



Should We Activate Risk Perceptions in the Context of Suicide Prevention? Examining Fear Appeals, Help-Seeking Determinants, and Help-Seeking Sources Among University Employees Who Suffer from Depression

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Abstract

Health promotion strategies have largely focused on activating risk perceptions for health conditions in resistant at-risk populations in order to induce behavior change. Yet, doing so remains a questionable approach when promoting help-seeking behaviors among individuals who suffer from depression because clinical symptoms can negatively affect interpretations and responses to such efforts. This study sought to test the effects and effectiveness of risk-based health messaging utilizing fear appeals on help-seeking determinants, intentions, and sources. One hundred seventeen university employees affected by symptoms of depression were recruited to participate in a lab-based experimental setting. Participants were randomly assigned to one of three message conditions that differed in strength of fear appeal (low, moderate, high) when inducing suicide risk perceptions and promoting help-seeking. Consistent with previous research, participants indicated high stigma perceptions and low intentions to seek help. Risk-based messaging strategies such as fear appeals did not have an effect on help-seeking intentions in this sample. Intentions were largely determined by positive outcome expectations and social norms, whereas efficacy perceptions were positive and not a predictor of help-seeking intentions. Participants were most likely to seek help from intimate partners and friends and least likely to utilize a help-line. Health promotion messages should contain cues that activate, rather than change, the already positive outcome expectations of seeking help when targeting at-risk populations. Future research should explore possibilities for health promotion and education among support networks of those who suffer from depression and anxiety.

Keywords Suicide prevention · Depression · Health communication · Reasoned action theory · Fear appeals

Although a considerable number of employed adults in the USA are suffering from depression, few seek professional help (Pratt and Brody 2014). Tragically, mood disorders such as depression are the strongest predictors of suicidal ideation, which means that seeking help can save lives. Unfortunately, it remains unclear how health messaging can best be utilized to motivate depressed individuals to seek help (Klimes-Dougan et al. 2013; Siegel et al. 2017). One prominent strategy used in non-

depressed populations is to activate health risk perceptions in order to promote health behaviors that typically prompt resistance (eg., breast cancer screening, STI screening). Such risk-based health messages are intended to make it clear to an individual that s/he is at risk for the negative effects of not following the recommended action. Provided the individual feels capable to engage in the promoted health behavior, this tactic has been effective in communicating the seriousness of health risks and, as a result, motivate individuals to engage in (preventive) health behaviors (Ruiter et al. 2001; Sheeran et al. 2014).

Researchers have recently pointed out that “a message that people without depression perceive favorably may affect those with depression differently” (Siegel et al. 2017, p. 5). The dominant characteristics of depression, such as a cognitive filter for negative and threatening information, have been identified as one potential culprit of such unintended negative effects (Siegel et al. 2015). Messaging strategies that have been tested in this context can be split into the effects of

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content (i.e., *what* a health message says) and design (i.e., *how* a health message says it). The current study examined both components. It sought to identify the determinants and sources of help-seeking in this population that could serve as useful targets for health message content. This study also tested whether the clinical symptoms of depression can interact with message design and render risk-based help-seeking messages ineffective or harmful. An overarching aim of this research is to provide an empirical basis that will help avoid ineffective or harmful messaging interventions in depressed populations and begin providing indicators for effective messaging strategies.

Risk-Based Health Messaging

Following recommendations to customize health promotion messages according to the at-risk target audience they seek to reach, a significant number of health communication interventions have focused on activating and increasing health risk perceptions in order to promote health behaviors. For example, messages targeting heavy smokers often include threatening content and graphics that warn about the health risks of smoking (e.g., lung cancer) in order to prompt quit attempts (Hammond 2011). Similarly, unpleasant health behaviors such as cancer screening have been promoted by reminding women with heightened risk of breast cancer of the negative consequences of not engaging in routine screening as a preventive measure (Jones and Owen 2006; Rothman et al. 2006). Such risk-based communication strategies have proven to be effective when disseminated to at-risk audiences, especially if they are based on theoretical frameworks such as the extended parallel processing model (hereafter: EPPM), among others (Witte and Allen 2000; Witte 1992). The EPPM focuses on one of many possible risk-based messaging tactics, such as the elicitation of fear to raise risk perceptions and promote health behaviors.

According to the EPPM, however, it is not enough to simply induce fear by activating risk perceptions in order to effectively prompt health behavior change (Ruiter et al. 2014). It is of crucial importance that such fear appeals contain specific components in order to produce a favorable response from the at-risk audience they seek to reach. Specifically, they must consist of both a threat component and, most importantly, a coping component (Mongeau 2013; Witte 1992). A threat component draws attention to a health condition, presenting it as a severe threat to health and well-being (e.g., “your smoking will kill you”). A coping component provides practical strategies on how to reduce the likelihood that the threat will occur by engaging in the promoted health behavior (e.g., “you can effectively quit smoking by calling this help-line”) (Mongeau 2013; Peters et al. 2014). If a health message lacks this coping component, individuals are likely to minimize their vulnerability to the health threat and reason their risk away. This biased processing response is referred to as “fear

control,” because individuals solely seek to reduce their negative emotions activated by the threat component, as opposed to the desired “danger control,” in which individuals reduce their unpleasant risk perceptions by taking the recommended action (Witte 1992). Fear appeals have been part of the health communication toolkit for over 60 years and have shown to be effective in a variety of health promotion contexts (Peters et al. 2014; Witte and Allen 2000).

