SOCIAL CAPITALIZATION AS A POSITIVE EMOTION REGULATION STRATEGY IN INDIVIDUALS AT RISK FOR DEVELOPING A SCHIZOPHRENIA-SPECTRUM DISORDER

A Dissertation

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ABSTRACT

Extant literature indicates that emotional deficits, such as impaired emotion expression/experience, are prominent in schizophrenia-spectrum psychopathology and linked with poorer functional (e.g. social) outcomes. Interestingly, individuals exhibiting schizotypy, an underlying personality organization that confers a vulnerability to developing schizophrenia, report *more* abnormalities in emotion experience compared to healthy controls and individuals with schizophrenia, a phenomenon termed the "schizophrenia-spectrum emotion paradox." To aid in the clarification of emotional abnormalities and explore the dynamic nature of emotion experience in individuals with schizotypy, the present study enrolled 93 college-aged individuals to examine positive emotion regulation through the use of social capitalization. In social capitalization, an individual shares a positive life event with another person and the response/reaction that follows has the most benefit for upregulating positive emotions. Participants were asked to complete a social capitalization task in the laboratory as well as complete seven days of ecological momentary assessment tracking social capitalization attempts in daily life. The results indicated that social capitalization did not increase rating of event positivity, positive affect, or decrease negative affect more so than writing about an event in the laboratory. Results from mobile data collection portion of the study indicated significant relationships between affect and social capitalization, as well as affect and schizotypy, but no interaction between the two. Overall successful social capitalization was largely unrelated to schizotypy or it's dimensions, indicating that social capitalization likely operates similarly across degree of schizotypy. Future research would benefit from exploring other elements, such as social anxiety, trust, or familiarity with the listener to disentangle aspects of the dyad relationship that would confer the most benefit following a social capitalization attempt.

INTRODUCTION

The term 'Schizophrenia' originally coined by Eugene Bleuler (1911) conceptualized the constellation of the symptoms known as the four A's: association, affectivity, ambivalence, and autism (McGlashan, 2011). Bleuler posited that individuals with schizophrenia presented with associations that lose continuity, diminished affective/emotional experiences, positive/negative ambivalence, and an autistic element of appearing to live in their own world and perseverating on certain aspects of their life (e.g. paranoia) (McGlashan, 2011). Many of these symptoms are found in the present-day diagnosis of schizophrenia. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; APA 2013) includes a number of disorders under the umbrella 'Schizophrenia-Spectrum and Other Psychotic Disorders' (e.g. Schizotypal Personality Disorder, Delusional Disorder, Brief Psychotic Disorder, Schizophreniform Disorder, Schizophrenia, Schizoaffective Disorder, Catatonia, and Psychosis related to Substance Use or Medical Condition). While these disorders are distinct, they share many of the same symptoms such as positive symptoms (e.g. delusions and hallucinations), negative symptoms (e.g. anhedonia/amotivation), disorganized symptoms (e.g. speech or behavior), and abnormal motor behavior (e.g. catatonia) (Barch, 2018). Per the DSM-5, an individual must meet the following criteria in order to meet for a diagnosis of schizophrenia: at least two of following for a significant portion of a 1-month period – delusions, hallucinations, disorganized speech, disorganized or catatonic behavior, or negative symptoms; level of functioning in one or more major areas (e.g. work or interpersonal relations) markedly below the expected level; has been ongoing for at least 6 months; and other mental, medical, or substance-related disorders do not explain the symptoms. Given that much of the literature on psychosis has been conducted with individuals diagnosed with schizophrenia, the information that follows is largely based on this

population and thus the term Schizophrenia-Spectrum Disorders (SSDs) will be utilized for the remainder of this paper.

Research has demonstrated that individuals diagnosed with an SSD often experience deficits in cognition, which may be the primary source of disability in social functioning and daily living (Barch, 2018). Deficits in cognition have been shown to span episodic memory (Danion, Huron, Vidailhet, & Berna, 2007), working memory (Park & Lee, 2005), and processing speed (Knowles, David, & Reichenberg, 2010). There has been tremendous interest and exploration on how deficits in neurocognition impact daily living and clinical outcomes. Lepage, Bodnar, and Bowie (2014) conducted a review examining the relationship between neurocognition and clinical and functional outcomes in individuals with schizophrenia. The results demonstrated a relationship between verbal memory and clinical outcome (defined as remitted or non-remitted), such that more impairment in verbal memory was associated with non-remitted symptoms. When examining functional outcome, which included domains such as self-care, daily living activities, illness management, and employment, the results demonstrated that overall cognitive impairment across several domains (e.g. executive function, verbal memory) was associated with poorer functional outcomes (e.g. not attending to daily needs, being unemployed, medication non-compliance). These results suggest that individuals with SSDs experience numerous cognitive deficits that directly impact daily life as well as the course of illness.

