

Data charting

Mental well-being outcome (RQ1)

* Studies highlighted in green are answering both RQs.

Study number	Authors, year, country	Aims / purpose	Study population and sample size	Mental well-being predictor variable and measurement (if applicable)	Design of the study	Topic and objective of the messages	Procedure
3	Sontag, 2018, <i>US</i> .	The aim of this study is to assess visual frames (suffering, treatment, recovery) used in depression messages that encourage help-seeking behavior to determine which frames may be most effective in encouraging help-seeking behavior. Also, it explores how affective reactions elicited by visual frames mediate the relationship between the visual frame and the likelihood of help-seeking behavior.	Adult (18+) undergraduate students (76.6% females) ($N = 488$).	/	Experimental design (between subjects).	Depression help-seeking. The aim of the messages was to persuade viewers of healthy behavior to improve mental health. The provided context was depression help-seeking.	Participants were randomly assigned to one of the three visual frame conditions (suffering, treatment and recovery) related to depression help-seeking. Each of the conditions included 3 photos representative of the frame. After that, they were presented with three persuasive texts (in random order) that would encourage help-seeking behavior and informed about symptoms, risks, and how to seek help on campus. These were kept constant across conditions but varied in order. Afterwards they were asked to answer questions about dependent variables and demographics.
6	Clayton & Leshner, 2015, <i>US</i> .	The aim was to investigate how rotoscope animation (a type of animation where real actors' footage in animated over to create realistically looking cartoon characters) affects cognitive and emotional processing of depression drug ads.	Adult (18+) undergraduate students (66% females) ($N = 100$).	/	2(animation: absent/present) x 2(position of tone: first/second) x 4(message repetition) experimental design with animation being a between-subjects factor and position of tone and message repetition being within subject factors.	Depression drug advertisements. The aim of the messages was to promote intake of depression drugs.	Participants were randomly assigned to one of the two conditions (animated or not animated videos). They were then presented with the four, either animated or not, advertisements promoting depression drugs. The commercials were selected from YouTube and edited so that they were either animated or not. Participants were then asked to press Enter key at the moment they heard an audio tone in the commercial. Following each message, arousal and valence was measured after which a distractor video was shown in order to clear short term memory and minimize potential lingering effects of video exposure to emotions. Finally,

							participants completed an audio recognition task.
8	Piltch-Loeb et al., 2021, <i>US</i> .	The aim of this study was to understand the factors associated with mental health consequences during the Covid-19 pandemic in US.	Online panel (SSRS Opinion panel) adult (18+) ($N = 1001$).	/	Survey design.	Covid-19. No specific aim of the messages was disclosed. Any messages that provide information on COVID-19 were considered.	The survey was part of a broader measurement during the Covid-19 pandemic, a nationally representative web panel weighted to adult population (SSRS Opinion Panel). Participants answered questions about their anticipated mental health effects, personal and contextual experience with the virus, source and frequency of engagement with media coverage, current economic loss, and similar.
9	Suka et al., 2018, <i>Japan</i> .	The aim of this study was to examine the relationship between framing and formatting and persuasive message effectiveness in the context of depression help-seeking messages. Additionally, the authors aimed to determine whether the effectiveness of depression help-seeking messages is influenced by audience's depressive status.	Japanese adults (35 - 45 years old) ($N = 1957$ for the initial survey and 1805 for the follow-up survey). Those who had an experience of receiving treatment for their mental illness were excluded.	At sampling level and measured. The sample was taken from the population that has been shown to be more frequently feeling distressed or stressed than other groups with the aim to reach those individuals. Depression was measured with the Japanese version of the six-item Kessler Psychological Distress Scale (K6). However, results were not reported in respect to the level of depression.	Experimental design: 3(frames: neutral vs. loss vs. gain) x 2(formats: formatted vs. unformatted) factorial design.	Depression help-seeking messages. The aim of the messages was to increase depression help seeking intentions.	Participants in the initial questionnaire were randomly assigned to one of the 6 experimental conditions. They viewed the message for at least 15 seconds and then rated it on the basis of comprehensibility, persuasiveness, emotional responses, design quality and intended future use. Help-seeking intention was measured with vignette methodology before and after exposure. In the follow up survey after two months, participants answered an additional set of questions about help-seeking intention for depression and help-seeking for their own mental health.
13	Van der Meer & Jin, 2020, <i>US</i> .	The aim of this study was to identify corrective information strategies that can debunk misinformation in public health crises in the cognitive, affective, and behavioral fronts.	Adult (18+) sample obtained from a survey firm ($N = 700$).	/	A 2(correction type: simple rebuttal vs. factual rebuttal) x 3(source of the message: government health agency, news media, Facebook friend) factorial design.	Misinformation about public health crisis, corrective information. The aim of the messages was to correct misinformation in the context of a public health crisis and impact individuals' beliefs and behavioral intentions	First a fictional scenario was presented about an infectious disease outbreak. Then a misinformation article was presented. Participants were then randomly assigned to one of the six conditions, based on the type of corrective information shown and based on the source of the message that was intended to debunk the misinformation participants were exposed to at first. Participants watched the advertisement for at least 30 seconds. After exposure, the

						considering preventative actions.	dependent variables and manipulation checks were measured, followed by the measurements of demographic variables and debriefing.
15	Lueck, 2018a, <i>US</i> .	The aims of this study were to identify the determinants of help seeking among college students through the reasoned action framework, and to assess effectiveness of messages using loss vs. gain frame based on severity of depression of the recipients.	Adult (18 – 30 years old) undergraduate student sample ($N = 153$, 75.2% females).	Depression Measured with a Patient Health Questionnaire-9 (PhQ9). The measurement consists of 9 items. Participants indicate how often from “not at all” (0) to “nearly every day” (3), they had been bothered by specific depressive symptoms over the last two weeks. The sum indicates the severity of depression.	Single factor experimental design (gain vs. loss) x depression status (measured, but not clear how it was entered in analyses). Depression status was measured.	Depression help-seeking. The aim of the message is to promote help-seeking and motivate depressed college students to make an appointment with a health professional.	Participants were randomly assigned to one of the two experimental conditions based on the frame of the depression help-seeking message they would be exposed to. <i>The rest of the procedure is unclear.</i>
24	Nabi, 2016, <i>US</i>	Study 2 The aim was to examine the role of humor in reducing anxiety-evoking health detection behavior and encouraging such behavior. *Study 1 was not applicable.	Study 2 Adult undergraduate student sample ($N = 267$, 79% female).	/	Study 2 Single factor between-subjects experimental design: Humor (yes vs. no)	Study 2 Health detection behavior, humor, cancer The aim of the messages was to motivate people to perform self-exams for cancer detection and reduce anxiety about it.	Study 2 Respondents first completed a pretest with measures of cancer anxiety, response efficacy and self-efficacy, perceived severity and susceptibility to breast or testicular cancer, feelings when thinking about performing a self-exam, and perceived relevance and knowledge of breast and testicular cancer. They also filled in some personality trait measures. Then they were randomly assigned to either a humorous or non-humorous message regarding cancer detection behavior dependent on their gender. Females were encouraged to perform a breast self-examination (BSE) while men were asked to perform a testicular self-exam (TSE). Finally, dependent variables were measured as well as some demographic variables.
31	Boudewyns et al., 2013, <i>US</i>	The aim of this study was to see what cognitive and emotional outcomes can be attributed to exposure to shame and guilt appeals and	Adult (18 – 22 years), $N = 109$, 69% female.	/	Single factor experimental design (appeal: shame vs. guilt)	Sexually transmitted diseases (STDs). The aim of the messages was to	Participants were assigned to one of the two conditions based on the first letter of their last name. They viewed the PSAs about sexually transmitted diseases and answered

		what are the differences between the two.				promote getting tested for STD's.	dependent variable measures. The questionnaire took them approximately 30 minutes.
32	Borawska et al., 2020, <i>Poland</i>	The aim of this study was to examine whether increasing negative emotions in a social campaign plays a role in its effectiveness.	Adult (20 years – <i>upper age unknown</i>), <i>N</i> = 64.	/	Single factor between subjects experimental design (intensity of negative emotion: low, medium, high) * This might also be considered as a manipulation of severity of fear appeals.	Road safety The aim of the social campaign messages was to promote change in attitudes or behavior in the context of a road safety campaign.	Participants were first given an attention task and their psychophysiological baseline activity was measured. A reference image was used to ensure that participants are used to the task at hand. Then they were randomly assigned to see one of the three versions of the social advertisement that was displayed for 30 seconds. After that, dependent variable measures were taken.
33	Veljanova & Ciunova-Shuleska, 2019, <i>North Macedonia</i>	The aim of this study was to examine whether there are any differences in the impact of advertisements featuring varying levels of fear appeals on specific negative emotions.	Adult (18 years – <i>upper age unknown</i>), <i>N</i> = 100. Convenience sample.	/	Not clear. Likely experiment.	Road safety The aim of the messages was to promote road safety behaviors.	Participants were asked to fill in demographic variables and some measures about their driving habits. Procedure is unclear but at some point, they were shown two advertisements with varying fear levels (unclear whether it was between or within subjects design) and their emotional responses were measured.
35	Hall et al., 2018, <i>US</i>	The aim of these studies was to examine the psychological mechanisms that might lead to message avoidance of messages about smoking.	Study 1 Adult smokers (18 years – <i>upper age unknown</i>), <i>N</i> = 2149. Convenience sample. Study 2 Adult smokers (21 years – <i>upper age unknown</i>), <i>N</i> = 719. Convenience sample.	/	Study 1 Single factor between subject experimental design (warning type: pictorial vs. text only) Study 2 Single factor experimental design (label type: chemical message vs. litter message)	Studies 1 and 2 Smoking cessation Study 1 The aim of the messages was to inform about the negative consequences of smoking. Study 2 The aim of the messages was to inform about negative consequences of smoking for the smoker and the environment. The control condition (promoting	Study 1 At first visit, participants first completed a baseline survey. Participants were then randomly assigned to one of the conditions. They were supplied with cigarette packs according to their consumption. Either they received one of the four pictorial warnings on their own cigarette packs for four weeks on the top half of the front and back panels of the cigarette packs (intervention) or one of the four text-only warnings at the side of their cigarette packs (control). After exposure, they were given a computer survey as well. In the coming weeks, they were asked to fill in a survey at each weekly visit.

						environmental impact of smoking) also aimed to inform behaviors about littering cigarette butts.	Study 2 Participants visited the lab once every week for five weeks. At the first visit, they filled in a baseline survey. They were supplied with cigarette packs according to their consumption starting with Visit 2. At Visit 2, they were randomly assigned to receive either labels with chemical messages (intervention) or litter messages (control) on the sides of their cigarette packs. They received a new random label at each visit for a total of three new messages during the trial. During each of their visits they also filled in a survey.
36	Droulers et al., 2017, <i>France</i>	The aim of this study was to assess the effectiveness of threatening visual warnings on tobacco packs considering the emotional reactions. It also aimed to explore the role of the size of the warning in its effectiveness.	Adult smokers (19 years – 57 years), $N = 48$.	/	A 2(threat level of the threatening visual warning: moderate vs. high) x 2(image size: 40% vs. 75%) x 2(type of packaging: branded vs. plain) within-subjects factorial design.	Smoking cessation. The aim of the messages was to promote smoking cessation and inform about the consequences of smoking.	Participants first answered some demographic questions, after which they were fitted with EDA and fEMG signal collection device. They were then presented with 8 cigarette packs representing different conditions in a random order. They filled in a SAM scale to measure valence and arousal I emotional reactions after each exposure. Afterwards they filled in further measures about negative emotions and behavioral intention.
37	Lueck & Yzer, 2018, <i>US</i>	The aim of this study was to explore the role of health messages about depression referring to responsibility in the effectiveness of such messages, in light of the depressive symptoms of the participants.	Adult undergraduate students (18 years – 32 years), $N = 259$, 66.4% female.	Depression Measured with the Patient Health Questionnaire-9 (PHQ-9) that consists of nine items based on how often participants have been bothered by specific depressive symptoms over the last two weeks. Scores range from 0-27. At the present study the scale was considered as continuous – the greater the score, the greater the severity of depressive symptoms.	Single factor between subjects experimental design (message framing: low responsibility, absent responsibility, information only) Depression was measured as a continuous variable.	Depression help seeking. The aim of the messages was to promote help-seeking intentions for depression.	In this online experiment participants depression symptoms were first measured, after which they were exposed to one of the three messages about depression help seeking. <i>The rest is unclear.</i>

