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Data versus Spock: lay theories about whether emotion helps or hinders

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Data versus Spock: lay theories about whether emotion helps or hinders

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ABSTRACT

The android Data from *Star Trek* admired human emotion whereas Spock viewed emotion as irrational and maladaptive. The theory that emotions fulfil adaptive functions is widely accepted in academic psychology but little is known about laypeople's theories. The present study assessed the extent to which laypeople share Data's view of emotion as helpful or Spock's view of emotion as a hindrance. We also assessed how help and hinder theory endorsement were related to reasoning, emotion regulation, and well-being. Undergraduates ($N = 630$) completed a stressful timed reasoning task and questionnaires that assessed their theories of emotion, emotion regulation strategies, happiness, and social support. Overall, participants viewed emotion more as a help than a hindrance. The more they endorsed the view that emotion helps, the better their reasoning scores. Endorsing a help theory also predicted the use of reappraisal which, in turn, predicted greater happiness and social support. In contrast, endorsing the view that emotion hinders was associated with emotion suppression and less social support. Thus, people's theories about the functionality of emotion may have important implications for their reasoning and emotional well-being.

In the West, emotion has both positive and negative connotations. Two now classic examples of these views come from the television series, *Star Trek*. Spock struggled with his half Human-half Vulcan nature and strove to be logical. He tried valiantly to suppress emotion while serving aboard the starship *Enterprise* and even engaged in a Vulcan ritual designed to purge himself of all emotion. His android successor, Data, was devoid of emotion by design. But instead of disdaining emotions, Data strove to experience them, installing an emotion chip in his quest to be more human. Spock and Data exemplify conflicting views of emotion as hindering versus helping reasoning and well-being. These views have long philosophical and psychological ancestries and both remain prominent in contemporary culture. The present study is the first to empirically examine the extent to which laypeople endorse these views.

The view that emotion is maladaptive has been prominent at least since the time of the Stoics. Seneca argued that emotion is irrational, compared it to a disease, and suggested that people supplant emotion with rational responses (Kaster & Nussbaum, 2010). Plato described the human soul as composed of three parts, and recommended that reasoning govern the emotional and appetitive parts (Knuuttila, 2004). **AQ3** Anecdotal accounts show that, to this day, laypeople express the view that emotion disrupts rational thinking, makes people lose control, and signals weakness and vulnerability whereas they idealise being unemotional as a sign of rationality, maturity, strength, and greater volition (Lutz, 1986; Parrott, 1995). The term "emotional" is often used to invalidate the concerns and experiences of groups such as women, minorities, children, and people of low socio-economic status (Lutz, 1986; Shields, 2005).

While acknowledging that emotion can be problematic when experienced too intensely or frequently (e.g. Kring, 2008), philosophers and psychologists have also argued that emotion is functional and adaptive. Aristotle (350 B.C.E./1999, p. 43) favoured

rational control over the passions but viewed socially appropriate emotion as necessary for leading a good life. Disputing the Stoics, Descartes (1649/1989, pp. 51–52) noted that emotions motivate the soul to pursue "the things nature decides are useful", and cause harm simply because they sometimes motivate more action than appropriate in a situation. Darwin (1872/1965, p. 364) proposed that expressions of emotion evolved to help humans and other animals respond adaptively to situations relevant to survival. Many contemporary psychological theories such as appraisal theories build on Darwin's approach, defining emotions as responses composed of subjective feelings, physiological changes, and motivational tendencies that quickly and powerfully orient people toward stimuli that are relevant to their goals and prepare them to engage in adaptive action (e.g. Frijda, 1994; Lench, Bench, Darbor, & Moore, 2015; Levine & Edelstein, 2009; Moors, Ellsworth, Scherer, & Frijda, 2013; Simon, 1967). We concur with this definition. Some have even argued that emotions would be necessary for artificial intelligence (Picard, 2015), and that an embodied machine (such as Data) would need "affect programs" to survive in physical environments (Minsky, 2006). Laypeople also view emotion as a sign of life, vigour, and humanity, and being unemotional as a sign of apathy or estrangement from the world (Lutz, 1986).

Clearly, the view that emotion is maladaptive has a long history in philosophy and psychology. The view that emotion is adaptive has a similarly long history and is widely accepted in academic psychology today. People express both views in everyday talk about emotion and both are prevalent in popular culture. This research assessed the extent to which laypeople share Data's view of emotion as helpful or Spock's view of emotion as a hindrance.

Past research on lay theories about emotion

To the extent that emotion is indeed informative and adaptive, people's general tendency to embrace or avoid their emotional life should have important consequences for their achievement and well-being. Thus, the present research also assessed how endorsing a help or hinder theory was related to performance on a stressful reasoning task, happiness, perceived social support, and emotion regulation strategies. A few past studies have shown that beliefs about the functionality of emotion matter for achievement,

well-being, or emotion regulation, but only for specific features or types of emotion. College students who were instructed to view physiological arousal as adaptive performed better than a control group on practice GRE math questions in the laboratory and on the actual GRE test months later (Jamieson, Mendes, Blackstock, & Schmader, 2010). Participants who were led to believe that feeling anger would improve their performance on an upcoming task showed greater preference for, and up-regulation of, anger (Tamir, Bigman, Rhodes, Salerno, & Schreier, 2015). The more people valued negative affective states (anger, nervousness, downcast), the less pronounced were the associations between their daily experiences of negative affect and mental health outcomes (Luong, Wrzus, Wagner, & Riediger, 2016). People who endorsed beliefs that feeling upset is "shameful and irrational" and "damaging" engaged in more dysregulatory behaviours, such as using alcohol or sexual encounters, to cope with strong feelings (Manser, Cooper, & Trefusis, 2012). Thus, links have been identified between valuing specific features of emotion (e.g. arousal) or types of emotion (e.g. anger), and achievement and well-being.

It is also important to examine people's overarching theories that emotion helps or hinders. Broad and conflicting views are evident in ancient Greek philosophical accounts and continue to pervade Western media and everyday discourse. To be clear, no one views emotion as always adaptive or always maladaptive, but people may have a greater or lesser tendency to view emotion, overall, as something that helps them or gets in their way. Moreover, people's overarching theories about the functionality of emotion should have important implications for their reasoning and well-being and help to address the important question of why people adopt one type of emotion regulation strategy rather than another (Gross, 2015).

Relation of help and hinder theories to reasoning and well-being

Lay theories of emotion may impact people's reasoning. People often experience a stress response to challenging reasoning tasks. While these feelings are uncomfortable, they provide motivation to do well and help focus attention on the task at hand. If people view emotion as helpful, rather than as a hindrance to be overcome, they are less likely to be distracted or alarmed by their feelings, preserving the cognitive resources needed to perform well

(Jamieson et al., 2010; Levine & Edelstein, 2009). People who view emotion as a hindrance are likely to appraise feelings of stress during a challenging reasoning task in a negative way. In addition to making them feel worse, preoccupation with emotion may squander valuable cognitive resources needed to succeed at the task.

