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# CBT Plus Humor-Based Psychology Interventions: A Review of the Research

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CBT PLUS HUMOR-BASED PSYCHOLOGY INTERVENTIONS:  
A REVIEW OF THE RESEARCH

A Capstone Project  
Presented to  
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Western Kentucky University  
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In Partial Fulfillment  
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Master of Arts

By  
Rachel Thompson  
January 2019

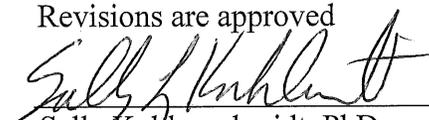
CBT PLUS HUMOR-BASED PSYCHOLOGY INTERVENTIONS:  
A REVIEW OF THE STATE OF THE RESEARCH

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## DEDICATION

I dedicate this project to my grandparents; Ted and Linda Thompson, who are great motivation for me. Also, I dedicate this work to my professors, especially Dr. Kuhlenschmidt who helped me greatly in the conception and completion of this manuscript.

## ACKNOWLEDGMENTS

I would like to thank the faculty of Western Kentucky University. Without their help I would not have embarked on this journey. I would have more definitely not finished if it were not for the careful guidance of Sally Kuhlenschmidt. Her consistent encouragement helped me organize this paper. Dr. McFarland's help with the readability and application of the theories discussed in this paper have also been invaluable. Without them this manuscript would not have been possible.

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# CBT PLUS HUMOR-BASED PSYCHOLOGY INTERVENTIONS:

## A REVIEW OF THE RESEARCH

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January 2019

45 Pages

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Cognitive behavioral therapy (CBT) has been demonstrated to be one of the most popular and useful psychological interventions used today (Ellis & Harper, 1975; Bredemeier, Beck, & Grant, 2018; Jaya, Ascone, & Lincoln, 2018). However, a limitation of CBT is that it pathologizes behavior. Positive psychology is a supplementary theory that focuses on increasing positive emotions during psychological interventions and does not pathologize behavior. A limitation of studying positive emotions is due to the overlapping relationships between positive emotions. Positive emotions are highly related and are difficult to measure individually as opposed to negative emotions. Humor, amusement/mirth, is an observable positive emotion. Humor is a distinct positive emotion which can result in laughter. This article reviews the subset of positive psychological interventions (PPI) focused on humor compatible with CBT. CBT is the chosen intervention because the contemporary theories of humor are easily applied to traditional CBT methods. Correlational studies suggest that PPIs may improve self-regulation, improve critical thinking, and increase motivation to engage with psychological intervention. However, randomized controlled studies are needed to confirm any direct benefits of humor-based PPI therapy over traditional CBT interventions.

## **Introduction**

Humor is an emotion that is recognizable yet hard to define. The concept of humor is cross-cultural (Rahimi & Bigdeli, 2014). Humor's definition appears to change according to the question that is asked. Martin (2007) suggests that humor is a term that is "multifaceted." He also indicated that humor is a cognitive process that interprets a stimulus as amusing. Martin (2007) goes on to indicate that this mental process can result in the distinct behavior of laughter.

Fredrickson's (1998) theory of positive emotions suggests that positive emotions encourage more creative, broadening cognitive processes compared to the constricting nature of negative emotions (Fredrickson, Tugade, Waugh, & Larkin, 2003). McGraw and colleague's (McGraw & Warren, 2010; Warren & McGraw, 2016) benign violation theory suggests that humor is a cognitive process which appraises activating events initially as a violation but later as benign. McGraw suggests this rapid juxtaposition is what makes these experiences humorous.

Cognitive behavioral therapy (CBT) is an approach which identifies and disputes maladaptive cognitive processes (Ellis & Harper, 1975). A limitation of CBT is that it pathologizes behavior and emphasizes minimizing negative emotional consequences. Positive psychological interventions (PPIs) do not pathologize behavior and instead emphasize increasing positive emotional consequences. PPIs are suggested to increase motivation to engage in therapy (Muro, Soler, Cebolla, & Cladellas, 2018), increase critical thinking (Stoeber & Janssen, 2011), and improve emotional self-regulation (Seligman, Rashid, & Parks, 2006). This paper will review studies to evaluate the effectiveness of PPIs plus CBT. The studies will only be included if they examine PPIs and CBT.

## **Method**

All studies were obtained through the MYWKU libraries data bases. The search included 234 databases including: EBSCO, EBSCO host, PsychARTICLES, Psychiatry Online, PubMed, JSTOR, and Sage Journals. Search words included: “benign violation theory,” “broaden and build theory” “CBT,” “CBT plus PPI,” “CBT and humor,” “CBT and motivation,” “humor and positive reframing”, “humor and self-regulation,” “humor effectiveness,” “humor definition,” and “humor and evolution.” The articles and studies used were from APA peer-reviewed journals and covered the years 1975 to 2018. Studies were included if they examined the effectiveness of positive psychological interventions with cognitive behavioral therapy interventions. Because all positive emotions are highly related (Fredrickson, 1998), it is assumed that the effects of experiencing humor would yield similar results as overall feelings of positive emotions. The review located nine studies meeting the above criteria. There were so few studies that any research design was accepted for review.

The review intends to address the following questions about humor interventions: (1) How effective are humor-based PPI in promoting emotional self-regulation? (2) Can humor-based PPI facilitate positive reframing? (3) Can humor-based PPI increase motivation to engage with interventions? Finally, (4) What are the adverse effects or limitations of therapeutic application? First, the theories of humor and an introduction to CBT will be provided and then the results regarding each of these four questions will be discussed.

## **Theories of humor**

Humor is believed to help self-regulation (Antoine, Dauvier, Andreotti, & Congard, 2018), positive reframing (Carver et al., 1993), and improve critical thinking skills (Bryant-

Davis, 2005; Garland et al., 2010; Samson & Gross, 2012). There is evidence that humor is associated with resiliency (Fredrickson, 1998). Understanding the process of humor is important because of the wide array of benefits humor has been observed to elicit. Humor helps increase satisfaction (Schaefer & Greenberg, 1997), increase creativity, facilitate adaptive coping skills, and decrease the perceived intensity of negative life events (Martin, 2002; Samson & Gross, 2012). Humor is also linked to improved social interaction (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Martin, 2001). In addition to increasing social interactions, researchers (Martin, 2002; McGraw & Warren, 2010) suggest that humor is experienced socially. Martin (2007) indicates that this is due to an “implied” social context. For example, when laughing at a character in a book or at a humorous observation it is always in the context of a social interaction even when experienced alone. Humor is socially beneficial by increasing tolerance for social differences and by facilitating approach toward novel, mildly stressful stimulation (Fredrickson, 1998; Gervais & Wilson, 2005; Martin, 2001). The implications for therapeutic application could be significant especially for populations who experience marked issues with motivation or engagement with adverse stimuli.