Of particular interest to the present study, there is research to suggest that emotion deficits may lead to a lack of engagement in pleasurable activities, which has been linked with more severe negative or disorganized symptoms and worse community functioning (Cohen & Minor, 2010; Kring & Elis, 2013). A review by Kring & Caponigro (2010) discussing the time

course of emotion suggested impairments in anticipating future emotions, with intact in-the-moment processing of emotions. The authors also demonstrated a link between a decrease in motivation to engage in pleasurable activities, which was related to impaired anticipated emotions. Additionally, in a meta-analysis by Irani, Seligman, Kamath, Kohler, & Gur (2012) they examined the relationship between emotion perception and individuals with schizophrenia. The results indicated that emotion perception, specifically emotion identification, was related to community functioning, social skills, and social problem-solving (i.e. those with more severe impairments in emotion identification experienced worse functional outcomes). As such, it is clear that deficits in emotion are critical to the time course and overall functioning of individuals with schizophrenia. While many of these deficits are typically examined and thought to be characteristic of SSDs, there is evidence to suggest that many of these difficulties manifest in an attenuated form in individuals at-risk for psychosis or those with schizotypy.

Schizotypy or Individuals At-Risk for SSDs

Schizotypy is considered to be an underlying personality organization that confers a vulnerability to developing schizophrenia (Lezenweger, 2006). This is based off of Meehl's model of schizophrenia (1962;1990), whereby there are latent genetic, neurological, and personality factors that manifest into observable disorders. Meehl called those exhibiting schizotypy a 'schizotype,' though it is important to note that his conceptualization is distinct from the DSM disorder 'Schizotypal Personality Disorder.' Meehl theorized that there was also an underlying central nervous system (CNS) component, titled 'schizotaxia,' which is not observable. Clinical manifestation of the disorder develops when schizotaxia and schizotypy are combined with 'polygenic potentiators.' Polygenic potentiators may be a number of elements such as anxiety-proneness, social introversion, or aggressive tendencies, for example. It is

believed that these potentiators increase the likelihood or 'push' an individual with schizotaxia and schizotypy toward psychosis.

Meehl theorized four clinical signs or symptoms of schizotypy: cognitive slippage, interpersonal aversiveness, anhedonia, and ambivalence. Cognitive slippage, as defined by Meehl, may be described as a milder form of loose associations noted by Bleuler. Interpersonal aversiveness may be defined as fear of social situations and activities. Anhedonia has been defined as a decrease in the ability to experience and seek out pleasurable activities. And ambivalence was described as a tendency to experience a coactivation of negative and positive evaluations for a given stimulus (Bleuler, 1911). These clinical signs and symptoms proposed by Meehl remain somewhat related to the symptom domains of schizophrenia per the DSM-5. For example, disorganized speech is akin to cognitive slippage or thought disorder and disorganized behavior may be related to ambivalence, though this is often more related to emotional state (Docherty, et al, 2014). Interpersonal aversiveness and anhedonia have been conceptualized as core elements of negative symptoms often present in SSDs (Marder & Galderisi, 2017). Research has also found that individuals with schizotypy often endorse magical ideation and aberrant perceptual experiences, similar to the positive symptom domain of schizophrenia (Barrantes-Vidal, et al, 2013). Currently, self-report measures designed to assess the presence of schizotypy are often comprised of the three scales: positive, negative, and disorganized. The most commonly used measures of schizotypy are the following: Schizotypal Personality Questionnaire (Raine, 1991; Raine & Benishay, 1995; Cohen et al, 2010), the Chapman Scales (Eckblad & Chapman, 1983; Chapman et al, 1978; Chapman et al, 1976; Eckblad et al, 1982), and the Wisconsin Schizotypy Scales (Winterstein, et al, 2011). All of the scales are designed to

assess the common domains associated with schizotypy, such as positive symptoms (e.g. magical beliefs), negative symptoms (e.g. anhedonia), and disorganized symptoms (e.g. odd speech).

