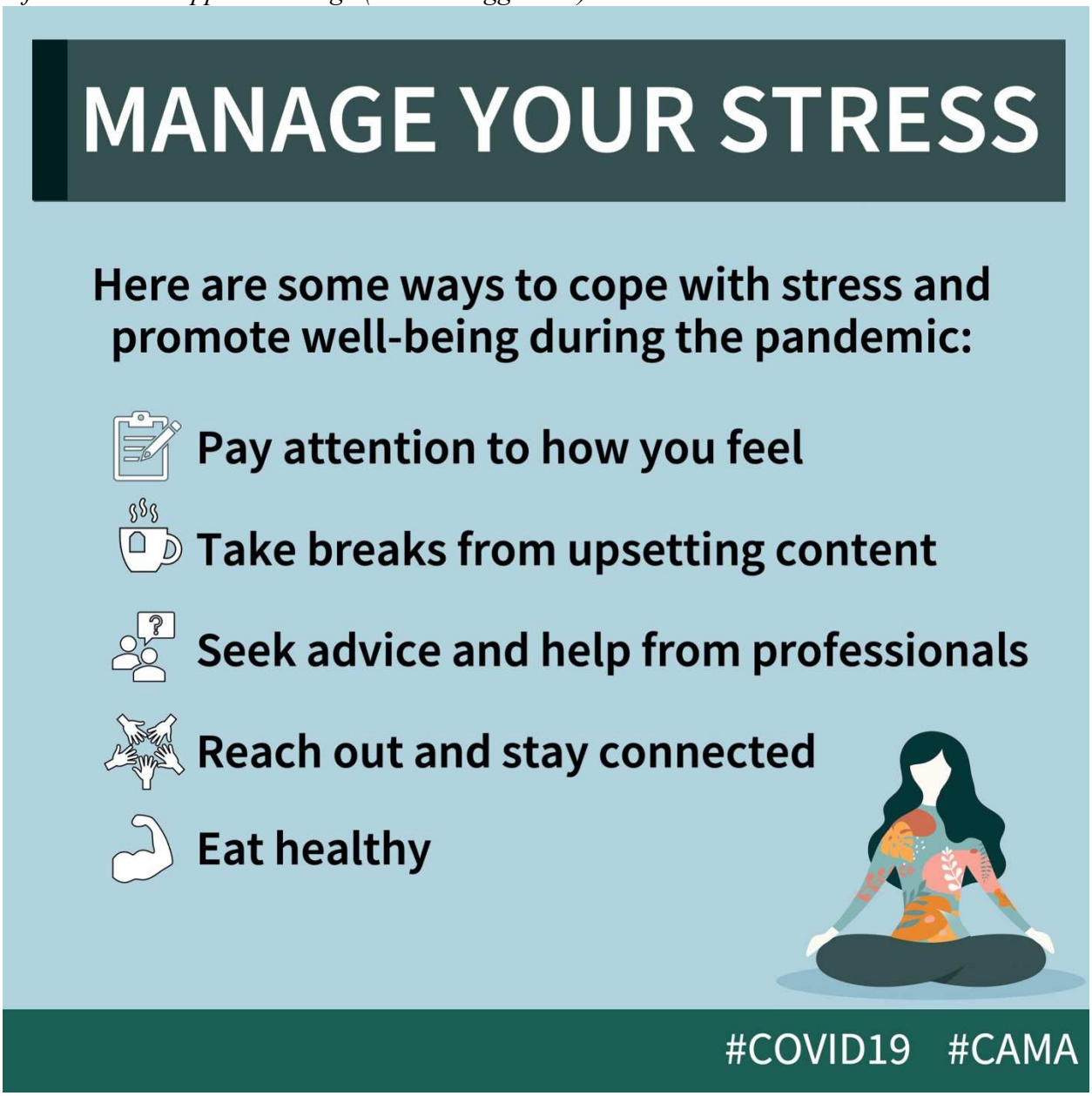
A Screen Capture of the Facebook Group