Endorsing a help theory of emotion should also promote well-being more broadly. According to appraisal theories (e.g. Moors et al., 2013; Siemer, Mauss, & Gross, 2007), people's appraisals of events as facilitating or obstructing their goals shape their emotional responses. In addition to appraising events, people appraise their emotional reactions to events, and this contributes to their overall emotional experience (Tsai, 2007). Those who view emotion as generally helpful are likely appraise their positive and negative emotional responses to events as furthering, rather than obstructing, their goals, resulting in greater well-being. They should also be more accepting of their emotions and pay more attention to them, providing opportunities to gain skills such as the ability to discriminate clearly among feelings. Emotional acceptance and emotional clarity have been associated with fewer depressive symptoms and with feeling less distressed by laboratory and real-world stressors (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995; Weihs, Enright, & Simmens, 2008). In contrast, if people believe that emotion hinders, they may experience more distress about everyday emotional reactions to events, resulting in lower well-being. They may avoid and attend less to emotions, foregoing opportunities to gain skills such as the ability to clearly identify feelings. Emotional avoidance, and deficits in the ability to identify feelings, have been linked to depressive symptoms (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Honkalampi, Hintikka, Tanskanen, Lehtonen, & Viinamäki, 2000).

Implications of help and hinder theories may extend beyond the individual to relations with others. People who believe emotion helps should be more understanding and accepting of how family, friends, and colleagues feel, providing and in turn receiving more social support (Thoits, 1986). For instance, accuracy in understanding the feelings of others is a key predictor of closeness in adolescents' same-sex friendship dyads (Chow, Ruhl, & Buhrmester, 2013). People who view emotion as a hindrance may be less accepting of others' feelings, leading them to provide and in turn receive less social support. Thus, drawing on past research about appraisal theories, people's beliefs about specific features of emotion, and emotional clarity and acceptance, we hypothesised that endorsing a help theory of emotion would be associated with better reasoning and greater well-being and social support. We hypothesised that endorsing a hinder theory would be associated with poorer reasoning and less well-being and social support.

Relation of help and hinder theories to emotion regulation

Lay theories about whether emotion helps or hinders should influence how accepting people are of their emotional responses. Nonetheless, people often need to alter their emotions, mustering enthusiasm to complete a necessary task, tamping down a sunny mood to listen sympathetically to a friend, or reigning in impatience with a child. People's views of emotion as helpful or hindering may influence the extent to which they use two common strategies to regulate emotion, reappraisal and suppression, in their daily lives. Reappraisal is an emotion regulation strategy which involves changing how a situation is viewed in order to alter the emotional response to it. This complex strategy depends critically on emotion-related knowledge and skills. People must be aware of their initial emotional response; understand that their goals and interpretations of a situation contribute to how they feel; understand that changing their goals or interpretations in specific ways will alter their feelings; be capable of generating appropriate alternative appraisals; and monitor the resulting shift in their feelings (McRae, Jacobs, Ray, John, & Gross, 2012). People who endorse a help theory of emotion should have greater opportunity to acquire the knowledge and skills needed to engage successfully in reappraisal. Viewing emotion as facilitating goals implies a basic understanding of the relation between emotions and goals. Paying attention to emotion and learning from emotional experience would provide opportunities to come to understand how interpretations of situations impact emotional responses. Reappraisal has been shown, both in the laboratory and in daily life, to promote enhanced well-being and better relationships (e.g. Gross & John, 2003). Thus, we hypothesised that, when people want to change how they feel, those who view emotion as helpful should engage in more frequent reappraisal which in turn should promote happiness and social support.

People who believe that emotions are generally undesirable are not likely to have acquired the

knowledge and skills needed to engage successfully in reappraisal. Instead, they would be motivated to "get rid of" their emotions through suppression (much as Spock tried to do). Suppressing emotional expression is not universally maladaptive (Ford & Mauss, 2015), but has been linked to lower well-being (Gross & John, 2003), psychopathology (Aldao et al., 2010), and less social support (Srivastava, Tamir, McGonigal, John, & Gross, 2009). Thus, we hypothesised that people who view emotion as a hindrance should engage more frequently in emotion suppression which in turn should promote less happiness and less social support.

Investigating relations between theories about emotion and regulation strategies is important because these strategies have important implications for emotion experience, mental health, and social interactions (Gross, 2015). Research exploring what guides people to adopt one strategy versus another is in its infancy but some influences have been identified. Temperament and family context have been shown to predict individual differences in emotion regulation (e.g. Morris, Silk, Steinberg, Myers, & Robinson, 2007). Culture also plays a role. People with East Asian backgrounds are more likely than those with European American backgrounds to use expressive suppression (Gross & John, 2003). Beliefs about emotion also contribute to strategy choice. Being accepting of feelings (Troy, Shallcross, Davis, & Mauss, 2013), believing that changing emotions is worthwhile (Veilleux, Salomaa, Shaver, Zielinski, & Pollert, 2015), and believing that emotions can be changed (De Castella et al., 2013; Schroder, Dawood, Yalch, Donnellan, & Moser, 2015), are associated with more frequent use of reappraisal, though the directionality of these relationships is not clear (Kneeland, Nolen-Hoeksema, Dovidio, & Gruber, 2016). Believing that emotions narrow an individual's choices is associated with greater use of expressive suppression (Veilleux et al., 2015). These beliefs may stem from people's broader theories about the functionality of emotion. Thus, more research is needed to understand what predisposes people to use reappraisal or suppression in daily life.

The present research

The present research assessed the extent to which laypeople view emotion as helpful or as a hindrance. We further examined whether people's help and hinder theories about emotion predicted their performance on a stressful reasoning task and their emotional well-being. Participants completed an online survey that included questions about emotion experience, regulation, well-being, and relationships. After a neutral filler task, they completed a timed reasoning task. We hypothesised that a more functionalist view of emotion (more help theory endorsement and less hinder theory endorsement) would be associated with better reasoning task performance, greater happiness, and more social support. We also expected endorsement of a functionalist view to predict use of reappraisal, which in turn would predict more happiness and social support. We hypothesised that a less functionalist view would predict poorer reasoning performance, as well as use of emotion suppression which in turn would predict less happiness and social support. The extent to which people value emotional control depends in part on social roles and expectations (Mauss, Butler, Roberts, & Chu, 2010), thus we also explored whether endorsement of help and hinder theories differs by gender and cultural background.

Method **AQ6**

Participants

Undergraduates ($N = 630$) at a university in southern California completed an online survey for partial course credit. Start and stopping points for data collection were determined before the study began. We initiated data collection in the Fall academic term once IRB approval was received and concluded data **AQ7** collection at the end of the following term. Data were omitted from participants who failed an attention check ($n = 54$), did not complete the survey in one session ($n = 36$), or did not complete the reasoning task ($n = 29$). Participants whose responses on any measure were more than four standard deviations from the mean were excluded ($n = 12$). The mean age of participants was 20.66 years (SD = 3.12, range = 18–54 years). The majority of participants were female ($n = 499$). Participants reported their ethnicity as Asian ($n = 262$), Hispanic/Latino ($n = 190$), White ($n = 103$), African American ($n = 14$), Pacific Islander ($n = 14$), or Other ($n = 33$). Fourteen participants did not report demographic information.

Measures and procedure

Baseline affect

At the start of the study, participants reported their current mood using the Positive and Negative Affect

Emotion helps	Emotion hinders
Feelings give direction to life[a]	One should never be guided by emotions[a]
The variety of human feelings makes life more interesting[a]	Feelings are a weakness humans have[a]
I believe it's healthy to feel whatever emotion you feel[a]	People would be better off if they felt less and thought more[a]
I learn through my feelings[b]	It is usually a waste of time to think about your emotions[a]

[a]Item comes from the initial item pool of the TMMS (Salovey et al., 1995).
[b]Item comes from the Meta-Interest subscale of the Meta-Emotion Scale (Mitmansgruber et al., 2009).

