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Modeling social support on social media: Effect of publicness and the underlying mechanisms

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ABSTRACT

Research has suggested social media might not be an ideal place to get social support. This study examined how publicness of support seeking might influence the quantity and quality of received support by testing six potential underlying mechanisms. We conducted a 3 (publicness: private, medium, public) X 2 (problem severity: mild vs. severe) between-subjects online experiment with 196 college students. Participants were shown a screenshot of a fellow student's message about a recent adverse experience that was either delivered as a public post, a post visible to friends, or a private message. Compared with public support seeking, private message led to higher likelihood to help among observers, more effort in helping, and higher quality of supportive messages. Specifically, publicness increased attribution to social validation goal when the problem was not severe, reduced attribution to support-seeking goal when the problem was severe, reduced favorable perceptions and perception of personalism, which all contributed to the failure of support seeking.

1. Introduction

As social media platforms such as Facebook and Twitter become popular, they serve as venues for people to seek support on various topics ranging from medical issues to daily stress (Fox, 2011; Frison & Eggermont, 2015; Kim, Sohn, & Choi, 2011; Steinfield, Ellison, & Lampe, 2008; Wright, 2012). Research has found that 37% of the Facebook profiles contained content suggesting stress (Egan & Moreno, 2011) and 25% alluded depressive symptoms (Moreno et al., 2011). Life stress can result in negative physical and psychological health outcomes and harm subjective well-being (Aneshensel & Stone, 1982; Berg & McQuinn, 1989; Berkman & Syme, 1979; Houston, Cooper, & Ford, 2002). By disclosing the distress one undergoes, individuals might receive the needed support from their connections on social media.

Although social media appear to be rich in supportive resources (Hampton, Goulet, Rainie, & Purcell, 2011; Manago, Taylor, & Greenfield, 2012; Nabi, Prestin, & So, 2013; Oh, Ozkaya, & LaRose, 2014; Steinfield et al., 2008), research directly testing the correlation between support seeking and psychological outcomes found that support seeking on social media actually led to more stress, unless support seekers perceived they had got qualified support from social media (Frison & Eggermont, 2016). As it implies, received support is not always qualified. As found in an experiment, Facebook friends seem to be especially bad at offering material support (Stefanone, Kwon, & Lackaff, 2012).

These findings seem to be at odds with the majority of the findings regarding online support seeking (e.g., Beaudoin & Tao, 2007; Gustafson et al., 2005; Houston et al., 2002; Jones et al., 2008; Owen, Klapow, Roth, Shuster, & Bellis, 2005; Rains & Young, 2009; Shaw, Hawkins, McTavish, Pingree, & Gustafson, 2006; Wright, 1999, 2000). However, it is important to notice that so far, most of the good news comes from research on computer-mediated support groups (see Wright, 2015), where the primary goal of communication is well defined (to gain and/or to offer support) and where the communication is relatively private. Compared with online support groups, communication on social media is characterized by higher publicness, i.e., "the probability that one's behavior will be observed by others or the number of others who might learn about the behavior" (Leary & Kowalski, 1990, p. 38). A public post on social media has the potential to reach more audiences, extending the communication space and redefining the context of support seeking and giving (Treem & Leonardi, 2013), which might further influence the outcome of support seeking given its interpersonal implications (Bazarova, 2012; Liu & Kang, 2017; Oh & LaRose, 2016).

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Therefore, we wonder, when there is a public cry for help on social media, how much supportive response of what quality it could beckon. Thus far, little research has explored the mechanisms underlying support seeking and giving on social media from a technological perspective. That is, which social media affordances might lead to certain outcomes of support seeking on social media and why. To close this gap, this study aims to explore the effects of one affordance characterizing social media, i.e., publicness, on the outcome of support seeking, and to understand the mechanisms underlying such effects, if any.

2. Literature review

Different from traditional one-on-one and support group settings, social media afford higher visibility of support seeking messages. As publicness expands the communication space, collapses audience that used to be segregated, and even allows message to reach audiences not targeted at (Bazarova & Choi, 2014; Bazarova, Taft, Choi, & Cosley, 2013), it might influence both how support seeking message is created (Oh & LaRose, 2016) and how it is perceived and reacted to afterwards.

Research on effect of message publicness on social media has found that it influences observers' attribution regarding the message sender's intentions (Liu & Kang, 2017), perceived intimacy and appropriateness of the message (Bazarova, 2012), and observers' impression about the message sender (Bazarova, 2012). Social support seeking often involves description of the problem that distresses the support seeker, i.e., negative self-disclosure. Recent research suggests that users are less willing to comment on negative public status updates than on positive ones but prefer responding to negative status updates with private messages (Ziegele & Reinecke, 2017).

The primary goal of support seeking behaviors is to gain behavioral compliance by urging others to provide optimal support to them. Social support on social media might take the form of one-click reactions such as "like" showing care or support, messages in response to the original support seeking message with the function of mood regulation (e.g., emotional support), or messages with information that is conducive to problem solving (e.g., informational support), etc. The focal question in the present study is *how* publicness might influence success in eliciting such social support on social media. Considering the mechanisms underlying helping behaviors in general, communication context defined by publicness, and effect of publicness on persons' perceptions found in existing empirical research, we proposed six mechanisms explaining why publicness might stand in the way of successful support seeking.

2.1. Mechanism I: goal attribution

Research has suggested that support seekers can receive help more easily when the problems and feelings are openly disclosed (Graham, Huang, Clark, & Helgeson, 2008) so that potential support providers are able to identify their support seeking intent. Mismatch between the message sender's goals and recipient's responses is socially undesirable and often has negative implications on the interaction and relationship development (Feng & Magen, 2016; Fitzsimons & Lehmann, 2004). If the underlying goal of a message is not interpreted as seeking support, it is unlikely that message recipients will react by providing help. Thus, whether and how potential support givers will provide support depends on what goal they attribute support seeker's message production to (Hulsman, 2009).

Observers interpret certain behaviors based on prototypes associated with them developed from past experience (Feldman, 1981; Graham, 1995). "Public behaviors are more likely to be relevant to the accomplishment of one's [impression management] goals than are private behaviors" (Leary & Kowalski, 1990, p. 38). According to the functional approach of self-disclosure on social media (Bazarova & Choi, 2014), public self-disclosure is mostly motivated by social validation goal, i.e., gaining social approval, social acceptance, and liking from others so as to validate one's self-concept and maintain/create a certain self-image (Derlega & Grzelak, 1979). Even when participants were asked to generate a support-seeking message with seeking social support as the primary goal in public, their impression management goal became more salient as compared to in private settings (Oh & LaRose, 2016).

The association between high publicness and impression concern or social validation goal also influences how message recipients interpret the messages and the message senders. As found in Liu and Kang (2017), regardless of disclosure valence, public disclosure is more likely to be attributed to an impression management intention than private disclosure. According to the attribution theory, people discount attribution to a particular motive when there are other plausible explanations for a behavior (Kelley, 1973; Reeder & Trafimow, 2005). Since high publicness of the communication context brings an alternative interpretation in terms of why the sender sends this message, the probability for the observer to identify the support-seeking goal as the primary goal might decrease as a result. Therefore, we propose the following hypotheses:

H1. Publicness reduces attribution to support-seeking goal, which further reduces one's a) likelihood to help in Facebook, b) likelihood to help outside Facebook, c) effort in support, and d) quality of supportive message.

H2. Publicness increases attribution to social validation goal, which further reduces one's a) likelihood to help in Facebook, b) likelihood to help outside Facebook, c) effort in support, and d) quality of supportive message.