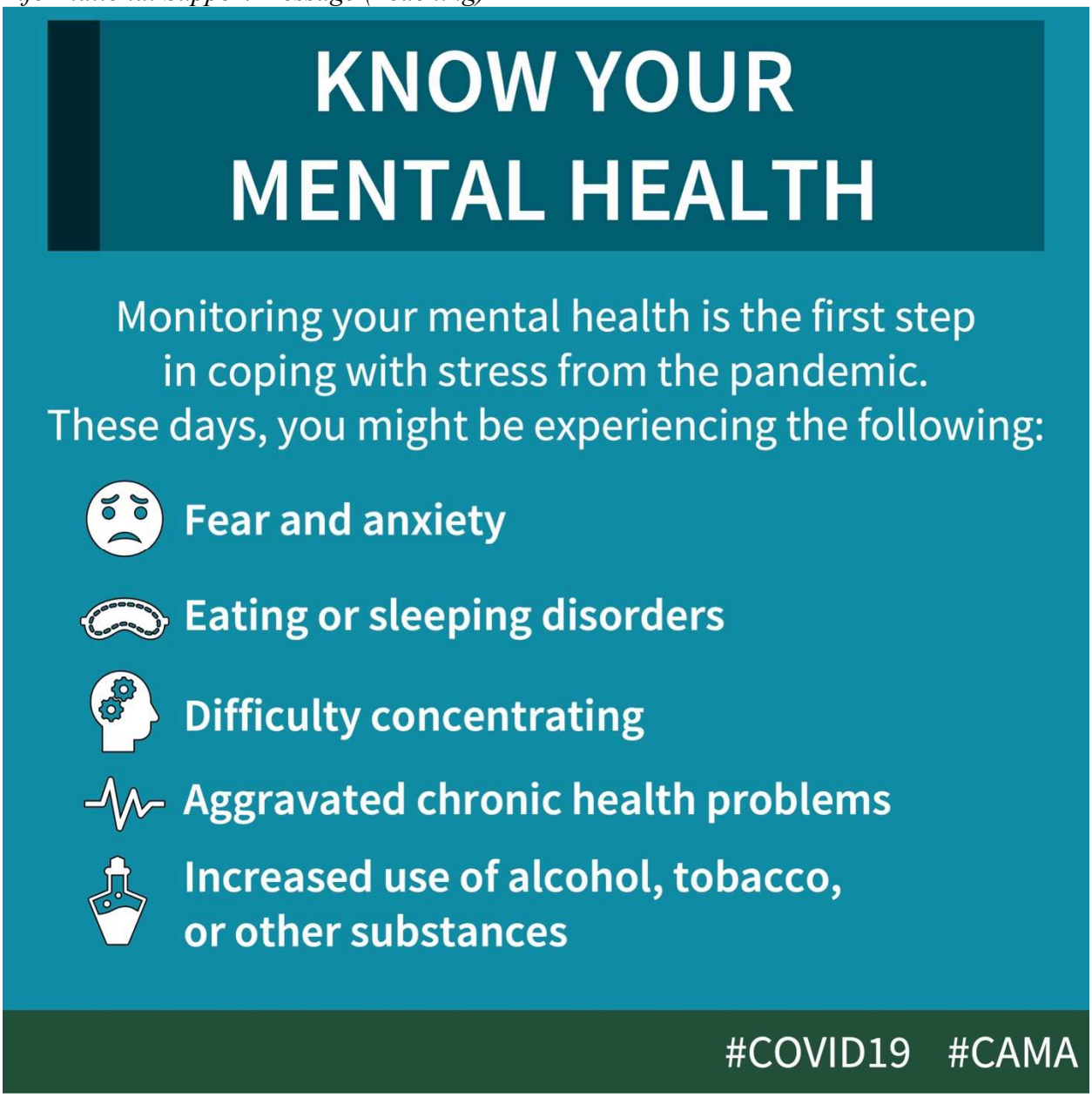
Appendix B

Campaign Message Stimuli

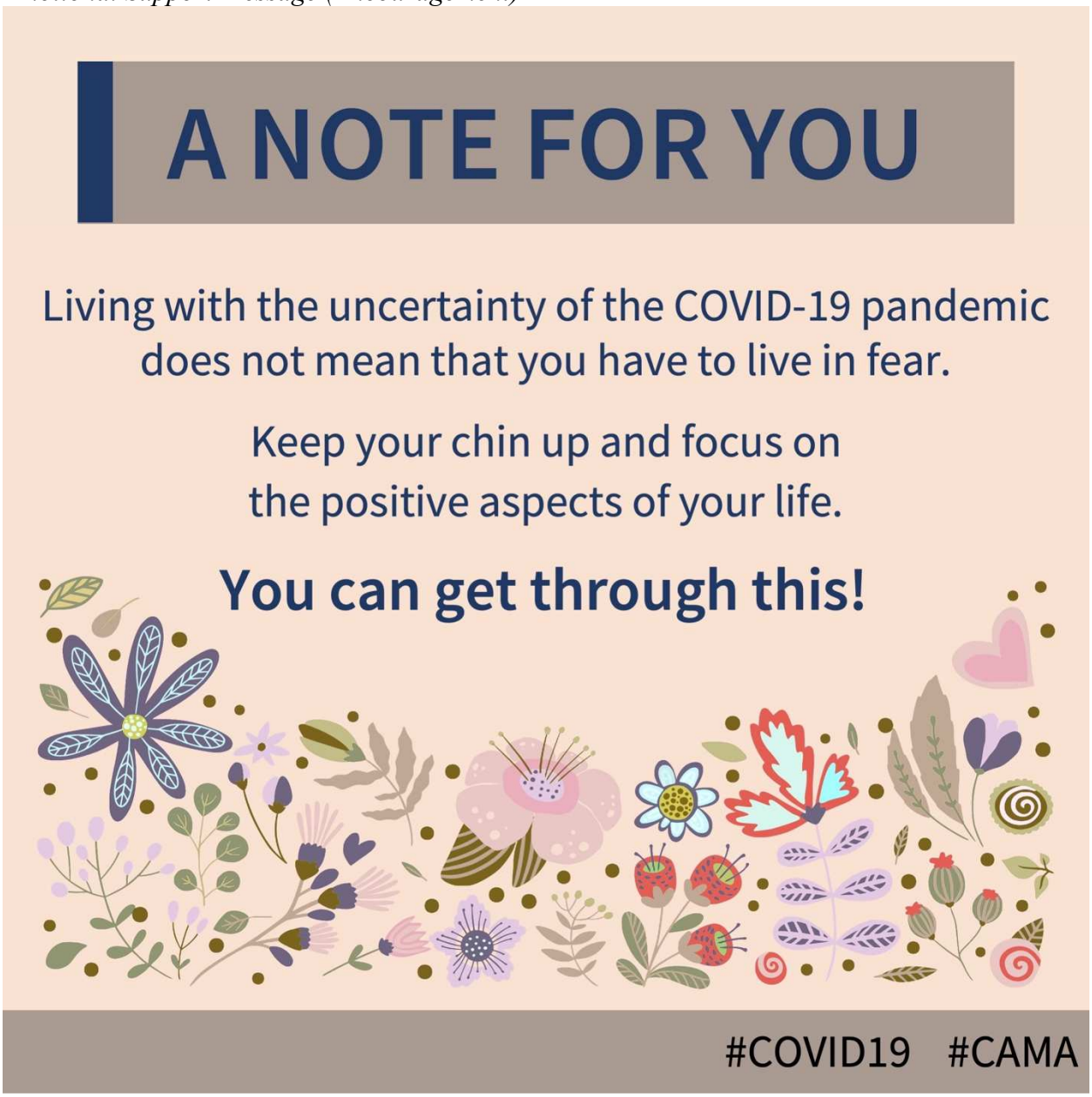
Informational Support Message (Advice/Suggestion)



Informational Support Message (Teaching)