Cognitive behavioral therapy (CBT) is one of the most used therapeutic interventions today (Bredemeier et al., 2018; Olthuis, Watt, Mackinnon, & Stewart, 2014). It has been effective in treating a wide variety of psychological disorders (e.g., Ellis & Harper, 1975; Louis, Wood, Lockwood, Ho, & Ferguson, 2018; Taylor et al., 2017; Tomlinson, Keyfitz, Rawana, & Lumley, 2017). CBT is an evidenced based therapy famously credited to Ellis, Beck, and colleagues and identified irrational cognitive beliefs as the origin of psychological distress (e.g., Ellis & Harper, 1975; Bredemeir et al., 2018). CBT is designed to identify and dispute these irrational cognitive processes to reduce psychological distress and assumes that will improve

psychological well-being. There is a large amount of research on the topic of mental illness but less on mental wellness. Recently, more studies in psychology have been focused on improving psychological well-being (e.g., Garland et al., 2010; Louis et al., 2018; Wellenzohn, Proyer, & Ruch, 2016). Positive emotions are difficult to observe, and measure compared to negative emotions. It is believed that positive emotions are difficult to measure because they are highly interrelated (Fredrickson, 1998). Nevertheless, this paper will attempt to focus on the subset of positive emotion related to humor: amusement and mirth. For the purpose of this paper the terms amusement and mirth are equal to humor.

Some PPIs have successfully helped people learn skills for improving mood and building personal resources (Cohn & Fredrickson, 2010; Gervais & Wilson, 2005; Martin, 2001). Two coping skills include emotional self-regulation and positive reframing. Overall, the results of research suggest that positive psychology interventions are beneficial for coping. (e.g., Rowe, Hirsh, & Anderson, 2007; Tomlinson et al., 2017). Fredrickson's (1998, 2003) broaden-and-build theory proposes that positive emotions serve to broaden an individual's momentary thought-action repertoire, which in turn has the effect of building that individual's physical, intellectual, and social resources. Empirical evidence to support this broaden-and-build model of positive emotions is documented (Cohn et al., 2009; Fredrickson, 1998; Martin 2007), and implications for emotion regulation and health promotion are discussed. The broaden-and-build theory (Fredrickson, 1998, 2003) hypothesizes that positive emotions broaden the scope of attention and thought-action repertoires.

Humor's ability to increase positive emotions can be explained by the broaden and build theory (Fredrickson & Branigan, 2005). However, the benign violation theory best explains what makes situations funny (Warren & McGraw, 2016). Finally, positive psychological interventions

have been researched and found to improve critical thinking skills as a result of positive interventions assimilated into traditional therapy methods (e.g., Consoliet al., 2018; Olson, 1992; Wellenzohn et al., 2016). The humor theories presented illustrate the emotional and cognitive processes associated with humor. The studies to be reviewed will demonstrate how effective these theories are. The characteristics of humor can be observed in both behaviors and cognitive schemas. Positive behavioral therapy does not require a pathology or diagnosis to be present but does identify adaptive and maladaptive schemas. Adaptive schemas are pro-social and facilitate group cohesion. Maladaptive schemas do not facilitate group cohesion and are used to decrease social interaction (Louis et al., 2018).

### **Broaden and build theory of positive emotions**

Positive emotions have been vaguely defined in the psychological literature. The term positive emotions can refer to emotions perceived as positive because they feel good (Soto Funes, Guzman-Garcia, Warbrick, Rotshtein, & Humphreys, 2009). Emotions can also be perceived as positive if they serve adaptive purposes (Wellenzohn et al., 2016). Finally, emotions can be considered positive if they assist in accomplishing a goal (Fredrickson et al., 2003). For the purpose of this paper, the specific positive emotion reviewed will be humorous (amusing/mirthful) positive emotions. There are three components to positive emotions that must be met to create an experience of humor: a cognitive process that interprets a stimulus as funny, which leads to the emotional response of amusement/mirth, and tends to result in laughter (Martin, 2007). Mental characteristics such as incongruence and cognitive shift are part of the process of experiencing humor. Humor can occur in many scenarios. It can be created or occur naturally. The two types of humor, forced and naturally occurring, increase positive emotions and decrease negative emotions (Gervais & Wilson, 2005). Forced humor is created through

artificial means. An example of this is writing a funny story or laughing when expected to at a coworker's joke. Natural humor is not created through artificial means. This humor is experienced spontaneously. Physical characteristics of humor are the biological processes/ consequences including laughter and smiling (Gervais & Wilson, 2005). Mental characteristics of humor include positive reframing and an increase in positive emotions (e.g., Biro, Alink, van IJzendoorn, & Bakermans-Kranenburg, 2014; Crane, 2016; Martin, 2001).

Fredrickson's broaden and build theory suggests that positive emotions stimulate open-mindedness and facilitate a learning environment, whereas negative emotions produce restrictive thought processes (Fredrickson, 1998; Fredrickson & Branigan, 2005; Fredrickson et al., 2008; Garland et al., 2010). However, she hypothesized that positive emotions evoke a wider range of perceived opportunities. From this theory comes the hypothesis that humor and positive emotions (such as amusement or mirth) facilitate critical thinking and emotional self-regulation. Fredrickson (1998) suggests that positive emotions broaden an individual's thought-action repertoire. A thought-action repertoire is an individual's automatic beliefs that are triggered by an activating event. The Fredrickson theory elaborated on the Ellis model of CBT (Ellis & Harper, 1975; Bredemeir, et al., 2018) by hypothesizing that negative emotions produce a constricting thought-action repertoire and positive emotions produce a wider range of perceived opportunities. Fredrickson's theory does not specifically focus on humor. Her theory of positive emotions specifically focuses on joy, interest, contentment, and love. While these emotions do not explicitly include humor or amusement/mirth, the later are examples of positive emotions. Studies (e.g., Cohn et al., 2009; Fredrickson & Branigan, 2005; Fredrickson et al., 2003; Garland et al., 2010; Rowe et al., 2007) suggest that positive emotions are more interrelated than negative emotions and produce similar behavioral consequences. Thus, it stands to reason that the effects

described in the broaden and build theory of positive emotions can be elicited through the specific emotion of humor.

A number of studies support the assertion that positive emotions produce change. Correlational studies (Cohn & Fredrickson, 2010; Cohn et al., 2009; Fredrickson et al., 2003; Garland, Gaylord, & Park, 2009) demonstrate a relationship between positive emotions and increased personal resources. Frederickson and colleagues (2008) investigated the impact of the PPI, length of time, and length of meditation on self-reported emotions. The participants were adult full-time employees (65.5% female) who were invited via email to participate in a 9-week loving-kindness meditation (LKM) program. Of the 139 participants 67 were randomly assigned to the PPI and their results were compared to the control group of waitlisted participants which totaled 72. This correlational study used a united latent growth curve and path-analysis structural equation model. Researchers hypothesized that participants would follow a path from baseline to Path C: (Path A) change in positive emotions, (Path B) change in resources, (Path C) change in life satisfaction. All participants were given a set of surveys before the LKM and after the LKM workshop was completed. The waitlist control group was administered the LKM program 2 months after the initial group. The measures given to the participants to assess for cognitive resources were: The Mindfulness and Awareness Scale (Brown & Ryan, 2003), The Trait Hope Scale (Snyder, Rand, & Sigmon, 2002), and The Savoring Beliefs Inventory (Bryant, 2003). The measures given to assess for psychological resources were: The Life Orientation Test-Revised (Scheier, Carver, & Bridges, 1994), an ego-resilience measure (Block & Kremen, 1996), and a broad psychological well-being measure (Ryff, 1989). To assess for social resources participants in both groups were given the Dyadic Adjustment Scale (Spainer, 1976) and a broad psychological well-being scale (Ryff, 1989). The physical resource measures given were: an