Thus, given its prominence in the health communication context overall, interventionists might consider the usefulness of fear appeals in order to raise risk perceptions of suicide and promote help-seeking behavior in at-risk audiences. This is a possibility that has not yet been tested in empirical research. At-risk audiences in this context include individuals who suffer from depression because they display a heightened risk of suicide relative to individuals who are not affected by depression (Brown et al. 2000; Sareen et al. 2005). Unfortunately, this at-risk group has also shown to be reluctant to help-seeking, especially as depression gets worse, most often due to the strong perceived stigma of seeking help (Clement et al. 2015; Mojtabai et al. 2011). Arguably, such stigma perceptions may lead those who are at risk to (sub)consciously resist the activation of risk perceptions and thus minimize the risks of delayed or lack of care. Even worse, an activation of risk perceptions in this context could induce even stronger negative attitudes toward help-seeking and make it even less likely that help will be sought in the future (Siegel et al. 2017).

Activating Risk Perceptions in Audiences Affected by Depression

Relevant for effective risk-based health messaging, individuals not suffering from depression tend to show cognitive biases that help sustain a positive view of the self (Mezulis et al. 2004). This phenomenon has been referred to as “optimistic bias,” a bias that often results in the detrimental “this will not happen to me” belief regarding (health) risks (Ashby et al. 1999). Risk-based health messaging usefully seeks to counterbalance these optimistic beliefs by making salient that one is, in fact, vulnerable to health threats and likely to be affected if the recommended action is not taken. Mood disorders such as depression and anxiety, however, predispose individuals to consistently *over-emphasize* negative information and their vulnerability to health threats as a result of cognitive errors that distort perceptions of reality in systematic ways (Beck 1976; Covin et al. 2011). For example, the conclusion that depressed individuals are more likely to interpret even hypothetical scenarios as more negative than non-depressed individuals has been confirmed in both self-report studies and psychophysiological studies (Lawson et al. 2002). It is thus reasonable to expect that a negativity bias, rather than an optimistic bias, must be considered when creating effective help-seeking messages because it

leads those with depression to *over-emphasize* rather than under-emphasize their vulnerability to health risks (Korn et al. 2014).

Whereas emerging research has begun to explore a variety of messaging strategies in audiences affected by depression, inconsistent findings have made it difficult to identify evidence-based indicators of message (in-)effectiveness (Klimes-Dougan et al. 2013). The scarcity of research in this area is often exasperated by testing theoretical models in normative populations only, thus treating the potential influence of depression as error variance or excluding individuals affected by depression from the study sample entirely (Siegel et al. 2017). There are a few notable exceptions. Some studies have shown that message strategies commonly used for non-depressed populations are ineffective and can even backfire when used in audiences affected by depression (Klimes-Dougan et al. 2009; Lienemann et al. 2013). For example, messages that simply encouraged help-seeking activated negative stigma perceptions that reduced, rather than increased, intentions to seek help among depressed individuals (Lienemann et al. 2013). Furthermore, a billboard that stated, “Prevent Suicide. Treat Depression. See your Doctor” had a negative effect on attitudes toward help-seeking among those who were depressed. In turn, depressed individuals had more positive attitudes toward help-seeking if they did not see this message at all. The billboard also activated social normative perceptions among depressed individuals simply by referencing suicide. In other words, viewing this billboard made depressed individuals believe that suicide is a common coping strategy among those who suffer from depression (Klimes-Dougan et al. 2009).

Interestingly, those effects have most often been found when manipulating *what* was said in the message rather than *how* it was said. Message framing utilizing positive or negative valence such as gain-and loss framing has not shown to produce similarly strong negative effects in this vulnerable population (Lueck 2018). Effects of message framing utilizing low responsibility cues have produced mixed findings and were either ineffective or had negative effects on intentions to seek help through the activation of self-stigma (Lienemann et al. 2013; Lueck and Yzer 2017). To better inform what help-seeking messages should usefully say to move at-risk individuals toward health behaviors, researchers have applied behavioral theory to predict intentions to seek help and examine its determinants. In this context, it has been found that interventionists should carefully construct messages to remind depressed individuals of the positive outcomes of help-seeking overall, with the caveat that such message strategies must be matched with the specific stages of depression severity to effectively induce behavior change (Lueck 2017; Lueck 2018).

The emerging empirical research on the effects of depression help-seeking messages often fails to consider from whom help should be sought. The primary assumption, of course, is that help should be sought from a health professional. Whereas turning to a health professional when suffering from

physical health conditions is plausible in normative populations, it remains unclear whether the same is always possible for mental health conditions such as depression. Lienemann et al. (2013), for example, found that females are more likely to seek help from close others whereas worsening symptoms of depression was associated with lower intentions to seek help from close others. Worsening symptoms of depression were negatively associated with intentions to seek help from health professionals when stigma perceptions were previously activated by a depression help-seeking message (Lienemann et al. 2013; Barney et al. 2006). When identifying what one should say in effective depression help-seeking messages, considerations of the preferred sources for help-seeking among those with depression symptoms should therefore be included, as well.

There is also a lack of empirical evidence examining a common and traditional approach in health messaging, which is raising risk perceptions in at-risk audiences, for purposes of promoting help-seeking and preventing suicide. Further complicating this matter, interventionists might find it difficult to integrate findings presented in the clinical psychology and health communication literatures for a useful prediction of how depressed individuals might respond to risk-based messaging. Clinical researchers often prioritize the testing of a variety of stimuli among those with disordered cognition, whereas health communication researchers tend to test theoretical models in normative key groups not affected by clinical symptoms.

Specifically, it must be explored whether and at which level of intensity risk-based messaging might be ineffective or backfire among those who are predisposed to focus on negative and threatening information, despite the theoretical soundness of this approach. Given the scarcity of research in this context, the current study sought to test the possibility that risk-based messaging strategies such as fear appeals are either ineffective or potentially harmful when promoting help-seeking among those who suffer from depression. Furthermore, this study served to examine whether and how such messages might influence the determinants, nature, and sources of seeking help vis-à-vis the reasoned action framework, a theory that can usefully inform what suicide prevention messages should say to effectively promote help-seeking. Identifying where individuals would turn for help is important in this context because help-seeking sources play a crucial role in suicide prevention efforts and might present additional key audiences for educational health promotion efforts.