2.2. Mechanism II: impression formation

Open disclosure of one's problems and feelings is recommended to effectively get the needed support (Graham et al., 2008). Therefore, support-seeking messages often contain negative self-disclosure. Negativity that is often associated with support-seeking messages also has interpersonal implications. Specifically, research on self-disclosure on social media has found the phenomenon of "positivity bias" (Reinecke & Trepte, 2014, p. 95) such that it is more normative to disclose positive aspects of oneself on social media. Negative self-disclosure on social media is often considered as inappropriate and out of place, and also leads to reduced liking from others (Bazarova, 2012). Research has also found people are more reluctant to respond to negative disclosure on social media (Ziegele & Reinecke, 2017).

The positivity norm seems to be associated with the high publicness of communication on social media. Negative disclosure is often considered as intimate and is expected to be disclosed only to close others (Bazarova, 2012). If sent via private channel, negative disclosure is considered as less inappropriate (Bazarova, 2012) and is more likely to be responded to (Ziegele & Reinecke, 2017). However, violation of such norms, especially public negative disclosure, is considered as socially inappropriate and reduces one's social attraction significantly (Bazarova, 2012; Liu & Kang, 2017).

As well documented in helping literature, people are more likely to offer help to people they like than those they dislike (Hu, Wang, Wang, Chen, & Jiang, 2016; Huneke & Pinel, 2016; Pandey & Griffitt, 1974; Stürmer, Snyder, & Omoto, 2005). Given the nature of

support-seeking message as negative self-disclosure in many cases, its publicness might make a big difference in how it is perceived. Support-seeking message of high publicness is expected to be perceived as inappropriate and to reduce observers' liking for the support seeker, which further compromises the support they might provide. Therefore, we hypothesize:

H3. Publicness increases perceived inappropriateness, reduces liking, which further reduces one's a) likelihood to help in Facebook, b) likelihood to help outside Facebook, c) effort in support, and d) quality of supportive message.

2.3. Mechanism III: personalism

Receiving a message that is less public, which is also more exclusive, contributes to perception of personalism, i.e., the perception that the message is specifically sent to me (Jones & Davis, 1965; Liu & Kang, 2017). Higher degree of personalism often indicates relationship specialness and "the recipient has been singled out because he is trustworthy and a good candidate for an intimate relationship" (Jones & Archer, 1976, p. 181), and therefore, makes the recipients feel special about themselves and their relationships, and perceive more intimacy (Bazarova, 2012; Jones & Davis, 1965; Liu & Kang, 2017). Increased intimacy indicates smaller psychological distance between individuals, which could enhance empathy and increase the likelihood of helping (Berkowitz, 1968; Ziegele & Reinecke, 2017). Therefore, we hypothesize:

H4. Message publicness decreases perceived personalism, which reduces one's a) likelihood to help in Facebook, b) likelihood to help outside Facebook, c) effort in support, and d) quality of supportive message.

Three mechanisms discussed above, goal attribution, impression formation, and personalism are all related to potential support providers' social cognitions regarding the support seeker, such as his/her motivations and attractiveness. Besides the differences that publicness has brought to perceptions about the support seeker, publicness also defines the communication context, which might constraint or facilitate potential support providers' behaviors directly.

2.4. Mechanism IV: bystander effect

Bystander effect is a psychological phenomenon that people are less likely to offer help to a victim when there are other people present due to the share of responsibility (Darley & Latané, 1968). A similar idea is social loafing, i.e., "the tendency for individuals to expend less effort when working collectively than when working individually" (Karau & Williams, 1993, p. 681). The reliability of this phenomenon has been widely confirmed by research of decades (see Fischer et al., 2011), in scenarios such as helping someone in need (Markey, 2000), picking up coins in elevator (Latané & Dabbs, 1975), intervention of bike theft (Fischer & Greitemeyer, 2013) and street violence (Levine & Crowther, 2008).

Research further confirms that bystander effect still holds even when the presence of others is merely imagined, virtual, or mediated. For example, Garcia, Weaver, Moskowitz, and Darley (2002) found participants were less willing to donate to charity if asked to imagine having dinner with more friends earlier. Similar effect has also been observed in online games such as *Second Life* (King, Warren, & Palmer, 2008). Kozlov and Johansen (2010) also found players' likelihood to help a computer-controlled character decreased with the presence of other computer-controlled characters. Stenico and Greitemeyer (2014) further found being part of a larger group in a video game (as compared with playing with a single character) even reduced their subsequent helping behavior outside the game — willingness to help in a future study. Obermaier, Fawzi, and Koch (2016) conducted two experiments and found that when there were a large number of bystanders in a cyberbullying incident, individuals' perceived responsibility to help and willingness to intervene decreased as a result.

As a support-seeking message becomes more public, by definition, the probability for it to be seen by others increases. In the case of seeing a public message, the awareness that there are others also "present" in the communication space and are also likely to give a hand, lightens the moral burden on potential support providers' own shoulders. If we consider relieving the support seeker's suffering as the end goal, knowing that there might be other people working towards the same goal might reduce one's obligation to make contribution. As found in an experiment with adolescents, bystanders have higher behavioral intention to help the victims of harassment on social network sites in private than in public (Bastiaensens et al., 2015). Therefore, we hypothesize:

H5. High publicness increases one's perception that other people will help, which further reduces one's a) likelihood to help in Facebook, b) likelihood to help outside Facebook, c) effort in support, and d) quality of supportive message.

2.5. Mechanism V: face threat concerns

Face is defined as "the positive social value a person effectively claims for himself by the line others assume he has taken during a particular contact. Face is an image of self delineated in terms of approved social attributes" (Goffman, 1967, p. 5). Specifically, positive face is the desire to be liked, appreciated and approved; negative face is the desire to be autonomous and not to be imposed upon (Brown & Levinson, 1987). According to this definition, seeking support runs the risk of losing face in that on one hand it might imply the support seeker as incompetent in helping himself (hurt on the positive face) and on the other hand, it implies he/she is giving up some autonomy and needs others to impose something on them (hurt on the negative face).

When providing support to others, sensitive support givers need to consider the potential threat they might impose on support seekers' face (Goldsmith & MacGeorge, 2000). For example, giving advice can be seen as critical or controlling (Goldsmith & Fitch, 1997). By telling a hearer what to do, advice can "threaten the hearer's identity as a competent and autonomous social actor" (Goldsmith & MacGeorge, 2000, p. 235). Also, lack of politeness in supportive message can harm perceived quality of advice (Goldsmith & MacGeorge, 2000).

As communication publicness increases, the same face-threatening response is visible to more people, and therefore might put more threat on support seeker's face. Although publicness was not found increase concern for positive face threat (Spottswood & Hancock, 2016), the study was tested in a lower-stake context (i.e., prosocial lies in response to others' request for comments). When it comes to providing support, it is important to protect support seeker's face and this is essential in esteem support (Holmstrom & Burleson, 2011). On one hand, potential support givers might not want to harm the face of support seeker who is already suffering. On the other hand, potential support givers might also not want to be seen as a face-threatener who is insensitive. In other words, publicness might increase their concerns associated with providing support. To reduce the face-threatening degree of the response, one needs to employ more politeness strategies (Brown & Levinson, 1987) such as using in-group identity markers

and showing understanding of support-seekers' feelings (Feng, Li, & Li, 2016; Holtgraves & Yang, 1992; Schallert et al., 2009). However, the increased need for effort in composing a response might discourage people to respond at all. Therefore, we hypothesize that:

H6. Publicness increases potential support givers' concerns about face threat they might bring to the support seeker, which reduces one's a) likelihood to help in Facebook, b) likelihood to help outside Facebook, c) effort in support, and d) quality of supportive message.