illness symptoms measure (Elliot & Sheldon, 1998) and a sleep duration self-report (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989). The outcome measures given were The Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). and The Center for Epidemiological Studies Depression Measure (Radloff, 1977). In addition to these measures, participants were requested to complete the Modified Differential Emotions Scale (mDES; Fredrickson et al., 2003) and the DRM (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004) to assess varying emotional experiences. The results indicated an increase in nine specific positive emotions (amusement, awe, contentment, gratitude, hope, interest, joy, love, and pride) over time in the PPI group ( $b = 0.03$ ,  $SE = 0.008$ ,  $p = .0001$ ) compared to the control group ( $b = -0.008$ ,  $SE = 0.0079$ ,  $p = .31$ ). The path analysis indicated that the path from change in positive relationships to change in life satisfactions was not significant and supports the hypothesis that experiencing positive emotions overtime compounds to build personal resources which lead to increased life satisfaction. It was also observed that the direct effect of a change in positive emotions was significantly related to a change in depressive symptoms (Path D) for mindfulness, pathways thinking, savoring the future, environmental mastery, self-acceptance, purpose in life, social support received, and positive relations with others ( $p < .0025$ ). This result supports the hypothesis that PPI can facilitate a decrease in the effects of negative emotions.

A randomized control study (Antoine et al., 2018) compared the effects of a PPI treatment group ( $n = 59$ ) to a control group ( $n = 43$ ) with French adults. Participants in both groups self-reported symptoms of depression, anxiety, and psychological distress in pre and post-test surveys. Continuing with the ideas of the broaden build theory (Fredrickson, 1998), the study hypothesized the PPI group would report decreased levels of anxiety, depression, and psychological distress while reporting increased levels of mindfulness and emotion regulation

compared to the control group. PPI participants were required to keep a personal diary and participating took no longer than 20 min each day. The PPIs used were focused on six objectives: learning to recognize positive emotions in their daily lives, identifying their personal strengths and ways to apply them, focusing on building positive relationships, reframing negative life events positively, mindful breathing, and focusing on goal achievement. The surveys given included: the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003; Jermann et al., 2009), Cognitive Emotion Regulation Questionnaire (CERQ; Jermann, Van der Linden, d'Acremont, & Zermatten, 2006), Spielberger State-Trait Anxiety Inventory (STAI-T; Spielberger, Gorsuch, & Lushene, 1970; Gauthier & Bouchard, 1993), Beck Depression Inventory Short Form (BDI-SF; (Beck & Beamesderfer, 1974), and General Health Questionnaire (GHQ-12; Goldberg et al., 1997). They observed changes in anxiety ( $ES_B = 0.474$ ,  $t = 0.772$ ), depression ( $ES_B = 0.41$ ,  $t = 0.22$ ), and psychological distress symptoms ( $ES_B = 0.443$ ,  $t = 1.26$ ), with a moderate effect size compared to the control group. The PPI group reported a change in daily mindful attention ( $ES_B = -0.804$ ,  $t = 1.267$ ) with a large effect size compared to the control group. Also, acceptance ( $ES_B = -0.236$ ,  $t = 0.176$ ) and positive reappraisal ( $ES_B = -0.164$ ,  $t = -0.828$ ) changed with a small effect size compared to the control group. Results support Fredrickson's (2008) broaden and build model.

In summary, the broaden and build theory (Fredrickson, 2008) of positive emotions supports the emotional response observed in humor. The benign violation theory explains the cognitive processes observed in humor (Warren & McGraw, 2016). It is not enough to consider the impact of positive emotions as a single entity on adaptive coping skills. Psychologists must start to differentiate the impact of specific positive emotions and the benign violation theory can help that occur.

## **Benign violation theory**

Warren and McGraw (2016) suggest that social interactions are humorous because initially they appear to threaten an individual's core beliefs but are simultaneously identified as non-threatening. Warren and McGraw (2016) conducted six studies to test the benign violation theory of humor using entertainment, consumer products, and social interactions as stimuli. This paper will review the most relevant three studies. The benign violation theory intends to be more accurate in predicting what is and is not humorous and the cognitive processes supporting these hypotheses. The theory specifically states three conditions that precede humor: a stimulus must be assessed as a violation of core beliefs, the same stimulus must also be assessed as benign, and the assessments must be simultaneously contrasted (Warren & McGraw, 2016). These three conditions must be met for an occasion to be viewed as humorous. This theory is more accurate than previous incongruence theories of humor because it eliminates the false positives that are associated with violations without the benign assessment. These conditions account for the scenario where a person who falls and is not hurt is viewed as humorous while if the person was hurt then it would not be viewed humorously. The participants from all studies were adult undergraduate university students.

The first study (Warren & McGraw, 2016) conducted had the goal of examining the contribution to humor of incongruity as compared to surprise. The design was a 2 (violation, non-violation) x 2 (unexpected, expected) double-blind study which included  $N = 43$  participants (45% female). Participants were randomly assigned to conditions. All participants were asked to watch a YouTube video of an athlete attempting a pole-vault. One half were told to expect the athlete's pole to break (a violation) while the other groups were told to expect the athlete to succeed (a non-violation). A randomly assigned set were shown the video with him falling,

regardless of their instruction, and others were randomly assigned to view a successful attempt, regardless of their instruction. Therefore, half the subjects were surprised by the video. After watching the video, participants were assessed for humor, surprise, and violation. All measurements used a 5-point Likert scale ranging from 1 (*disagree*) to 5 (*agree*). The degree of humor experienced was assessed with three items: “The pole vault attempt was humorous,” “The pole vault attempt was funny,” and “I was amused by the pole vault attempt” ( $\alpha = .92$ ). Surprise was measured by two items: “The outcome of the pole vault attempt was surprising” and “The outcome of the pole vault attempt was unexpected” ( $r = .74$ ). Violation was assessed with two items: “The outcome of the pole vault was not ideal” and “The outcome of the pole vault was bad for the athlete” ( $r = .81$ ). The results of the first study were as expected. The violation (the falling athlete) was seen as more of a violation than the successful athlete was ( $M = 3.89$  vs  $2.19$ ;  $F(1, 43) = 27.84, p < .001, \eta^2_p = .39$ ) and that setting up an expectation and then violating it had a greater impact on surprise than non-violation expectations ( $M = 2.91$  vs  $1.89$ ;  $F(1, 43) = 10.80, p < .01, \eta^2_p = .20$ ). Overall the first study supported the benign violation hypothesis but not the surprise-based incongruity theories. A failed jump was significantly more humorous to participants than a successful jump even if they expected the successful jump to fail ( $M = 3.96$  vs  $2.26$ ;  $F(1, 43) = 12.88, p = .001$ ). This study demonstrated that a violation of expectations had a greater impact than surprise on humor, supporting the benign violation theory.