Method

Recruitment and Design

The university’s bulk e-mail service was utilized to send recruitment materials to all university employees ($N = 20,051$)

at a large Southern university. In line with the Institutional Review Board's recommendations, recruitment materials read, "Help us Improve Health Messages" and advertised participation in a study in exchange for a \$25 gift card. Recruitment materials addressed university employees who have experienced symptoms of anxiety and/or depression within the past 2 weeks but have not yet sought professional help to treat these symptoms.

University employees were able to electronically sign up for 135 available participation slots. Once these were filled, the sign-up system was terminated and new participants were no longer able to sign up. When each of the 135 participants arrived at the lab, an intake procedure provided a participant number (generated with a random string generator tool) and randomly assigned participants to one of three experimental conditions by using a random number generator ranging from 1 through 3 vis-à-vis a single-blind method. Participants then completed a survey that assessed clinical symptoms of depression and anxiety. This served as a second step (in addition to recruitment materials) to confirm clinical symptoms and provide opportunities to filter out those who did not show any symptoms in subsequent statistical analyses. Participants were then shown one of three messages. The low risk depression help-seeking message condition had 45 participants (33%), the moderate risk condition had 43 participants (32%), and the high-risk condition had 47 participants (35%). Following exposure to the health message, participants filled out the post-questionnaire addressing theoretical constructs.

All participants were monitored throughout the study and completed a thorough in-person debriefing procedure that was developed in collaboration with the IRB and clinical recommendations. Research personnel educated participants on available help-seeking resources (in-person, by phone, or electronic) and provided print versions of the debriefing form that listed and described such local and national resources in detail.

Participant Characteristics and Assessment of Clinical Symptoms

Participants' ages ranged from 18 to 69 years ($M = 26.93$, $SD = 9.07$). One hundred four participants (77%) were female and 31 (23%) were male. Most of the individuals in this sample were White (66.7%) and had completed some college (38.5%) or graduated with a college degree (31.1%). Income was dispersed but tended to be above \$20 k per year (78.6%).

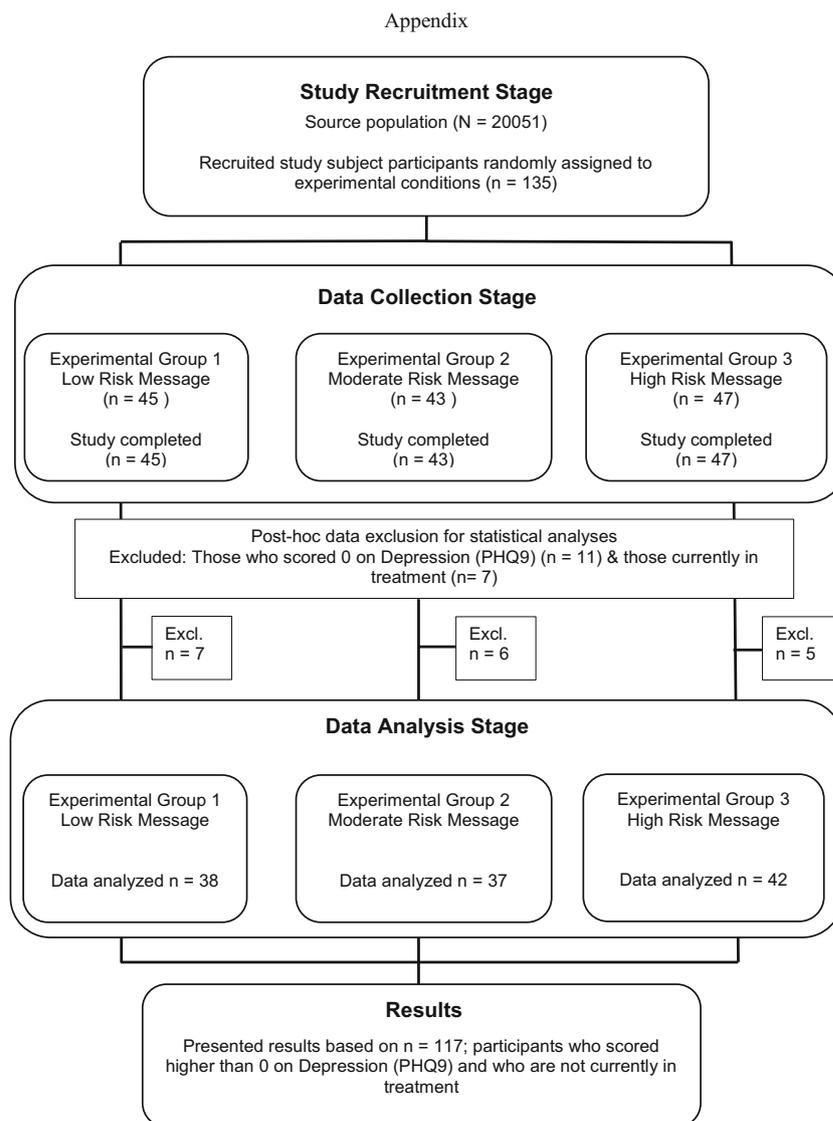
Depression was measured using the validated nine-item PhQ9, which is often used in clinical settings to assess the presence and severity of depression symptoms based on the Diagnostic Statistical Manual of Mental Disorders V (Kroenke et al. 2001). The questionnaire assessed depressive symptoms participants had experienced over the last 2 weeks. Questions included, "Over the past two weeks,

how often have you been bothered by any of the following problems? Little interest or pleasure in doing things." Each item was coded from 0 to 3, with 0 being not at all, 1 being several days, 2 being more than half the days, and 3 being nearly every day. A summated score represented severity of depression, with higher scores indicating more severe depression.

