**Extended Intervention Justification**

**Goals of the Best-self PPI.** Our goal is to create and provide initial validation tests of the Best-self PPI (i.e., BS-PPI), an intervention designed to address limitations of extant PPIs. The validation of the BS-PPI would address limitations of prior investigations by using multiple positive variables and directly targeting a cognitive mechanism. First, most research on PPIs has looked at PPIs that affect one variable. Instead, we designed the Best-Self PPI to target three positive variables (i.e., coherence, optimism, and character strengths). Drawing from three positive variables may increase the potency of the intervention. Second, we designed the Best-Self PPI to directly target a cognitive mechanism (i.e., self-referential processing). This targeting of a cognitive mechanism separates the Best-Self PPI from previous PPIs, where mechanisms of change, specifically cognitive mechanisms of change, have not been targeted or examined.

**Integration of positive variables.** PPIs typically use one positive variable to promote change in a population (Stone & Parks, 2018; see Bolier et al., 2013 for a meta-analysis). However, another meta-analysis examining the individual effect sizes of multiple PPI categories reveals that integrating positive variables in PPIs may produce a stronger effect (Gorlin et al., 2017). For example, the mean effect size for expressing gratitude to others is, *d* = .21. When adding positive event listing to expressing gratitude to others, the mean effect size increases to *d* = .31. Therefore, it is likely that a more efficacious PPI would include targeting multiple positive variables. The researchers created the Best-Self PPI by pulling elements from coherence, optimism, and character strengths PPIs. Still, the target of the Best-Self PPI is not just the positive variables; it is also self-referential processing. The following section aims to clarify how the researchers built the intervention.

***Coherence and meaning.*** The Best-Self PPI will use elements of coherence by having the participants examine their lives from the past, present, and future. Specifically, we will have the participants discuss a positive character strength they had in the past, present and one they would like to have in the future to build a coherent narrative of having character strengths. Researchers suggest that coherence is one of two elements that comprise meaning (Reker & Wong, 1988), with the other element being purpose. According to these researchers, coherence is the consistency of one’s life narrative across one’s life. Coherence is a subjective experience of consistency in one’s life; it is one’s ability to make sense of the events in one’s life and form a consistent narrative, not necessarily the objective experience of success. For example, coherence in life may be an individual who has an aspiration to be a physician as a child, is currently in medical school, and will become a physician in the future after graduation. This consistent life narrative brings meaning to the individual’s life. Multiple cross-section studies have demonstrated that a sense of coherence is negatively associated with depression symptoms, ranging from, *r* = −.56, to, *r* = -.77 (Anyfantakis et al., 2015; Drageset et al., 2012; Takaki & Ishii, 2013). Further, multiple cross-sectional studies have found that a sense of coherence is positively associated with psychological well-being, ranging from, *r* = .23, to, *r* = .66 (Krok, 2015; Mitchell et al., 2020). Although these studies are cross-sectional, they demonstrate a relationship between coherence and improved depression and psychological well-being.

***Optimism.*** The Best-Self PPI will use elements of optimism by having the participant focus on the vital aspects of their character in the future, which is a adaptation of the Best Possible Self intervention (King, 2001; Scheier & Carver, 1985). In the Best Possible Self intervention, researchers direct individuals to write about the best possible future and who they would be if everything worked out according to one’s plan. We integrated these instructions by having people write about a good character strength they would like to have in the future. This intervention demonstrated a reduction in depression in one experimental investigation compared to the control group (Pietrowsky, & Mikutta, 2012). However, this study only had 17 participants, suggesting their statistical estimates are volatile. This effect was replicated in another experimental study with a sample size of 78, suggesting that the effect may be stable (Enrique et al., 2018). Still, 78 participants is a limited sample size. A systematic review of the Best Possible Self intervention suggested a consistent effect on increasing subjective well-being and reducing negative affect (Loveday et al., 2018). Further, cross-sectional studies suggest that optimism itself is positively associated with psychological well-being, *r* = .60 (Krok, & Telka, 2019), and negatively associated with depression, *r* = -.35 (Sing & Wong, 2011). Overall, the Best Possible Self, and optimism largely has demonstrated positive effects on, and relationships with, reducing depression and increasing well-being.

***Character strengths.*** The Best-Self PPI will pull from character strengths by focusing on the positive aspects of their character and personality. Character strength interventions focus on helping a client identify character strengths (e.g., warmth or compassion) or talents (e.g., natural musicianship or skilled writing; Parks & Layous, 2015). For character strengths to have the most substantial effect, interventions should help participants identify new character strengths and engage the client in a novel manner (Stone & Parks, 2018). Seligman and colleagues (2015) demonstrated that identifying character strengths and having participants use them in a novel manner reduced depression, promoted happiness after one month of use, and remained after six months. Further, another study demonstrated correlations between specific character strengths (e.g., love of learning or creativity) and subjective well-being (Park et al., 2004). However, this study was only cross-section and relied on self-report measures. Further, another study found that being mindful of one’s character strengths is associated with psychological well-being (Duan & Ho, 2018). Still, these studies have not demonstrated that these character strengths cause increases in well-being due to the studies’ cross-sectional design. Overall, identifying, being mindful of, and using strengths are associated with and may cause decreases in depression and increases in well-being.

**Improvements over Positive Self Reference Processing Training.** Although the Best-Self PPI pulls from elements of coherence, optimism, and character strengths, we designed the target or mechanism of change to be self-referential processing. Specifically, we designed the intervention to reduce depression and promote psychological well-being by biasing the positivity of one’s self-referential processing. Our new intervention may improve the only other study and intervention that manipulates self-referential processing, which is Positive Self Reference Processing Training (PSRPT; Dainer-Best et al., 2018). PSRPT attempts to reduce only depression by also positivity biasing of one’s self-referential processing using positive imagery. In PSRPT, individuals discuss a specific future positive event that they hope to happen themselves for three to five minutes. We designed the Best-Self PPI to be an improvement on PSRPT. First, the Best-Self PPI directly targets positive ones’ labels of themselves. In PSRPT, the instructions do not direct the participants to focus on one’s self and positive labels of themselves; instead, researchers asked them to imagine a positive situation. To increase positive self-referential processing to the Best-Self PPI, we instruct participants to focus directly on their character strengths. Second, we designed the Best-Self PPI to increase the stability of self-referential processing by examining the positive aspects of one’s self from the past, present, and ideal future. PSRPT only focuses on future events. Overall, the goal of creating and testing the Best-Self PPI is to build and improve on existing interventions and to specifically target self-referential processing.

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