Optimism, hope, and attention for emotional stimuli

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ABSTRACT

Optimism and hope are individual difference factors that protect against the development of psychological disorders. They also are associated with more positive cognitive processes, such as positive appraisal of ambiguous events. Attention to emotional information is a cognitive process that has been implicated in the development and maintenance of emotional disorders, but there is a relative dearth of information investigating the relationships between hope, optimism, and attention to emotional information. In the current study, participants (n = 104) completed measures of hope and optimism and completed an eye-tracking task to measure attention to emotional scenes. Optimism and hope were associated with less sustained attention to dysphoric information and threatening information. Optimism was associated with increased attention to positive information. Additional indirect effects models were explored. These findings demonstrate a relationship between optimism, hope, and attention to emotional information and suggest a potential mechanism by which these factors may reduce psychological distress.

1. Optimism, hope, and attention to emotional stimuli

Optimism and hope are individual difference factors that are associated with multiple psychological benefits, such as increased self-esteem, reduced risk of developing and experiencing anxiety and depressive symptoms, decreased suicidal ideation and rumination, and elevated subjective psychological well-being (Ahrens & Haaga, 1993; Krok, 2015; Satici, 2016; Tucker et al., 2013). While conceptually similar, hope and optimism are distinguishable future-oriented constructs (Alarcon, Bowling, & Khazon, 2013; Fowler, Weber, Klappa, & Miller, 2017). Optimism is a stable, general individual difference factor that is comprised of positive mood, attitude, or opinion about future events (Hirsch, Conner, & Duberstein, 2007). Hope pertains to one's perceived capacity to derive pathways to achieve desired goals and utilize their pathways to reach their goals (Snyder et al., 1991).

Psychological distress is a general term that relates to the experience of aversive emotional or cognitive states related to a broad range of psychopathology (see for example, Dohrenwend, Shrout, Ergli, & Mendelsohn, 1980). Various negative cognitive processes have been consistently implicated in the development and maintenance of psychological distress (Mehu & Scherer, 2015). Accordingly, evaluating how optimism and hope are related to cognitive processes that can influence psychological distress can inform our understanding of the underlying protective, cognitive mechanisms of optimism and hope. More optimistic individuals are more likely to interpret ambiguous situations as being positive and have higher levels of self-esteem than pessimistic individuals (Gordon, Chesney, & Reiter, 2016; Kapikiran & Acun-Kapikiran, 2016). Hope has also been associated with positive cognitive appraisal of conflict-related events (Cohen-Chen, Crisp, & Halperin, 2017), and is associated with enhanced life satisfaction (Choma, Busseri, & Sadava, 2014). Additionally, there is growing evidence that optimism and hope are associated with attention to emotional information.

Attention for emotional information can predispose people to experience certain emotions with greater intensity and frequency, which can also contribute to the development of psychological distress (Gotlib, Krasnoperova, Yue, & Joorman, 2004; Mathews & MacLeod, 2005). For example, there is extensive literature suggesting that attention biases for dysphoric information are related to the experience of depression (Wells & Beever, 2010), while anxious individuals preferentially attend to threatening information (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & van Lilzendoorn, 2007). As there is evidence implicating the role of optimism and hope in enhancing positive cognitive processes and reducing negative cognitive processes, there has been a burgeoning of literature evaluating how these factors are related to attention. For example, higher levels of optimism have been associated with reduced attention for negative images (Isaacowitz, 2005) and greater attention for positive words (Segerstrom, 2001). However, in contrast to the findings of Isaacowitz (2005), in a sample of young adults, more optimistic individuals spent more time attending to self-referent threat-related words related to health behaviors (Aspinwall & Brunhart, 1996). Only one study has identified a positive relationship...
between hope and attention for positive words in adolescents (Yeung, Ho, & Mak, 2015); to our knowledge, no studies have evaluated the relationship between hope and attention to emotional stimuli in adults.

Apart from the few studies mentioned above, there is a relative dearth of research directly evaluating the relationships between optimism, hope, and attention for emotional information (Sanchez & Vazquez, 2014). This represents a substantial gap in the literature examining these positive psychology factors and attention for emotional information. Additionally, past research evaluating associations between positive psychology factors and attention for emotional information are limited in that the majority of these studies have utilized verbal stimuli to assess attention biases (Aspinwall & Brunhart, 1996; Segerstrom, 2001; Yeung et al., 2015). Verbal stimuli are limited in that they carry less overt emotional information compared to pictorial stimuli. Moreover, these studies have typically presented emotional stimuli in pairs (Isaacowitz, 2005; Raila, Scholl, & Gruber, 2015), which typically compares a neutral-valenced stimulus to a negative-valenced stimulus. This limits our ability to determine how hope and optimism affect attention to multiple stimuli presented simultaneously. Also, it should be noted that Isaacowitz (2005) used skin cancer images as the negative images which, while important and relevant, is a very specific and circumscribed visual representation of threat. In light of these limitations of past research, this study aims to evaluate how hope and optimism are related to attention to dysphoric, positive, threatening, and neutral information by presenting stimuli depicting four valences of emotional information simultaneously over 12, 30-second trials.