The second study by Warren and McGraw (2016) examined whether juxtaposition of conflicting ideas functions to produce humor as predicted by incongruity theory (citation). Participants were master’s students ( $N = 86$ ; 81% female) in Italy taking a marketing class in English and completed the study as an optional homework task involving creating a product. All participants read a prompt instructing them to create a product to market. All participants were

randomly assigned to one of three conditions: juxtaposition without a violation (asked to combine features that typically do not belong together but are useful and appropriate), juxtaposition with a violation (asked to combine features that typically do not belong together and seem useless or inappropriate), and no juxtaposition (asked to combine features that typically do go together and seem useful and appropriate). All participants rated their product using a 7-point scale 1 (*disagree*) to 7 (*agree*) on this item “This product makes me laugh.” Participants also rated their products as “surprising” or “unusual.” Results indicated that juxtaposition and violation alone were not enough to elicit humor. ( $M = 2.43$  vs.  $2.50$ ),  $F(1, 83) = 7.58, p < .01$ . Results indicated that having both juxtaposition and violation increased humor ( $F(1, 83) = 7.58, p < .01$ ) compared to products with juxtaposition but without violation ( $F(1, 83) = 6.59, p < .01$ ). (The author did not provide means.) These results support that humor is related to violation and violation appraisal is related to concern. These two studies show that surprise does not explain humor and juxtaposition by itself does not predict humor.

The third study (Warren & McGraw, 2016) examined the role of incongruity, the hypothesis that humor comes from an atypical event with a violation appraisal. Their sample was composed of undergraduates at a United States university ( $N = 101$ ; 45% female). Participants read four writing prompts asking them to recall one sport play meeting one of four conditions (routine, amazing, tragic, or humorous). Subjects spent five minutes describing the event in detail. Then students were asked to answer three questions using a three-point scale: above average (coded as atypical), normal, and below average (coded as atypical and a violation). The three questions were: (a) “Compared to what you would normally expect in this context, how would you describe the performance?”; (b) “Did the play have a large effect on the outcome of the game?”; and (c) “Did you like or dislike the effect on the outcome of the game?”

Researchers hypothesized that humorous plays should be perceived as atypical, but routine (benign) plays should not. Results indicated that atypicality distinguished humorous (87%) from routine (31%) plays ( $\chi^2(1, N=49) = 15.73, p < .001$ ) A major limitation of this theory is that the term “incongruity” is defined loosely. The studies used for this theory defined incongruity as a stimuli that elicits a strong emotional response from an observer that is contrary to the initial emotional reaction (Warren & McGraw, 2016). The benign violation theory indicates that any incongruity must also be safe and not hurtful so incongruity alone as a definition of humor is inadequate as there are many incongruous events that may be tragic or trivial.

One issue of the benign violation theory is that it does not operationalize how to measure humor. The behavior commonly associated with humor is laughter which could be operationally defined and measured. However, research is unclear how outward emotional expression relates to the level of experienced humor (Warren & McGraw, 2016; Fredrickson, 2005; Gervais & Wilson, 2005) This theory also fails to discuss how emotions associated with humor, such as mirth, could be measured.

The results of the benign violation theory of humor appear to mostly explain the cognitive appraisal of humor. This theory attempts to operationalize the internal thought processes associated with humorous assessment. CBT uses the ABC model to teach clients how to recognize, appraise, and dispute maladaptive thought processes (Ellis & Harper, 1975). The benign violation theory is early in its exploration of humorous and non-humorous stimuli. The theory continues to define terms important to the study of humor such as incongruence and violation. However, it does focus more on the cognitive processes observed when assessing humor.

## **Cognitive behavioral therapy and positive psychology**

CBT is an evidence-based practice (Society of Clinical Psychology, n.d.). It has objective steps in which the client learns how to recognize their cognitive processes to identify maladaptive thoughts. This model has had success with a large variety of populations including clinical and non-clinical populations (Society of Clinical Psychology, n.d.). Skills learned through this therapy are focused toward decreasing negative emotions. The model pathologizes some cognitive processes by defining them as maladaptive (e.g., Ellis & Harper, 1975). Pathologizing interferes with psychological practice because it affects the clinician's ability to observe any behavior as normal.

Therapy is a social interaction between a clinician and client. It is reasonable to research interventions that facilitate positive social interactions between clinicians and clients (Louis et al., 2018; Schaefer & Greenberg, 1997). Laughter is a behavior that is commonly seen as a means of building relationships and relating to others (Gervais & Wilson, 2005). Research is inconsistent regarding whether laughter is considered an important expression of humor (Gervais & Wilson, 2005). For the purpose of this paper laughter will be assumed to be a sign of humor as there is evidence to show that humor is an important coping skill and an expression of happiness. Cognitive behavioral therapy identifies maladaptive, core beliefs in the client that interfere with happiness. It has been discussed that humor involves core values (Warren & McGraw 2016). Core values sculpt an individual's core beliefs. The core values are more rigid and are qualities that reflect personality traits. These values include industriousness, conscientiousness, and intelligence. Core beliefs reflect an individual's expectations of the world around. These beliefs are disputed during CBT. It stands to reason that strengthening adaptive core values will support disputing maladaptive values and both changes will enhance overall happiness. Fredrickson's

(1998) theory of positive emotions indicates that an individual can experience more creativity in treatment when involved in PPI (Cohn & Fredrickson, 2010). It appears likely that implementing humor into cognitive behavioral therapy will increase the success of clients through emotional and cognitive benefits supported in PPI. The benign violation theory also helps produce positive emotions effectively by accurately predicting the mechanism during the cognitive process. Cognitive schemas are considered to be the foundational assumptions by which we integrate and apply meaning to events throughout our life experiences (Brothers, Yang, Strunk, & Andersen, 2011; Wilks-Riley & Ireland, 2012). Schemas are important in cognitive behavioral therapy because they are the focus of therapy. Beck's CBT (Bredemeier et al., 2018) postulates that mental illness is a consequence of maladaptive positive schemas. These schemas are the core beliefs about the self and world. A schema is the lens through which individuals view the world. People are noted to have either adaptive or maladaptive schemas. While there is ample research on the effect of negative emotions and maladaptive schemas on mental health (e.g., Brazão, Rijo, Salvador, & Pinto-Gouveia, 2017; Jaya et al., 2018; Taylor et al., 2017) there is little research on positive effects of these schemas.

Fredrickson's (1998) theory of positive emotions explains that positive emotions are under-researched compared to negative emotions. There is little information linking positive emotions to coping skills or psychopathy. Researchers Wilks-Riley and Ireland (2012) examined male clinical and inmate populations in four studies to determine the relationship between psychopathy and negative schemas identified in an interview or file review. The first study assessed general cognitive schemas in high-risk populations and how they related to psychopathy. The measures given to prisoners ( $n=76$ ) and psychiatric patients ( $n = 38$ ) were the Psychopathy Checklist Screening Version (PCL-SV; Hart, Cox, & Hare, 1995) and a semi-

structured interview (SSI; Greenberger and Padesky, 1995). The PCL-SV includes Factor I (interpersonal characteristics associated with psychopathology) and Factor II (criminal history and lifestyle) aspects for assessing psychopathy. The SSIs were divided according to themes of self-schema, others schema, and world schema. The positive schemas included happy self, worthwhile self, caring self, reflective self, and positive others. The negative schemas included mistrustful self, angry self, annoying others, and negative world. The mean scores of the PCL-SV were correlated with these positive and negative schemas. The results indicated a negative relationship between positive schemas and the PCL-SV ( $r = -0.24, n = 76, p = 0.03$ ). There were no reported relationships between PCL-SV scores and negative schemas. This study shows that positive self-schemas are inversely associated with interpersonal characteristics associated with psychopathology. These results support the hypothesis that positive self-schemas are linked to lower levels of psychopathology.