2.6. Mechanism VI: support seekers' impression concern

In most societies, helping is regarded as prosocial and is thought of in a positive light (Berkowitz, 1972). Therefore, helping in public is more socially rewarding than helping in private. Those with more concern of making a good impression on others are more likely to offer help when their good deeds are visible to others. Given that high publicness could trigger impression management goal (Oh & LaRose, 2016), it might increase the likelihood for potential support providers to provide help and motivate them to generate supportive messages of higher quality. Research has found higher public self-awareness can reverse bystander effect by motivating individuals to offer help (van Bommel, van Prooijen, Elffers, & Van Lange, 2012). Therefore, we hypothesized that:

H7. Individuals' impression management tendency should moderate the relationship between publicness and one's a) likelihood to help in Facebook, b) likelihood to help outside Facebook, c) effort in support, d) and the quality of supportive message, such that those with higher impression management tendency are more influenced by publicness.

2.7. Empathy and sympathy

Empathy and sympathy are common outcomes of seeing others suffering (Batson, 2011). Feeling empathy is feeling with others, i.e., feeling what others are feeling (Batson, 2011; Shen, 2010). Sympathy is about feeling for others, i.e., feeling sad or concerned for others' sufferings (Batson, 2011; Shen, 2010). Research has found empathy and sympathy are important antecedents for helping behaviors (Batson, 2011). The first three mechanisms proposed in the current study that are related to one's social cognitions about the support seeker, i.e., one's attribution of the goal of the support seeker (Mechanism I), impression about the support seeker (Mechanism II), and how close one feels with the support seeker (Mechanism III) might all influence potential support seekers' empathy and sympathy towards the support seeker's suffering (Batson, 2011; Mullen & Abeles, 1971; Tarrant, Dazeley, & Cottom, 2009). Therefore, we further hypothesize:

H1. Publicness reduces attribution to support-seeking goal, which further reduces one's e) empathy and f) sympathy felt for the support seeker.

H3. Publicness increases perceived inappropriateness, reduces liking, which further reduces one's e) empathy and f) sympathy felt for the support seeker.

H4. Publicness reduces perceived personalism, which further reduces one's e) empathy and f) sympathy felt for the support seeker.

Research has found that one's likelihood to help is also influenced by the severity of the issue and urgency of the need (Bastiaensens et al., 2014, 2015; Batson, 2011; Ziegele & Reinecke, 2017). Therefore, we created two levels of issue severity and tested whether severity of the problem would influence the role publicness plays. We also wonder if effect of publicness and the underlying mechanisms might vary as a function of issue severity. As empathy and helping can only be elicited when the person is perceived as being in need (Batson, 2011), situations of different severity might set different baselines for publicness to take effect. Therefore, we asked the following research questions:

RQ1. (How) does issue severity moderate effect of publicness on helping?

RQ2. (How) does issue severity moderate the mechanisms underlying effect of publicness?

3. Method

3.1. Overview

We conducted a 3 (publicness: private, medium, public) X 2 (severity: mild vs. severe) factorial, between-subjects online experiment. Participants were randomly assigned to one of the six conditions. Participants were first asked questions about their trait empathy and impression management concerns, then shown one message embedded in Facebook template, purported to be sent by a fellow student, Alex Taylor, after which, they completed a questionnaire on Qualtrics with questions asking about their perceptions. Before seeing the message, participants were asked to think about themselves as one of Alex's Facebook friends and getting this message when using Facebook. All the measures of dependent variables were displayed right after manipulation check questions so as to prevent participants' responses being biased by measures of various psychological mechanisms.

3.2. Participants

We conducted non-probabilistic convenience sampling and recruited 210 college students who participated in the study in exchange for extra credits. Among them 14 participants who failed manipulation check questions were removed from the dataset. Among the remaining 196 participants, there were 132 female participants (67.30%), age ranged from 18 to 23 ($M = 20.13$, $SD = 0.92$). Participants were randomly assigned to each of the six conditions and the distribution was largely equal, with from 31 to 34 participants in each condition.

Participants in different conditions did not differ from each other on general impression concerns. But participants in high-severity condition reported lower trait empathy ($M = 5.19$, $SE = 0.11$) than those in low-severity condition ($M = 5.53$, $SE = 0.11$), $p = .031$, two-tailed. Given this unequal distribution of trait empathy across the conditions of issue severity, we controlled for trait empathy as a covariate throughout our analyses.

3.3. Stimuli

Facebook was used as the template for stimuli generation and a bogus gender-neutral Facebook user name, Alex Taylor, was used. Messages were embedded in three different templates with various publicness, i.e., visible to all Facebook users, only visible to Alex's friends, and private messaging. Alex was introduced as a student from the same college as the participants and participants were instructed to assume Alex as one of their Facebook friends.

To enhance external validity, we created support-seeking messages about three different scenarios that are common among college students and often used in past studies, namely issues about academic disappointment, employment, and roommate (Bodie et al., 2011). Alex's plight of each topic was described as either

severe or mild. In total, there are six different messages, embedded in three different Facebook templates. Participants only saw one of the eighteen stimuli randomly. An example of the stimuli is shown in Fig. 1.

Before embedding messages into the Facebook templates, we pretested them in plain text by having 144 participants recruited from the Amazon Mechanical Turk evaluate each message in terms of the perceived severity of the issue, accountability of the support seeker, and how normal it is seeing such a message in the context of social media.

Messages designed to be of different issue severity levels were perceived as different in terms of severity such that the severe situation was perceived as more severe ($M = 4.47$, $SD = 1.40$) than the less severe situation ($M = 3.85$, $SD = 1.28$), $t(142) = 2.80$, $p < .01$, two-tailed. In terms of perceived accountability, messages of high issue severity ($M = 3.66$, $SD = 1.53$) do not differ from the less severe issue ($M = 3.86$, $SD = 1.41$), $t(142) = 0.82$, $p = .42$, two-tailed. In terms of perceived normativeness, messages of high issue severity ($M = 5.15$, $SD = 1.34$) was not perceived as different from the low-severity message ($M = 4.78$, $SD = 1.70$), $t(142) = 1.61$, $p = .11$, two-tailed.

3.4. Measures

If not specified, all variables were measured on a 7-point scale.

3.4.1. Manipulation check

To check if the manipulation of publicness and issue severity functioned as expected, right after exposure to the message, participants were asked "Is the message you just read" with choices including "Public/Visible to everyone on Facebook," "Visible only to Alex's Facebook friends," and "Only visible to you."

To check if the issues were perceived as severe or mild as we anticipated, we measured perceived severity by asking participants to answer how much they think Alex's problem is on six adjectives including "serious," "severe," "awful," "terrible," "unbearable," and "intolerable." The average of the ratings on the six adjectives was calculated, Cronbach's $\alpha = 0.90$.

We also measure the degree to which Alex was perceived as being in need with a 10-item scale asking participants to what extent Alex is "Not distressed:Distressed", "Not bothered:Bothered," "Not in need:In need," and to what extent Alex needs advice, comfort, support, etc., Cronbach's $\alpha = 0.90$.

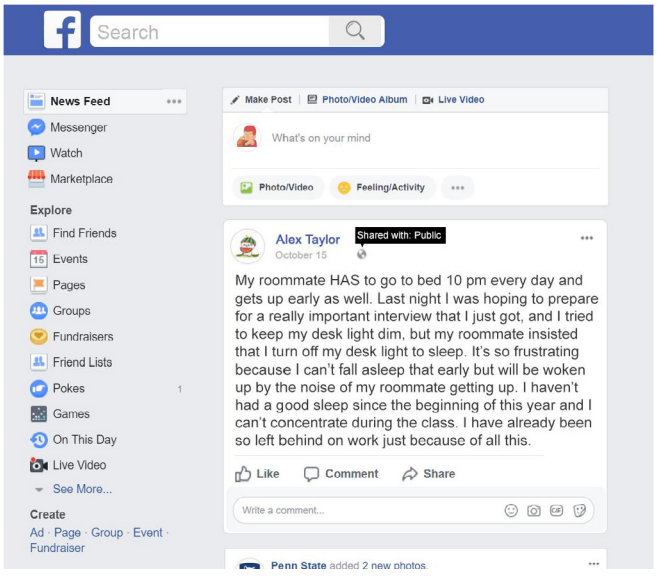

Fig. 1. Example stimuli (public post about a severe roommate-related issue).