38	Suka et al., 2019, <i>Japan</i>	The aim of this study was to examine the role of psychological distress in processing of persuasive messages about depression with varying content characteristics.	Adults (35 – 45 years), (<i>N</i> = 1957). Excluded were those who had received medical treatment for their mental disorders before and medical professionals.	Psychological distress Measured with the Japanese version of the K6 scale (Kessler Psychological Distress Scale). Those scoring below 5 were considered non-distressed and those scoring above or equal to 5 were considered distressed.	A cross-sectional web-based survey A 3 (frame: neutral vs. loss vs. gain) x 2 (distress: distressed vs. non-distressed) factorial between subjects design	Depression help seeking. The aim of the message it to promote help-seeking intentions for depression.	Participants help-seeking intention for depression was measured. Participants randomly received one of the three persuasive messages and observed the message for 15 seconds. Afterwards dependent variable measures were taken.
Study number	Authors, year, country	Aims / purpose	Study population and sample size	Mental well-being predictor variable and measurement (if applicable)	Design of the study	Topic of the messages	Procedure

Study number	Independent variable related to review question	Outcome measures related to review question	Key findings related to review question
3	Depression visual frame condition: suffering vs. treatment vs. recovery.	Emotions <i>Positive affective reactions</i> (happy, hopeful, encouraged, proud, confident, peaceful, optimistic). <i>Negative affective reactions</i> (sad, hopeless, discouraged, ashamed, guilty, worried, fearful) on a 7-point Likert scale from not at all (1) to extremely (7). Emotion ratings were averaged to represent an overall positive and negative emotion score. Perceived behavioral attainment Viewers perceptions of whether they can achieve the same behavior portrayed by the models. Three statements from strongly disagree (1) to strongly agree (100).	Positive emotion Recovery and treatment visual frames elicited significantly greater positive emotion than suffering frames. <i>Suffering visual frames</i> There was a significant negative association between suffering visual frames and positive emotion. <i>Treatment visual frames</i> Treatment visual frames were not significantly associated with positive emotion. <i>Recovery visual frame</i> There is a significant positive association between recovery frame and positive emotions. Negative emotion Suffering visual frames elicited significantly greater negative emotion than treatment and recovery visual frames. <i>Suffering visual frames</i> There was a significant positive association between suffering frames and negative emotion. <i>Treatment visual frames</i> Treatment visual frames were positively associated with negative emotion. <i>Recovery visual frame</i> There is a significant negative association between recovery frame and negative emotion. Behavioral attainment No significant main effect for visual frame was found on behavioral attainment.

6	<p>Animation (absent/present) vs. position of tone (first/second) vs. message repetition.</p> <p>Animation is a between subjects factor, while position of tone and message repetition are within subjects factors.</p> <p>The animated messages were edited with Adobe's after effect CS6 software to gain a cartoon-like look.</p> <p><i>It is unclear how position of tone was manipulated.</i></p>	<p>Aversive activation Measured through an underlying dimension of negative emotional responses, by answering how "unpleasant" each message made participants feel on a 9-point Likert scale ranging from "not at all" (1), to "extremely" (9).</p> <p>Appetitive activation Measured through an underlying dimension of positive emotional responses, by answering how "pleasant" each message made them feel on a 9-point Liker scale ranging from "not at all" (1), to "extremely" (9).</p> <p>Intensity of motivation activation Measured by level of arousal after each message on a 9-point Likert scale ranging from "not at all" (1), to "extremely" (9).</p>	<p>Aversive activation Animated messages were rated as more unpleasant (aversive activation) than unanimated messages.</p> <p>Appetitive activation Unanimated messages were rated as more pleasant (appetitive activation) than unanimated messages.</p> <p>Intensity of motivation No significant differences were found between animated and unanimated conditions based on the intensity of motivation activation (arousal).</p>
8	<p>Source Measured with a single question: "What is your primary source of information on Coronavirus?" Categories provided: News media in print/online, television, Twitter/Facebook/Word of mouth, Other.</p> <p>Frequency of engagement with media coverage: A dichotomous variable operationalized as one or fewer hours or two or more hours.</p>	<p>Anticipated emotional or psychological effects: A dichotomous variable (yes/no). Question: "If social distancing policies like school and work closures continue through the summer, what do you think the long-term consequences will be for your household? There will be significant emotional or psychological effects on you or members of your household."</p>	<p>Most participants reported receiving Covid-19 related news via television (46%) or news media in print or online (33%), 12% reported obtaining information on Twitter, Facebook or through Word of mouth.</p> <p>In terms of the frequency of exposure to Covid-19 news, 53% of the participant said that they consumed two or more hours of exposure to coronavirus news daily.</p> <p>Anticipated emotional or psychological effects Those who reported following coronavirus related information primarily through news media in print or online, Twitter/Facebook, or other sources like the radio, had a higher proportion of anticipated mental health effects (49%), than those who primarily used television. Those who followed information about coronavirus on television, were approximately 50% less likely to report anticipating mental health consequences than those who followed information on print or online news media. Those who spend two or more hours following Covid-19 news, were 90% more likely to anticipate mental health challenges than those who followed them one hour a day or less.</p>
9	<p>Frame (neutral vs. loss vs. gain) AND format (formatted vs. unformatted). The messages</p>	<p>Emotional responses Measured on a 5-point scale, the extent to which</p>	<p>Emotional responses Significant frame effects were observed for emotional responses. Namely, the loss-framed message more strongly induced negative emotions (surprise, fear, sadness, and anxiety) and the gain-framed messages positive emotion (happiness).</p>

	<p>promoting depression help-seeking were designed as print advertisements.</p> <p>Formatting was manipulated by having formatted versions be visual and unformatted plain (text-only) without any colors or visuals.</p> <p>Neutral vs. loss vs. gain condition was manipulated by additional information about incidence of depression (neutral), included threat appeal (loss) or benefit appeal (gain).</p>	<p>participants felt surprise, anger, fear, sadness, guilt, anxiety and happiness after exposure to the message respectively.</p>	<p>There was a significant frame x format interaction on “anxiety” and “happiness”. Loss-framed and gain-framed messages showed significant enhancements in emotional responses over neutral-framed messages for formatted messages.</p>
13	<p>Corrective information type: simple rebuttal vs. factual rebuttal. Simple rebuttal condition included simple and brief corrective information in bullet points, that were mainly negating what was shared with the participant before. In the factual rebuttal condition, participants were exposed to more detailed information about why virus is a severe threat. The bullet points from simple rebuttal condition were accompanied with broader explanations and statistics. Preventive actions were suggested in both conditions.</p> <p>Source of the message: a government health agency (CDC, Centers for Disease Control and Prevention), news media (Reuters), or a social peer (Facebook friend). Headers of information were manipulated as to reflect the desired sources and for the condition of Facebook friend, a social networking environment was simulated.</p>	<p>Crisis emotions Participants indicated to which extent they experienced emotions of hope (feeling optimistic, encouraged, and hopeful), fear (feeling afraid, scared, fearful), anxious (feeling nervous, anxious, worried) and confused (feeling confused, perplexed, bewildered) after reading about the disease.</p>	<p>Participants reported feeling more hope and less fear, anxiety, and confusion, when exposed only to misinformation, as opposed to when they also saw corrective information.</p> <p>Crisis emotions</p> <p>Type of corrective information In terms of the type of corrective information, participants exposed to simple rebuttal corrective information reported feeling less anxiety and fear, when compared to those exposed to factual rebuttal information. For other emotions (hope and confusion), there were no differences between the conditions.</p> <p>Source of the message In terms of the source of the message, participants felt more anxious when exposed to rebuttal messages from the governmental health agency, and news media, as opposed to when they were exposed to corrective information by a social peer. No significant differences were observed for the other crisis emotions.</p>
15	<p>Frame: gain vs. loss frame. Gain frame emphasized the benefits of seeking help, was presented in a more positive tone (for instance, the models were smiling) and had a</p>	<p>Determinants of help-seeking <i>Perceived capacity</i> Measured on 7-point Likert scales ranging from</p>	<p>Effect of framing on determinants of help seeking Gain and loss-framing did not affect any of the determinants of help-seeking in this sample. Intentions to seek help were not attributable to the influence of message framing on the determinants of help-seeking.</p>

	<p>headline promoting help-seeking. The loss frame emphasized the problems of not seeking help, featured models with negative facial expressions and included a headline that emphasized the negative consequences of not seeking help.</p>	<p>“completely sure I cannot” (1) to “completely sure I can” (7). The question asked them how sure they are in reaching out to a campus professional in case they experience depressive symptoms in the next 2 months, regardless of the obstacles standing in their way.</p> <p>Perceived autonomy Two semantic differential scales were used to measure how autonomous participants feel in their decision to see a professional in the next two months if they experience depressive symptoms. The word pairs were “not under my control/under my control” and “not up to me/up to me”. The results from both scales were averaged in a single perceived autonomy score.</p>	
24	<p>sssss: yes vs. no. Participants were either presented with a humorous PSA urging them to perform cancer detective behavior (breast self-exam for women and testicular self-check for men). The humorous variant was pre-tested to be perceived as funny. In the non-humorous condition participants were presented with the same format and informational value of the message, but without the humorous appeal.</p>	<p>Anxiety when thinking about self-exam performance Measured with four 7-point Likert scales. Participants were asked how tense, nervous, anxious and uncomfortable they felt during the exposure.</p>	<p>Anxiety when thinking about self-exam performance Those exposed to humorous messages experienced less self-exam anxiety than those exposed to non-humorous messages.</p>
31	<p>Appeal: shame vs. guilt: Two STD PSAs were created that communicated either shame or guilt. The PSAs were targeting getting tested for STDs and were identical in content, length and</p>	<p>Felt shame Measured on 8-point scales ranging from 0 (not feeling this way at all) to 8 (feeling this way strongly). Example of an item: “I want to sink</p>	<p>Shame Those exposed to shame appeals experienced more shame than those exposed to guilt appeals.</p> <p>Anger Those exposed to shame appeals experienced more anger than those exposed to guilt appeals.</p>