As part of a larger study, we examined the relationships between hope, optimism, and attention to dysphoric, threatening, positive, and neutral visual scenes as measured by eye-tracking. Given past work demonstrating 1) a positive association between attention to negative information and emotional disorders (Bar-Haim et al., 2007; Gotlib et al., 2004), 2) a negative association between hope and optimism and psychological distress (Arnau, Rosen, Finch, Rhudy, & Fortunato, 2007), and 3) burgeoning evidence for a relationship between optimism and hope and attention to emotional information (Isaacowitz, 2005; Raila et al., 2015), we hypothesized that higher levels of hope and optimism would be associated with less time attending to dysphoric and threatening images and with more time attending to positive images. As mentioned above, psychological distress can significantly influence attention for emotional information. For the purposes of this study, psychological distress was operationalized as depressive and anxiety symptoms as these are the most commonly experienced and reported symptoms of psychological distress (e.g., Kessler et al., 2002). Accordingly, we included measures of depression and anxiety as measures of psychological distress in order to evaluate whether hope and optimism are related to attention for emotional images while controlling for the influence of depression and anxiety. Additionally, we evaluated whether hope and optimism would have indirect effects on depressive and anxiety symptoms through attention for positive, dysphoric, and threatening information. Specific indirect effect models were evaluated based on whether optimism and hope were significantly associated with attention for specific valences of emotional information. It should be noted that our data are cross-sectional, and consequently no true mediation models can be established because of the lack of temporal precedence in the variables. Still, results from these indirect effects analyses could indicate whether the hypothesized relationships between hope, optimism, attention, and psychological distress were present in the cross-sectional data. The presence of such relationships could help inform future longitudinal studies as well as provide additional support for the hypothesized relationships.

2. Method

2.1. Participants

Participants were 107 undergraduate students recruited from a large Midwestern university in the United States. All participants were at least 18 years of age. Informed consent was obtained from all participants included in the study. Three participants were excluded due to poor quality in eye-tracking data (e.g., < 70% valid eye-tracking data) resulting in a final sample of 104 participants whose data were used in analyses. Participants had a mean age of 19.09 (SD = 1.2), and were primarily female (n = 74, 70.5%). Participants were primarily Caucasian (n = 79, 75.2%), and 6.7% of the sample were Black or African American, 3.8% were American Indian or Alaskan Native, 3.8% were Asian or Asian American, 4.8% identified as multiple races, 3.8% did not identify with any of the provided races, and 1.9% did not answer; 8.6% of individuals identified as being Hispanic or Latino/a.

2.2. Measures

2.2.1. Demographics

Participants provided information on their age, sex, race, and ethnicity.

2.2.2. Patient Health Questionnaire (PHQ-9)

The PHQ-9 is a 9-item self-report measure that assesses the severity and frequency of depressive symptoms (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 has demonstrated sound psychometric properties, including satisfactory test-retest reliability coefficients (r = 0.86; Kroenke et al., 2001). Internal consistency was high in the current study (α = 0.89).

2.2.3. Generalized Anxiety Disorder 7-item (GAD-7)

The GAD-7 is a seven-item self-report measure that assesses severity of anxiety symptoms (Spitzer, Kroenke, Williams, & Löwe, 2006). The internal consistency of the GAD-7 in the current study was excellent (α = 0.92) and the test-retest reliability has been shown to be good (r = 0.83; Spitzer et al., 2006).

2.2.4. Life Orientation Test-Revised (LOT-R)

The LOT-R is a 10-item self-report measure that assesses optimism versus pessimism (Scheier, Carver, & Bridges, 1994). The LOT-R demonstrated adequate internal consistency (α = 0.74) in the current study.

2.2.5. The Adult Hope Scale (AHS)

The AHS is a self-report measure assessing the respondent's level of hope (Snyder et al., 1991). The scale is specifically divided into two subscales of hope: agency and pathways. Agency is related to one's energy to meet a goal, while pathways are related to one's ability to create a plan for meeting a goal. The AHS has demonstrated good test-retest reliability (r = 0.85; Snyder et al., 1991) and demonstrated strong internal consistency (α = 0.90) in the current sample.

2.3. Laboratory task

2.3.1. Eye-tracking task

Participants completed twelve trials of a free-viewing eye-tracking task. Each of the twelve trials contained a total of 4 images, displaying a variety of individuals or scenarios that are included in one of four emotional categories: dysphoric, positive, threat, or neutral (see Fig. 1 for an example trial). The four valences of emotion were counterbalanced in their placement over the 12 trials. In between each trial, a centrally located cross was presented. The experimenter proceeded to the next trial once the participant fixated on the cross in order to standardize participants’ initial gaze location. Participants sat 60–70 cm from the monitor and were instructed to freely gaze at the images as if they are looking in a photo album, consistent with prior eye-tracking research (e.g., Kellough, Beever, Ellis, & Wells, 2008). Each trial lasted 30 s, and participants were instructed to focus on the images if their gaze strayed from the presented slide. A longer (e.g., 30 s) presentation...
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