3.4.2. Other measured variables

Measurements of other variables are all presented in Table 1. Specifically, participants were asked to generate a response to Alex's message. The quality of participants' responses was rated by layperson observers. We recruited 380 raters ($M_{age} = 37.59$, $SD_{age} = 11.62$; Female: 62.70%) from Amazon's Mechanical Turk to rate the responses generated by participants. Each rater rated 10 messages randomly selected from the 167 messages in terms of its supportiveness and effectiveness. On average, each message got rated by 22 raters. To have raters focus on the message quality *per se*, we only provided them with a generic description of the situation of the support seeker without giving them the original messages or differentiating the issue severity.

4. Results

4.1. Manipulation check

We asked participants about the visibility of the message by choosing from "visible to everyone," "only visible to Alex's friends," "only visible to you," and "I don't know." Only participants who answered the question correctly were remained in further analyses.

To test the success of the manipulation of severity, we conducted two independent-samples t-tests to compare the "mild" and "severe" condition on perceived severity and perception that Alex was being in need. We found the issue in severe condition was perceived as more severe ($M = 3.47$, $SE = 0.12$, $SD = 1.20$) than that in mild condition ($M = 2.64$, $SE = 0.12$, $SD = 1.19$), $t(194) = 4.87$, $p < .001$. Similarly, Alex was perceived as more in need in the severe condition ($M = 5.32$, $SE = 0.10$, $SD = 1.01$) than in mild condition ($M = 4.54$, $SE = 0.12$, $SD = 1.17$), $t(195) = 5.02$, $p < .001$. Therefore, we considered our manipulation of issue severity was successful.

4.2. Hypotheses testing

To examine the effect of publicness and severity, we conducted a series of multivariate analyses of covariance (MANCOVA) with publicness and severity as factors, trait empathy as the covariate, and conceptually related perceptual variables as dependent variables, i.e., measures related to helping, measures related to message quality, measures related to empathy and sympathy, and measures related to impressions of the message and the support seeker.

4.2.1. Main effect

In response to RQ1, we found no significant interaction effect of publicness and issue severity on any of the dependent variables. We found publicness had an impact on three sets of variables. As shown in Table 2, private message led to more helping behaviors (Wilk's $\wedge = 0.54$, $F(6, 322) = 19.10$, $p < .001$, partial $\eta^2 = 0.26$), more empathy and sympathy (Wilk's $\wedge = 0.91$, $F(8, 370) = 2.37$, $p = .02$, partial $\eta^2 = 0.05$), as well as more favorable perceptions towards the message and the support seeker (Wilk's $\wedge = 0.59$, $F(10, 366) = 10.95$, $p < .001$, partial $\eta^2 = 0.23$). No significant effect of publicness was found on message quality, Wilk's $\wedge = 0.97$, $F(4, 318) = 1.40$, $p = .24$, partial $\eta^2 = 0.02$.

As shown in Table 2, further univariate analyses suggested that publicness had a significant impact on one's effort put in help, likelihood to help on Facebook, affective empathy, cognitive empathy, associative empathy, sympathy, personalism, and perceived appropriateness. Specifically, participants in high and moderate level publicness condition put less effort in helping, reported less likelihood to help on Facebook, and experienced less

Table 1
Measurements of variables.

Variable	Items	α	*M(SD)*	Source
Trait empathy	I often have tender, concerned feelings for people less fortunate than me. Sometimes I feel very sorry for other people when they are having problems. When I see someone being taken advantage of, I feel kind of protective towards them. Other people's misfortunes usually disturb me a great deal. When I see someone being treated unfairly, I sometimes feel very much pity for them. I am often quite touched by things that I see happen. I would describe myself as a pretty soft-hearted person.	.90	5.36(1.09)	Davis & Kraus, 1997
General impression concerns	In general, I am concerned with making (or maintaining) a good impression. In general, I am careful to avoid doing things which are socially inappropriate. In general, I am very conscious of what is appropriate and inappropriate. In general, I am concerned with putting myself in a "bad light."	.84	5.63(1.18)	Dillard, Segrin, & Harden, 1989
Likelihood to help on FB	How likely are you going to "like" or "react to" this message? (NA for the private condition) How likely are you going to respond? How likely are you going to express compassion? How likely are you going to provide some advice?	.93	3.91(2.11)	
Effort put in help	Number of word to open-ended question "Suppose you are going to write a message in response to the post, please write down what you are going to say" (square root)		4.95(1.99)	
Likelihood to help outside FB	How likely are you going to do something outside of Facebook platform to help this person?		3.49(1.76)	
Message supportiveness	To what extent do you think this message is supportive? To what extent do you think this message is caring? To what extent do you think this message is sensitive? To what extent do you think this message is understanding?	.99	4.69(1.04)	Holmstrom, Burleson, & Jones, 2005
Message effectiveness	To what extent do you think this message is effective? To what extent do you think this message is adequate? To what extent do you think this message is helpful? To what extent do you think this message is beneficial?	.99	4.57(.97)	Holmstrom et al., 2005
Affective empathy	This person's emotions were genuine. I experienced the same emotions as this person when watching this message. I was in a similar emotional state as this person when watching this message. I could feel this person's emotions.	.84	4.16(1.33)	Shen, 2010
Cognitive empathy	I could see this person's point of view. I recognized this person's situation. I could understand what this person was going through in the message. This person's reactions to the situation were understandable.	.88	5.28(1.25)	Shen, 2010
Associative empathy	When watching the message, I was fully absorbed. I could relate to what this person was going through in the message. I could identify with the situation described in the message. I could identify with this person in the message	.88	4.67(1.43)	Shen, 2010
Sympathy	I felt sorry for this person's situation. I felt sorry for this person's experience. I was concerned for this person. I was concerned about how this person could get better.	.91	4.46(1.53)	Vossen, Piotrowski, & Valkenburg, 2015
Attribution to support-seeking goal	The person was trying to convince his/her Facebook friends (or this person) and activate supportive response. The person really cared whether his/her Facebook friends respond with comfort. The person really wanted to get supportive response by sending this message. (not from the original scale) The person really wanted to get some advice from Facebook friends by sending this message. (not from the original scale) This person really wanted the Facebook friends (this person) to provide necessary support.	.87	4.99(1.25)	Oh & LaRose, 2016
Social validation goal	This person sent the message to address who he/she is. This person sent the message because he wanted to maintain or create certain public image. This person sent the message to impress Facebook friends (or the Facebook friend).	.76	2.67(1.31)	Bazarova & Choi, 2014
Message appropriateness	To what extent do you think the message is: Inappropriate - Appropriate Unsuitable to the situation - Suitable to the situation Out of place for this context - Normal to share in this context Improper - Proper	.92	4.10(1.53)	Canary & Spitzberg, 1987
Liking	I would like to have a friendly chat with this person. I would like this person to be my Facebook friend. It would be difficult to meet and talk with this person. This person would not fit into my circle of friends. We could never establish a personal friendship with each other.	.92	3.75(1.25)	McCroskey & McCain, 1974; Rubin, 1970
Personalism	Assume one of your FB friend post this, how much do you think this message: Was meant for you to see? Was for you to respond? Was to you?	.90	3.66(1.87)	Jones & Davis, 1965
Perceived other's online support	Others on Facebook will sympathize with this person. Others on Facebook will be supportive to this person. Others on Facebook will provide advice to this person. Others on Facebook will comfort this person.	.94	4.70(1.44)	Li & Feng, 2015
Positive face threat concern	If you respond, how much do you think your response will be perceived as ___ by other people: Impolite	.97	3.28(1.78)	Cupach & Carson, 2002

Table 1 (*continued*)

Variable	Items	α	*M*(*SD*)	Source
	Rude			
	Insensitive			
	Disrespectful			
	Unjustified			
	Hostile			
	Contempting			
	Not tactful			
Negative face threat concern	If you respond, how much do you think your response might be perceived as____ by other people:	.94	2.90(1.71)	Cupach & Carson, 2002
	Constraining the person's choice			
	Taking away the person's independence			
	Making the person look bad in the eyes of others			
	Invading the person's privacy			

Note. α is Cronbach's α.