	format, but used different adjectives and focused either on behavior or person, as to elicit emotions of guilt vs. shame.	into the floor and disappear.” Felt anger Measured with 2 items on 8-point scales ranging from 0 (not feeling this way at all) to 8 (feeling this way strongly). Example of an item: “I feel angry.”	
32	Intensity of negative emotions (low, medium, high): Road safety photo material was manipulated by adding explicit and distressing elements to the photos. For instance, the first photo of a car crash did not include any victims, the second photo included victims and the third included bloodied victims.	Emotional response (anger, wrath, torment, disgust, sadness, fear, terror). Measured with 7-point Likert scales. Participants were asked to what extent they feel the following emotion respectively. A negative emotion index was then created by averaging responses together.	Participants in the high emotional intensity condition felt more negative emotions than those in the low intensity condition, but similar to those in medium intensity condition. There was no difference between negative emotions for those exposed to low vs. medium emotional condition.
33	Intensity of fear: Both advertisements were about road safety. The lower fear advertisement was not explicit and the people portrayed avoided an accident by a bit, whereas in the high fear condition, the advertisement portrayed destructive consequences of a car accident. It is not clear whether these were videos or photos.	Emotional responses (anxiety, sadness, fear, anger, guilt and depression). Measured with 6-point scales ranging from 1 (the lowest degree of consent) to 5 (the highest degree of consent).	Exposure to the higher fear condition led to higher scores of sadness, guilt, anger, fear, and depression. There were no differences between anxiety levels for those exposed to high or low fear condition.
35	Study 1 Warning type: pictorial vs. text only. Cigarette packs were modified so that they included one of the four possible pictorial depictions of consequences of smoking or one out of the four possible textual warnings about the consequences of smoking. Study 2 Label type: chemical message vs. litter message. Cigarette packs were modified so that they	Study 1 Negative affect Measured as a single latent factor based on experience of several emotions (anxious, disgusted, guilty, sad, scared) in relation to exposure to the cigarette packs. Study 2 Negative affect Measured as a single latent factor based on experience	Study 1 Those exposed to the pictorial messages exhibited higher negative affect than those exposed to text only messages. This was in turn associated with greater avoidance. Intervention messages also increased message reactance. Study 2 Those exposed to the chemical messages exhibited higher negative affect than those exposed to littering messages. This was in turn associated with greater avoidance. Intervention messages did not change message reactance in Trial 2.

	<p>included one of the three labels that emphasized consequences of smoking that specifically concerned the chemical ingredients in cigarettes and their impact on smokers' health or one of the three labels that specifically concerned littering of cigarette butts and urged people not to litter.</p>	<p>of several emotions (anxious, disgusted, guilty, sad, scared) in relation to exposure to the cigarette packs.</p>	
36	<p>Threat level of the threatening visual warning: moderate vs. high: The highly threatening visual warning for instance included a close up of a foot with gangrene or a tongue with cancer, whereas a moderately threatening visual warning for instance included a wide-angle shot with the face of a man with a hole in the throat or a man who had lost a leg, due to gangrene and was therefore sitting in a wheelchair.</p> <p>Image size: 40% vs. 75% Those in the smaller image condition saw an image that covered 40% of the pack (the size of visual warnings in Europe before 2017), whereas the other covered 75% of the pack (the size used in Canada at the time of the study (2017)).</p> <p>Type of packaging: branded vs. plain The branded packs included the name of one of the three brands used in the experiment, whereas the plain pack did not include any branding, such as logos, colors, etc.</p>	<p>Negative emotions Measured with two questions about how afraid or disgusted the person felt when exposed to the message. Measured on a 5-point Likert-scale. An example of an item: "When you look at this pack of cigarettes, do you feel the following emotions? I am afraid." The two were averaged in a single value of negative emotions.</p> <p>Physiological negative emotions Measured through facial electromyography (fEMG).</p>	<p>Threat level of the threatening visual warning Fear and disgust were significantly higher for high than for moderate visual warnings. Both high and moderate warnings increased physiological negative emotions (fEMG), but that was stronger for highly threatening visual warnings than moderately threatening ones.</p> <p>Type of pack (branded vs. plain) + interaction The type of pack had no significant effect on emotional responses. There was no interaction between threat level and pack type.</p> <p>Threat level of the threatening visual warning + image size There was an interaction effect between threat level and image size on fear and disgust. The strongest negative emotions were evoked by the highly threatening message, regardless of the size. On the other hand, considering moderate visual warnings, the larger size led to stronger negative emotions (fear and disgust) than the smaller size. When image size was smaller (40%), varying threat level made no difference on physiological negative emotions (fEMG). However, when it was larger (75%), increasing the threat level amplified negative physiological emotional reactions (fEMG). Thus, combining a highly threatening and large image was most effective in negatively influencing physiological emotional reactions (fEMG).</p> <p>Threat level + type of packaging Increasing the threat level did not lead to significant differences in the level of physiological emotional arousal for branded packs, but it did lead to more negative arousal for plain packs.</p>
37	<p>Message framing (low responsibility cues, absent responsibility cues, information only) The low responsibility message talked about depression in</p>	<p><i>Perceived behavioral control</i> Perceived capacity Measured on a 7-point scale. Participants were asked how capable they feel</p>	<p>Adding interactions between depression and reasoned action variables (attitudinal, normative and control perceptions) did not explain variance in the behavioral intention. Participants depression levels did not affect their response to the messages for any of the dependent variables.</p>

	<p>connection to responsibility of the person experiencing it, saying that the person is not to blame for experiencing depression. The absent responsibility message did not include any message about responsibility. Both messages urged participants to reach out for help if they experience any of the symptoms of depression. The information only message only informed participants about a mental health clinic and its offer.</p>	<p>of making an appointment if they needed one. Perceived autonomy Participants were asked on two semantic differential scales, how much control they feel over making an appointment if they needed one. Example of the anchors: “not under my control-under my control”. The two items were averaged together.</p>	
38	<p>Frame (neutral vs. loss vs. gain) Neutrally framed message (message 1) included general statistics about depression. The loss framed message (message 2) included threatening statistics about depression when it is untreated. The gain framed message (message 3) included benefit appeal, positively framed statistics about success of treatment for depression. All three messages included call to action.</p>	<p>Emotional response Measured on 5-point scales ranging from 1 (not at all) to 5 (extremely). Participants were asked to what extent the message made them feel sad, surprised, angry, fearful, guilty, anxious, and happy.</p>	<p>Emotional response Loss framed message elicited more negative emotional responses (such as surprise, anger, fear, sadness, guilt, and anxiety) and the gain condition more positive emotional responses (such as happiness) than the other two conditions (Emotional responses were stronger for distressed individuals.) Emotional responses of fear and guilt were associated with increased help-seeking intention.</p>
Study number	Independent variable related to review question	Outcome measures related to review question	Key findings related to review question

Mental well-being pre-exposure (RQ2)

Study number	Authors, year, country	Aims / purpose	Study population and sample size	Mental well-being predictor variable and measurement (if applicable)	Design of the study	Topic and objective of the messages	Procedure
1	Siegel et al., 2019, US.	This study explores whether mental health anti-stigma PSAs targeting the general public could have unintended negative effects for those suffering from depression by assessing the differences in their responses to differently framed mental health anti-stigma PSAs.	English speaking adult (18+) Amazon's mTurk users residing in US (N = 188).	Measured. Depressive symptomatology. Heightened (N = 55), without depressive symptomatology (N = 133). <i>Beck Depression Inventory-II (BDI-II)</i> : a measurement used for assessing depression.	Mixed design. An exploratory study (qualitative and quantitative measures), stimulus material shown. PSA content: friend vs. labelling PSA	Anti-mental health stigma PSAs. The aim of the messages was to reduce stigma related o mental illnesses.	Participants were shown both a <i>Friend PSA</i> (focusing on being supportive of friends with mental illness), AND a <i>Labelling PSA</i> (focusing on changing negative labels associated with mental illness). Both were in a form of a video of a similar tone, length and structure.
2	Yoon, 2018, US	Studies 1, 2 and 3 These three studies examine how humor interacts with shameful health issue advertising and what role does the extent of health worry (low vs. high) the recipient has have on the processing of the message.	Study 1 Adult (18+) Amazon's mTurk users that met demographic criteria (unclear which) (N = 166). Study 2 Adult (18+) Amazon's mTurk users that met demographic criteria (unclear which) (N = 167). Study 3 Adult (18+) Amazon's mTurk users that met demographic criteria (unclear which) (N = 165).	Studies 1, 2 and 3 Measured. Low vs. high health worry on a continuous level. Participants were asked to which extent (from not at all to very much) they are 1) worried about their health problems and 2) about getting sick. 7-point Likert scale was used.	Studies 1, 2 and 3 Experimental design: 2(humor: no vs. yes) x 2(shame: lower vs. higher) between-subjects factorial design.	Studies 1, 2 and 3 Shameful health issue PSAs. The aim of the message was to inform knowledge of shame-reducing health issue.	Study 1 Participants were randomly assigned to one of the 4 ad conditions of PSAs featuring an STD or HPV were used as stimuli. First, they answered questions about familiarity with the topic, then they were randomly assigned to either of the four conditions and then responded to manipulation checks, dependent variables, confound checks, health worry and demographic background. The higher shame PSA about HPV included sexually charged wording indicating that it is a sexually transmitted disease (STD), whereas the lower shame PSA about HPV used sexually neutral wording. Humor was manipulated by one of the conditions including a speech bubble containing incongruity-resolution humor. Study 2 Everything was kept the same as in Study 1, apart from the humor manipulation that now used a different example of incongruity-resolution humor.

							<p>Study 3 In contrast to the previous two studies, a different shame manipulation was used and a different manipulation method, namely scenario priming. Participants were exposed to an ad about Norovirus (a food-borne disease) vs. the HPV condition that proclaimed it as an STD. In the higher shame condition, they were asked to imagine themselves in a scenario where they contract either of the diseases, were informed about it by a doctor and then talked about the diagnosis with a coworker, which was overheard by some other coworkers. After that, participants were shown the ads again, which were similarly manipulated as in study 1 and 2, by inclusion of sexually charged wording. The manipulation of humor stayed the same as in Studies 1 and 2.</p>
5	Yoon, 2015, <i>US</i>	<p>Studies 1, 2 and 3 The aim is to examine the use of humor in health ads as a means of reducing shame and increasing the chances of approach coping. This study proposes a personality factor, fear of negative evaluation (FNE) to have an impact on how individuals perceive an ad regarding shame-prone health issues, the humor used, and their approach versus avoidance strategies.</p>	<p>Study 1 Online panel adult (18+) ($N = 165$).</p> <p>Study 2 Online panel adult (18+) ($N = 162$).</p> <p>Study 3 Online panel adult (18+) ($N = 158$).</p>	<p>Studies 1, 2 and 3 Measured. FNE (fear of negative evaluation), which is considered by the authors as the apprehension an individual might have toward negative evaluation, the distress he or she might experience from those negative evaluations, the tendency to avoid situations that might entail those negative evaluations and the expectation that others would evaluate him or her negatively. Measured with 12 items on a 7-point Likert scale ranging from “not at all characteristic of me” (1) to “extremely characteristic of me” (7).</p>	<p>Studies 1, 2 and 3 Experimental design. 2(humor: no vs. yes) x 2(shame: low vs. high) between-subjects factorial design.</p>	<p>Studies 1, 2 and 3 Shameful health issue PSAs.</p> <p>The aim of the message was to increase the awareness and attention to shame-inducing health issue to ultimately facilitate compliance with advertisements about shameful health issues.</p>	<p>Study 1 Participants were randomly assigned to one of the four conditions. HPV was featured in the public service advertisements. Familiarity, knowledge and relevance of HPV was gauged after which participants saw one of the four ads. Finally, they responded to the manipulation check, dependent variable items, confound check items, FNE items, and some demographics.</p> <p>The higher shame PSA about HPV included sexually charged wording indicating that it is a sexually transmitted disease (STD), whereas the lower shame PSA about HPV used sexually neutral wording. Humor was manipulated by one of the conditions including a speech bubble containing incongruity-resolution humor.</p>