The second study measured the nature of cognition in high-risk populations ( $N = 76$ ). These participants were patients from a personality disorder unit ( $n = 38$ ) and inmates ( $n = 38$ ). They were split into two groups of 38 and given the PCL-SV, the Positive Schema Questionnaire (PSQ; Wilks-Riley & Ireland, 2012), and the Early Maladaptive Schema Questionnaire- short form (EMS; Young, 1990). A regression analysis was conducted to predict psychopathy. There was a significant correlation ( $F = 4.56, p = .04$ ) between an increase in positive schema and a decrease in Factor II scores. No effect size was provided. This suggests that positive schemas are related to lower levels of criminal activity and antisocial lifestyle choices.

The third study measured the relationship between cognitive schemas and psychopathy. Male prisoners ( $n = 101$ ) and male university students ( $n = 108$ ) were given a self-report measure of psychopathy (Levenson, Kiehl, & Fitzpatrick, 1995) and the Schema- Positive and Negative

assessment scale (SPANNA; Wilks-Riley, 2012). Results indicated a significant effect ( $F = 8.97, p < .001$ ) between both groups on the positive schema, negative schema, and primary psychopathy scales. The students had higher Factor I ( $F = 27.34, p < .001$ ) and Factor II ( $F = 5.12, p = .03$ ) scores compared to the prison group. Reported results indicated students had significantly lower positive schema ( $F = 4.86, p = .03$ ) when compared to the prison group. No significant differences were reported for negative schemas. These results indicate that a college sample has lower levels of psychopathy, but also lower positive schemas as compared to the prison group.

A final, fourth, study was conducted to assess the relationship between cognitive schema and psychopathy. A group of male prisoners ( $N = 167$ ) and male university students ( $N = 196$ ) were administered the Levenson et al. (1995) self-report measure of psychopathy and the SPANNA. A confirmatory factor analysis supported the results of the third study ( $\chi^2(629) = 1730.1, [p = .00]; \chi^2/df \text{ ratio} = 2.16; \text{RMSEA} = .08 [.07] \text{ to } .08; \text{GFI} = .72$ ) between group of students and prisoners. Regressions were conducted to predictors for total psychopathy, Factor I, and Factor II aspects. The model was significant in predicting total psychopathy ( $F = 24.9, p = .001$ ). Results also indicated that increased abusive schema (Beta = .34,  $T = 6.78, p = .001$ ) and calm/happy schema (Beta = .65,  $T = 2.90, p = .004$ ) increased total psychopathy scores. This final study is significant because it suggests that positive schemas are inversely related to psychopathy and so increasing those schemas may be helpful in addition to the typical therapy that reduces negative schemas.

Positive psychology adds a new focus (wellness) to the traditional effort to resolve pathology. In addition such interventions may improve client motivation for the therapeutic process (Sommers-Flanagan, Richardson, & Sommers-Flanagan, 2011). Clinical populations can suffer (35.4%) from decreased motivation to continue treatment (Muro et al., 2018). It is for this

reason that increased research on positive psychological interventions is needed. The assimilation of a positive focus to therapy is cost-effective and appears to contribute to lasting personal coping skills (Cohn & Fredrickson, 2010). The psychological community's ability to understand the cognitive processes and differentiation of positive emotions, specifically humor, could help populations who have low interest in therapy. Studies (Jaya et al., 2018; Louis et al., 2018; Brazao et al., 2017) have observed the effectiveness of positive self-schemas in improving positive emotions in high-risk populations such as inmates and patients with serious mental illnesses.

Positive psychology is a psychological intervention that focuses on increasing positive emotions as opposed to decreasing negative emotions (e.g., Bryant-Davis, 2005; Garland et al., 2010; Muro et al., 2018). This model supplements traditional psychological theory by focusing on ways to help people learn to function at their best instead of waiting until their behavior deteriorates to the point of mental-illness. Positive psychology does not contradict traditional methods. The cognitive processes of interest are pro-social and adaptive coping skills. Mindfulness, journaling, gratitude, and well-being are the cognitive processes studied instead of being trapped in past or forward-focused emotions of depression and anxiety (Wellenzohn et al., 2016). It appears positive psychology has support in the clinical psychology community. Positive psychology seems to appeal to clinicians because of the focus on the inspiring processes that will help clients be their best even if they are not suffering from a mental-illness or disorder. This contrasts with the traditional therapeutic focus on destructive processes that prevent people from fully functioning (e.g., Martin, 2001; Rahimi & Bigdeli, 2014).

Positive psychology can be easily integrated into the CBT model and is complementary to CBT's traditional focus. The CBT model does not fully explain the cognitive processes and

effects of positive emotions, but the two models could possibly be integrated by shifting some focus of the therapeutic process onto producing more positive cognitive processes as well as decreasing negative cognitive processes.

## **Results**

The results of the literature search found two articles relevant to the first question, three articles relevant to the second question, two articles relevant to the third question, and one article relevant to the fourth question.

### **How effective are humor-based PPI in promoting emotional self-regulation?**

Negative emotional experiences are reported by clients of mental illness. CBT clinicians guide clients through interventions to understand and manage negative emotional consequences (Society of Clinical Psychology, n.d.)” Through these evidence-based treatments, clients learn to control emotional reactions and produce adaptive emotional responses. This skill is called emotional regulation. Antecedent focused emotional regulation is guiding emotions before encountering a stimulus while response-focused emotional regulation is guiding emotions after encountering a stimulus.

The effects of antecedent-focused compared to response-focused emotional regulation were studied by Gross (1998) in a randomized controlled experiment. Gross (1998) observed 120 college undergraduates (50% female) at an American university. Participants were divided into the antecedent-focused group, response-focused, and a control group and asked to watch “disgust-eliciting” films no longer than one minute. The antecedent-focused group was asked to watch the film so they would feel nothing (reappraisal). The response-focused group was asked to behave in such a way that an outsider would not know that they felt anything (suppression). The control group was asked to watch the film without further instruction. Data was collected via

self-reported subjective experience, observed expressive behavior, and physiology. A 9-point self-report survey, 0 (*strongly disagree*) to 8 (*strongly agree*), was given to participants in each group using three statements. Behavior was recorded by video camera and rated by four clinicians (50% female). Clinicians used a modified version of the Emotional Behavior Coding System (Gross & Levenson, 1993). Participants were given self-report surveys to record their experience before the film and afterwards. Participants were asked to rate emotions (amusement, anger, arousal, confusion, contempt, contentment, embarrassment, fear, happiness, interest, pain, relief, sadness, surprise, and tension) on a 9-point scale, 0 (*none*) to 8 (*most in my life*; Ekman, Friesen, & Ancoli, 1980). Physiology measures included finger pulse, finger temperature, skin conductance, general somatic activity, and cardiac inter-beat interval. A multi-variate analysis (MANOVA) revealed the antecedent-focused group experienced decreased levels of disgust ( $t = 2.2, p < .05$ ) compared to the control group. The response-focused group experienced greater levels of disgust compared to the control group ( $t = 0.8, ns$ ). Results of this study indicate that reappraisal is more effective than suppression at emotional regulation.