Table 2
Main effect of publicness in MANCOVA.

		M(*SE*)			Multivariate statistics	Univariate statistics
		Public	Friends	Private		
Help	Effort put in help	4.12(.26)^{a}	4.29(.27)^{a}	5.99(.26)^{b}	Wilk's $\wedge = .54$, $F(6, 322) = 19.10$, $p < .001$, partial $\eta^2 = .26$	$F(2, 158) = 17.46$, $p < .001$, $\eta^2 = .18$
	Likelihood to help on FB	3.23(.21)^{a}	3.03(.22)^{a}	5.91(.21)^{b}		$F(2, 158) = 56.64$, $p < .001$, $\eta^2 = .42$
	Likelihood to help outside FB	3.30(.23)^{a}	3.58(.24)^{a}	3.74(.23)^{a}		$F(2, 158) = 1.16$, $p = .32$, $\eta^2 = .02$
Empathy and Sympathy	Affective empathy	4.11(.15)^{a,b}	3.80(.15)^{a}	4.57(.15)^{b}	Wilk's $\wedge = .91$, $F(8, 370) = 2.37$, $p = .02$, partial $\eta^2 = .05$	F-$(2, 188) = 6.16$, $p < .01$, $\eta^2 = .06$
	Cognitive empathy	5.14(.15)^{a}	5.06(.15)^{a}	5.65(.15)^{b}		F-$(2, 188) = 4.82$, $p < .01$, $\eta^2 = .05$
	Associative empathy	4.75(.17)^{a,b}	4.52(.17)^{a}	5.27(.17)^{b}		F-$(2, 188) = 6.39$, $p < .01$, $\eta^2 = .06$
	Sympathy	4.36(.17)^{a}	4.06(.17)^{a}	4.98(.17)^{b}		F-$(2, 188) = 7.57$, $p < .001$, $\eta^2 = .07$
Impression	Personalism	2.87(.18)^{a}	2.88(.18)^{a}	5.21(.18)^{b}	Wilk's $\wedge = .59$, $F(10, 366) = 10.95$, $p < .001$, partial $\eta^2 = .23$	F-$(2, 188) = 57.33$, $p < .001$, $\eta^2 = .38$
	Liking	3.62(.15)^{a}	3.74(.15)^{a}	3.90(.15)^{a}		F-$(2, 188) = .83$, $p = .44$, $\eta^2 = .01$
	Appropriateness	3.79(.19)^{a}	4.05(.19)^{a,b}	4.46(.19)^{b}		F-$(2, 188) = 3.27$, $p < .05$, $\eta^2 = .03$

Note. Means with no superscript in common differ at $p < .05$ using Bonferroni post-hoc comparisons; η^2 reported is partial η^2.

empathy, sympathy, personalism, and appropriateness than those in the private condition.

4.2.2. Mechanisms

To examine the hypothesized mechanisms, we employed the Macro PROCESS in SPSS (Hayes, 2013). Depending on specific mechanisms, we used Model 3, Model 4, Model 6, or Model 7 with 5000-sample bootstrapping, 95% bias-corrected confidence intervals (CI) estimated. As shown in the results of post-hoc tests in MANCOVA, there was no significant difference between messages that are public to all Facebook users and those only public to Alex's Facebook friends on participants' perceptions. Therefore, we combined these two conditions and labeled it as "public." After being re-coded, the variable publicness has two levels, private (coded as 0) and public (coded as 1, including both public-to-all and public-to-friends conditions) and is used in the following analyses. Trait empathy was controlled for throughout the analyses and issue severity was also controlled for if severity was not found moderate any of the relationships.

Mechanism I: goal attribution. With Model 7 in PROCESS, we found indirect effect of publicness on participants' effort through goal attribution was moderated by issue severity (via social validation goal: Index = 0.23, Boot *SE* = 0.15, 95% CI [0.01, 0.62]; via support-seeking goal: Index = −0.18, Boot *SE* = 0.13, 95% CI [-0.57, −0.01]) as illustrated in Fig. 2.

When the problem was severe, in support of H1c, indirect effect of publicness on effort via attribution to support-seeking goal was significant (indirect effect: $B = -0.14$, Boot $SE = 0.09$, 95% CI [-0.38, −0.01]; direct effect: $B = -1.78$, $SE = 0.31$, $p < .001$) such that publicness reduced one's attribution to support-seeking goal, which was positively associated with effort of helping.

When the problem was mild, in support of H2c, attribution to social validation goal mediated effect of publicness on effort (indirect effect: $B = -0.15$, Boot $SE = 0.10$, 95% CI [-0.41, −0.01]; direct

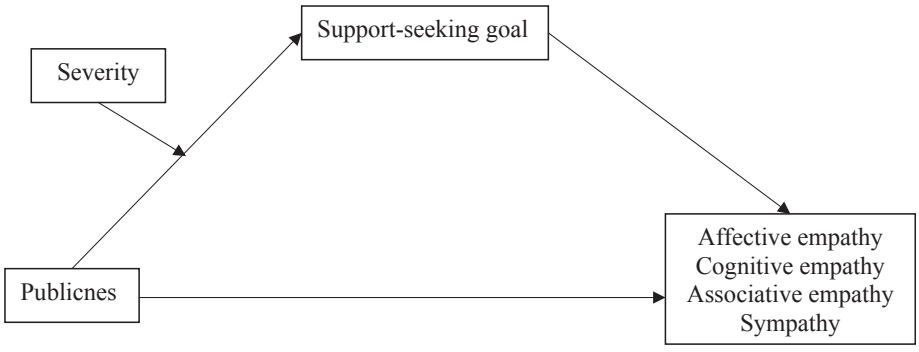

Fig. 2. Moderated mediation via attribution to support-seeking goal.

effect: $B = -1.78$, $SE = 0.31$, $p < .001$). Specifically, publicness increased attribution to social validation goal, which was negatively associated with effort participants put into their response to the support seekers. But when the issue is severe, attribution to social validation goal did not explain the relationship between publicness and efforts put in responding.

In terms of effect of publicness on message quality, we also found issue severity moderate indirect effect of publicness via support-seeking goal attribution on message supportiveness, Index = −.15, $SE = 0.08$, 95% CI [-0.37, −0.03]; and message effectiveness, Index = −0.11, $SE = 0.08$, 95% CI [-0.35, −0.01].

Specifically, when the issue was severe, in support of H1d, attribution to support-seeking goal mediated effect of publicness on messages supportiveness, $B = -0.12$, Boot $SE = 0.06$, 95% CI [-0.26, −0.03] and message effectiveness, $B = -0.08$, Boot $SE = 0.05$, 95% CI [-0.24, −0.01]; but not when the issue was mild (indirect effect on message supportiveness: $B = 0.04$, Boot $SE = 0.06$, 95% CI [-0.06, 0.17]; indirect effect on message effectiveness: $B = 0.03$, Boot SE = 0.04, 95% CI [-0.04, 0.15]).