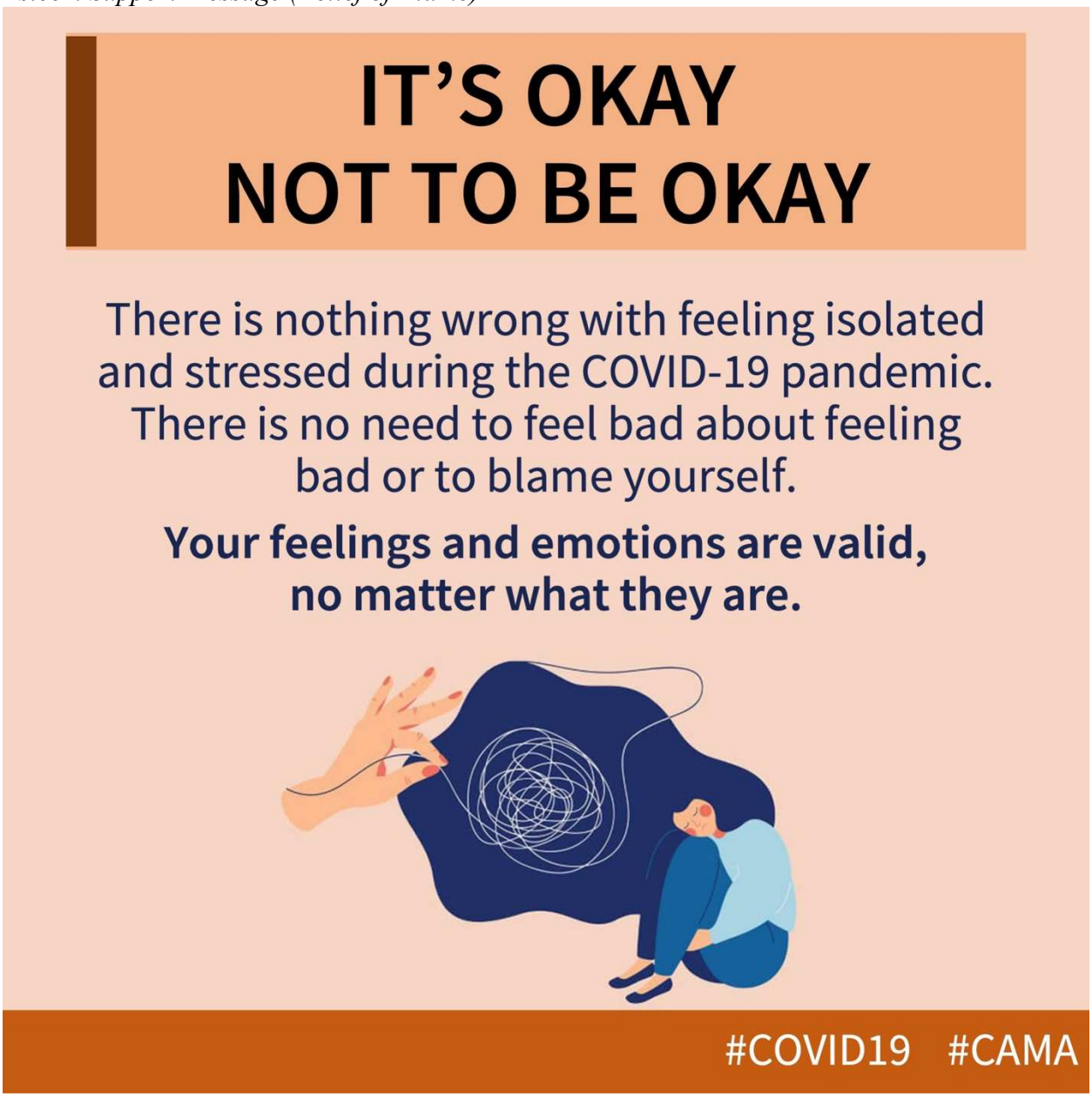
Emotional Support Message (Encouragement)