The second article pertaining to emotional regulation, (Robbins & Vendree, 2009), is a mixed method design that examined implications of self-regulation of humor expression. In a two-part experiment, Robbins and Vendree (2009) observed 17 undergraduate college students (11 female) and later 107 undergraduate participants. In the initial, qualitative experiment 17 students were asked to write narratives of scenarios where they failed to suppress laughter. These narratives were used to identify 10 general themes and three types of humor elicitors. The three elicitors were object-elicited laughter, third-person laughter, and self-elicited laughter. Each narrative was compared, and the researchers observed the similarities in themes that were used to construct a survey later given to the 107 participants. The narratives had themes of incongruity,

unexpected shift in perception of the activating event, social interaction, and distance from a negative perception. The presence of a friend in the scenario resulted in more humorous experiences if the situation was also appropriate for laughter. Third-person laughter was found to be the most common elicitor (69%), object-elicited laughter was second (19%), followed by self-elicited laughter (13%). The effects of suppressing laughter as an exercise in emotional self-regulation resulted in increasing feelings of mirth and a humorous interpretation of the activating event. In contrast to Gross (1998) in this study it was found that the presence of another person to be common in scenarios of failed- laughter suppression. This difference from Gross (1998) could be due to the presence of a friend in this study compared to the isolated method of the Gross (1998) study. These results support the “laughter is contagious” hypothesis of the social interaction of humor and positive emotions.

The second part of Robbins and Vendree’s (2009) study on emotional regulation was an experimental study. The design observed the effects of a friend being present when attempting emotional suppression and when appraising the laughter-appropriateness of scenarios. Undergraduate students ( $N=107$ ; 71 were female) were asked to rate suppressed laughter-narratives on a 7-point scale from 1 (*not at all likely*) to 7 (*extremely likely*). Participants were asked two questions, “If this situation were actually happening to you, how funny do you think it would be?” to assess humorousness and “In this situation, how likely would you be to hold back or suppress your laughter?” to measure emotional-regulation. All participants read four pairs of first-person narratives and four pairs of second-person narratives created from the previous study. The first and second person narrative measured the effect of a friend being present. The first scenario had the friend present in both narratives with an appropriate (party) and an inappropriate (classroom) context. The second scenario had friend absent in both narratives with

an appropriate (comedy club) and an inappropriate (classroom) context. The final two scenarios varied the present of a friend. The third narrative set used a laughter inappropriate context (church narrative) with and without the presence of a friend. The fourth narrative set used a laughter inappropriate context (classroom) and varied the presence of a friend. A friend was present in half of the scenarios as the dependent variable. A paired-sample t-test was used to determine significant differences between the narrative themes. More people found the inappropriate context to be funnier than the appropriate context in the second-person narrative condition ( $t = -4.73, p < .001$ ). This result suggests that the social variable of the friend facilitated more humorous responses in an inappropriate context.

The results of these studies indicate that PPI are associated with emotional-regulation. The results of the studies also suggest that social interaction is associated with an individual's humor response to stimuli.

### **Can humor-based PPI facilitate positive reframing?**

The Gross (1998) study supports the idea that reappraisal (or reframing) is more effective than emotional suppression. Positive reframing is also a skill learned in CBT intervention (Society of Clinical Psychology, n.d.). Clinicians help clients identify core beliefs about upsetting stimuli. Clients learn to reframe these events with more positive beliefs in order to elicit positive emotional consequences.

The first article (Stoeber & Janssen, 2011) examined how perfectionism predicts individual coping strategies. Undergraduate students ( $N=149$ ; 116 were female) from the University of Kent were given seven perfectionism measurements. Perfectionistic strivings and perfectionistic concerns were measured by combined scales from the Frost Multidimensional Perfectionism Scale (FMPS; Frost, Marten, Lahart, & Rosenblate, 1990) and the

Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 2004). The scales were 7-point scales from (1) *strongly disagree* to (7) *strongly agree*. Individuals were then asked to complete daily reports of failures, stress, coping strategies, and satisfaction for 3 to 14 days. To measure failures, participants were asked to write about their most significant failure that day. This daily failure was then measured by a stressfulness 5-point self-report scale (Stoeber, 2008) from (0) *not at all* to (4) *extremely*. The daily failure was also measured using The Brief COPE scale (Carver, 1997) to evaluate whether participants used a coping strategy. They also recorded what coping strategies they used such as self-blame, acceptance and positive reframing. Daily satisfaction was measured with a 5-point self-report scale with (0) *very little or not at all* and (4) *very much* (Stoeber, 2008). Researchers measured the relationship of coping strategies to daily satisfaction using a multilevel regression analysis. Stoeber and Janssen (2011) found that, among the participants, those who used strategies of humor, positive reframing, and acceptance reported higher quality of life satisfaction compared to students who showed perfectionistic concerns about performance ( $B = .32, t = 4.98, p < .001$ ). Humor was reported as a coping strategy in 89.9 % of all participants. Acceptance and positive reframing were reported in 99.3 % of all participants. The results indicated that positive reframing resulted in improved emotional outcomes for individuals with maladaptive cognitive schemas of perfection.

Carver and colleagues (1993) collected reports of coping strategies used by breast cancer patients ( $N = 59$ ) over the course of treatment. The patients were asked to report on their overall optimism about life before (1 day) and after surgery (10 days, 3-, 6-, and 12-months). Participants were all adult females (33 to 72 years) grouped in either Stage I ( $n = 42$ ) or Stage II ( $n = 17$ ) cancer. Participants were given a series of interviews throughout the study. The measures were administered by interview at the time of the patients' medical follow-up appointments. Measures

included the Life Orientation Test (LOT; Scheir & Carver, 1985) to measure levels of optimism and pessimism. Distress was assessed by the Profile of Mood States (POMS; McNair, Lorr, & Droppelman, 1971). Coping was measured by the COPE (Carver, 1989). Results indicated that those who used acceptance and humor reported lower distress and higher levels of optimism. The results also indicated that levels of active coping skills were used more in the pre-surgery and 3-month follow-up results ( $t(55) = 2.17, p < .05$ ). The results also indicated a high stable use of coping skills by patients who used humor during the initial phases of crisis ( $r_s = .33, p_s < .02$ ) and the other active coping skill of acceptance ( $r_s = -.32, p_s < .02$ ). The results of this study suggest that coping responses of acceptance and humor appear to be related to good outcomes 3-months post-surgery.

Interventions developed by Seligman and colleagues (Seligman, Rashid, & Parks, 2006) suggest that happiness is comprised of three parts: positive emotions, engagement, and meaning. Seligman and colleagues (2006) noted that engagement was significantly correlated with higher life satisfaction and lower depression symptoms. Seligman and colleagues (Seligman et al., 2006) studied the relationship between the presence of positive emotions and depression. In the first study a group of 40 mild to moderately depressed students were randomly assigned to a positive psychological therapy group or a control group who received no-treatment. Diagnosis was based on a score of 10 to 24 on the Beck Depression Inventory - II (BDI-II; Beck & Steer, 1992). Each group was given a BDI-II and the Satisfaction with Life Scale (SFWL; Diener et al., 1985) as outcome measures. These measures were administered via the Web immediately before and following the six-week therapy group. The outcome measures were administered after six weeks, three months, six months, and one year. After the first six-week period, the PPI group experienced a BDI-II score reduction of 0.96 per week ( $p < .003$ ) which was significant

compared to the control group ( $p < .05$ ). The PPI group ( $p < .001$ ) also experienced increase of 0.77 points per week on the SFWL which was significant compared to the control group that reported no change. At the three-month, six-month, and one-year follow-ups there were no reported changes in depression which suggest that the PPI group maintained their therapeutic gains compared to the moderate-to-mild depression baselines of the control group. The PPI showed significant symptoms relief through the one-year follow-up. After the one-year mark the average score on the BDI-II was nondepressed. This was significant compared to the controls who reported the same mild-to moderate depression range and showed no significant change in reported symptoms (Seligman et al., 2006). The results of this study indicate PPI is effective compared to zero intervention.