Mediation effect of social validation goal on message quality was not significant. Therefore, H2d was not supported.

Indirect effect of publicness via attribution to support-seeking goal on empathy and sympathy was moderated by issue severity as well. When the issue was severe, H1e and H1f were supported such that attribution to support-seeking goal mediated the relationship between publicness and empathy and sympathy. High publicness decreased attribution to support-seeking goal which further reduced empathy and sympathy, as shown in Table 3.

We found no mediation effect of attribution to social validation goal or support-seeking goal on one's self-reported willingness to help. In sum, H1c, d, e, f and H2c were supported while H1a, b, and H2a, b, d were not supported.

Mechanism II: impression formation. In support of H3a, with Model 6, we found publicness had a negative indirect effect on likelihood to help in Facebook, via perceived appropriateness and liking, $B = -.10$, Boot $SE = 0.05$, 95% CI [-0.22, −0.03]. Specifically, when reading a private support-seeking message, participants would perceive it as more appropriate, thus increasing their favorable attitude towards the support seeker, which ultimately led participants to offer support.

In support of H3e and H3f, the same pattern also applies to effect of publicness on empathy and sympathy (affective empathy, $B = -0.07$, Boot $SE = 0.04$, 95% CI [-0.18, −0.02]; cognitive empathy, $B = -0.05$, Boot $SE = 0.03$, 95% CI [-0.15, −0.01]; associative empathy, $B = -0.05$, Boot $SE = 0.03$, 95% CI [-0.14, −0.01]; sympathy, $B = -0.09$, Boot $SE = 0.05$, 95% CI [-0.22, −0.02]).

We found no mediation effect of impression of the support seeker on other dependent measures. Therefore, H3b, c, d were not supported.

Mechanism III: personalism. In support of H4a, b, e, f, we found significant indirect effect of publicness via perceived personalism on one's likelihood to help in and outside Facebook, empathy and sympathy. In response to RQ2, as illustrated in Fig. 3, the indirect effect was moderated by issue severity such that the indirect effect via personalism was more prominent when the issue was less severe as shown in Table 4.

Indirect effect of publicness via perceived personalism on effort put in help, message supportiveness, and message effectiveness was not significant. Therefore, H4c and H4d were not supported.

Mechanism IV: bystander effect. To examine possible bystander effect, we tested perceived others' online support as mediator with Model 4. Opposite to our hypotheses, we found positive indirect effects via perceived others' online support on likelihood to help in Facebook, $B = 0.19$, Boot $SE = 0.10$, 95% CI [0.03, 0.41]; message supportiveness, $B = 0.13$, Boot $SE = 0.06$, 95% CI [0.04, 0.29]; and message effectiveness, $B = 0.08$, Boot $SE = 0.05$, 95% CI [0.00, 0.22].

Specifically, publicness increased one's perception of others providing support, which turned out to be positively correlated with one's own likelihood to help in Facebook and the quality of support, being the opposite of bystander effect. We found no mediation effect of perceived other's behaviors on likelihood to help outside Facebook or effort. Therefore, H5 was not supported.

Mechanism V: Face threat concerns. Disconfirming H6, concerns for neither positive nor negative face threats to support seekers were significant mediators of effect of publicness on likelihood to help in Facebook (positive face threat: $B = 0.003$, Boot $SE = 0.02$, 95% CI [-0.03, 0.07]; negative face threat: $B = -0.02$, Boot $SE = 0.03$, 95% CI [-0.13, 0.02]) and outside Facebook (positive face threat: $B = 0.000$, Boot $SE = 0.01$, 95% CI [-0.03, 0.03]; negative face threat: $B = -0.03$, Boot $SE = 0.04$, 95% CI [-0.18, 0.02]), effort (positive face threat: $B = 0.003$, Boot $SE = 0.03$, 95% CI [-0.05, 0.10]; negative face threat: $B = 0.01$, Boot $SE = 0.03$, 95% CI [-0.03, 0.12]), message supportiveness (positive face threat: $B = 0.002$, Boot $SE = 0.02$, 95% CI [-0.03, 0.05]; negative face threat: $B = 0.001$, Boot $SE = 0.01$, 95% CI [-0.02, 0.04]) and message effectiveness (positive face threat: $B = 0.001$, Boot $SE = 0.02$, 95% CI [-0.03, 0.05]; negative face threat: $B = -0.002$, Boot $SE = 0.01$, 95% CI [-0.05, 0.02]). Therefore, H6 was rejected.

Mechanism VI: Support seekers' impression concern. To examine the moderating effect of one's concern for their own impression on effect of publicness, we employed Model 3 in PROCESS with issue severity as another moderator. Disconfirming H7, individuals' impression management tendency was not found moderate effect of publicness on likelihood to help in Facebook ($B = 0.32$, $SE = 0.42$, $p = .45$), outside Facebook ($B = 0.15$, $SE = 0.46$, $p = .74$), or effort put in help (public x severity x IM: $B = 0.14$, $SE = 0.14$, $p = .24$; public x IM: $B = -0.04$, $SE = 0.35$, $p = .91$).

5. Discussion

By comparing the outcomes of support seeking via channels of different publicness on a mainstream social media platform and

Table 3
Direct effect of publicness and moderated indirect effect via attribution to support seeking goal.

	Direct Effect	Indirect Effect		
		Index	Mild	Severe
Affective empathy	$B = -.55$, $SE = .18$, $p < .01$	Index = −.21, Boot $SE = .12$, 95% CI [-.51, −.02]	$B = .05$, Boot $SE = .09$, 95% CI [-.14, .24]	$B = -.16$, Boot $SE = .08$, 95% CI [-.36, −.04]
Cognitive empathy	$B = -.48$, $SE = .17$, $p < .01$	Index = −.24, Boot $SE = .13$, 95% CI [-.54, −.02]	$B = .05$, Boot $SE = .11$, 95% CI [-.17, .25]	$B = -.19$, Boot $SE = .09$, 95% CI [-.40, −.05]
Associative empathy	$B = -.56$, $SE = .21$, $p < .01$	Index = −.23, Boot $SE = .12$, 95% CI [-.52, −.04]	$B = .05$, Boot $SE = .10$, 95% CI [-.15, .26]	$B = -.18$, Boot $SE = .08$, 95% CI [-.37, −.05]
Sympathy	$B = -.72$, $SE = .20$, $p < .001$	Index = −.25, Boot $SE = .14$, 95% CI [-.58, −.01]	$B = .05$, Boot $SE = .11$, 95% CI [-.15, .29]	$B = -.19$, Boot $SE = .09$, 95% CI [-.40, −.05]

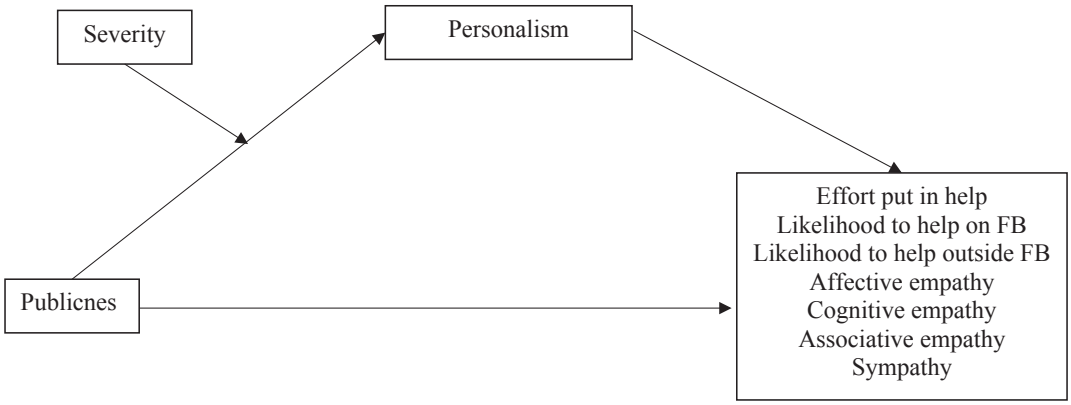

Fig. 3. Moderated mediation via personalism.