In this sample, clinical depression symptom scores ranged from 0 to 23 ($M = 6.54$, $SD = 5.51$). According to clinical interpretations, 11 individuals did not have any depression symptoms (8.1%), 51 indicated minimal depression (37.8%), 33 showed mild depression (24.4%), 27 were moderately depressed (20%), 8 indicated moderately severe depression (5.9%), and 4 (3%) were severely depressed at the time of the study. This sample is comparable with the general US population. About 24% of adults over the age of 20 suffer from depression (scored above 10 on the PhQ9) within a 2-week period (Brody et al. 2018). Using the same scoring criteria (a score above 10 on the PhQ9), about 29% of the current sample suffered from depression symptoms within a 2-week period. Recognizing that non-depressed participants should not stand in for those who are depressed (Siegel et al. 2017), the sample was restricted to those who scored higher than zero on the summated depression indicator and those who were not currently in treatment ($N = 117$) (see Fig. 1).

Experimental Stimuli Three messages were created based on Witte's (1992) EPPM. Each message consisted of the same theoretical indicators: severity (i.e., depiction of depression symptoms ranging from less severe, such as lack of motivation, to more severe, such as thoughts of suicide and self-harm), susceptibility (i.e., depiction of susceptibility ranging from low, such as depicting a different at-risk group, to high, such as directly addressing the specific university's employees), response efficacy, self-efficacy, and matched low (a neutral office), moderate (a lonely individual), or high-risk (a noose) visuals. Each of the stimuli were pilot tested in a small sample of graduate students ($N = 20$) who did not participate in the main study in order to find the most effective theoretical (i.e., low, moderate, and high levels of perceived severity and susceptibility) and ethical (i.e., equally high levels of perceived efficacy) manipulations. Theory principles state that messages must convey to the individual that the promoted health behavior is both practical and effective (Mongeau 2013). Thus, for theoretical and ethical reasons, all messages sought to induce equally high levels of self and response efficacy. Each message included a statement on practical ways to seek help via a phone line, 1-800-THERAPIST, and a national website on mood disorders, halfopus.com (self-efficacy). Additionally, each message included a statement on the effectiveness of help-seeking according to the National Institute of Mental Health (response efficacy) (see Figs. 2, 3, and 4).

Fig. 1 Strobe diagram displaying study design, participants, and analysis



Measures for Theoretical Constructs

Survey questions were phrased to address symptoms of both anxiety and depression. This was done due to an expectation of a strong association between anxiety and depression often found in clinical settings, as well as a lack of data discerning which condition would be more prevalent and severe in this particular population. As expected, depression and anxiety (assessed with the GAD7, a brief clinical battery similar to the PhQ9) correlated strongly in this sample ($r = .80$, $p < .001$) (Spitzer et al. 2006). After assessing statistical power for both depression and anxiety, it was found that depression appeared to be more prevalent in this sample and was thus used as variable of interest.

Reasoned Action Items Reasoned action items were measured according to theory recommendations (Fishbein and Ajzen

2010). The target behavior was phrased as, “Making an appointment with a mental health professional (e.g., psychologist, psychiatrist, social worker) to discuss symptoms of anxiety and/or depression within the next four weeks.” *Intention* was measured by asking participants, “How likely is it that you will make an appointment with a health professional to discuss symptoms of anxiety and/or depression within the next four weeks?” (1 = very unlikely, 7 = very likely) and by asking them to indicate their level of agreement to the statement, “I expect to make an appointment with a health professional to discuss symptoms of anxiety and/or depression within the next four weeks” (1 = definitely do not expect to, 7 = definitely expect to). Intention items correlated strongly ($\alpha = .95$, $r = .90$, $p < .001$) and were therefore averaged to form a behavioral intention measure.

Five 7-point semantic differential items measured instrumental and experiential *attitude*. The stem, “My making an

appointment with a health professional to discuss symptoms of anxiety and/or depression within the next four weeks would be ...” was followed by the items harmful–beneficial, unnecessary–necessary, bad–good (for instrumental attitude), and not enjoyable–enjoyable and stressful–relaxing (for experiential attitude). Scores on the two sets were averaged to yield indicators of instrumental attitude ($\alpha = .81$) and experiential attitude ($\alpha = .85$, $r = .75$, $p < .001$).

Perceived norms were assessed on 7-point scales. An injunctive norm measure asked participants, “How do you think most people important to you would feel about you making an appointment with a mental health professional to discuss symptoms of anxiety and/or depression within the next four weeks?” Scale anchors ranged from strongly disapprove to strongly approve. To measure descriptive norms, participants were asked, “How many of the people important to you who experience symptoms of depression and/or anxiety do you think will make an appointment with a mental health professional to discuss symptoms of anxiety and/or depression within the next four weeks? Scale anchors ranged from almost none to almost all.

The *perceived behavioral control* measure used a 7-point scale and asked how confident participants are that they could make an appointment with a health professional to discuss symptoms of anxiety and/or depression despite a variety of obstacles. Two semantic differential items were used for *perceived autonomy*. The stem, “My making an appointment with a health professional to discuss symptoms of anxiety and/or depression within the next four weeks would be” was followed by not under my control–under my control and not up to me–up to me. Items were averaged to form a perceived autonomy measure ($\alpha = .90$, $r = .83$, $p < .001$).

Help-Seeking Targets Participants were asked, “If you were having personal or emotional problems, how likely is it that you would seek help from the following sources?” (1 = extremely unlikely; 7 = extremely likely). Answer options referenced “intimate partner,” “friend,” “parent,” “other family,” “mental health professional,” “phone helpline,” “doctor or general practitioner,” “minister or religious leader,” and “I would not seek help from anyone.”