							<p>Study 2 Procedure is the same as in Study 1 with the exception that the health issue is adapted. One PSA gives information about MEV-2 virus, a fictional virus that is presented without sexually charged wording by saying it leads to a food borne disease or with sexually charged wording considering it a sexually transmissive disease.</p> <p>Study 3 In contrast to the previous two studies, a different shame manipulation was used and a different manipulation method, namely scenario priming. Participants were exposed to an ad about Norovirus (a food-borne disease) vs. the HPV condition that proclaimed it as an STD. In the higher shame condition, they were asked to imagine themselves in a scenario where they contract either of the diseases, were informed about it by a doctor and then talked about the diagnosis with a coworker, which was overheard by some other coworkers. After that, participants were shown the ads again, which were similarly manipulated as in study 1 and 2, by inclusion of sexually charged wording. The manipulation of humor stayed the same as in Studies 1 and 2.</p>
10	Yang et al., 2019, <i>US</i> .	The aim is to examine the impact of exposure to messages communicating harm of e-cigarettes in relation to cigarettes in smokers with or without serious psychological distress.	Adult (18+) current smokers and those that stopped smoking in the last 2 years (<i>N</i> = 1400).	Measured. Serious psychological distress. Measured with the Kessler-6 (K6) scale, that measures non-specific psychological distress in the past 30 days. Those with scores 13-24 were coded as having serious psychological distress.	Experimental design: 2(risk: comparative risk vs. negative comparative risk) x 2(psychological distress: serious psychological distress vs. without serious psychological distress). Psychological distress was measured.	Smoking cessation. The aim of the message was to encourage combusted smokers to switch to e-cigarettes to reduce the health risks.	Participants first filled out information about their general tobacco behaviors, beliefs, and demographics. Then they were randomly assigned to one of the six conditions and were presented with one of the 6 messages on comparative risk of e-cigarettes and cigarettes or a neutral control message. Three of those were comparative risk messages and three

							were emphasizing negative comparative risk. Then they were asked questions about their e-cigarette and cigarette related beliefs and behavioral intentions, followed by debriefing.
15	Lueck, 2018a, <i>US</i> .	The aims of this study were to identify the determinants of help seeking among college students through the reasoned action framework, and to assess effectiveness of messages using loss vs. gain frame based on severity of depression of the recipients.	Adult (18 – 30 years old) undergraduate student sample ($N = 153$, 75.2% females).	Depression Measured with a Patient Health Questionnaire-9 (PhQ9). The measurement consists of 9 items. Participants indicate how often from “not at all” (0) to “nearly every day” (3), they had been bothered by specific depressive symptoms over the last two weeks. The sum indicates the severity of depression.	Single factor experimental design (gain vs. loss) x depression status (measured, but not clear how it was entered in analyses) Depression status was measured.	Depression help-seeking. The aim of the message was to promote help-seeking and motivate depressed college students to make an appointment with a health professional.	Participants were randomly assigned to one of the two experimental conditions based on the frame of the depression help-seeking message they would be exposed to. <i>The rest of the procedure is not reported.</i>
16	Kealey & Berkman, 2005, <i>US</i> .	The aims of this study were to explore the association between exposure to specific health communication sources and certain beliefs about cancer and to see what role the psychological distress prior to exposure has in this relationship.	Noninstitutionalized adults (18+) living in US ($N = 5586$).	Psychological distress Measured with a summated scale created from six items from the National Health Interview Survey. Participants were asked to indicate how often in the past 30 days they experience certain feelings (6 statements) on a 5-point Likert scale ranging from “none of the time” (1), to “all of the time” (4). Higher scores indicated higher levels of psychological distress. The variable was dichotomized. Those scoring below or 12 points were classified as not having serious psychological distress and those scoring above 13 as having serious psychological distress.	Cross-sectional computer assisted telephone survey.	Cancer. Aims of the messages were not provided as this study cross-sectionally explored how different sources of health information relate to certain beliefs about cancer.	Collected data were part of a bigger national study the National Trends Study (HINTS) sponsored by the National Cancer Institute. The survey is design to measure public knowledge, attitude and beliefs about certain cancers, access to information about cancer and general health topics, including the sources used and several demographic variables. Our interest: sources of communication.
19	Poppelaars et al., 2018, <i>NL</i> .	The aim of this study was to examine the impact of different types of advertising, namely explicit mental health and stealth promotion, on game choice for	Young adults (18 - 31 years old) ($N = 129$) studying in the Netherlands, who exhibited at least mildly elevated	Depression Anxiety Stress All three variables were measured with the Depression Anxiety Stress	2(type of promotion: mental health trailer vs. entertainment trailer) vs factorial design	Mental health. The aim of the video trailers is to promote a video game within a	First, participants were screened for eligibility of participation in the study with a 15-minute screening questionnaire. Within two weeks after completing the questionnaire, those who were eligible were invited

		young adults with elevated mental health symptoms.	mental health symptoms on at least one subscale of the Depression Anxiety Stress Scale (DASS-21).	scale (DASS-21). Severity of the symptoms was assessed.		mental health vs. entertainment context.	to participate in the lab experiment. After being informed about the procedure, participants filled it a measure of affect. Then they were exposed to both two trailers for a video game (mental health and entertainment trailer) that randomly varied in specificity level (detailed or abstract) between the participants. They were then asked to decide which game they think would enjoy the most. They also rated attractiveness and fun of each game at that stage, based on the trailer. Then they were asked to play the game for as long as they wish, in order to evaluate the game. Following gameplay, additional measures of the affect, intrinsic motivation, autonomy, and competence were taken.
25	Lienemann & Siegel, 2016, <i>US</i>	Studies 1 and 2 The aim of the studies is to explore the relationship between elevated depressive symptomatology and state reactance to see if it could present a challenge when persuading depressed people to seek help. Specifically, the aim is to explore how using autonomy-supportive language influences state reactance.	Study 1 Adult English speaking <i>US</i> residents with access to internet ($N = 2027$, 65.9% females). Study 2 Adult English speaking <i>US</i> residents with access to internet ($N = 777$, 56.0% females).	Study 1 Depressive symptomatology: Measured with The Beck's Depression Inventory-II (BDI-II). Study 2 Depressive symptomatology: Measured with The Beck's Depression Inventory-II (BDI-II).	Study 1 3 (Ad type: autonomy-supportive language, controlling language, control group) x 3 (depressive symptomatology: low, mean, high) Study 2 3 (Ad type: autonomy-supportive language, controlling language, control group) x 3 (depressive symptomatology: low, mean, high)	Studies 1 and 2 Depression help-seeking PSA's. The aim of the message is to promote help-seeking for depression.	Studies 1 and 2 Participants first filled in measures for trait reactance, depression history and depressive symptomatology. They were then randomly assigned to view one of the three conditions. Finally, dependent variables were measured.
26	Lueck, 2018b, <i>US</i>	Studies 1 and 2 The aim was to see whether people process gain and loss framed depression help seeking messages differently, depending on their stage of depression.	Study 1 Adult (18 – 30 years) college student sample ($N = 126$, 75.2% female). Study 2	Study 1 Depression Measured with The Patient Health Questionnaire-9. Participants were asked how often (0 = not at all, 3 = neatly every day) they had been bothered by specific	Study 1 2 (framing: gain, loss) x 3 (depression level: minimal, mild, moderate to moderately severe) Study 2	Studies 1 and 2 Depression help-seeking messages. The aim of the message is to promote help-seeking for depression.	Study 1 <i>Procedure was not reported.</i> Study 2 <i>Procedure was not reported.</i>

			Adult (18 – 60 years) US residents ($N = 738$, 73.9% females).	depressive symptoms over the last two weeks. The scale is built of 9 items. Study 2 Depression Measured with The Patient Health Questionnaire-9. Participants were asked how often (0 = not at all, 3 = nearly every day) they had been bothered by specific depressive symptoms over the last two weeks. The scale is built of 9 items.	3 (framing: gain, loss, no message) x 3 (depression level: minimal, mild, moderate to moderately severe)		
27	Hale et al., 1995, US	The aim of this study was to test for the antagonistic and concurrent processing using fear appeals in the context of messages about sunburns.	Undergraduate student sample ($N = 200$).	Trait anxiety Measured with the Manifest Anxiety Scale consisting of 20 Likert scale items.	A 2 (fear arousing content: low vs. high) x 2 (anxiety: low vs. high) experimental factorial design.	Sunburns. The aim of the messages was to inform of the consequences of exposure to ultraviolet radiation and to call for protective behaviours.	Participants were given one of the two messages to see. After this, they answered the post-test questionnaire including dependent variables, trait anxiety measure and demographics.
37	Lueck & Yzer, 2018, US	The aim of this study was to explore the role of health messages about depression referring to responsibility in the effectiveness of such messages, in light of the depressive symptoms of the participants.	Adult undergraduate students (18 years – 32 years), $N = 259$, 66.4% female.	Depression Measured with the Patient Health Questionnaire-9 (PHQ-9) that consists of nine items based on how often participants have been bothered by specific depressive symptoms over the last two weeks. Scores range from 0-27. At the present study the scale was considered as continuous – the greater the score, the greater the severity of depressive symptoms.	Single factor between subjects experimental design (message framing: low responsibility, absent responsibility, information only) Depression was measured as a continuous variable.	Depression help seeking. The aim of the message is to promote help-seeking intentions for depression.	In this online experiment participants depression symptoms were first measured, after which they were exposed to one of the three messages about depression help seeking. <i>The rest is unclear.</i>
38	Suka et al., 2019, Japan	The aim of this study was to examine the role of psychological distress in	Adults (35 – 45 years), ($N = 1957$).	Psychological distress Measured with the Japanese version of the K6 scale	A cross-sectional web-based survey	Depression help seeking.	Participants help-seeking intention for depression was measured. Participants randomly received one

		processing of persuasive messages about depression with varying content characteristics.	Excluded were those who had received medical treatment for their mental disorders before and medical professionals.	(Kessler Psychological Distress Scale). Those scoring below 5 were considered non-distressed and those scoring above or equal to 5 were considered distressed.	A 3 (frame: neutral vs. loss vs. gain) x 2 (distress: distressed vs. non-distressed) factorial between subjects design	The aim of the message it to promote help-seeking intentions for depression.	of the three persuasive messages and observed the message for 15 seconds. Afterwards dependent variable measures were taken.
39	Lueck, 2017, US	The aim of this study is to examine the role of depression in processing of gain and loss framed messages about depression help-seeking.	Adult university students (18 – 30 years), (N = 153), 75.2% female.	Depression Measured with the Patient Health Questionnaire-9 (PhQ-9). It has nine items measured on 4-point scales ranging from 0 (not at all), to 3 (nearly every day). Participants are asked about their depressive symptoms over the last two weeks. Scores were categorized in three groups: minimal depression, mild depression, and moderate to severe depression.	A 2 (frame: gain vs. loss frame) x 3 (depression: minimal vs. mild vs. moderate to severe) factorial between subjects design	Depression help seeking The aim of the message it to promote help-seeking intentions for depression.	Participants were randomly assigned to one of the two experimental conditions. Eye-tracking was performed.
Study number	Authors, year, country	Aims / purpose	Study population and sample size	Mental well-being predictor variable and measurement (if applicable)	Design of the study	Topic of the messages	Procedure