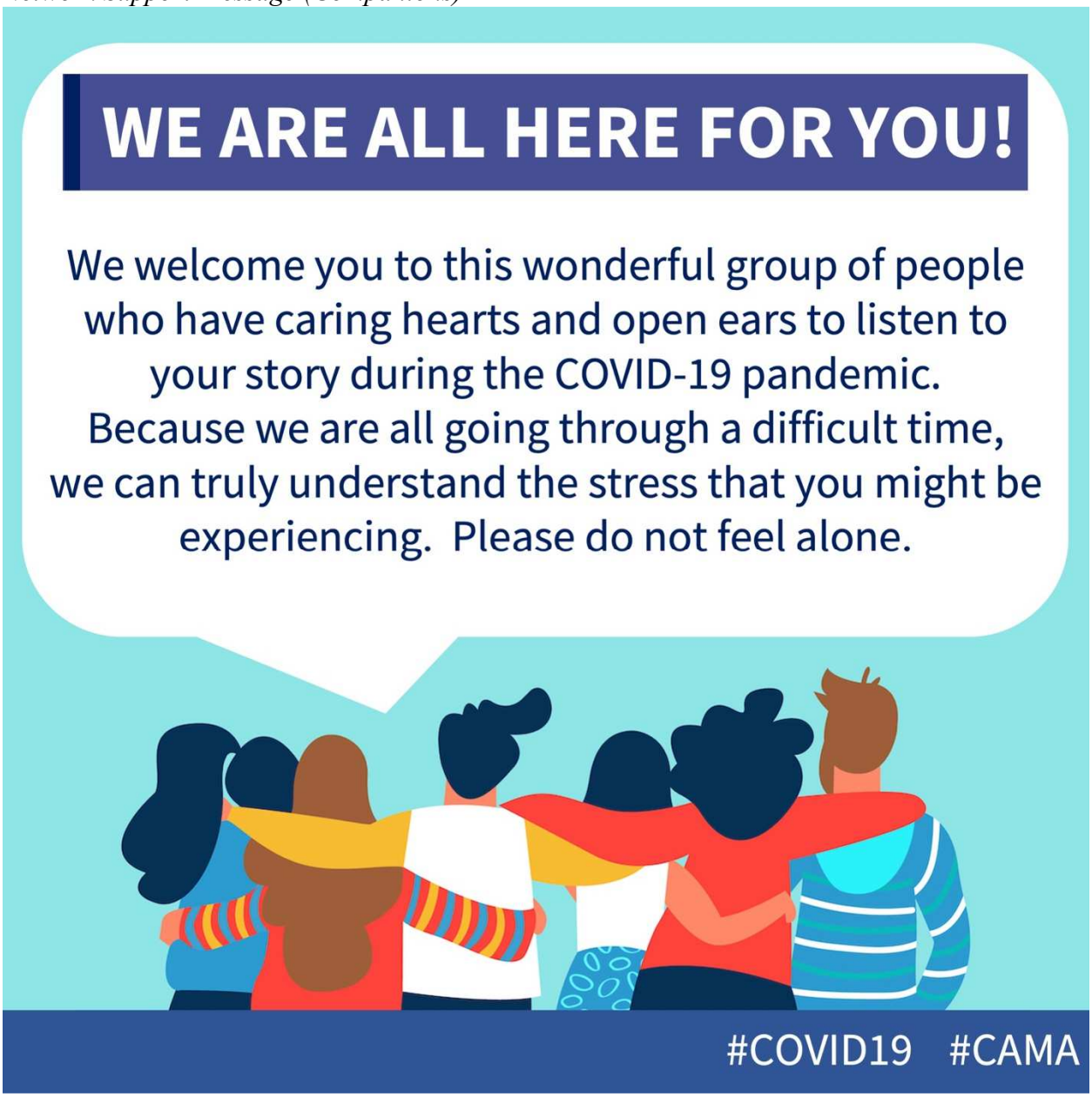
Emotional Support Message (Physical Affection)

Esteem Support Message (Compliment)