Table 4
Direct effect of publicness and moderated indirect effect via personalism.

	Direct Effect	Indirect Effect		
		Index	Mild	Severe
Likelihood to help on FB	$B = -1.70$, SE = .28, $p < .001$	Index = .59, Boot $SE = .24$, 95% CI [.19, 1.12]	$B = -1.37$, Boot $SE = .29$, 95% CI [-1.98, −.83]	$B = -.78$, Boot $SE = .21$, 95% CI [-1.27, −.44]
Likelihood to help outside FB	$B = .22$, $SE = .32$, $p = .50$	Index = .28, Boot SE = .16, 95% CI [.05, .71]	B = −.68, Boot SE = .28, 95% CI [-1.24, −.12]	B = −.39, Boot SE = .17, 95% CI [-.77, −.08]
Effort put in help	$B = -1.39$, $SE = .37$, $p < .001$	Index = .24, Boot $SE = .17$, 95% CI [-.003, .66]	$B = -.50$, Boot $SE = .29$, 95% CI [-1.06, .06]	$B = -.26$, Boot $SE = .15$, 95% CI [-.59, .004]
Affective empathy	$B = .13$, $SE = .22$, $p = .57$	Index = .39, Boot $SE = .15$, 95% CI [.14, .73]	$B = -.93$, Boot $SE = .18$, 95% CI [-1.33, −.61]	$B = -.54$, Boot $SE = .14$, 95% CI [-.89, −.32]
Cognitive empathy	$B = .08$, $SE = .21$, $p = .70$	Index = .34, Boot $SE = .13$, 95% CI [.12, .64]	$B = -.80$, Boot $SE = .17$, 95% CI [-1.18, −.50]	$B = -.46$, Boot $SE = .13$, 95% CI [-.76, −.24]
Associative empathy	$B = .13$, $SE = .25$, $p = .60$	Index = .42, Boot $SE = .17$, 95% CI [.14, .79]	$B = -.97$, Boot $SE = .21$, 95% CI [-1.41, −.59]	B = −.56, Boot SE = .15, 95% CI [-.91, −.31]
Sympathy	$B = -.07$, $SE = .25$, $p = .79$	Index = .39, Boot $SE = .16$, 95% CI [.15, .80]	$B = -.92$, Boot $SE = .21$, 95% CI [-1.38, −.54]	B = −.53, Boot SE = .15, 95% CI [-.88, −.28]

testing six mechanisms as existing theories and empirical findings suggest, the current study aims to answer the question why social support seeking on social media is not always effective from a technological perspective. Compared with traditional offline support seeking and online one-on-one communication or support group chatting, publicness of information exchange on social media has extended the temporal and spatial boundary of communication such that a public post on social media has the potential to reach a larger number of audiences present anytime. However, as publicness discourages individuals to provide qualified support, reaching more observers does not necessarily guarantee social support more qualified.

On one hand, publicness as an affordance provided by social media platforms, changes how the communication context is defined, how support-seeking message is interpreted, how support seeker is thought of, and how the interpersonal relationship is perceived, which might all influence one's empathy and sympathy felt for support seeker and the likelihood to offer support on and outside social media. With support seeker's use of the publicness affordance known to potential support givers, the polysemy of a message diminishes and cognitions associated with publicness, such as impression management, attention seeking, reduced intimacy, and a lack of interpersonal uniqueness, help define the nature of communication, shifting a supportive communication to self-presentation.

Specifically, the first mechanism is goal attribution. Consistent with the prediction of the discounting principle of traditional attribution theory, the presence of other motives that can account for a behavior might downplay one's attribution to a particular motive (Reeder & Trafimow, 2005). Unlike online support groups where the primary goal of communication is well defined (to gain and/or to offer support; see Wright, 2015), mainstream social media platforms such as Facebook, Twitter, Instagram, are general-purpose and therefore, support-seeking message sent on social media is more subject to attribution to alternative goals.

As found in this study, when the problem is not severe, observers might simply treat it as an expression of support seekers in order to create or maintain certain images if it is delivered in public, and therefore, put less effort in generating supportive messages, which is consistent with existing research on effect of publicness such that publicness is associated with impression management/social validation motive (Bazarova & Choi, 2014; Liu & Kang, 2017). Even in the case of severe problems, sending a message in public still downplays observers' attribution to the support-seeking goal, which further compromises their effort, the quality of the supportive messages, and empathy and sympathy they felt for the support seeker. This finding suggests the publicness affordance plays an overarching role in communication on social media by defining the nature of the communication context and setting a schema for meaning construction.

The second and third mechanisms, i.e., impression formation and personalism, both embody the relational aspect of supportive communication happening on social media. Communication on social media is often embedded in a relational context where support seeking and giving is more than information exchange. Findings support the idea that likable support seekers are more

likely to get help (Pandey & Griffitt, 1974). Although support seeking is not the same as self-disclosure, a support-seeking message often contains negative self-disclosure. As existing research suggests, norm-conforming disclosures and personalistic disclosures are more liked in interpersonal communication (Bazarova, 2012; Liu & Kang, 2017). Negative self-disclosure in public is often considered as out of context, inappropriate, and less personal, and the message sender is also perceived as less likable (Bazarova, 2012; Liu & Kang, 2017), which discourages observers from providing support and leads to reduced empathy and sympathy felt for the support seeker regardless of the issue severity.

Empathic perceptions including empathy and sympathy motivate individuals to alleviate support seeker's distress and are important antecedents for helping (Batson, 2011). Moreover, to provide effective emotional support specifically (Burleson, 2003, 2008), empathy characterized by an accurate recognition of others' emotion and perspective taking is necessary for support givers to generate high person-centered messages that explicitly legitimize support seeker's feelings and situations, and therefore, encourage further cognitive reappraisal and protect support seekers' esteem (Burleson, 1982; Burleson & MacGeorge, 2002). As publicness reduces empathy and sympathy felt for the support seeker, the quantity and quality of the support they receive will also be compromised as a result.

On the other hand, publicness affordance not only alters social cognitions about the support seekers as suggested by the first three mechanisms, but also sets constraints on or facilitates support givers' behaviors through the last three mechanisms, i.e., bystander effect, face threat concerns, and support giver's impression management.

Findings reveal the complex goal structure beneath helping behaviors in social media context. Specifically, the fourth mechanism we hypothesized about is "bystander effect." Findings disconfirm bystander effect and instead manifest a "bandwagon effect." Although observers did perceive a public message as eliciting more support from others, they turn out to be more likely to offer help in Facebook and generate supportive messages of higher quality as a result. The study by Li and Feng (2015) had similar findings such that one's helping is congruent with perceived public opinion about the support seeker. The absence of the bystander effect suggests support providing on social media may not be completely out of altruism according to which the end goal is to alleviate other's distress (Batson, 2011). If support givers are solely motivated by altruism, then seeing others' helping should reduce one's own helping behavior given that the end goal is already achieved. However, we found the opposite. It seems that in public, people are motivated to conform the group norm that they perceive, again, suggesting the social aspect of support providing on social media.