Study number	Independent variable related to review question	Outcome measures related to review question	Key findings related to review question
1	Friend PSA vs. Labelling PSA Friend PSA focused on importance of supporting friends with a mental illness and labelling PSA focused on changing negative labels associated with having a mental illness.	Thought listing measure Participants were asked to spend three minutes listing any thoughts and opinions they had about the message of the video. Overall valence of thoughts (7-point Likert scale). A closed-ended item was used to determine valence of thoughts from very unfavorable to very favorable.	Those with heightened depressive symptomatology more often indicated that at least one of the PSAs led to an unintended negative effect than those without depressive symptomatology. This was the case for both <i>Friend</i> and <i>Labeling</i> PSA. For the <i>Friend</i> PSA, participants self-reporting heightened depressive symptomatology had significantly less favorable PSA evaluations. The lower they scored on the BDI-II scale, the lower their evaluation of the <i>Friend</i> PSA. Those that had heightened depressive symptomatology and reported on the negative effect of PSA, reported a significantly lower mean evaluation scores that those who did not report it having a negative effect. For the <i>Labeling</i> PSA, there was no sig. difference between those with and without depressive symptomatology. There was also no correlation between PSA evaluation and BDI-II score.
2	Study 1 and 2 Higher shame (HPV with sexually charged wording) vs. lower shame health issue (HPV without sexually	Studies 1, 2 and 3 Ad attitude (Aad), attitude towards the behavior (Abehaviour) and behavioral intention (BI).	Study 1 Aad: A significant three-way interaction of humour, shame level, and health worry for Aad was found. Low shame level (Aad):

	<p>charged wording) PSA AND no humor vs. humor PSA.</p> <p>Study 3 Higher shame (HPV with sexually charged wording) vs. lower shame (Norovirus – a food borne disease – without sexually charged wording) PSA AND humor vs. no humor.</p>	<p>All measured on 7-point Likert scales.</p>	<p>For low health-worry individuals, when the shame level was lower in the ad, Aad was NOT different for the humor ad than the non-humor ad. However, those with health worry level above 3.57 had greater Aad for the no-humor than the humor ad. High shame level (Aad): Those with health worry scores below 2.25 had greater Aad for the no-humor than the humorous ad. Those with health worry scores higher than 6.69 rated humor higher than no-humor ad on Aad.</p> <p>BI: A significant three-way interaction was found for BI. Low shame level (BI): For the lower shame ad, those who had lower health worry scores did not show any response difference to the humor ads. Those with health worry scores above 3.97 had higher BI for the no-humor ad than humorous ad. High shame level (BI): No differences between humorous and non-humorous ad were detected for the low-health worry individuals. Those with health worry above 4.62 had higher BI for the humor ad than the no-humor ad.</p> <p>Abehaviour: There was no significant three-way interaction between Abehaviour, shame level and humor and no other main or interaction effects were detected.</p> <p style="text-align: center;">Study 2</p> <p>Aad: Aad did NOT have a significant three-way interaction of humor, shame level and health worry. Low shame level (Aad): Those who scored 3.76 and below on health worry, had higher Aad for the humor ad than the no-humor ad. No differences between humorous and non-humorous ad were detected for the high health worry individuals. High shame level (Aad): The interaction was not significant.</p> <p>BI: The three-way interaction was significant for BI. Low shame level (BI): Those who scored 3.11 and below on health worry had higher BI for the humor ad than the non-humor ad. Those who had higher health worry scores did not show any significant differences between humorous and non-humorous ad. High shame level (BI): Low health worry individuals did not show any significant differences between humorous and non-humorous ad, while those who scored 4.64 or above on health worry rated the humorous ad higher on BI than the no-humor ad.</p> <p>Abehaviour: Abehaviour did NOT have a significant three-way interaction of humor, shame level and health worry. Low shame level (Abehaviour): Those who scored 2.51 and below on health worry, had higher Abehaviour for the humor than the no-humor ad. No difference was detected for the high-worry individuals. High shame level (Abehaviour): The two way-interaction was not significant for the higher shame condition.</p>
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			<p style="text-align: center;">Study 3</p> <p>Aad: A significant three-way interaction of humor, shame level, and health worry emerged. Low shame level (Aad): Those with health worry ratings below 2.82 had greater Aad for the humor than the no-humor ad. No significant results emerged for those with high health worry. High shame level (Aad): Those with health worry lower than 4.56, had greater Aad for the no-humor ad than the humor ad. High worry individuals did not display any differences between no-humor and humor ad.</p> <p>Abehaviour: No significant three-way interaction was found. Low shame level (Abehaviour): / (Unclear) High shame level (Abehaviour): Those with health worry scores lower than 4.32 had higher Abehaviour for the no-humor ad than for the humor ad.</p> <p>BI A three-way interaction between shame level, health worry and humor was found for behavioral intention. Low shame level (BI): Individuals with health worry scores below 2.30 had higher BI for the humor than the no-humor ad. Those with health worry higher than 5.82 had higher BI for the no-humor than the humor ad. High shame level (BI): There were no significant differences for low health worry individuals in regard to BI of humorous vs. no-humorous ad. Those who scored above 3.95 on health worry had higher BI for the humor than the no-humor ad.</p>
<p>5</p>	<p>Study 1 Higher shame (HPV with sexually charged wording) vs. lower shame health issue (HPV without sexually charged wording) PSA AND no humor vs. humor PSA</p> <p>Study 2 Higher shame PSA (MEV-2 fictional disease presented with sexually charged wording) vs. lower shame health issue PSA (MEV-2 fictional disease presented without sexually charged wording) AND no humor vs. humor</p> <p>Study 3 Higher shame (HPV with sexually charged wording) vs. lower shame (Norovirus – a food borne disease – without sexually charged wording) PSA AND humor vs. no humor.</p>	<p>Study 1 and 2 Attention, ad attitude (Aad), behavior attitude (Abehaviour), behavioral intention (BI). All measured on 7-point Likert scales.</p>	<p style="text-align: center;">Study 1</p> <p>Attention: A significant three-way interaction of humor, shame level, and FNE. Low shame level (Attention): Those with health FNE ratings below -.41 scored higher on Attention for the humor than the no-humor ad. No significant results emerged for those with higher NFE. High shame level (Attention): Those with FNE lower than -.30, had greater Aad for the no-humor ad than the humor ad. High FNE individuals did not display any differences between no-humor and humor ad.</p> <p>Aad: A significant three-way interaction was found for Aad. Low shame level (Aad): For the lower shame ad, those who had scores lower than -.16, gave higher Aad for the humor vs. no-humor ads. There were no differences between high health worriers in regard to Aad toward humor vs. no-humor ads. High shame level (Aad): Those with FNE level below .60 responded more positively to the no-humor ad than the humor ad. Those with higher FNE scores showed no difference in Aad between humor and no-humor condition.</p> <p>Abehaviour: A significant three-way interaction was found for Abehaviour. Low shame level (Abehaviour):</p>

			<p>FNEs below -.80 liked the humor more than the no-humor ad. Those with FNE scores above 1.75 liked the no-humor ad than humorous ad. High shame level (Abehaviour): The interaction between humor and FNE scores was not significant at the $p < .05$ level.</p> <p>BI: The three way-interaction was significant. Low shame level (BI): FNEs below -.49 had higher BI for the humor than the no-humor ad. FNEs above 2.76 had higher BI for the no-humor ad than the humor ad. High shame level (BI): Lower scoring FNEs did not show any difference in response to the two humor ads. FNEs above 2.26 had higher BI for the humor ad than the no-humor ad.</p> <p style="text-align: center;">Study 2</p> <p>Attention: A significant three-way interaction of humor, shame level, and FNE. Low shame level (Attention): Those with health FNE ratings below -2.08 scored higher on Attention for the no humor than the humor ad. Those with FNE scores above 2.30 also had higher scores under the no humor condition when compared to humor condition. High shame level (Attention): No significant results were uncovered in high shame conditions.</p> <p>Aad: A significant three-way interaction was found for Aad. Low shame level (Aad): For the lower shame ad, those who had scores lower than -.14, had higher Aad for the humor vs. no-humor ads. There were no differences between high health worriers in regard to Aad toward humor vs. no-humor ads. High shame level (Aad): No significant results were uncovered in high shame conditions.</p> <p>Abehaviour: The three-way interaction was not significant for Abehaviour. Low shame level (Abehaviour): No significant results were uncovered in low shame conditions. High shame level (Abehaviour): No significant results were uncovered in high shame conditions.</p> <p>BI: No significant three-way interaction was found for BI. Low shame level (BI): No significant results were uncovered in low shame conditions. High shame level (BI): Those scoring below -2.22 on the FNE scale had higher BI scores in the no humor condition than the humor condition. Those with FNE above 1.28 rated the humor ad higher than the no humor ad.</p> <p style="text-align: center;">Study 3</p>
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10	<p>Risk (comparative risk vs. negative comparative risk) AND psychological distress: serious psychological distress vs. without serious psychological distress. Psychological distress was measured. Messages including comparative risk element were focused on the benefits of switching from cigarettes to e-cigarettes to reduce health risks and used more positive</p>	<p>Perceived absolute e-cigarettes and cigarettes risks and benefits</p> <p>Perceived comparative risk of cigarettes</p> <p>Self-efficacy to quit smoking</p> <p>Support for tobacco control</p> <p>Intentions to smoke</p>	<p>Interaction between risk type vs. psychological distress None of the interactions between message type and SPD were significant.</p> <p>Perceived absolute e-cigarettes and cigarettes risks and benefits However, in all of the message conditions, those with SPD reported higher perceived absolute risk of e-cigarettes and cigarettes.</p> <p>Support for tobacco control Those with SPD also reported greater support for tobacco control.</p> <p>Intentions to switch completely to e-cigarettes Those with SPD additionally reported greater intentions to switch to e-cigarettes completely.</p>

	<p>imagery, while the negative comparative risk messages portrayed e-cigarettes as a less harmful alternative to cigarettes.</p>	<p>Intentions to switch completely to e-cigarettes</p> <p>Dual use intentions (intentions to use both cigarettes and e-cigarettes)</p> <p>Quit intentions (among current smokers)</p>	<p>Those with SPD also indicated they would be more likely to seek help with quitting, when compared to smokers without SPD. Smokers without SPD were more likely to report that e-cigarettes were less harmful than cigarettes, than smokers with SPD.</p>
15	<p>Frame: gain vs. loss frame. Gain frame emphasized the benefits of seeking help, was presented in a more positive tone (for instance, the models were smiling) and had a headline promoting help-seeking. The loss frame emphasized the problems of not seeking help, featured models with negative facial expressions and included a headline that emphasized the negative consequences of not seeking help.</p> <p>Depression Measured with a Patient Health Questionnaire-9 (PhQ9). The measurement consists of 9 items. Participants indicate how often from “not at all” (0) to “nearly every day” (3), they had been bothered by specific depressive symptoms over the last two weeks. The sum indicates the severity of depression.</p>	<p>Determinants of help seeking</p> <p>Intention Participants’ intentions to seek help from a professional on campus in the next two months if they experience depressive symptoms during that time, were measured with two statements on a 7-point Likert scale from “very unlikely” (1) to “very likely” (7).</p> <p>Instrumental and experiential attitude Attitudes were measured with 7-point semantic differential items, where participants were asked to indicate how they perceive them making an appointment with a professional about their potential depressive symptoms in the next two months. For <i>instrumental attitude</i> the word pairs were: bad-good, harmful-beneficial and unnecessary-necessary. For <i>experiential attitude</i> the word pairs were: not enjoyable-enjoyable, stressful-relaxing. Scores from each set were averaged in a single score, respectively.</p> <p>Perceived norms An <i>injunctive norm</i> measure asked participants to rate how most people close to them would feel if they knew they made an appointment with a professional on campus to discuss their depressive symptoms, if that were the case in the next two months. They</p>	<p>Interaction of depressive symptoms and framing on determinants help-seeking Participants’ severity of depressive symptoms did not affect any of the determinants of help-seeking after viewing a gain vs. loss framed depression help-seeking message.</p>