Schedule (Watson, Clark, & Tellegen, 1988). Using a scale from 1 (*very slightly or not at all*) to 5 (*extremely*), they rated the extent to which they felt positive affect (e.g. excited) and negative affect (e.g. distressed). Baseline positive and negative affect refer to mean ratings of positive ($a = 0.90$) and negative ($a = 0.87$) affect items. Participants then completed measures in the order listed below.

Theories that emotion helps and hinders

Participants rated items from the initial pool of the Attention to Feelings Factor of the Trait Meta-Mood Scale (TMMS; Salovey et al., 1995). The TMMS includes three subscales which assess beliefs about the degree to which people attend to their emotions, have clarity about their moods, and can repair negative moods. Participants also rated items from the Meta-Interest factor of the Meta-Emotion Scale which assesses people's thoughts and feelings about their emotions (Mitmansgruber, Beck, Höfer, & Schüßler, 2009), and from the short form of the Need for Affect Scale (Appel, Gnambs, & Maio, 2012). To assess lay theories about the functionality of emotion, we selected items from the initial pool of the TMMS and the Meta-Interest factor of the Meta-Emotion Scale that specifically tapped the construct that emotion is helpful or a hindrance. We included all items that: (a) clearly reflected positive or negative value judgments about emotions or feelings, and (b) did not confound beliefs about emotion with other constructs such as emotional intensity, thinking about or attending to emotions, emotion regulation, or perceived emotion regulation efficacy. The four help items and four hinder items that met these selection criteria are shown in Table 1. One item used a 6-point scale and the others used a 5-point scale. We applied a linear transformation so that ratings on the 6-point scale

corresponded to ratings on the 5-point scale [transformed item = (0.8*item) + 0.2].

The four help items included two items that described feelings as adaptive and valuable ("Feelings give direction to life" and "The variety of human feelings makes life more interesting"), one item that described feeling emotion as healthy ("I believe it's healthy to feel whatever emotion you feel"), and one item that described feelings as having informational value ("I learn through my feelings"). Participants' mean ratings on these four items were used to assess their endorsement of the theory that emotion helps.

The four hinder items included two items that stated that emotions were maladaptive ("Feelings are a weakness humans have" and "One should never be guided by emotions"), one item that implied that emotions do not provide valuable information ("It is usually a waste of time to think about your emotions"), and one item that described emotion as inferior to cognition ("People would be better off if they felt less and thought more"). We used participants' mean ratings on these four items to assess their endorsement of the theory that emotion hinders.

We used confirmatory factor analysis to assess the measurement properties of the help and hinder theories. The results are shown in Figure 1. The four items conveying the view that emotions are helpful loaded significantly on a single factor and the four items conveying the belief that emotions are a hindrance loaded significantly on a single factor. As expected, the help factor was moderately negatively correlated with the hinder factor. The model showed a good fit to the data, $\chi^2(19)$: 50.10, $p < .001$; root-mean square error of approximation (RMSEA) = 0.051; comparative fit index (CFI) = 0.957. The standardised loadings of the four indicators of the help theory ranged from 0.43 to 0.61. The standardised loadings of the four indicators of the hinder theory ranged from 0.41 to 0.78.

We conceptualised help and hinder theories as two separate constructs because people often describe emotion as both helpful and harmful (Lutz, 1986). **AQ8** However, we also conducted a confirmatory factor analysis treating help and hinder theories as a single, bipolar construct to find out whether help and hinder items should be combined in analyses. The resulting model did not show as good of a fit to the data based on RMSEA and CFI. Therefore, we treated help and hinder as separate constructs in analyses.

feelings give direction to life — ε_8 .63

feelings make life interesting — ε_5 .81

healthy to feel whatever you feel — ε_7 .83

I learn through feelings — ε_1 .71

never be guided by emotions — ε_3 .73

weakness humans have — ε_2 .66

better off if felt less, thought more — ε_4 .79

waste of time to think about — ε_6 .4

Emotions Help
.61***
.44***
.41***
.54***

Emotions Hinder
.52***
.59***
.45***
.78***

-.66***

Chi-square(19) = 50.10
$p < .001$
RMSEA = 0.051
CFI = 0.957
$N = 630$

Note. *** = $p < .001$
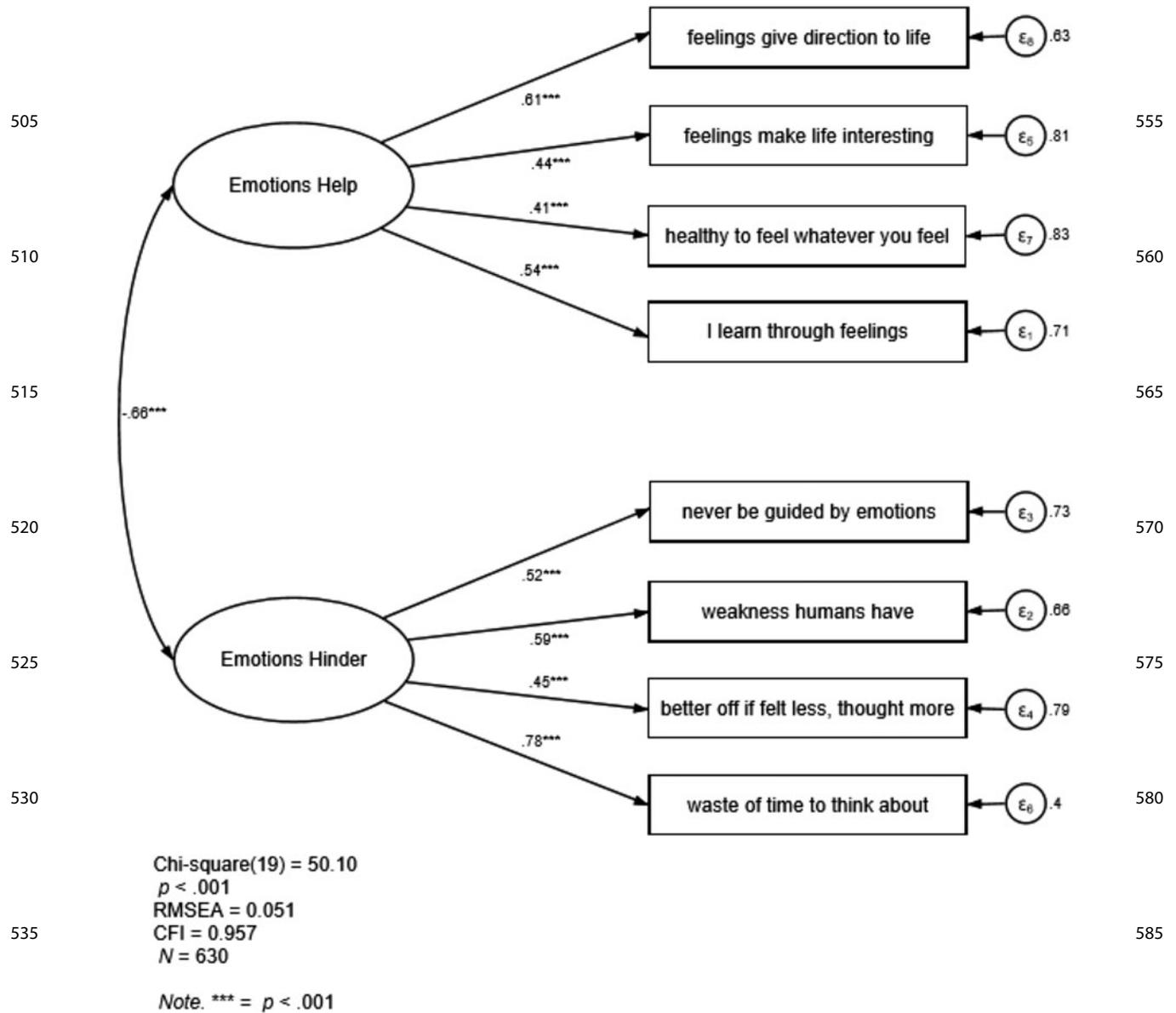
AQ20 **Figure 1.** Confirmatory factor analysis for the help and hinder theories of emotion, with standardised regression coefficients.