In the second study (Seligman et al., 2006) researchers wanted to study the effect of PPI compared to active treatment. Forty-six clients in individual treatment for unipolar depression were examined. These participants were between 18 and 55 years of age and had to meet criteria for major depressive disorder. Participants needed to receive a score of at least 50 on the Zung Self-Rating Scale (ZSRS; Zung, 1965) and Outcome Questionnaire (OQ, Lambert et al., 1996), participate in the 10-12-week intervention. There were three groups: the positive psychological intervention (PPI) group ( $n = 11$ ), the treatment as usual (TAU) group ( $n = 9$ ), and the treatment as usual with psychiatric medication intervention (TAUMED) group ( $n = 12$ ). Results indicated a large effect sizes on the happiness measure ( $d = 1.26$  and  $1.03$ ) the PPI had better results than the TAU. The PPI led to more symptomatic improvement in depressed clients and a decrease in depressive symptoms. Happiness was also seen to increase. Most importantly the effects of the PPI were observed a year after the study was completed (Seligman et al., 2006). The implication of this study is PPI can facilitate positive reframing.

In conclusion, after review of these four studies, humor does appear to be related to the active coping skill of positive reframing. However, more research is needed to understand the relationship between humor specific PPI and positive reframing.

### **Can humor-based PPI increase motivation to engage with interventions?**

A significant obstacle for populations with severe mental illness is a lack of motivation for therapy (Carver et al., 1993). A study by Carver and colleagues (1993) indicates that both client and therapist experience burnout during treatment. In addition, humor has been linked to increasing motivation to engage in treatment and is suggested to lead to more pleasant social interactions in inpatient populations (Carver et al., 1993).

There is one article on the effects of PPI and motivation (Muro et al., 2018). The study does not use humor, but it is a PPI specifically to improve participants attitudes, motivation, and self-esteem while improving academic performance. Researchers wanted to study the effects of PPI on levels of motivation and academic performance. A randomized controlled pilot study was conducted with 164 (46 female) high-school age students. The study recruited low academic performing students for five years. Students were randomly split between the PPI and control group (tutoring with no PPI). Both interventions were one-hour sessions one-to-one or in a group. Participants were required to do 2 to 5 hours of tutoring per week for a total of 8 to 12 one-hour sessions delivered weekly or bi-weekly. During the first two sessions, students from the both groups were asked to create a list of goals. During the second phase, students in the PPI group were to write positive observations about their experiences through letters of gratitude and journals. They were also required to identify personal strengths and insights and set goals for themselves. These PPI activities were led by the assigned tutor each lesson. The final two sessions, students from both groups were asked to self-evaluate their motivational levels,

progress, and achievements. Researchers observed that low academic performing students who participated in the PPI reported higher grades and a continued motivation to continue using the tools post-intervention. ANOVA results indicated a significant increase in grades ( $F = 12.58, p < .001, \eta^2 = .072$ ) in the PPI group compared to the control group. The effect size of the PPI was also significantly higher than the control group ( $F = 9.08, p < .05, \eta^2 = .053$ ) for previously failing students. This suggests that students who received the PPI along with private tutoring were less likely to experience behavioral or emotional distress due to academic performance than those who did not get it. Motivation was not found to have a decreasing relationship with failed subjects. Muro and colleagues (2018) attributed the differences to the PPI group more easily assimilating into the traditional tutoring method which was centered on identifying personal tools to problem solve. The results of the above studies suggest that there is some evidence to support the hypothesis that PPI does increase motivation to engage in new behaviors and might thus apply to therapy. The intervention by Muro and colleagues (2018) focused on improving academic performance. The PPI intervention is similar to how skills are introduced and practiced in a therapeutic environment.

### **What are the adverse effects or limitations of humor-based PPI?**

Humorous interactions are considered valuable because they result in observable social feedback immediately. It is important to understand the adverse effects of humor because a failed humor attempt can be costly (Williams & Emich, 2014). While a successful humorous interaction can increase social interaction, a failed humorous interaction might prompt ostracization. A failed humorous attempt may decrease positive emotions in all people involved. There is also risk of increasing negative emotions.

Williams and Emich, (2014) observed 127 undergraduate students (74% female) and their ability to reframe perceived failures with humor interventions. Participants were randomly assigned to successful or unsuccessful groups in two different stages of the study. Self-reported thoughts of the participants were recorded via autobiographical narratives about successful or unsuccessful humor attempts. The participants completed Williams' (2011) 3-item measure for affect perspective taking and for humor self-efficacy the Self Sense of Humor Scale (SSHS; Lefcourt & Martin, 1986) was used. Trait affect was measured with the positive and negative affect schedule (PANAS; Watson, Clark & Tellegen, 1988) and the Positive and Negative Affect Schedule Expanded Form (PANAS-X; Watson & Clark, 1994). During the second phase, participants were again randomly assigned to a successful or unsuccessful narrative group and asked to remember their state affectivity and humor self-efficacy. A linear regression indicated that the unsuccessful humor group was more likely to report negative affect ( $\beta = 0.39, t = 4.33, p < 0.01, R^2 = 0.57$ ), guilt ( $\beta = 0.51, t = 6.26, p < 0.01, R^2 = 0.31$ ), and lower self-esteem ( $\beta = 0.60, t = 7.50, p < 0.01, R^2 = 0.39$ ). Additionally, those in the unsuccessful humor group reported less positive affect, ( $\beta = -0.74, t = 11.39, p < 0.01, R^2 = 0.22$ ) than those in the successful group ( $\beta = -0.60, t = 7.19, p < 0.01, R^2 = 0.37$ ). Results of the Williams and Emich (2014) study reveal that people were significantly more likely to notice a failed humor attempt compared to a successful attempt. Also, those who reported failed humor attempts reported behaviors such as apologies ( $\chi^2 = 4.01, p = 0.04$ ), changing the subject ( $\chi^2 = 4.50, p = 0.03$ ), and doing nothing ( $\chi^2 = 7.16, p < 0.01$ ). Interestingly, there was no difference between successful and unsuccessful groups in numbers of new attempts ( $\chi^2 = 0.01, p = 0.94$ ). Humor self-efficacy and success was found to predict new attempts, ( $\chi^2 = 7.01, p = 0.01$ ). Results of this study indicate that successful humor may motivate participants to increase new attempts at humor. However, the results of this study

also suggest that failed attempts may damage the interpersonal relationship and discourage new attempts. The study indicated that failed humor attempts can increase negative emotional consequences ( $\beta = 0.60, t = 7.50, p < 0.01, R^2 = 0.57$ ) and decrease social support ( $\chi^2 = 7.08, p = 0.01$ ). More research is needed to explore potential adverse consequences of mishandled PPIs.