		<p>responded to that on a 7-point Likert scale ranging from “almost none” (1) to “almost all” (7). A descriptive norm measure asked participants how many people important to them they think will make the appointment in the next two months, in case of depressive symptoms. They responded to that on a 7-point Likert scale ranging from “almost none” (1) to “almost all” (7).</p> <p>Perceived capacity Measured on 7-point Likert scales ranging from “completely sure I cannot” (1) to “completely sure I can” (7). The question asked them how sure they are in reaching out to a campus professional in case they experience depressive symptoms in the next 2 months, regardless of the obstacles standing in their way.</p> <p>Perceived autonomy Two semantic differential scales were used to measure how autonomous participants feel in their decision to see a professional in the next two months if they experience depressive symptoms. The word pairs were “not under my control/under my control” and “not up to me/up to me”. The results from both scales were averaged in a single perceived autonomy score.</p> <p>Self-stigma of seeking help Stigma was assessed by asking participants about how they would feel if they sought help. A 10-item Self Stigma of Seeking Help Scale was used.</p>	
<p>16</p>	<p>Source of health information Measured with 4 questions. They were asked if they have ever looked for information about</p>	<p>Self-assessed relative risk Measured by asking participants about whether they think they are more, less or about as likely to get</p>	<p>Self-assessed relative risk Psychological distress did not moderate the relationship between source of message and self-assessed relative risk of getting cancer.</p> <p>Beliefs about causes of cancer</p>

	<p>cancer from any source, if they watched health segments on the local news in the past 12 months, if they read health sections of a newspaper or magazine in the past 12 months and if they read unsolicited health information on the Internet in the past 12 months.</p> <p>Psychological distress Measured with a summated scale created from six items from the National Health Interview Survey. Participants were asked to indicate how often in the past 30 days they experience certain feelings (6 statements) on a 5-point Likert scale ranging from “none of the time” (1), to “all of the time” (4). Higher scores indicated higher levels of psychological distress. The variable was dichotomized. Those scoring below or 12 points were classified as not having serious psychological distress and those scoring above 13 as having serious psychological distress.</p>	<p>cancer (colon/lung/skin) as an average person of their age.</p> <p>Beliefs about causes of cancer Measured by asking respondents whether they agreed that or disagreed that cancer (colon/lung/skin) is most often caused by person’s behavior or lifestyle.</p> <p>Ambiguity about following recommendations for cancer prevention Measured by asking participants whether they agree or disagree that there are so many different recommendations about preventing cancer (colon/lung/skin) that it’s hard to know which ones to follow.</p> <p>Participants were randomly assigned to be asked only about one type of cancer, namely colon, lung and skin cancer.</p>	<p>Psychological distress moderated the relationship between source of the health information and beliefs about causes of cancer only in the case of reading health sections in a newspaper or magazine. Those who did so, were experiencing severe psychological distress, were 3.7 times more likely to believe that they are less likely to get cancer than those who did not experience psychological distress.</p> <p>Ambiguity about which recommendations to follow Psychological distress did not moderate the relationship between source of message and ambiguity about which recommendations to follow.</p>
<p>19</p>	<p>Type of promotion Mental health trailer vs. Entertainment trailer of the same video game were shown. Participants were made to believe that they were different games with different aims, either to help with mental health or just to be entertaining.</p> <p>Specificity level Detailed vs. abstract trailer of the same video game were shown. They were both approximately 1 minute long and differed based on game challenges shown (more detailed in the detailed and more abstract in the abstract trailer), faster (detailed music) and slower (abstract trailer) music, warmer colored (detailed trailer) and cooler</p>	<p>Game choice Participants were asked to choose one of the two games for which they have seen the trailer.</p> <p>Perceived attractiveness of the game Measured on a 10-point scale where higher scores indicate higher attractiveness of the game.</p> <p>Perceived fun of the game Measured on a 10-point scale where higher scores indicate higher perceived fun.</p> <p>Affect The Self-Assessment Manikin (SAM) measurement for affect was used to assess the affect before and after gameplay. Participants were</p>	<p>Game choice Participants were 3.71 times more likely to choose the mental health game than the entertainment game, following exposure to the trailers. This was most pronounced when the detailed trailer was used as opposed to when the abstract trailer was used. Participants were 5.65 times more likely to pick the mental health game when the trailer was detailed, as opposed to when it was abstract.</p> <p>Perceived attractiveness and fun of the game There were no differences between those who saw the mental health and those who saw the entertainment trailer based on perceived attractiveness or fun of the game. However, there was a significant interaction between the type of promotion and specificity level of the trailer, such that participants in the mental health trailer condition found the game to be more attractive and fun when combined with the detailed trailer, as opposed to the abstract trailer. For the entertainment trailer there were no differences between how attractive or fun participants perceived the game based on the specificity level of the trailer.</p> <p>Affect There was no effect on game choice on the change in affect. However, affect was higher after playing the game when compared to before playing the game, regardless of the condition the participants were in.</p> <p>Affect, Gameplay duration, Intrinsic motivation, Autonomy and Competence</p>

	<p>colored (abstract trailer), font used (AR BONNIE for the detailed and Gloucester MT for the abstract trailer) and editing style (slowly moving across (detailed trailer) and zooming in and out of pictures (abstract trailer). Both trailers were approximately 1 min long.</p> <p>Depression Anxiety Stress All three variables were measured with the Depression Anxiety Stress scale (DASS-21). Severity of the symptoms was assessed.</p>	<p>asked to indicate on a 5-point scale the manikin that best reflected how they felt at a specific moment based on a set of extreme negative (such as unhappy) and extreme positive adjectives (such as happy).</p> <p>Gameplay duration Measured by comparison of the time participants spent outside of the questionnaire and the internal game timer in order to avoid inaccuracies.</p> <p>Intrinsic motivation Measured with the interest/enjoyment subscale from the Intrinsic Motivation Inventory measurement.</p> <p>Autonomy and competence Measured using the Player Experience of Need Satisfaction (PENS) questionnaire. Items related to need for relatedness were not included as the game provides no opportunity to interact with other players.</p>	<p>No significant differences were found in affect, gameplay duration, intrinsic motivation and autonomy and competence between the conditions based on the type of promotion.</p> <p>Depression, Anxiety, Stress Game choice Game choice was not related to the severity of the mental health symptoms the person experienced. Nor was there an interaction between severity of the mental health symptoms and specificity level of the trailer when it came to game choice. Participants without and with severe mental health symptoms were equally as likely to pick the mental health game.</p> <p>Autonomy There was a direct effect of severity of symptoms on autonomy, such that those with severe mental health symptoms felt more autonomy in the game when compared to those without severe symptoms. There was also an interaction effect for autonomy such that those who picked the mental health game and had severe mental health symptoms experienced more autonomy than those without severe symptoms, while this was not the case for those who picked the entertainment game, where no differences were found between those experiencing severe mental health symptoms or not.</p> <p>Competence There was a direct effect of severity of symptoms on competence, such that those with severe mental health symptoms felt more competence in the game when compared to those without severe symptoms. No interaction effect was found.</p> <p>Time x symptom severity interaction on affect Affect was lower prior to, but not after, exposure to the chosen game for those with severe mental health symptoms, but not for those who did not have severe mental health symptoms.</p> <p>General symptom severity had no other effects on any of the dependent variables that are not mentioned above.</p> <p>Depressive symptoms Depressive symptoms did not influence game choice either directly or in interaction with specificity level of the trailer. Participants with or without elevated depressive symptoms were equally as likely to pick the mental health game. Elevated depressive symptoms were related to less positive affect both before and after having played the game when compared to those without elevated depressive symptoms. An interaction effect between time and elevated depressive symptoms on affect was found, such that affect became more positive for those with elevated depression symptoms after playing the game, whereas it did not change for participants without elevated depression symptoms. Participants with severe depressed symptoms only scored lower than those without such symptoms before gameplay, but not also after gameplay.</p> <p>Anxiety symptoms Anxiety symptoms did not influence game choice either directly or in interaction with specificity level of the trailer. Participants with or without elevated anxiety symptoms were equally as likely to pick the mental health game. There were no main or interaction effects of anxiety symptoms with game choice on gameplay duration, intrinsic motivation, autonomy, competence, attractiveness, or affect before and after gameplay. However, there was an interaction effect between anxiety symptoms and perceived fun of the game, such that it was perceived as less fun for those with elevated anxiety symptoms than for those without elevated anxiety symptoms based on the trailers.</p> <p>Stress symptoms Stress symptoms did not influence game choice either directly or in interaction with specificity level of the trailer. Participants with or without elevated stress symptoms were equally as likely to pick the mental health game. No further interaction effects were found.</p> <p>Comparison of symptoms and affect</p>
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			For those with increased depressive symptoms the change in affect was higher after gameplay when compared to those with severe anxiety or stress symptoms.
25	<p style="text-align: center;">Study 1</p> <p>Language: autonomy-supportive, controlling, control group. The two printed PSA's informed people about depression, advised that they seek help and provided them with the help resource. The autonomy-supportive condition used phrases like "may" and "you can", while the controlling language condition used phrases like "must" and "should". The control group instead received a travel ad for Colorado without any autonomy-supportive or controlling language.</p> <p>Depressive symptomatology: Measured with The Beck's Depression Inventory-II (BDI-II).</p> <p>Covariate: Trait reactance Measured with the Therapeutic Reactance Scale (TRS).</p> <p style="text-align: center;">Study 2</p> <p>Ad type: language: autonomy-supportive, controlling, control group. The two PSAs from the second study were existing videos from WHO's black dog of depression PSA's. The text was changed so that one condition used autonomy-supportive and the second controlling language. The control group was presented with an ad for air conditioning system that did not include either autonomy supportive or controlling language.</p>	<p style="text-align: center;">Study 1</p> <p>Mediating variable: State reactance A composite measure consisting of anger and negative cognitions. See measures respectively below. Anger toward the ad Measured with a 4-item (e.g., irritated, angry) Likert scale ranging from 1 (none of this feeling) to 7 (a great deal of this feeling). Negative cognitions Measured with a thought listing tasks where participants listed their thoughts about the ad and then ranked each thought as negative, neutral, or positive.</p> <p>DV's: Self-stigma of seeking help Measured with The Self-Stigma of Seeking Help Scale (SSOSH).</p> <p>Attitudes toward seeking professional help In Study 1 this was measured with the Attitudes Toward Seeking Professional Help: A Shortened Form (ATSPPH-SF).</p> <p>Help-seeking intentions Measured with an abridged version of the General Help Seeking Questionnaire (GHSQ). The scale in Study 1 included 5 items measured on 7-point Likert scales ranging from 1 (extremely unlikely), to 7 (extremely likely). Higher scores reflected greater intentions to seek help for depressive symptoms, from romantic partner/friend/parent/family/mental health professional.</p>	<p style="text-align: center;">Study 1</p> <p>Mediating variable: State reactance Depressive symptomatology was significantly positively associated with state reactance toward a PSA. The greater the depressive symptomatology reported, the greater the state reactance for all ads.</p> <p><i>State reactance was then positively associated with self-stigma of seeking help and negatively associated with attitudes toward seeking professional help, as well we negatively associated with help seeking intentions from a romantic partner, friend, parent, family and mental health professional.</i></p> <p>Those in the autonomy-supportive language condition had higher state reactance than those in the control group with mean and high depressive symptomatology. Regardless of the depression level, controlling language condition was associated with higher reactance than the control condition (there was no interaction effect). When compared to the autonomy-supportive condition, controlling language condition was also associated with higher state reactance for those with low and mean depressive symptomatology, but not for those with high depressive symptomatology.</p> <p>Self-stigma of seeking help For participants that viewed the control message, depressive symptomatology was positively associated with self-stigma of seeking help. As depressive symptomatology increased, so did the self-stigma of seeking help.</p> <p><i>State reactance explained the relationship between depressive symptomatology and self-stigma of seeking help.</i></p> <p>There was no interaction effect between severity of depressive symptomatology and ad type.</p> <p>Attitudes toward seeking professional help For participants that viewed the control message, depressive symptomatology was not associated with attitude toward seeking help from a professional. As depressive symptomatology increased, the attitudes toward seeking professional help decreased. The interaction between depressive symptomatology and autonomy-supportive language condition was not significant while there was a significant interaction between depressive symptomatology and controlling language condition. Individuals with high depressive symptomatology who viewed controlling language PSA reported significantly more negative attitudes toward seeking professional help than those in the control group. The effect of ad type on attitudes was not significant for any level of depressive symptomatology. State reactance explained the relationship between depressive symptomatology and attitudes for all ads.</p> <p>Help seeking intentions For participants that viewed the control message, depressive symptomatology was negatively associated with health seeking intentions from a romantic partner, friend, parent and family but not from mental health professional.</p> <p><i>From a romantic partner</i> As depressive symptomatology increased, help seeking intention from a romantic partner decreased. There was no interaction between depressive symptomatology and ad type for help seeking intentions from a romantic partner. State reactance was not associated with help seeking intention from a romantic partner. Hence it did not mediate the relationship between depressive symptoms and health seeking intention from a romantic partner for all ads.</p>