Attention check

To determine whether participants were reading the survey questions carefully, one item stated, "This question is an attention check. Please select '2' for 'disagree'". Participants who followed this instruction were included in the analyses.

Emotion regulation self-efficacy

In assessing help and hinder theories, we wanted to account for people's beliefs concerning whether or not their emotions can be changed, since perceived emotion regulation ability is related to more reappraisal use and greater well-being (De Castella et al., 2013; Tamir, John, Srivastava, & Gross, 2007). A modified version of the Implicit Beliefs about Emotion scale (Tamir et al., 2007) was used to assess the extent to which participants viewed emotions as fixed or malleable (De Castella et al., 2013). The scale includes two items assessing perceptions that emotions are fixed entities (e.g. "No matter how hard I try, I can't really

change the emotions that I have") and two items assessing perceptions that emotions can be changed or controlled (e.g. "If I want to, I can change the emotions that I have"). Entity items were reverse scored, thus, a higher mean score reflects greater endorsement of the belief that one's emotions can be changed or controlled ($a = 0.81$).

Emotional intensity

The Impulse Strength factor of the Berkeley Expressivity Questionnaire (Gross & John, 1995) was included to assess the intensity of participants' emotional reactions. Participants rated six statements (e.g. "I experience my emotions very strongly", "I am sometimes unable to hide my feelings, even though I would like to") using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*); $a = 0.86$.

Emotion regulation

Participants completed items from the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), which assesses habitual use of reappraisal and emotion suppression. Participants rated five items about reappraisal (e.g. "When I want to feel less negative emotion, I change the way I'm thinking about the situation"), and four items about suppression (e.g. "I keep my emotions to myself"), using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*); $a = 0.90$ for reappraisal, $a = 0.76$ for suppression.

Happiness

Participants completed the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). Using a 7-point scale, they rated items concerning their level of general happiness and items comparing themselves to descriptions of happy or unhappy individuals; $a = 0.87$.

Perceived social support

The Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988) was used to assess perceptions of being supported by individuals from three different sources: family (e.g. "I get the emotional help and support I need from my family"), friends (e.g. "I can count on my friends when things go wrong"), and a significant other (e.g. "There is a special person in my life who cares about my feelings"). The response scale ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). The mean score was used as a measure of perceived social support; $a = 0.92$.

Reasoning task

Participants completed a brief filler task during which they were instructed to study a sequence of shapes of different colours and to select the best choice for the next colour in the progression. They were then informed that they would be completing a difficult "IQ test" under time pressure. The 16-minute task (a countdown timer was displayed at the top of the webpage) consisted of 10 questions, which included multiple-choice analytical reasoning problems about a brief text excerpt and math problems, slightly modified from the Graduate Record Examination, and anagrams. The first reasoning problem did not display the correct answer choice due to experimenter error; the test was scored based on the other nine questions.

Appraisals of threat

Participants rated five items assessing their beliefs about their resources for the task (e.g. "I had the abilities to perform well on this task"; $a = 0.71$) and six items assessing the demands of the task (e.g. "This task was stressful"; $a = 0.85$; Mendes, Gray, Mendoza-Denton, Major, & Epel, 2007). The response scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). These ratings were completed immediately after receiving task instructions and again immediately the task. Post-task ratings were used to determine how threatening participants found the task once they had actually experienced it. Following the procedure used by Mendes et al., we first computed the average scores for the resource appraisals and for demand appraisals. We then divided the average demand rating by the average resource rating to provide an index of how threatening (versus challenging) participants found the task (Mean threat index = 0.96, SD = 0.38, range: 0.16–2.69).

Demographics

At the end of the study, participants reported their gender, ethnicity, grade point average, and whether they were currently studying for a graduate school admissions exams (e.g. GRE, LSAT, MCAT). **AQ9 AQ10**

Other measures

Participants in this study also completed exploratory items concerning the size of their social network, heath service visits and sick days, and beliefs about emotion control that do not represent help or hinder theories, which were not the focus of the current investigation. In addition, just prior to

reporting demographic information, they took part in a pilot study to find out whether reading essays promoting a help or hinder theory would alter their beliefs about the extent to which emotion is helpful or harmful. We have reported all measures, conditions, data exclusions, and how we determined our sample size.

Results

As expected, the more participants endorsed the theory that emotion helps, the less they endorsed the theory that emotion is a hindrance, $r(630) = -0.41$, $p < .001$. A paired samples t-test showed that, overall, participants viewed emotion as more helpful ($M = 3.89$, SD $= 0.53$) than hindering ($M = 2.37$, SD $= 0.68$), $t(629) = 37.66$, $p < .001$, $d = 2.52$.

To assess whether gender or ethnicity were related to help and hinder theories, we conducted a mixed model ANOVA with help and hinder theories as the dependent variables. Latino, White, and Other groups were dummy-coded and compared to the Asian group. The results showed that women endorsed a help theory ($M = 3.93$, SD $= 0.51$) more than did men ($M = 3.76$, SD $= 0.57$), $F(1, 608) = 8.48$, $p < .01, \eta_p^2 = 0.01$. Women endorsed a hinder theory ($M = 2.32$, SD $= 0.67$) less than did men ($M = 2.57$, SD $= 0.69$), $F(1, 608) = 15.39$, $p < .05$, $\eta_p^2 = 0.03$. Endorsement of a help theory did not differ by ethnic group, $F(3, 608) = 1.39$, $p = .27$, $\eta_p^2 = 0.01$, but endorsement of a hinder theory did differ, $F(3, 608) = 4.32$, $p < .01$, $\eta_p^2 = 0.02$. A Bonferroni-adjusted comparison showed that Asian participants endorsed a hinder theory ($M = 2.51$, SE $= 0.63$) more than did White participants ($M = 2.18$, SD $= 0.66$), $t(363) = 3.26$, $p < .01$. A Bonferroni-adjusted comparison showed that Hispanic participants also endorsed a hinder theory ($M = 2.39$, SD $= 0.73$) more than did White participants, $t(291) = 3.28$, $p < .05$. There were no interactions between gender and ethnicity.

We also assessed how help and hinder theories were related to emotion regulation efficacy, emotional intensity, and baseline positive and negative affect. People who believe they cannot change emotions might be expected to view emotion as less helpful and more of a hindrance. However, efficacy was not related to endorsement of a help theory, $r(630) = -0.05$, $p = .22$, or hinder theory, $r(630) = -0.05$, $p = .24$. People who react more strongly to events might also be expected to view emotion as less helpful and more of a hindrance. Contrary to these expectations, participants with more intense emotions actually endorsed a help theory more, $r(630) = 0.32$, $p < .001$, and a hinder theory less, $r(630) = -0.17$, $p < .001$. Help theory endorsement was related to greater baseline positive affect ($r = 0.13$, $p < .01$), but not negative affect ($r = -0.05$, $p = .25$). Hinder theory endorsement was related to greater baseline negative affect ($r = 0.16$, $p < .001$), but not positive affect ($r = -0.07$, $p = .10$).