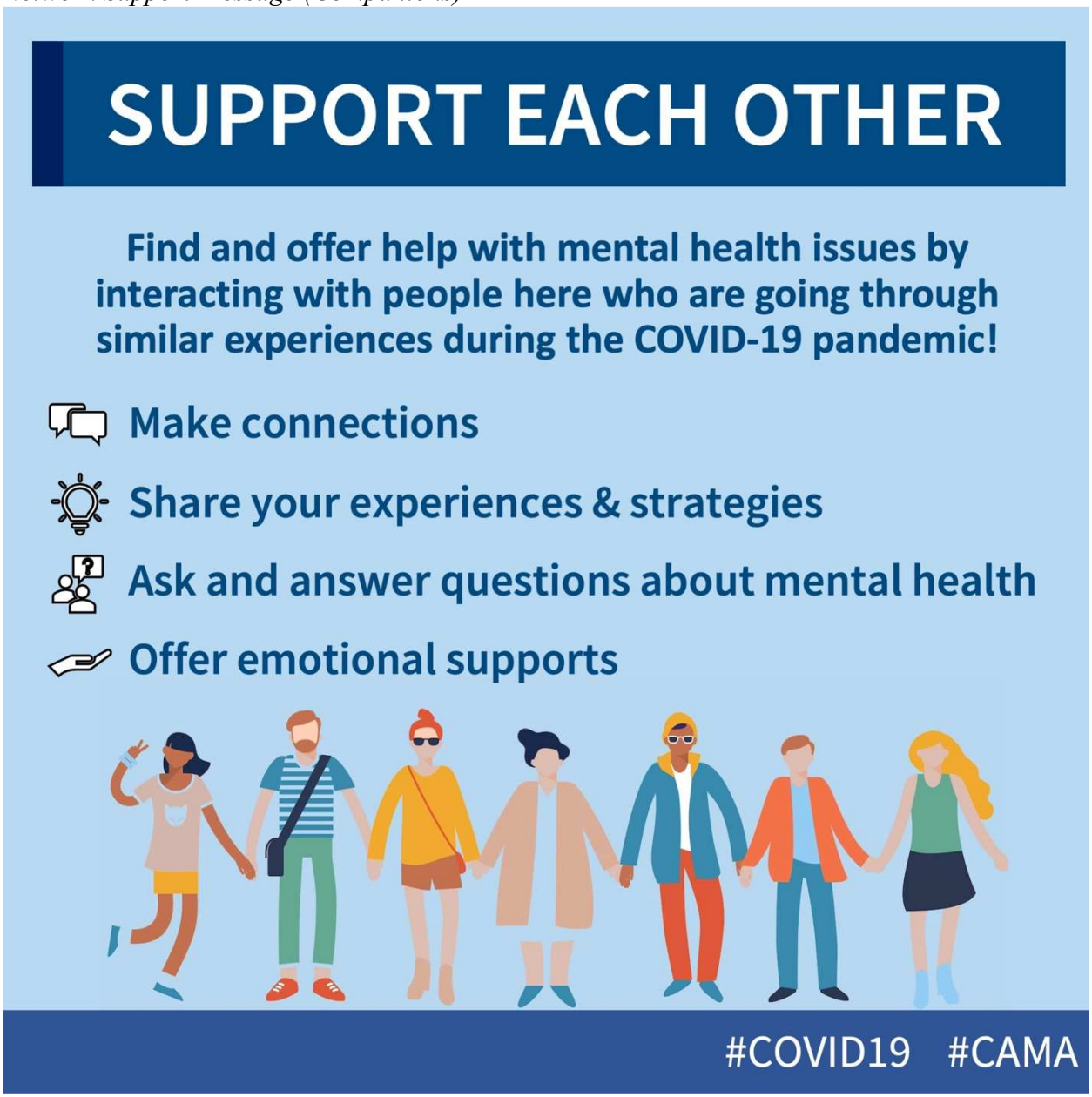
Esteem Support Message (Relief of Blame)



Network Support Message (Companions)



Network Support Message (Companions)



Appendix C

Instructions, Items, and Scales Used to Assess the Key Variables

Emotional Identification
Direction: The following questions ask how you have managed your emotions in the last 8 days. Read the statements and indicate how much you agree with each statement (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree).

1. I've been taking time to figure out what I'm really feeling.
2. I've been delving into my feelings to get a thorough understanding of them.

Positive Reframing
Direction: The following questions ask how you have sought to cope with a hardship in the last 8 days. Read the statements and indicate how much you agree with each statement (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree).

1. I've been trying to see it in a different light, to make it seem more positive.
2. I've been looking for something good in what is happening.

CES-D (Depressive Symptoms)
Direction: Below is a list of some ways you may have felt or behaved. Please indicate how often you have felt this way during the last 8 days by checking the appropriate option (rarely or none of the time, some of a little of the time, occasionally or a moderate amount of time, most or all of the time).