	<p>Depressive symptomatology: Measured with The Beck's Depression Inventory-II (BDI-II).</p> <p>Covariate: Trait reactance Measured with the Therapeutic Reactance Scale (TRS).</p>	<p style="text-align: center;">Study 2</p> <p>Mediating variable: State reactance A composite measure consisting of anger and negative cognitions. See measures respectively below.</p> <p>Anger toward the ad Measured with a 4-item (e.g., irritated, angry) Likert scale ranging from 1 (none of this feeling) to 7 (a great deal of this feeling).</p> <p>Negative cognitions Measured with a thought listing tasks where participants listed their thoughts about the ad and then ranked each thought as negative, neutral, or positive.</p> <p>DV's: Self-stigma of seeking help Measured with The Self-Stigma of Seeking Help Scale (SSOSH).</p> <p>Attitudes toward seeking professional help In Study 2, this was measured with the 5 semantic differential scales with pairs like unhelpful/helpful or bad/good for romantic partner and mental health professional.</p> <p>Help-seeking intentions Measured with an abridged version of the General Help Seeking Questionnaire (GHSQ). The scale in Study 1 included 5 items measured on 7-point Likert scales ranging from 1 (extremely unlikely), to 7 (extremely likely). Higher scores reflected greater intentions to seek help for depressive symptoms, from romantic partner/friend/parent/family/mental health professional.</p>	<p><i>From a friend</i> As depressive symptomatology increased, help seeking intention from a friend decreased. There was no interaction between depressive symptomatology and ad type for help seeking intentions from a friend. State reactance was not associated with help seeking intention from a friend. Hence it did not mediate the relationship between depressive symptoms and health seeking intention from a friend for all ads.</p> <p><i>From a parent</i> As depressive symptomatology increased, help seeking intention from a parent decreased. There was no interaction between depressive symptomatology and ad type for help seeking intentions from a parent. State reactance was negatively associated with help seeking intentions from a parent. State reactance mediated the relationship between depressive symptomatology and seeking help from a parent for all ads.</p> <p><i>From family</i> As depressive symptomatology increased, help seeking intention from family decreased. There was no interaction between depressive symptomatology and ad type for help seeking intentions from family. State reactance was negatively associated with help seeking intentions from family. State reactance mediated the relationship between depressive symptomatology and seeking help from family for all ads.</p> <p><i>From mental health professional</i> As depressive symptomatology increased, help seeking intention from a mental health professional decreased. There was no interaction between depressive symptomatology and ad type for help seeking intentions from a mental health professional. State reactance was negatively associated with help seeking intentions from a mental health professional. State reactance mediated the relationship between depressive symptomatology and seeking help from a mental health professional for all ads.</p> <p style="text-align: center;">Study 2</p> <p>Mediating variable: State reactance Depressive symptomatology was significantly positively associated with state reactance toward a PSA. The greater the depressive symptomatology reported, the greater the state reactance for all ads.</p> <p>State reactance was then positively associated with <i>self-stigma of seeking help</i> and negatively associated with <i>attitudes toward seeking help</i> from a romantic partner and mental health professional, as well we negatively associated with <i>help seeking intentions</i> from a romantic partner, and mental health professional.</p> <p>Greater depressive symptomatology and the controllable language condition were associated with greater state reactance. There was a significant depressive symptomatology x autonomy-supportive language interaction and depressive symptomatology x controlling language interaction. Ad type was a significant moderator in the relationship between depressive symptomatology and state reactance. Compares to the control group, controlling language condition showed significant conditional effects of ad type for individuals with mean and high levels of depressive symptomatology. For those with mean and high levels of depressive symptomatology, the controlling language condition was associated with greater reactance than the control group. Comparing autonomy-supportive language condition and the controlling language condition, there was a significant difference between the two considering state reactance for those with mean levels of depressive symptomatology, but not for those with low or high levels.</p>
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			<p>Those with mean levels in the controlling language condition had higher state reactance scores than those in the autonomy-supporting condition.</p> <p>Self-stigma of seeking help For those who saw the control ad, depressive symptomatology was not associated with the self-stigma of seeking help. There was no significant association between depressive symptomatology and self-stigma of seeking help in the control condition.</p> <p>There was a no significant interaction between depressive symptomatology and controlled language condition. There were also no differences between controlling language condition and autonomy-supporting language when it came to self-stigma of seeking help at any level of depressive symptomatology. However, there was a conditional effect of ad type for people with low depressive symptomatology only, while it was not significant for those with mean or high depressive symptomatology.</p> <p>For those with low depressive symptomatology, controlling language condition was associated with less self-stigma of seeking help than in the control condition.</p> <p>The relationship between depressive symptomatology and self-stigma of seeking help was explained by state reactance. The relationship between depressive symptomatology and self-stigma of seeking help was explained by state reactance.</p> <p>Attitudes toward seeking professional help For those who saw the control ad, depressive symptomatology was negatively associated with attitude toward seeking health from a romantic partner. However, there was no significant association between depressive symptomatology and attitude toward seeking help from a mental health professional in the control condition.</p> <p><i>From a romantic partner</i> Controllable language condition was associated with positive attitude toward asking a romantic partner for help. However, there was no interaction effect. The relationship between depressive symptomatology and asking a romantic partner for help, was explained by state reactance.</p> <p><i>From a mental health professional</i> There was no significant interaction effect. Relationship between depressive symptomatology and asking a mental health professional for help, was mediated by state reactance.</p> <p>Help seeking intentions For those who saw the control ad, depressive symptomatology was negatively associated with help seeking intentions from a romantic partner.</p> <p><i>From a romantic partner</i> There was no significant interaction effect. Relationship between depressive symptomatology and help seeking intention from a romantic partner, was mediated by state reactance.</p> <p><i>From mental health professional</i> There was a significant interaction effect between depressive symptomatology and the autonomy-supportive condition. However, there was no significant interaction between depressive symptomatology and the controlling language condition. Also, not between control condition and autonomy-supportive language condition. On the other hand, there was a conditional effect when comparing the control condition to the controllable language condition, for those with low levels of depressive symptomatology, but not for those with mean or high levels of depressive symptomatology.</p>
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			For people with low levels of depressive symptomatology, the controlling language condition was associated with greater help seeking intention from a mental health professional than the control group. There were no differences between autonomy-supportive and controlling language condition when it came to help seeking intentions from a mental health professional. The relationship between depressive symptomatology and help seeking intentions from a mental health professional, was mediated by state reactivity.
26	<p>Study 1 Message framing: gain vs. loss. The gain frame emphasized the benefits of seeking help for depression and featured two smiling students while the loss frame emphasized the problems of not seeking help for depression and featured two students with unhappy expressions.</p> <p>Depression (stage of) Measured with The Patient Health Questionnaire-9. Participants were asked how often (0 = not at all, 3 = neatly every day) they had been bothered by specific depressive symptoms over the last two weeks. The scale is built of 9 items.</p> <p>Study 2 Message framing: gain vs. loss. The messages were very similar to those from Study 1 with one big difference – the background photo did not include smiling students, but instead happy / unhappy looking adults to fit the sample. The gain frame (like in Study 1) emphasized advantages of seeking help for depression, while the loss frame emphasized the disadvantages.</p> <p>Depression (stage of) Measured with The Patient Health Questionnaire-9. Participants were asked how often (0 = not at all, 3 = neatly every day) they had been bothered by specific depressive symptoms over the last two weeks. The scale is built of 9 items.</p>	<p>Study 1 Attitude toward help-seeking Measured with four 7-point semantic differential scales with pairs like bad-good, foolish-wise. Participants were asked to provide their estimation of the statement: “My making an appointment with a health professional on campus to discuss depressive symptoms if I were to experience depressive symptoms anytime in the next two months is ...”</p> <p>Intentions to seek help Measured by asking participants how likely they would make an appointment with a health professional on campus to discuss depressive symptoms if they were to experience depressive symptoms anytime in the next two months. Measured on a 7-point Likert scale ranging from 1 (very unlikely) to 7 (very likely).</p> <p>Study 2 Attitude toward help-seeking Measured with six 7-point semantic differential scales with pairs like bad-good, foolish-wise. Participants were asked to provide their estimation of the statement: “My making an appointment with a health professional to discuss depressive symptoms if I were to experience depressive symptoms anytime in the next two months is...”</p> <p>Intentions to seek help</p>	<p>Study 1 Attitude toward help-seeking There was no main effect of framing on attitude toward help-seeking. There was no interaction effect between message framing and stage of depression considering attitude toward help-seeking. Attitude toward help-seeking was not significantly impacted by the message framing based on stages of depression.</p> <p>Intentions to seek help No main effect of message condition was found on intentions to seek help. An interaction effect of stages of depression and message condition was also not found for intentions to seek help.</p> <p>Study 2 Attitude toward help-seeking The main effect of message framing on attitude toward help-seeking was significant. An interaction effect was found between message conditions and stages of depression for attitudes after message exposure. Those who suffered from moderately severe depression indicated more favorable attitudes toward help-seeking when they did not see a message at all, compared to those who saw the gain or loss framed message.</p> <p>Intentions to seek help No interaction effect between message framing and stages of depression was found. Main effects were not found for message condition.</p>