Relation of help and hinder theories to reasoning and emotional well-being

Table 2 shows descriptive statistics and correlations among help and hinder theories, reasoning, and the emotional well-being variables. We conducted separate regression analyses for each outcome to test our hypotheses that greater endorsement of a help theory, and less endorsement of a hinder theory, would predict (a) better reasoning, (b) more reappraisal, (c) less emotion suppression, (d) greater happiness, and (e) greater perceived social support. In Step 1 of each of regression, we entered gender, emotional intensity, and perceived efficacy at regulating emotions. This was done because endorsement of help and hinder theories differed by gender and were related to intensity. We also wanted to assess whether help and hinder theories predicted outcomes after accounting for potential differences in efficacy. In Step 2 of each regression, we entered help and hinder theories so that associations between endorsement of a help theory and an outcome accounted for endorsement of a hinder theory, and vice versa. Further details specific to each analysis, and the results, are described below. A more detailed summary of the results for each regression analysis, including values for each covariate, is provided in Supplementary Material (Tables S1, S2, and S3). Unless noted, the relations between help and hinder theory endorsement and outcomes did not change when the following additional covariates were included at Step 1: ethnicity, baseline positive affect, and baseline negative affect.

Reasoning

Participants scored an average of 5.84 correct out of the nine questions on the reasoning test (SD $= 1.89$). Participants found the task to be threatening, with an average threat appraisal index of 0.96 (SD $= 0.38$, range: 0.16–2.69). One item from this index assessed importance ("Performing well was important to me").

Table 2. Descriptive statistics and correlations among theories that emotion helps versus hinders, emotion regulation efficacy, emotional intensity, emotion regulation, happiness, social support, reasoning, and baseline positive and negative affect.

Variable	M	SD	Range	Correlations										
				1	2	3	4	5	6	7	8	9	10	11
(1) Emotion helps	3.89	0.53	1.95–5.00	1										
(2) Emotion hinders	2.37	0.68	1.00–4.75	−0.41**	1									
(3) Efficacy	3.37	0.78	1.00–5.00	−0.05	−0.05	1								
(4) Intensity	4.99	1.22	1.50–7.00	0.32**	−0.17**	−0.32**	1							
(5) Reappraisal	4.52	1.11	0.40–6.40	0.20**	−0.12**	0.41**	−0.06	1						
(6) Suppression	3.26	1.20	0.50–6.50	−0.19**	0.42**	0.02	−0.19**	0.01	1					
(7) Happiness	4.84	1.23	1.00–7.00	0.18**	−0.18**	0.33**	−0.11**	0.44**	−0.23**	1				
(8) Social support	3.94	0.75	1.00–5.00	0.24**	−0.21**	0.11**	0.09*	0.23**	−0.19**	0.35**	1			
(9) Reasoning score	5.84	1.89	0.00–9.00	0.08*	−0.04	0.02	−0.02	0.04	0.02	−0.07	0.07	1		
(10) Positive affect	2.56	0.79	1.00–5.00	0.13**	−0.07	0.22**	−0.06	0.24**	−0.12**	0.31**	0.19**	−0.06	1	
(11) Negative affect	1.62	0.63	1.00 – 4.10	−0.05	0.16**	−0.23**	0.08	−0.13**	0.16**	−0.22**	−0.17**	−0.13**	0.12**	1

*p < .05.
**p < .001.

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Ratings on this item indicated that participants also viewed the task as important ($M = 4.82$, SD = 1.49, range: 1–7). To test the hypothesis that help theory endorsement would be associated with better performance on a stressful reasoning task, we conducted a regression analysis with reasoning scores as the dependent variable. In Step 1, we entered gender, intensity, efficacy, and participants' mean-centered threat appraisal index as predictors. In Step 2, we entered mean-centered help and hinder theories. In Step 3, we entered the interaction between help theory and threat appraisal, and the interaction between hinder theory and threat appraisal (interactions were computed using mean-centered scores). The final model accounted for 9% of the variance, $F(8, 607) = 7.31$, $p < .001$. The more threatened participants felt, the lower their reasoning score, $\beta = -0.27$ $t = -6.69$, $p < .001$. As hypothesised, the more participants endorsed a help theory of emotion, the higher they scored, $\beta = 0.12$, $t = 2.68$, $p < .01$. Hinder theory endorsement, gender, intensity, and efficacy were not related to reasoning scores. No interactions were found between help theory and threat appraisals or between hinder theory and threat appraisals. Adjusting for ethnicity, baseline positive and negative affect, GPA, and whether participants were currently **AQ13** studying for a graduate admissions examination at Step 1, did not alter these findings. Thus, when completing a stressful reasoning task, feeling threatened was associated with poorer performance, but viewing emotion as helpful was associated with better performance.

Happiness

The next set of analyses was conducted to find out whether help and hinder theories predicted two measures of emotional well-being: happiness and perceived social support. First, we examined factors that predicted happiness. At Step 1, the three-predictor model (gender, intensity, perceived efficacy) accounted for 11% of the variance in happiness. At Step 2, after adding help and hinder theory endorsement, the model accounted for 16% of the variance. The final regression equation was significant, $R = 0.40$, $F(5, 610) = 23.05$, $p < .001$. The more participants believed they could change their emotions (efficacy), the more happiness they reported ($\beta = 0.33$, $t = 7.59$, $p < .001$). The more emotional intensity participants reported, the less happiness they reported ($\beta = -0.09$, $t = -2.14$, $p < .05$). As hypothesised, the more participants endorsed a help theory, the more

happiness they reported, $\beta = 0.17$, $t = 4.09$, $p < .001$. In contrast, the more participants endorsed a hinder theory, the less happiness they reported, $\beta = -0.111$, $t = -2.63$, $p < .01$. However, when ethnicity and baseline positive and negative affect were included as covariates, the association between hinder theory and experiencing less happiness did not reach the conventional level of statistical significance, ($\beta = -0.07$, $p = .07$, $t = -1.83$).

Social support

Next, we examined factors that predicted perceived social support. At Step 1, the three-predictor model (gender, intensity, perceived efficacy) accounted for 4% of the variance in perceived social support. At Step 2, the three-predictor model accounted for 8% of the variance. This improvement in the fit of the model was significant, $\Delta R^2 = 0.05$, $F(2, 610) = 16.18$, $p < .001$. The final regression equation predicting perceived social support was significant, $R = 0.30$, $F(5, 610) = 12.10$, $p < .001$. The more participants believed they could change their emotions (efficacy), the more social support they reported ($\beta = 0.15$, $t = 3.55$, $p < .001$). As hypothesised, the more participants endorsed a help theory, the more social support they reported ($\beta = 0.15$, $t = 3.44$, $p < .01$). The more participants endorsed a hinder theory, the less social support they reported ($\beta = -0.12$, $t = -2.89$, $p < .01$). Gender and intensity were not related to social support. In summary, viewing emotion as a help was associated with greater happiness and perceived social support, whereas viewing emotion as a hindrance was associated with less perceived social support.