Self-Stigma of Seeking Help The Self-Stigma of Seeking Help (SSOSH) measure (Vogel et al. 2006) was used to test stigma perceptions. Ten 5-point Likert items (1 = strongly disagree; 5 = strongly agree) elicited responses to statements such as, “I would feel inadequate if I went to a therapist for psychological help” and, “I would feel okay about myself if I made the choice to seek professional help (R).” The items were averaged so that higher scores on the scale represented higher stigma perceptions ($\alpha = .91$).

Results

Preliminary Analyses

Post Hoc Statistical Power Analysis A post hoc power analysis was conducted using the software package GPower (Erdfelder et al. 1996). The sample size of 117 was used for the statistical power analysis and the 15-variable hierarchical regression equation (including interaction terms) was used as a baseline. The recommended effect sizes used for this assessment were as follows: small ($f^2 = .02$), medium ($f^2 = .15$), and large ($f^2 = .35$) (see Cohen 1977). The alpha level used for this analysis was $p < .05$. The post hoc analysis revealed the statistical power for this study was .16 for detecting a small effect, whereas the power exceeded .88 for the detection of a moderate to large effect size. Thus, there was more than adequate power (i.e., power $> .80$) at the moderate to large effect size level but less than adequate statistical power at the small effect size level for subsequent analyses.

Random Assignment Check Individuals who were randomly assigned to either the low, moderate, or high risk-based fear appeal message condition did not differ in depression symptom severity ($F(2, 114) = 1.84$, $p = .163$, $d = .36$, age, $F(2, 114) = 1.01$, $p = .368$, $d = .26$, race, $X^2(12, N = 117) = 11.92$, $p = .452$, ethnicity, $X^2(6, N = 117) = 3.89$, $p = .559$, education, $X^2(4, N = 117) = 4.91$, $p = .297$, and income, $X^2(16, N = 117) = 12.37$, $p = .718$). Random assignment also did not differ based on self-reported help-seeking in the past 12 months ($X^2(2, N = 117) = 2.83$, $p = .242$), previous negative experiences with help-seeking, ($X^2(2, N = 117) = 1.36$, $p = .507$), and honesty with which survey questions were answered ($F(2, 114) = 1.47$, $p = .235$, $d = .32$). Due to the potential influence of sex on intentions to seek help for depression, as well as the detection of an uneven distribution between message conditions ($X^2(2, N = 117) = 8.57$, $p = .013$), sex was entered as covariate for all subsequent analyses.

Main Analyses

Help-Seeking Intentions First, theoretical constructs and descriptive statistics were assessed regardless of message exposure. All reasoned action items strongly and positively correlated with intentions, except perceived behavioral control and perceived autonomy. Across message conditions, participants indicated low intentions to seek help ($M = 2.40$, $SD = 1.69$). Instrumental attitudes (outcome beliefs) tended to be more positive ($M = 4.58$, $SD = 1.40$) than experiential attitudes (affective evaluations) ($M = 3.44$, $SD = 1.57$). Participants expected approval from important others (injunctive norms) for seeking help ($M = 4.15$, $SD = 1.49$), yet indicated that they do not believe others would seek help themselves (descriptive norms) ($M = 2.62$, $SD = 1.60$). Perceived autonomy was high

($M = 6.15$, $SD = 1.19$), and perceived capacity was higher than the scale mid-point ($M = 4.80$, $SD = 1.67$) (see Table 1). Across message conditions, the reasoned action variables explained 35% of the variance in intentions to seek help ($F(6, 110) = 11.20$, $p < .001$). Intention was primarily a function of instrumental attitude ($\beta = .42$, $p < .001$) and, to a lesser extent, descriptive norms ($\beta = .20$, $p = .016$) (see Table 2).

Influencing Help-Seeking Intentions Next, a moderated hierarchical regression analysis tested whether depression moderated the effects of each reasoned action variable (attitudes, social norms, and control) on intention to see help. Sex (female = 1, male = 0) was entered into the regression model at step 1, the centered depression variable at step 2, the centered reasoned action variables at step 3, and the interaction terms of the centered depression and reasoned action variables at step 4. For intentions to seek help, substantive variance was explained by including the interaction terms of the centered depression and reasoned action variables in the regression model. Thus, depression influenced the strength of associations between determinants of help-seeking and help-seeking intentions (R^2 change = .080, $F(6, 102) = 2.94$, $p = .011$).

Influencing Determinants of Help-Seeking Intentions

Analyses sought to clarify whether depression and exposure to risk-based messages influenced each of the reasoned action variables and thus the determinants of help-seeking. Seven linear regression analyses showed that this was not the case—message exposure did not affect any of the reasoned action variables.

The influence of depression and risk-based messaging on help-seeking determinants was investigated next. A moderated hierarchical regression analysis was conducted for each of the seven reasoned action variables with sex (female = 1, male = 0) at step 1, the two dummy variables that represented the moderate and high-risk message conditions (Aiken and West 1991) and depression at step 2, and the interaction terms for the moderate and high-risk message conditions and the centered depression variable at step 3. None of these analyses showed an increase in explained variance by adding the interaction terms for intentions, attitudes, social norms, and control, indicating that the influence of depression on help-seeking determinants did not depend on which risk-based message participants saw.