		Measured by asking participants how likely they would make an appointment with a health professional to discuss depressive symptoms if they were to experience depressive symptoms anytime in the next two months. Measured on a 7-point Likert scale ranging from 1 (very unlikely) to 7 (very likely).	
27	<p>Fear arousing message content: low vs. high. Both messages were about sunburns. The low-arousing message stressed less severe negative consequences of burning and included less graphical photos, while the high fear-arousing messages stressed severe consequences to burning and included more disturbing photos of consequences. Each of the messages made three behavioral recommendations to participants.</p> <p>Trait anxiety Measured with the Manifest Anxiety Scale consisting of 20 Likert scale items.</p>	<p>Perceived fear Measured after exposure to messages with four Likert scale items. An example of an item: "I felt scared when reading the message."</p> <p>Attitudes Considering the behavioral recommendations. Six Likert scales were used with two items addressing each of the message recommendations. An example of an item: "I intend to wear a sun block every day."</p> <p>Behavioral intentions Measured with six Likert scale items, two per recommended action. An example of an item: "I intend to wear a sun block every day.")</p> <p>Cognitions Measured by asking participants to list any thoughts they had while reading the message and evaluate them as positive (consistent with the message content), negative (inconsistent with the message recommendation) or neutral (unrelated to the message content).</p>	<p>Low-anxiety As perceived fear increased, so did the proportion of positive cognitions.</p> <p>As perceived fear increased, attitudes conformed more to the message recommendations.</p> <p>As the proportion of positive cognitions increased, attitudes conformed more closely to message recommendations.</p> <p>As attitudes conformed more to message recommendations, so did the behavioral intentions.</p> <p>High-anxiety As perceived fear increased, so did the proportion of positive cognitions.</p> <p>The path between perceived fear and attitudes was nonsignificant.</p> <p>As the proportion of positive cognitions increased, attitudes conformed more closely to message recommendations.</p> <p>As attitudes conformed more to message recommendations, so did the behavioral intentions.</p>
37	Message framing (low responsibility cues, absent responsibility cues, information only)	Behavioral intention Measured with two items on 7-point Likert scales ranging from 1 (very unlikely) to 7 (very likely). An example of an item: "How	Adding interactions between depression and reasoned action variables (attitudinal, normative and control perceptions) did not explain variance in the behavioral intention. Participants depression levels did not affect their response to the messages for any of the dependent variables.

	<p>The low responsibility message talked about depression in connection to responsibility of the person experiencing it, saying that the person is not to blame for experiencing depression. The absent responsibility message did not include any message about responsibility. Both messages urged participants to reach out for help if they experience any of the symptoms of depression. The information only message only informed participants about a mental health clinic and it's offer.</p>	<p>likely is it that you will make an appointment with a health professional on campus to discuss depressive symptoms if you were to experience depressive symptoms this fall semester 2014.” The two items were averaged together to form one behavioral intention value.</p> <p>REASONED ACTION VARIABLES (all below) Instrumental and experiential attitude Measured with five 7-point semantic differential scales. Stem: “My making an appointment with a health professional on campus to discuss depressive symptoms if I were to experience depressive symptoms this fall semester 2014 would be...” Example of the two anchors: “unnecessary-necessary” for the instrumental attitude and “not enjoyable-enjoyable” for experiential attitude.</p> <p><i>Perceived norms</i> An injunctive norm Participants were asked how they think most people important to them would feel about them making an appointment with a health professional on campus to discuss depressive symptoms I they were to experience depressive symptoms this fall semester 2014. Measured on a 7-point scale ranging from 1 (strongly disapprove) to 7 (strongly approve).</p> <p>Descriptive norms Participants were asked how many of the people important to them on campus who struggle with emotional and psychological problems they think will make an appointment with a health</p>	
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		<p>professional on campus to discuss depressive symptoms this fall semester 2014. Measured on a 7-point scale ranging from 1 (none) to 7 (almost all).</p> <p>Perceived behavioral control Perceived capacity Measured on a 7-point scale. Participants were asked how capable they feel of making an appointment if they needed one.</p> <p>Perceived autonomy Participants were asked on two semantic differential scales, how much control they feel over making an appointment if they needed one. Example of the anchors: “not under my control-under my control”. The two items were averaged together.</p>	
38	<p>Frame (neutral vs. loss vs. gain) Neutrally framed message (message 1) included general statistics about depression. The loss framed message (message 2) included threatening statistics about depression when it is untreated. The gain framed message (message 3) included benefit appeal, positively framed statistics about success of treatment for depression. All three messages included call to action.</p> <p>Psychological distress Measured with the Japanese version of the K6 scale (Kessler Psychological Distress Scale). Those scoring below 5 were considered non-distressed and those scoring above or equal to 5 were considered distressed.</p>	<p>Comprehensibility Measured with 5 items on five-point scales. Participants were for instance asked how easy or difficult the information was to... e.g., “read”.</p> <p>Persuasiveness Measured with seven items of the perceived effectiveness scale on five-point scales. Participants were for example asked to which degree they agreed or disagreed that the information was e.g., “believable”.</p> <p>Emotional response Measured on 5-point scales ranging from 1 (not at all) to 5 (extremely). Participants were asked to what extent the message made them feel sad, surprised, angry, fearful, sad, guilty, anxious, and happy.</p> <p>Intended future use</p>	<p>Comprehensibility There was a significant interaction effect of framing and distress on comprehensibility of the message. Non distressed participants found loss and gain framed messages more comprehensible than neutrally framed messages, while that was not the case for the distressed.</p> <p>Persuasiveness There was a significant interaction effect of framing and distress on persuasiveness of the message. Both distressed and non-distressed participants found loss framed messages more and gain framed messages less persuasive than neutrally framed messages. This was slightly more pronounced for distressed participants over non-distressed.</p> <p>Emotional response Significant differences between the messages were found between the distressed and non-distressed participants for all emotions (fear, anger, sadness, guilt, anxiety, happiness) except for surprise.</p> <p>Emotional response interactions There was a significant interaction effect considering fear only. The effect of neutral vs. gain framing was larger for non-distressed than distressed participants. Exposing participants to a gain, as opposed to neutral framed message, led to higher decrease in fear for non-distressed participants than distressed participants. On the other hand, showing them a loss (as opposed to neutral) framed message, led to higher increases in fear for distressed participants than non-distressed participants.</p> <p>Read There was an interaction effect for reading presented information if they saw it in the magazine or newspaper. More specifically, non-distressed participants were more likely to read presented information if they saw it in a newspaper or magazine if they were loss, rather than gain framed. Conversely, distressed participants would more likely read gain than loss framed information. While non-distressed participants would more likely read loss framed than neutral framed message, distressed participants do not have a preference for one.</p>

		<p>Measured with 5-point scale asking participants to which extent would they use, read, and keep the information if you saw it in a newspaper or magazine. The scale ranged from 1 (very unlikely), to 5 (very likely).</p> <p>Help-seeking intention for depression Vignette methodology was used, where participants were asked to put them in the shoes of a person experiencing symptoms of depression. Participants were asked to indicate whether they would have sought professional help if they had health problems like the person from the vignette. Measured on a four point scale ranging from 1 (certainly yes) to 4 (certainly not).</p>	<p>However, when comparing neutral and gain framed message, distressed participants would more likely read the gain framed message while non-distressed would not.</p> <p>Use There was an interaction effect between frame and distress level in terms of use of information if they saw it in a magazine or newspaper. While both distressed and non-distressed participants were more likely to use information from loss than neutral frame, this difference was more pronounced for distressed participants. When comparing neutral to gain framed message, distressed participants would be more likely to use information from gain framed messages while non-distressed would not.</p> <p>Keep There was no interaction effect between distress and framing on intended keeping of information from the message if they came across it in a newspaper or magazine.</p> <p>Help-seeking intention for depression There was no interaction effect of framing and psychological distress on help-seeking intention for depression.</p> <p>The distressed group had a significantly higher score than the non-distressed group for the item “keeping the message”. There were no significant interaction effects between frame of the message and psychological distress considering help-seeking intention for depression. The proportion of participants who reported positive help-seeking intentions has grown from before to after exposure to the message by 31.3% on average in the distressed and 13% on average in the non-distressed group. Significant increases were seen in all conditions, for all groups regardless of their distress level.</p> <p>The loss framed message had a greater effect of increasing help-seeking intention for depression in the non-distressed group when compared to other messages. There were no differences between the neutral, loss or gain framed messages based on help-seeking intention for depression for the distressed groups.</p> <p>Persuasiveness score was significantly associated with increased help-seeking intention in the distressed and the non-distressed groups. Emotional responses of surprise and guilt were associated with increased help-seeking intention in the non-distressed and distressed groups.</p>
<p>39</p>	<p>Frame: gain vs. loss Gain frame emphasized the benefits of seeking help, was presented in a more positive tone (for instance, the models were smiling) and had a headline promoting help-seeking. The loss frame emphasized the problems of not seeking help, featured models with negative facial expressions and included a headline that emphasized the negative consequences of not seeking help. This was the same as in Lueck (2018).</p>	<p>Behavioral approach system (BAS) and behavioral avoidance or inhibition system (BIS) Measured with 24 statements participants expressed their level of agreement for on 4-point scales.</p> <p>Visual inspection of depression and attention Eye-tracking devices were used to inspect heat maps, total viewing duration, number of fixations, total fixation duration and the time it takes participants to fixate on areas of interest (TFF).</p>	<p>Higher depression scores and more pronounced depressed negative cognition increased the likelihood that participant would engage in avoidance motivation, rather than approach motivation.</p> <p>Those with minimal levels of depression in the gain framed condition fixated on the gain-framed headline and happy faces more than those with mild and moderate to severe levels of depression. In the loss condition, viewing of faces and was weak and viewing of disease information was strong, in particular for those with mild and moderate to severe depression. Total viewing time, number of fixations, and total fixation duration did not differ based on the interaction between level of depression and message condition, nor as a function of depression or message condition alone.</p> <p>The time it took the participants to fixate on areas of interest show an interaction effect between the frame of the message and level of depression. More specifically, those with minimal and mild depression fixated on gain framed message component by fixating chronologically at the gain headline, followed by happy persons, gain statements, disease information, neutral persons and the behavioral cue at the end. On the other hand the moderate to severely depressed group fixated on the gain headline first, like those with mild and moderate depression, followed by neutral faces, disease information, happy persons, gain statements and finally behavioral cue.</p>

	<p>Depression Measured with the Patient Health Questionnaire-9 (PhQ-9). It has nine items measured on 4-point scales ranging from 0 (not at all), to 3 (nearly every day). Participants are asked about their depressive symptoms over the last two weeks. Scores were categorized in three groups: minimal depression, mild depression, and moderate to severe depression.</p>		<p>In the loss framed condition, those with minimal levels of depression fixated first on the loss headline, then sad persons, neutral persons, loss statements, disease information and the behavioral cue at the end. Those with mild depression and moderate and severe depression fixated on messages similarly, fixating on the loss headline first, followed by sad persons, neutral persons, disease information, loss statements, and at the end the behavioral cue.</p>
Study number	Independent variable related to review question	Outcome measures related to review question	Key findings related to review question