Hypotheses regarding mechanisms V and VI, i.e., concerns about others' face and one's own face or impression, are premised on that publicness increases the concerns for image maintenance (Oh & LaRose, 2016). However, we did not find them explain why publicness reduced likelihood to help. Three explanations might account for this discrepancy between our data and the proposed predictions derived from existing theories and empirical findings. One reason could be that the way we manipulated publicness was hypothetical so that it did not raise enough awareness among participants about the publicness of their own responses. In other words, participants might not feel they were situated in a social network and were being watched even in the high-publicness condition. Another reason could be that due to the support seeker in the current study was a stranger to them, they had high-level face concerns in front of and for a stranger regardless whether it is crafting messages in public or privately, as interaction with strangers is always expected to be very polite (Brown & Levinson, 1987). Another possibility is that although public response calls for more face concerns and requires composing politer responses, this barrier might not be high enough to stop people helping.

Overall, our findings suggest that when it comes to support seeking on social media, although high publicness is not all bad (e.g., bandwagon effect), some mechanisms are playing a larger part than the others, resulting in a negative total effect. Attribution to support seeker's communication goals, social norms related to negative self-disclosure, and the perception of personalism altogether make public support seeking disadvantaged in eliciting empathy, sympathy, and support from potential support givers in terms of both quantity and quality.

Findings in the current study have both theoretical and practical implications.

5.1. Theoretical implications

Theoretically, the current study contributes to the understanding of the role of technology in both impression formation and supportive communication in social media context by bringing in affordance-based explanations. First, this study contributes to the understanding of the processes underlying impression formation in computer-mediated communication (CMC). As suggested by social information processing theory (Walther, 1992), despite the unavailability of non-verbal cues in CMC as compared with face-to-face communication, individuals can still form impressions and develop relationships through CMC by drawing inferences from other available cues including both the system-generated and communicator-generated ones (e.g., Hayes, Carr, & Wohn, 2016; Walther, Van Der Heide, Hamel, & Shulman, 2009). As media technologies provide more affordances, individuals are able to exert more manipulations in the course of communication to create a more desirable interpersonal outcome, as implied by the hyperpersonal model of CMC (Walther, 1996). The current study further suggests that those manipulations, when visible to information recipients, can serve as social cues from which inferences about the person and the relationship are drawn (Liu & Kang, 2017), which may attenuate the hyperpersonal effect resulted from individual's manipulation through attributions and further influence impression formation and relationship development.

Second, findings demonstrate how social media affordances might redefine the nature of supportive communication. Support seeking is not the same as self-disclosure that are typically motivated by goals related to identity construction and relationship development (e.g., Altman & Taylor, 1973; Bazarova & Choi, 2014; Levinger & Snoek, 1972). Yet, we still found that predictions derived from research on online self-disclosure also hold true for supportive communication on social media (Bazarova, 2012; Liu & Kang, 2017). Social media is a relational context by definition (Clark & Melancon, 2013; Ellison, 2007; Kane, Alavi, Labianca, & Borgatti, 2014). Thus, when situated in social media, support-seeking behavior also has interpersonal implications in terms of impression formation and relationship development, which further affects the outcome of support seeking. In this regard, technological affordance should not be merely seen as a moderator icing on the very same communication phenomenon when studying supportive communication on social media. Instead, the current study suggests technology-mediated supportive communication be investigated from perspectives with the technological context being considered.

5.2. Practical implications

Practically, on one hand, findings of this study are expected to

help support seekers employ social media to elicit optimal social support by manipulating its publicness accordingly or altering factors involved in certain mediating mechanisms. On the other hand, findings also provide implications for sensitive social media designers to develop a wider range of affordances allowing users to operate on related dimensions to facilitate their goal achievement, for example, by designing publicness related affordances and cues so as to reduce the negative effect of publicness and augment its positive effect in eliciting qualified social support.

Specifically, as potential support givers' recognition of the support-seeking goal determines how much empathy and sympathy felt and the support they are willing to provide, support seekers could accentuate the support-seeking goal by employing linguistic strategies such as explicitly saying, "I am seeking for some advice." As we also found that negative disclosure in public violates social norm and reduces one's social attraction, support seekers could tune their tone to be more positive to reduce the negativity of the post. As publicness reduces interpersonal personalism which further reduces the support they receive, support seekers can increase personalism by increasing the directedness of the message by tagging someone in their public post (Liu & Kang, 2017).

Social media platforms could also create features allowing users to categorize their posts as "help seeking" to reduce the ambiguity in goal attribution. At the same time, by introducing such a category to users, it normalizes support seeking on social media and might further reduce the psychological barrier in seeking support and challenge the existing norm favoring positive disclosure (Bazarova, 2012; Reinecke & Trepte, 2014). The number of supportive responses could also be made into a salient cue similar to the number of likes in many existing social media platforms, which might encourage more observers to give a hand as suggested by the bandwagon effect found in the current study.

6. Limitations and future research directions

This study also has several limitations. First, we only used Facebook as an example. Besides Facebook, other social media platforms with other affordances have already gained popularity among the younger population such as Snapchat and Instagram. Although those platforms have not been tested as a typical support-seeking platform, they do have such potentials by allowing for self-disclosure that takes various forms. That said, the conclusions derived from testing Facebook might not be directly applicable to other platforms with their unique affordances and subcultural norms. For example, with the ephemerality of Snapchat, publicness might function in different ways and means different things than it does on Facebook where all the information exchanges remain on the platform by default, which might contribute to certain concerns that are investigated in the current study.

Second, in the current study, Alex was introduced as a fellow student from the same college as the participants and we asked participants to think Alex as one of their Facebook friends to create a context of little relational history where Alex is a weak-tie acquaintance to the participants, which is one of the typical relationships on Facebook (Ellison, Steinfield, & Lampe, 2007). Therefore, conclusions drawn from the current study should be interpreted with caution such that individuals with more relational history with the support seeker might make different attributions, develop different perceptions about the message and the support seeker, have different concerns, and respond differently.

Another limitation is that the messages used as stimuli in the present study were all descriptions of support seeker's situation without an explicit request for help. Future study could further explore if a direct request might encourage more responses.

The current study has left some relevant questions unanswered. First, although findings in the current study suggest that potential support givers are more likely to provide support when getting the support-seeking messages in private, it does not suggest public help seeking is futile in any cases. Although we found public post reduce individuals' likelihood to respond, as public post is visible to more people, it is still possible to beckon more responses. Besides, as public post is often less directed compared with private message, it poses less obligation on observers who run into this message. In this case, public help seeking might invite people who genuinely want to help rather than those who would help merely out of social pressure, and be preferable for certain potential support givers. However, the current study did not measure how much social pressure participants perceived, therefore, was not able to answer this question.

Another unanswered question is about the effect of other users' responses on behaviors of a potential support giver. For example, under a public post, Facebook users are also able to see others' responses to the help seeker. It is interesting to examine how existing responses might influence one's likelihood to help and the quality of the support they provide. Would there be a bandwagon effect as found in the current study or a bystander effect? These questions will be addressed in future research.

Besides, hypotheses in the current study were tested with mediation analyses. In future studies, the role of mediators proposed should be examined directly with experimental manipulations of them.

7. Conclusions

In conclusion, compared with public message, private message elicited more empathy, sympathy, more favorable perceptions towards the message and the support seeker, and higher likelihood to help. Publicness reduced attribution to support-seeking goal when the issue was severe, increased attribution to social validation goal when the problem was less severe, reduced favorable perceptions towards the message and the support seeker, and reduced the perception of personalism, which all contributed to reduction in empathy/sympathy, likelihood to help, and the quality of and the effort put in the supportive messages generated. Contrary to bystander effect, we found "bandwagon effect" such that publicness increased perception of others helping, which increased one's own likelihood to help in Facebook and message quality. Concerns about support seeker's face and one's own impression were not found influence one's helping.

Declarations of interest

None.

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