Influencing the Nature of Help-Seeking The aims of this study were not only to test whether participants would express intentions to seek help but also to identify specific sources of help-seeking. In order to test where participants would turn for help, several linear regression analyses with depression as independent variable and the likelihood of seeking help from a variety of sources as dependent variables were conducted. Higher scores on depression made it *less* likely that help

would be sought from parents ($\beta = -.38$, $p < .001$), other family members ($\beta = -.37$, $p < .001$), ministers or religious leaders ($\beta = -.25$, $p = .006$), mental health professionals ($\beta = -.37$, $p < .001$), and doctors or general practitioners ($\beta = -.26$, $p = .005$). Depression was positively associated only with “I would not seek help from anyone” ($\beta = .37$, $p < .001$). Subsequently, potential non-linear differences in intentions to seek help from these sources at different stages of depression were tested according to recommendations put forth by Lueck (2018). According to clinical recommendations and sample characteristics, depression scores were categorized into “minimal depression” ($n = 50$) and “mild to severe depression” ($n = 67$) in order to predict intentions to seek help from various sources vis-à-vis GLM analyses. There were differences between those who showed minimal and those who showed mild to severe symptoms of depression in intentions to seek help from parents ($F(1, 115) = 7.80$, $p = .006$), mental health professionals ($F(1, 115) = 12.09$, $p = .001$), ministers or religious leaders ($F(1, 115) = 4.13$, $p = .04$), and not wanting to seek help from anyone ($F(1, 115) = 16.46$, $p < .001$). Those with mild to severe depression were least likely to seek help from a help-line ($M = 2.67$, $SD = 1.74$) and most likely to seek help from an intimate partner ($M = 5.45$, $SD = 1.69$) (see Table 3).

Influencing Self-Stigma of Seeking Help Conceivably, intentions to seek help are strongly influenced by how stigmatized participants perceive this behavior to be. Analyses served to test whether depression and exposure to risk-based messaging would impact such stigma perceptions. In order to explore this question, a moderated hierarchical regression analysis was conducted to test whether depression and risk-based messages interacted to influence self-stigma of seeking help. Sex (female = 1, male = 0) was entered at step 1, two dummy variables that represented the moderate and high-risk message conditions (Aiken and West 1991) and depression at step 2, and the interaction terms for the dummy-coded moderate and high-risk message conditions and the centered depression variable at step 3. Whereas the model was significant at step 2 (R^2 change = .23, $F(3, 112) = 11.48$, $p < .001$), the interaction term did not add a significant portion of the variance to the model (R^2 change = .21, $F(2, 110) = .64$, $p = .531$). Therefore, the more severe the depression, the stronger the self-stigma of seeking help ($\beta = .45$, $p < .001$), regardless of exposure to risk-based messages.

Discussion

This study sought to explore the effects of fear appeals in the suicide prevention context. Whereas theoretically sound, clinical characteristics of depression such as the predisposition to over-emphasize negative and risk-based information were

hypothesized to render fear appeals ineffective, or worse, counterproductive. Furthermore, the present research tested the determinants of intentions to seek help and specific sources of help-seeking in order to inform more relevant help-seeking and suicide prevention messages.

Findings revealed that risk-based messaging such as the use of fear appeals neither positively nor negatively influenced depressed individual's intentions to seek help and were thus ineffective in this study. Whereas recent evidence has highlighted potential unintended negative effects of help-seeking messages particularly in regard to *what* is said (Klimes-Dougan et al. 2009; Lienemann et al. 2013), the current findings are more in line with research that has shown a lack of effects in regard to *how* it is said (Lueck 2018; Lueck and Yzer 2017). The question thus remains – why and under what specific conditions are the clinical characteristics of depression inadvertently activated through either message content or design? A lack of negative message effects in the context of suicide prevention might lend itself to a “no news is good news” interpretation of findings, but future research must continue to test empirical indicators of (in-)effective health messaging in this population in order to inform practical guidance for interventions.

Only few studies have produced findings that point to the effectiveness of inducing positive, rather than negative, emotions among depressed individuals in order to promote help-seeking. For example, Siegel and Thomson (2017) asked depressed individuals to write about a positive experience prior to message exposure, which had a positive but short-lived effect on intentions to seek help. The same result was not found when seeking to induce feelings of gratitude—such emotions once again backfired, perhaps because of clinical symptoms that simultaneously activated feelings of guilt among individuals affected by depression (Siegel and Thomson 2017). Similarly, studies in both psychology and health communication have produced consistent findings on the negativity bias among depressed individuals, which induces an increased focus on negative and a decreased focus on positive stimuli (Lueck 2017; Wisco 2009).

If risk-based messaging with strong fear appeals, however, does not activate stigma perceptions and other negative cognitive biases over and above clinical influences, there might be an opportunity to explore potential matching or congruency effects in this context. For example, using risk-based messaging tactics that match depression's dominant cognitive style might benefit, rather than hurt, health promotion efforts in the suicide prevention context. Whereas ethical considerations might lead to the avoidance of these tactics, recent research has found that it is the largely neutral or positive, not negative and risk-based, messaging that had adverse effects on those suffering from depression (Klimes-Dougan et al. 2009; Lienemann et al. 2013). Matching effects have been found in the psychology literature but mostly for longer exposure

times that induce interpretational biases at later processing stages (Wisco 2009). Depressed individuals have shown better memory for negative than positive information and tend to focus more on health information that is placed into a negative context, which could have implications for long-term customized messaging campaigns targeting those with depression (Lueck 2017; Wisco 2009). Still, it remains unclear whether such findings can generally be applied to smaller windows of time in which individuals choose to pay attention to health messages (Stephenson et al. 2011).

Consistent with previous research, the current study shows that the most important determinants of help-seeking for depression are outcome expectations and social norms (Lueck 2017; Lueck and Yzer 2017). Since outcome expectations were largely positive, health messages should seek to activate or remind depressed individuals of the positive outcomes of help-seeking. Perceptions of social norms were largely accurate, that is, important others rarely seek help themselves. Interventionists should thus not attempt to change those beliefs in order to avoid potential unintended negative effects as shown in previous research (Klimes-Dougan et al. 2009) and indicated in theoretical models (Fishbein and Ajzen 2010). The current study revealed that some depressed individuals hold stigmatized beliefs regarding professional help-seeking (Corrigan et al. 2012; Lienemann et al. 2013), which may lead individuals to seek help from friends and intimate partners rather than health professionals. It is for this reason that researchers should continue to investigate the benefits of targeting the depressed individual's close others for mental health education and promotion directly (Lienemann and Siegel 2015). Interestingly, help-lines seem to be particularly unpopular among those who suffer from depression, which should be investigated further, particularly in the context of newer technologies.