Emotion regulation

We also assessed whether help and hinder theories predicted the strategies participants reported using to regulate emotion. First, we examined factors that predicted reappraisal use. At Step 1, gender, intensity, and perceived efficacy accounted for 17% of the variance in reappraisal. At Step 2, after adding help theory and hinder theory endorsement, the model accounted for 21% of the variance. This improvement in the fit of the model was significant, $\Delta R^2 = 0.04$, $F(2, 610) = 16.74$, $p < .001$, and the final regression equation was significant, $R = 0.46$, $F(5, 615) = 32.09$, $p < .001$. The more participants believed they could change their emotions (efficacy), the more they used reappraisal, $\beta = 0.41$, $t = 10.62$, $p < .001$. Efficacy accounted for 15% of the variance in reappraisal,

after adjusting for gender, intensity, and help and hinder theory endorsement. As hypothesised, the more participants endorsed a help theory, the more they used reappraisal, $\beta = 0.22$, $t = 5.22$, $p < .001$. Help theory endorsement accounted for 4% of the variance in reappraisal, after adjusting for gender, intensity, efficacy, and hinder theory endorsement. Hinder theory and intensity were not related to reappraisal.

Next, we examined factors that predicted participants' reports of engaging in suppression. At Step 1, gender, intensity, and perceived efficacy accounted for 4% of the variance in suppression. At Step 2, after adding help and hinder theory endorsement, the model accounted for 20% of the variance. This was a significant improvement in model fit, $\Delta R^2 = 0.16$, $F(2, 610) = 59.31$, $p < .001$, and the final regression equation was significant, $R = 0.44$, $F(5, 610) = 29.85$, $p < .001$. As hypothesised, the more participants endorsed a hinder theory, the more they used suppression, $\beta = 0.41$, $t = 10.20$, $p < .001$. Hinder theory endorsement accounted for 14% of the variance in suppression, after adjusting for gender, intensity, efficacy, and help theory endorsement. The more emotional intensity participants reported, the less they used suppression, $\beta = -0.12$, $t = -2.75$, $p < .01$. Help theory and efficacy were not associated with suppression.

Analyses of indirect effects

The next set of analyses was conducted to find out whether help theory endorsement was related to happiness and social support via reappraisal. These analyses used Preacher and Hayes's (2008) bootstrapping method, and included hinder theory endorsement, gender, intensity, and efficacy as covariates. We also assessed whether hinder theory endorsement was related to lower well-being and less perceived social support via suppression, with help theory endorsement, gender, intensity, and efficacy as covariates.

As shown in Figure 2, the more participants endorsed a help theory of emotion, the more happiness they reported ($b = 0.41$, $SE = 0.10$, $t = 4.09$, $p < .01$), and this association was partially explained by reappraisal (Indirect effect = 0.171; $SE = 0.04$; 95% $CI = 0.09$–0.26). Specifically, the more participants endorsed a help theory, the more they regulated emotion using reappraisal ($b = 0.45$, $SE = 0.09$, $t = 5.22$, $p < .001$). In turn, the more they used reappraisal, the more happiness they reported ($b = 0.37$, $SE = 0.04$,

$t = 8.38$, $p < .01$). After controlling for reappraisal, the association between a help theory and happiness significantly decreased ($b = 0.24$, SE = 0.10, $t = 2.49$, $p < .05$). With respect to social support, the more participants endorsed a help theory of emotion, the more social support they reported ($b = 0.21$, SE = 0.06, $t = 3.44$, $p < .001$), and reappraisal partially explained this association (Indirect effect = 0.05; SE = 0.02; 95% CI = 0.02–0.10). Specifically, the more participants endorsed a help theory, the more they used reappraisal ($b = 0.45$, SE = 0.09, $t = 5.22$, $p < .001$). The more they used reappraisal, the more social support they reported ($b = 0.12$, SE = 0.03, $t = 4.13$, $p < .001$). After controlling for reappraisal, the association between a help theory and perceived social support decreased significantly ($b = 0.17$, SE = 0.06, $t = 2.55$, $p = .01$).

The more participants endorsed the hinder theory of emotion, the less social support they reported ($b = -0.14$, SE = 0.05, $t = -2.89$, $p < .001$), and suppression fully explained this relationship (Indirect effect = −0.06; SE = 0.02; 95% CI = −3.05 to −0.02). Thus, the more participants endorsed a hinder theory, the more they used suppression ($b = 0.73$, SE = 0.07, $t = 10.20$, $p < .001$). The more they used suppression, the less social support they reported ($b = -0.09$, SE = 0.03, $t = -3.21$, $p < .01$). After controlling for suppression, the negative association between hinder theory endorsement and perceived social support was no longer significant ($b = -0.07$, SE = 0.05, $t = -1.47$, $p = .14$). In summary, the link between viewing emotion as a help and feeling happier was partially explained by engaging in more reappraisal, and the link between viewing emotion as a help and feeling more supported was partially explained by engaging in more reappraisal. The link between viewing emotion as a hindrance and feeling less supported was fully explained by suppression.

Because the study design was cross-sectional, we also tested alternative indirect effect models that included the same covariates. We first tested three reverse causation models to determine whether feeling more or less happy or socially supported predicts how people regulate emotion, which in turn predicts the theories they hold about whether emotion is helpful or a hindrance (see Supplementary Material, Figure S1, for a detailed depiction of these models). Compared to the results of our hypothesised models, the indirect effects of emotion regulation were weaker for the three models tested: (a) happiness predicting help theory endorsement via reappraisal (Indirect effect = 0.024; SE = 0.01; 95% CI = 0.01–0.04); (b) social support predicting help theory endorsement via reappraisal (Indirect effect = 0.023; SE = 0.01; 95% CI = 0.01–0.04); and (c) social support predicting hinder theory endorsement via suppression (Indirect effect = −0.052; SE = 0.02; 95% CI = −0.09 to −0.03).

We also tested the alternate models that feeling happy and supported predicts the use of particular emotion regulation strategies which in turn inform people's beliefs about the functionality of emotion (see Supplementary Material, Figure S2, for a detailed depiction of these models). Again, compared to the results of our hypothesised models, indirect effects were either absent or weaker for the alternative models: (a) reappraisal predicting help theory endorsement via happiness (Indirect effect = 0.02; SE = 0.01; 95% CI = 0.01–0.03); (b) reappraisal predicting help theory endorsement via social support (Indirect effect = 0.01; SE = 0.01; 95% CI = 0.01–0.02); and (c) suppression predicting hinder theory endorsement via social support (Indirect effect = 0.01; SE = 0.01; 95% CI = −0.01–0.01). Thus, the results of these alternative models indicate that there was greater support for our hypothesised models in which lay theories about emotion predict well-being outcomes via emotion regulation.

Discussion

Academic psychology emphasises the adaptive functions of emotion (e.g. Frijda, 1994; Lench et al., 2015; Simon, 1967), but portrayals of emotion in popular culture and everyday discourse are more varied. For example, the android Data from *Star Trek* admired human emotions and tried to acquire them whereas Spock overlooked no opportunity to point out that emotions are irrational and maladaptive. This is the first study to examine whether laypeople share Data's view of emotion as helpful or Spock's view of emotion as a hindrance, and to examine whether endorsing either theory predicts reasoning, well-being, and emotion regulation.