## **Discussion**

The studies above indicate that there is evidence supporting the validity of PPIs and their effectiveness. It is important to continue research in this area, in order to understand the cognitive processes and the full effects of positive emotions. Humor deserves more research as it is an observable and important positive emotion. Humor has the distinct behavior of laughter associated with the positive emotion of amusement/mirth. The benign violation model (McGraw & Warren, 2010; Warren & McGraw, 2016) can predict and explain which scenarios are humorous and which are not perceived as funny. The cognitive processes that recognize a stimulus as “unexpectedly not a threat” are a clear link to disputing maladaptive thought processes. The CBT model of therapy is a good model to supplement with humor-based PPI as it focuses on the core beliefs and humor is believed to rely on core beliefs as well (Ellis & Harper, 1975; McGraw & Warren, 2010). PPIs appear to be motivational and engaging for clients of clinical and non-clinical groups (e.g., Fredrickson et al., 2003; Muro et al., 2018).

In the last decade, positive psychology interventions (PPI) applied in both clinical and nonclinical samples have demonstrated efficacy to increase positive emotions, well-being, and life satisfaction. Researchers have described the mental processes of humor with incongruity models (Louis et al., 2018; Wilks-Riley & Ireland, 2012). There are two limitations of incongruity theories of humor. First, incongruity is not consistently defined. The literature includes surprise, juxtaposition, atypicality, and a violation as incongruence. Second, regardless

of definition, incongruity alone does not adequately differentiate humorous from nonhumorous experiences. It is time to revise incongruity theory by proposing that humor arises from a benign violation: something that threatens a person's well-being, identity, or normative belief structure but that simultaneously seems okay. Six studies, which use entertainment, consumer products, and social interaction as stimuli, reveal that the benign violation hypothesis better differentiates humorous from nonhumorous experiences than common conceptualizations of incongruity. A benign violation conceptualization of humor improves accuracy by reducing the likelihood that joyous, amazing, and tragic situations are inaccurately predicted to be humorous. (Muro et al., 2018; Seligman et al., 2006; Warren & McGraw, 2016)

Therapy either individual or group is a social interaction between two or more people. By further studying applied humor interventions or incorporating humor into psychological interventions the motivation of the client might be improved (Seligman et al., 2006; Warren & McGraw, 2016). Humor and its practice are encased in positive psychology. Positive psychology does not require a diagnosis and does not pathologize behavior. CBT has also incorporated humor interventions into traditional methods in what is known as positive cognitive behavioral therapy (PCBT). The therapeutic model is similar to the traditional ABC model (Ellis & Harper, 1975). However, instead of focusing on irrational, unrealistic, rigid beliefs that are not goal-oriented, PCBT focuses on a client's strengths and works to increase these strengths in an individual (Taylor et al., 2017). By focusing on an individual's strength and building upon these foundations, PCBT has been found to be helpful in both group and individual interventions (e.g., Antonie et al., 2018 Warren and McGraw, 2016, and Seligman et al., 2006). For example, these interventions had effective outcomes in populations with severe mental illness (e.g., Louis et al., 2018; Richman, 1996; Wellenzohn et al., 2016; Wilks-Riley & Ireland, 2012). PCBT needs

further research to understand when it is appropriate and when it is not appropriate for a client. There have been different types of humor coping skills identified by research. These adaptive and maladaptive coping styles are behavioral skills and can be taught (Martin, 2007).

Humor involves cognition, behavior, and emotional management. It can be defined as overall satisfaction with life or an event (Martin, 2007). Humor is a positive reframing thought process. It is flexible. These skills can be learned or improved as the concept of attentional shift is explained in CBT (Bredemeier et al., 2018) Populations who could benefit from humor therapy would be adults with anxiety and depressive disorders. Muro and colleagues (2018) study indicate adolescents may also benefit from humor therapy.

Humor might be a therapeutic intervention due to the attentional shift required which is similar to the shift from maladaptive core beliefs to adaptive beliefs in CBT. Positive reframing is an active coping skill observed in PPI. Research indicates that longer engagements with undesirable stimuli are more effective than shorter engagements (Weinstein, Hodgins, & Ostvik-White, 2011). Humor is important to examine because these skills require clients to engage with a negative event and practice positive reframing exercises. PPIs involving humor may allow an individual to distance themselves from their negative core thoughts (Wellenzhon et al, 2016). Research indicates that an attentional shift could be a key coping mechanism in enhancing happiness (e.g., Consoli et al., 2018; Louis et al., 2018). Humor based psychological interventions may increase motivation for clinical populations to engage with therapy to create lasting behavioral change. Strengthening the skill sets associated with humor may help clients be more motivated to engage and persist with clinical treatment.

Current clinical research (Louis et al., 2018) presents humor as an adaptive schema. Schema therapy focuses on an individual's early maladaptive schemas (EMS) and identifies

negative thought patterns (Louis et al., 2018). Through CBT, clinicians can identify these rigid, core beliefs. Through the schema therapy models and CBT, clinicians can identify maladaptive schemas and dispute them with a therapy that is motivating and correlated with higher quality of life and happiness.

Another important element in understanding the potential for positive psychological intervention is the motivational effect. Positive psychological interventions did not typically ignore the negative obstacles. Instead therapists educated and encouraged clients to counteract their depressive symptoms with their signature strength (e.g., Seligman et al., 2008, Muro et al., 2018). The results of these studies appear to support the use of PPIs for clinical and non-clinical populations. Seligman and colleagues (2008) believe that these findings support the promotion of integrating PPIs along with treatment as usual therapies. These behaviors naturally shift attention away from the negative stimuli. This attentional shift is important especially for clients who suffer from anxiety and depressive symptoms (Fredrickson & Branigan, 2005). Research has (Williams & Emich, 2014) found that clients with depressive stimuli tend to focus on negative emotions and ruminate causing a downward spiral. Also, clients with anxiety have been observed to intermittently focus on negative stimuli (Najmi, Kuckertz, & Amir, 2012). These observations along with the observed attentional shift noted in positive psychological interventions may explain the cognitive processes behind these therapeutic interventions. These findings could lead to a change in the focus of therapy for clients with depression (Wellenzohn et al., 2016).

There were differences observed in the rates at which the mindfulness, reframing, personal development, etc. increased. These changes were attributed to individual variance between participants. More research is needed to understand the quantity of daily self-improvement activities needed for lasting change. The differences in outcomes of the six areas of

improvement need further research (Warren & McGraw, 2016). The increase of mindfulness and self-regulation appear to be greater in those with a lower starting baseline (Antoine et al., 2018).

After a review of the available research it appears that the best way to implement a PPI is to have a present focus for the intervention. This is observed to facilitate both attentional-shift from negative emotions to positive emotions and increased savoring of positive emotions.

### **Summary**

Cognitive behavioral therapy (CBT) has been demonstrated to be one of the most popular and useful psychological interventions today. CBT was the chosen intervention because the interventions are easily modified to encourage adaptive cognitive processes. However, a limitation of CBT is that it focuses on reducing negative emotions but does not focus on increasing positive emotions. Positive psychology focuses on increasing positive emotions during psychological interventions. A limitation of studying positive emotions is the diffuse nature of positive emotions. Positive emotions are more difficult to measure as compared to the current state of the research on negative emotions. Humor, including amusement/mirth, is an observable positive emotion. This article reviews the subset of positive psychological interventions (PPI) if compatible with CBT and addressing some aspect of humor. Randomized control studies, correlational studies, and meta-analysis suggest that PPIs may improve self-regulation, improve critical thinking, and increase motivation to engage with psychological intervention. However, the number of available studies is limited, and more research is needed in this important area.

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