Limitations

Given the difficulty of recruiting non-clinical samples affected by clinical symptoms of depression, the current sample (i.e., those who experienced depression symptoms and volunteered to participate in this study in exchange for a \$25 gift card) might qualitatively differ from those individuals in the general population who experience symptoms of depression but do not seek help. Furthermore, it cannot be ruled out that interactions between research staff and participants induced social desirability bias in the context of self-reported clinical depression symptoms. Although problematic for statistical power, a skewed variance in depression was expected in a non-clinical sample of individuals that had not (yet) sought help. Resources permitting, a larger sample size would have also been preferable in regard to the size of the study population (20,051). The presented conclusions would have benefitted

from the inclusion of multiple messages in the experimental design. Aware of these limitations, this study presents potential avenues for important research questions and provides opportunities to replicate and expand on the research findings.

Conclusions

Rather than inducing risk perceptions, suicide prevention messages should activate the already positive outcome expectations of help-seeking in order to motivate depressed individuals to seek help. Given existing perceptions of support, but lack of perceived help-seeking among peers, addressing social norms in suicide prevention messages is not recommended on the basis of avoiding unintended negative effects. Close others appear to be preferred sources for help-seeking behavior rather than health professionals or help-lines, which lends itself for further explorations of promising target audiences of health messaging. Future research should also investigate other sources of help-seeking, such as emerging technologies (e.g., telehealth).

Compliance with Ethical Standards

Conflict of Interest The author declares that there is no conflict of interest. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendment or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression. Testing and interpreting interactions*. Newbury Park: Sage.
- Ashby, F. G., Isen, A. M., & Turken, A. U. (1999). A neuropsychological theory of positive affect and its influence on cognition. *Psychological Review*, *106*(3), 529–550 <http://www.ncbi.nlm.nih.gov/pubmed/10467897>.
- Barney, L. J., Griffiths, K. M., Jorm, A. F., & Christensen, H. (2006). Stigma about depression and its impact on help-seeking intentions. *Australian and New Zealand Journal of Psychiatry*, *40*, 51–54. <https://doi.org/10.1111/j.1440-1614.2006.01741.x>.
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: Meridian.
- Brody, D. J., Pratt, L. A., & Hughes, J. (2018). *Prevalence of depression among adults aged 20 and over: United States, 2013–2016. NCHS Data Brief, no 303*. Hyattsville: National Center for Health Statistics.
- Brown, G. K., Beck, A. T., Steer, R. A., & Grisham, J. R. (2000). Risk factors for suicide in psychiatric outpatients: A 20-year prospective study. *Journal of Consulting and Clinical Psychology*, *68*(3), 371–377. <https://doi.org/10.1037/0022-006X.68.3.371>.
- Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., et al. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine*, *45*(1), 11–27. <https://doi.org/10.1017/S0033291714000129>.
- Cohen, J. (1977). *Statistical power analysis for the behavioral sciences* (rev. ed.). Hillsdale: Lawrence Erlbaum Associates, Inc.
- Corrigan, P. W., Morris, S. B., Michaels, P. J., Rafacz, J. D., & Rüsch, N. (2012). Challenging the public stigma of mental illness: A meta-analysis of outcome studies. *Psychiatric Services*, *63*(10), 963–973. <https://doi.org/10.1176/appi.ps.201100529>.
- Covin, R., Dozois, D. J. A., Ogniewicz, A., & Seeds, P. M. (2011). Measuring cognitive errors: Initial development of the cognitive distortions scale (CDS). *International Journal of Cognitive Therapy*, *4*(3), 297–322. <https://doi.org/10.1521/ijct.2011.4.3.297>.
- Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior Research Methods, Instruments, & Computers*, *28*(1), 1–11. <https://doi.org/10.3758/BF03203630>.
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York: Psychology Press.
- Hammond, D. (2011). Health warning messages on tobacco products: A review. *Tobacco Control*, *20*(5), 327–337. <https://doi.org/10.1136/tc.2010.037630>.
- Jones, S. C., & Owen, N. (2006). Using fear appeals to promote cancer screening—Are we scaring the wrong people? *International Journal of Nonprofit and Voluntary Sector Marketing*, *11*(2), 93–103. <https://doi.org/10.1002/nvsm.48>.
- Klimes-Dougan, B., Klingbeil, D. A., & Meller, S. J. (2013). The impact of universal suicide-prevention programs on the help-seeking attitudes and behaviors of youths. *Crisis*, *34*, 82–97. <https://doi.org/10.1027/0227-5910/a000178>.
- Klimes-Dougan, B., Yuan, C., Lee, S., & Houry, A. K. (2009). Suicide prevention with adolescents: Considering potential benefits and untoward effects of public service announcements. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, *30*(3), 128–135. <https://doi.org/10.1027/0227-5910.30.3.128>.
- Korn, C. W., Sharot, T., Walter, H., Heekeren, H. R., & Dolan, R. J. (2014). Depression is related to an absence of optimistically biased belief updating about future life events. *Psychological Medicine*, *44*(3), 579–592. <https://doi.org/10.1017/S0033291713001074>.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The Patient Health Questionnaire-2: Validity of a two-item depression screener. *Medical Care*, *41*, 1284–1292.
- Lawson, C., MacLeod, C., & Hammond, G. (2002). Interpretation revealed in the blink of an eye: Depressive bias in the resolution of ambiguity. *Journal of Abnormal Psychology*. <https://doi.org/10.1037/0021-843X.111.2.321>.
- Lienemann, B. a., & Siegel, J. T. (2015). State psychological reactance to depression public service announcements among people with varying levels of depressive symptomatology. *Health Communication*, *23*6(September), 1–15. <https://doi.org/10.1080/10410236.2014.940668>.
- Lienemann, B. a., Siegel, J. T., & Crano, W. D. (2013). Persuading people with depression to seek help: Respect the boomerang. *Health Communication*, *28*(7), 718–728. <https://doi.org/10.1080/10410236.2012.712091>.
- Lueck, J. A. (2017). Examining determinants of seeking help for depression: Implications for effective health promotion messages. *Journal of Communication in Healthcare*, 1–11. <https://doi.org/10.1080/17538068.2017.1417957>.