Endorsement of help and hinder theories

The items assessing help and hinder theories loaded well on their respective factors in a confirmatory factor analysis. Participants endorsed a help theory more than a hinder theory, and a moderate negative correlation was found between endorsements of the two theories. Men viewed emotion as less helpful
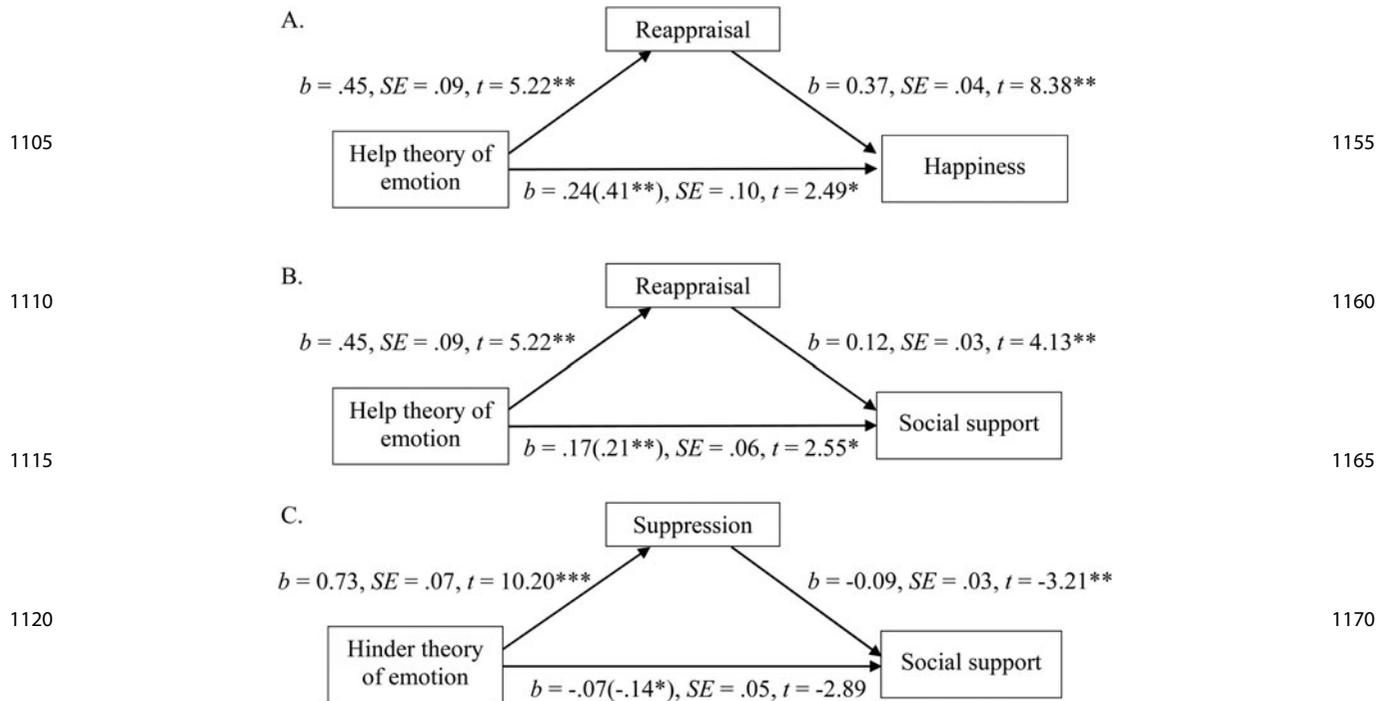
Figure 2. Panels A and B show the indirect effects of help theory endorsement on happiness (Panel A) and social support (Panel B) via reappraisal, controlling for hinder theory. Panel C shows the indirect effect of hinder theory endorsement on social support via suppression, controlling for help theory. Unstandardised regression coefficients are presented. Total effects of lay theories predicting happiness and social support are shown in parentheses. Analyses included the covariates of gender, emotion regulation efficacy, and intensity. *$p < .05$. **$p < .001$.

and as more of a hindrance than did women. Men who endorse a masculine gender identity describe themselves as less emotional (Jakupcak, Salters, Gratz, & Roemer, 2003). Thus, men may have a greater tendency than women to view emotion as a threat to their identity and a sign of weakness. Given this gender difference, we included gender as a covariate in all analyses. Additional regression analyses showed no interactions between gender and help or hinder theory endorsement.

Help theory endorsement did not vary across ethnic groups but Asian and Hispanic/Latino participants viewed emotion as more of a hindrance than did White participants. Although Asian and Hispanic/Latino cultures differ in the value placed on emotional expression (Soto, Levenson, & Ebling, 2005), both cultures emphasise interdependence more than does European American culture. Asian and Hispanic/Latino participants may view individual emotional experience as at odds with the needs of their social groups and as a hindrance to maintaining social harmony. Relative to European Americans, Asian Americans may also have a greater tendency to view

emotion as a hindrance because they place more value on emotional control (Mauss et al., 2010).

Help and hinder theories, reasoning, and well-being

As hypothesised, the more that participants endorsed the view that emotion is helpful, the higher they scored on a stressful timed reasoning task. This finding extends past research showing that valuing specific features of emotion (e.g. arousal) can promote achievement (Jamieson et al., 2010). Participants who viewed emotion as more helpful may have been less preoccupied by the stressful nature of this timed task and their feelings about it, freeing up cognitive resources that led to better performance. Indeed, their feelings may have served to motivate them and to direct their attention to the task at hand (Levine & Edelstein, 2009). Viewing emotion as a hindrance, however, was not related to participants' reasoning scores.

Help and hinder theories were also related to emotional and social well-being. As hypothesised,

the more participants viewed emotion as a help, the more they reported feeling happy and socially supported. Consistent with appraisal theories (e.g. Moors et al., 2013; Siemer et al., 2007), appraising emotions as facilitating rather than obstructing goals should promote positive feelings. People who view emotion as helpful are also likely to empathise with, and accept, the feelings of family, friends, and colleagues (Thoits, 1986), resulting in mutually satisfying relationships. In contrast, the more participants viewed emotion as a hindrance, the less happiness they tended to feel (though this association did not reach statistical significance; $p = .07$), and the less social support they reported. Appraising emotional reactions as a hindrance may compound people's distress and lead them to be less understanding and accepting of how others feel, resulting in less satisfying relationships.

Help and hinder theories and emotion regulation

People often have cause to up-or down-regulate emotion regardless of whether they value emotion. Why they select one emotion regulation strategy versus another is an under-explored question in the field of emotion regulation. This issue is critically important because the emotion regulation strategies people use have implications for their well-being, relationships, and mental health (Gross, 2015). We found that participants' theories of emotion predicted the emotion regulation strategies they reported. The more they viewed emotion as helpful, the more they reported engaging in reappraisal. People who value emotion are likely to attend to and learn from their emotions, even negative ones (Tamir et al., 2015). This would provide opportunities to observe that their appraisals of situations impact their emotional responses, and that changing their appraisals can alter how they feel. Viewing emotion as adaptive should also diminish the tendency to experience distress about an initial unpleasant emotion, for instance, feeling ashamed of having felt angry or sad. Preventing escalation of the initial emotion makes it easier to reappraise situations, since higher-intensity emotions are more difficult to change via reappraisal (John & Gross, 2004). Future research should directly assess whether viewing emotion as helpful promotes the deeper understanding of the links between thoughts and feelings needed for successful reappraisal (McRae et al., 2012).