1. I was bothered by things that usually don't bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt that I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.
14. I felt lonely.
15. People were unfriendly.
16. I enjoyed life.

17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not get going.

Perceived Emotional Support

Direction: During the last 8 days, you may have received a variety of supports from the group members through comments and postings in the group. Here, we are interested in how much of each support category below you received. Please indicate how much of each support category you received through comments or postings from the group members (don't receive at all, received rarely, received occasionally, received regularly).

1. Messages or postings from group members telling you that they love you and feels close to you.
2. Messages or postings from group members expressing understanding of a situation that is bothering you, or disclosing a similar situation that they experienced before.
3. Messages or postings from group members comforting you when you are upset by showing some physical affection (including hugs, hand-holding, shoulder patting, etc.).
4. Messages or postings from group members promising to keep problems you discuss in confidence.
5. Messages or postings from group members providing you with hope or confidence.
6. Messages or postings from group members expressing sorrow or regret for your situation or distress.
7. Attentive messages or postings from group members on what you express.

Perceived Esteem Support

Direction: During the last 8 days, you may have received a variety of supports from the group members through comments and postings in the group. Here, we are interested in how much of each support category below you received. Please indicate how much of each support category you received through comments or postings from the group members (don't receive at all, received rarely, received occasionally, received regularly).

1. Messages or postings from group members expressing esteem or respect for a competency or personal quality of yours.
2. Messages or postings from group members telling you that you are still a good person even when you have a problem.
3. Messages or postings from group members trying to reduce your feelings of guilt about a problem situation.
4. Messages or postings from group members asserting that you will have a better future than most people will.
5. Messages or postings from group members expressing agreement with your perspective on various situations.
6. Messages or postings from group members telling you that a lot of people enjoy being with you.

7. Messages or postings from group members assuring you that you are a worthwhile person.

Perceived Network Support

Direction: During the last 8 days, you may have received a variety of supports from the group members through comments and postings in the group. Here, we are interested in how much of each support category below you received. Please indicate how much of each support category you received through comments or postings from the group members (don't receive at all, received rarely, received occasionally, received regularly).

1. Messages or postings from group members offering to provide you with access to new companions.
2. Messages or postings from group members offering to do things with you and have a good time together.
3. Messages or postings from group members connecting you with people whom you may turn to for help.
4. Messages or postings from group members connecting you with people whom you can confide in.
5. Messages or postings from group members reminding you of the availability of companions who share similar interests or experiences with you.
6. Messages or postings from group members offering to spend time with you to get your mind off something (chatting, having dinner together, going to a concert, etc.).
7. Messages or postings from group members helping you find the people who can assist you with things.

Perceived Informational Support

Direction: During the last 8 days, you may have received a variety of supports from the group members through comments and postings in the group. Here, we are interested in how much of each support category below you received. Please indicate how much of each support category you received through comments or postings from the group members (don't receive at all, received rarely, received occasionally, received regularly).

1. Messages or postings from group members giving you advice about what to do.
2. Messages or postings from group members analyzing a situation with you and telling you about available choices and options.
3. Messages or postings from group members helping you understand why you did not do something well.
4. Messages or postings from group members telling you whom to talk to for help.
5. Messages or postings from group members giving you reasons why you should or should not do something.
6. Messages or postings from group members teaching you how to do something that you don’t know how to do.
7. Messages or postings from group members providing detailed information about the situation or about skills needed to deal with the situation.

Exposure to Mental Health-Related Campaigns or Advertising

The next series of questions ask your media consumption and usage patterns (not at all, 1-2 times, 3-5 times, 6-8 times, more than 9 times).

1. In the last 8 days, about how often have you seen advertising or campaigns that are intended to promote mental health on TV, or heard them on the radio?
2. In the last 8 days, about how often have you seen advertising or campaigns that are intended to promote mental health in newspapers or magazines?
3. In the last 8 days, about how often have you seen advertising or campaigns that are intended to promote mental health on the internet, including social media?
4. In the last 8 days, about how often have you seen advertising or campaigns that are intended to promote mental health in convenience store/gas station/grocery store, etc.?
5. In the last 8 days, about how often have you seen advertising or campaigns that are intended to promote mental health somewhere else?