- Lueck, J. A. (2018). Respecting the “stages” of depression: Considering depression severity and readiness to seek help. *Patient Education and Counseling*. <https://doi.org/10.1016/j.pec.2018.02.007>.
- Lueck, J., & Yzer, M. (2017). Explaining intentions to seek help for depressive symptoms in the context of responsibility message framing. *Health Communication*, 1–8. <https://doi.org/10.1080/10410236.2017.1322857>.
- Mezulis, A. H., Abramson, L. Y., Hyde, J. S., & Hankin, B. L. (2004). Is there a universal positivity Bias in attributions? A meta-analytic review of individual, developmental, and cultural differences in the self-serving attributional bias. *Psychological Bulletin*, 130(5), 711–747. <https://doi.org/10.1037/0033-2909.130.5.711>.
- Mojtabai, R., Olfson, M., Sampson, N. a., Jin, R., Druss, B., Wang, P. S., et al. (2011). Barriers to mental health treatment: Results from the National Comorbidity Survey Replication. *Psychological Medicine*, 41(8), 1751–1761. <https://doi.org/10.1017/S0033291710002291>.
- Mongeau, P. A. (2013). Fear appeals. In J. P. Dillard, & L. Shen (Eds.), *The Sage Handbook of Persuasion* (2nd edn., pp. 184–199). New York: Routledge.
- Peters, G.-J. Y., Ruiter, R. A. C., & Kok, G. (2014). Threatening communication: A qualitative study of fear appeal effectiveness beliefs among intervention developers, policymakers, politicians, scientists, and advertising professionals. *International Journal of Psychology*, 49(2), 71–79. <https://doi.org/10.1002/ijop.12000>.
- Pratt, L.A., & Brody, D. J. (2014). Depression in the U.S. household population, 2009–2012. *NCHS Data Brief*, 172, 1–8. PMID: 25470183.
- Rothman, A. J., Bartels, R. D., Wlaschin, J., & Salovey, P. (2006). The strategic use of gain- and loss-framed messages to promote healthy behavior: How theory can inform practice. *Journal of Communication*, 56, S202–S220. <https://doi.org/10.1111/j.1460-2466.2006.00290.x>.
- Ruiter, R. A. C., Abraham, C., & Kok, G. (2001). Scary warnings and rational precautions: A review of the psychology of fear appeals. *Psychology & Health*, 16(6), 613–630. <https://doi.org/10.1080/08870440108405863>.
- Ruiter, R. A. C., Kessels, L. T. E., Peters, G. J. Y., & Kok, G. (2014). Sixty years of fear appeal research: Current state of the evidence. *International Journal of Psychology*, 49(2), 63–70. <https://doi.org/10.1002/ijop.12042>.
- Sareen, J., Cox, B. J., Afifi, T. O., de Graaf, R., Asmundson, G. J. G., ten Have, M., & Stein, M. B. (2005). Anxiety disorders and risk for suicidal ideation and suicide attempts. *Archives of General Psychiatry*, 62, 1249.
- Sheeran, P., Harris, P. R., & Epton, T. (2014). Does heightening risk appraisals change people’s intentions and behavior? A meta-analysis of experimental studies. *Psychological Bulletin*, 140(2), 511–543. <https://doi.org/10.1037/a0033065>.
- Siegel, J. T., Lienemann, B. A., & Rosenberg, B. D. (2017). Resistance, reactance, and misinterpretation: Highlighting the challenge of persuading people with depression to seek help. *Social and Personality Psychology Compass*, 11(6), 1–15. <https://doi.org/10.1111/spc3.12322>.
- Siegel, J. T., Lienemann, B. a., & Tan, C. N. (2015). Influencing help-seeking among people with elevated depressive symptomatology: Mistargeting as a persuasive technique. *Clinical Psychological Science*, 3(2), 242–255. <https://doi.org/10.1177/2167702614542846>.
- Siegel, J. T., & Thomson, A. L. (2017). Positive emotion infusions of elevation and gratitude: Increasing help-seeking intentions among people with heightened levels of depressive symptomatology. *The Journal of Positive Psychology*, 12(6), 509–524. <https://doi.org/10.1080/17439760.2016.1221125>.
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092–1097. Retrieved from <https://doi.org/10.1001/archinte.166.10.1092>.
- Stephenson, M., Southwell, B., & Yzer, M. (2011). Advancing health communication research: Issues and controversies in research design and analysis. In T. L. Thompson, R. Parrott, & J. F. Nussbaum (Eds.), *The Routledge Handbook of Health Communication* (2nd edn., pp. 560–577). New York: Routledge.
- Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of Counseling Psychology*. <https://doi.org/10.1037/0022-0167.53.3.325>.
- Wisco, B. E. (2009). Depressive cognition: Self-reference and depth of processing. *Clinical Psychology Review*, 29(4), 382–392. <https://doi.org/10.1016/j.cpr.2009.03.003>.
- Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communication Monographs*, 59(4), 329–349. <https://doi.org/10.1080/03637759209376276>.
- Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. *Health Education & Behavior: The Official Publication of the Society for Public Health Education*, 27(5), 591–615. <https://doi.org/10.1177/109019810002700506>.