More frequent reappraisal has been shown to predict greater well-being and closer relationships (De Castella et al., 2013; John & Gross, 2004; Nezlek & Kuppens, 2008; Tamir et al., 2007). Indeed, analyses of indirect effects showed that the associations between endorsing a help theory and feeling happier and more socially supported were partly explained by reappraisal. That is, the more participants endorsed a help theory, the more they regulated emotion using reappraisal. In turn, the more they used reappraisal, the more happiness and social support they reported. After controlling for reappraisal, the associations between help theory endorsement and happiness, and between help theory endorsement and social support, decreased significantly. It should be noted however that, even after accounting for reappraisal, the associations between help theory endorsement and both happiness and social support remained statistically significant. Thus, emotion regulation strategy use does not fully account for the links between help theory endorsement and well-being.

As hypothesised, the more participants viewed emotion as a hindrance, the more they reported using suppression to regulate emotion in daily life. People who view emotion as harmful may be motivated to find ways not to feel or express emotion. Moreover, the association between endorsing a hinder theory and perceiving less social support was explained by suppression. The more participants endorsed a hinder theory, the more they regulated emotion using suppression. In turn, the more they used suppression, the less socially supported they felt. Suppressing emotional expression is not always maladaptive (Bonanno, Papa, Lalande, Westphal, & Coifman, 2004; Ford & Mauss, 2015), but it is less effective than reappraisal for changing emotional experience (Gross, 2015). Hiding their feelings also makes people feel inauthentic (English & John, 2013), **AQ14** especially in cultural contexts where authentic expression is valued (Butler, Lee, & Gross, 2007), and can impede the formation of close relationships (Butler et al., 2003; John & Gross, 2004; Nezlek & Kuppens, 2008). People who view emotion as a hindrance may also try to suppress feelings expressed by friends, family, and partners, which can further strain relationships (Lepore & Helgeson, 1998).

The emotion regulation strategies people use depend in part on their perception of their efficacy at regulating emotion (e.g. De Castella et al., 2013). Consistent with this past research, we found that

participants who reported greater efficacy engaged more in reappraisal. People who think they can change their emotions might also be expected to view emotion as more helpful and less of a hindrance. However, we found that help and hinder theories were not related to emotion regulation efficacy. Moreover, help and hinder theories predicted reappraisal and suppression, respectively, after adjusting statistically for efficacy. Thus, people's theories about whether emotion helps or hinders were distinct from their perceptions of emotion regulation efficacy and were related to emotion regulation via other pathways. As noted above, attending to feelings may provide people who endorse a help theory with opportunities to learn that their interpretations of situations influence their emotional responses. Thus, when they want to change how they feel, they may direct their efforts toward reappraisal. People who endorse a hinder theory may attend less to factors that shape their emotions and miss out on opportunities to learn to reappraise. Instead, they may use suppression in an attempt to "get rid of" and avoid being hindered by emotion.

Lay theories of emotion may also have broader implications for mental health. Symptoms of psychopathology often include unwanted affect, such as feeling anxious or depressed. Hinder theory endorsement might contribute to the generation or maintenance of such states. For instance, negatively evaluating emotional reactions, and feeling bad *about* one's feelings, may intensify or prolong negative affective states. Negatively evaluating emotional reactions may also lead to using less effective strategies to down-regulate emotion, such as suppression or experiential avoidance, both of which have been implicated in psychopathology (Aldao et al., 2010; Kneeland et al., 2016). Consistent with this view, past research shows that believing that emotion hijacks behaviour is associated with anxiety; believing that emotion constrains behaviour is associated with symptoms of anxiety and depression (De Castella et al., 2014; Veilleux et al., 2015). These findings suggest that it would be fruitful to assess whether hinder theory endorsement prospectively predicts symptoms of psychopathology and whether help theory endorsement is protective.

Limitations and directions for future research

The current findings open exciting avenues for future research. A limitation of this study was that the data were correlational, leaving uncertainty about the causal direction of the associations. To address the issue of causality, a valuable next step would be to assess how manipulating theories about emotion impacts people's reasoning, well-being, and emotion regulation. Based on the current findings, a manipulation that increases help theory endorsement should promote better reasoning, quicker recovery following a negative emotion induction, and use of reappraisal. Increasing hinder theory endorsement should promote slower recovery from a negative emotion induction and use of suppression. This approach is in keeping with past research showing that manipulating beliefs about the malleability of emotions influences the types of emotion regulation strategies people use (Bigman, Mauss, Gross, & Tamir, 2015; Kneeland et al., 2016). Longitudinal research could also be conducted to explore the directionality of the associations reported here. Including baseline positive and negative affect as covariates did not change the pattern or statistical significance of any of the reported results. However, participants who reported greater baseline positive affect showed stronger endorsement of help theory and participants who reported greater baseline negative affect showed stronger endorsement of hinder theory. Future research could examine: (a) whether daily levels of positive and negative affect shape help and hinder theory endorsement; (b) whether help and hinder theories shape daily affective experience in ways that influence reasoning and well-being; and (c) whether bidirectional associations exist between daily affect and lay theories about emotion.

The current study was conducted online with university students. About 80% of participants were female, and a proportion of the sample was excluded from analyses due to outlying values on variables or failing to follow instructions. Instructional attention checks improve the reliability of data and the statistical power of analyses (Oppenheimer, Meyvis, & Davidenko, 2009). However, future research should assess whether the current findings replicate when help and hinder theories are manipulated in the laboratory and whether they generalise to community samples. All analyses controlled for gender but, given that women viewed emotion as more of a help and less of a hindrance than did men, it will also be important to assess consequences of holding these theories in samples that are more balanced with respect to gender.

Future research should also explore whether help and hinder theories have similar consequences across cultures. We found that participants who endorsed a hinder theory reported engaging more in emotion suppression, but this strategy may not be universally maladaptive. Suppression has also been found to be less problematic, and even adaptive, in groups that hold collectivist rather than individualist values (Ford & Mauss, 2015). In addition, people from Asian American versus European American cultures refer more to social context, and use more somatic terms, when discussing emotional events (Tsai, Simeonova, & Watanabe, 2004). Thus, in cultures that hold collectivist values, endorsing a hinder theory may be less strongly linked to lower well-being. People may view emotion as interfering with the goals of their social group without feeling personally threatened or distressed by their feelings. Future research should measure acculturation and cultural values to allow a more nuanced evaluation of the implications of endorsing help and hinder theories for individuals of different cultural backgrounds.

Finally, we conceptualise help and hinder theories as relatively stable individual differences but our findings raise important questions about how these theories develop and their stability over time. Parenting practices likely contribute to the early development of these theories, for instance, positive emotion coaching may promote a help theory (Gottman, Katz, & Hooven, 1996). Peer norms and attitudes conveyed in the media (e.g. Spock from *Star Trek*) may also contribute to the development of help and hinder theories. Even in adulthood, however, people can be taught to find value in emotional experience (Denny & Ochsner, 2014). Alternatively, traumatic life events or chronic stressors may lead to dysregulated emotion and promote hinder theory endorsement. Once acquired, these theories may also act as self-fulfiling prophecies wherein negative evaluations of emotion exacerbate undesired affective states and positive evaluations promote skills and relationships that make emotional experience rewarding.

Conclusions

In conclusion, Spock had a negative attitude toward emotion and tried to suppress his "illogical" feelings, so he was surprised to find that Data, who was not designed to feel, wanted to experience emotions. Our findings indicate that it is more logical to view emotion in a positive than a negative light. Help and hinder theories about emotion predict individual differences in how well people reason, how happy and socially supported they feel, and the strategies they use to change how they feel.

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