While schizotypy reflects common symptom domains, there also appear to be similar deficits in cognitive functioning as well, though the magnitude is lower. For example, Cochrane, Petch, and Pickering (2012) found that individuals higher in negative schizotypy performed worse on measures of verbal fluency and those higher in disorganized schizotypy performed worse on tasks involving negative priming (assessing cognitive inhibition and selective attention). Additionally, utilizing an overall screening measure of cognition (Screen for Cognitive Impairment in Psychiatry), Brosey and Woodward (2015) found that individuals higher in schizotypy performed worse on the SCIP, which assessed verbal memory, working memory, executive functioning, and processing speed. Additionally, similar to schizophrenia, there is evidence to show that impairment in cognition is related to functional outcomes. McClure, Harvey, Bowie, Iacoviello, & Siever (2013) found that higher levels of schizotypy were related to poorer cognitive performance as well as community functioning. More specifically, individuals with schizotypy were less likely to be employed and were less likely to be living independently. In sum, it is largely understood that the cognitive disruptions seen in schizophrenia are often apparent to some extent in individuals at risk for psychosis, prior to the development and manifestation of an SSD.

Unsurprisingly then, there also appear to be disruptions in the processing and experiencing of emotion in individuals at risk for an SSD. Current research suggests that schizotypy is largely characterized by an increase in negative affect and a decrease in positive affect (Horan, Blanchard, Clark & Green, 2008), though there is some research to suggest this may vary as a function of schizotypy subtype (e.g. only lower negative affect in positive

schizotypy; Kwapil, Brown, Silvia, Myin-Germeys, & Barrantes-Vidal, 2012). A review by Giakoumaki (2016) indicated that individuals with schizotypy may also demonstrate alexithymia (defined as difficulty identifying and describing one's own emotions) and have lower emotional expressivity. Given the importance emotion in interpersonal processes, much of the research examining how emotion deficits impact individuals with schizotypy typically examines social or role functioning. For example, Aguirre, Sergi, and Levy (2008) found that individuals high in schizotypy were more likely to experience academic difficulties (e.g. keeping up with coursework), social difficulties (e.g. less social support), and familial problems (e.g. increase conflicts), which was related to some aspects of emotional intelligence (e.g. perceiving and managing emotions). These findings support the idea of broad attenuated emotional deficits in individuals at risk for psychosis, however, a more focused discussion of impairments in emotion responding specifically is warranted for the present study.

Emotion Responding in SSDs and Schizotypy

Schizophrenia-Spectrum Disorders

When examining emotions, many discuss emotion perception as well as emotion responding, which includes both emotion experience and expression. Given that the present study is interested in the regulation of one's own emotion, this discussion will be limited to emotion responding, or emotion experience and expression in individuals with SSDs and schizotypy. Regarding emotion expression, studies have found that individuals with schizophrenia are much less emotionally expressive than healthy controls (Mandal, et al, 1998; Kohler, et al, 2008). This finding has been demonstrated regardless of stimuli and methodology utilized to study emotion expression (Kring & Moran, 2008). However, what is interesting about these findings, i.e. that individuals with schizophrenia are less outwardly expressive, is that

studies examining micro-expressions find that individuals with schizophrenia engage in micro-expressions comparable to healthy controls (Kring & Ellis, 2013). There are mixed findings on whether individuals with schizophrenia can accurately mimic certain facial expression indicating emotions (e.g. happy, sad, disgusted, angry, etc.). Possible reasons for the deficits are the use of antipsychotic medication, which may dampen physiological response or deficits in social skills and interacting with others (Kring & Ellis, 2013). Overall, the findings on emotion expression have suggested that individuals with schizophrenia are less observably expressive though may engage in comparable facial emotional micro-expressions. Furthermore, there is evidence to suggest some impairment in vocal emotional expression, or affective speech prosody. A meta-analysis conducted on the recognition and production of emotional speech prosody found that individuals with schizophrenia exhibited reduced speech prosody (Hoekert, Kahn, Pijnenborg, & Aleman, 2007). However, more recent research suggests that these deficits are largely related to context and demographic factors, though some aspects of vocal expression (e.g. pause length during speech) may be related to negative symptoms (i.e. alogia/blunted affect) (Cohen, Mitchell, Docherty, & Horan, 2016). These results demonstrate that emotion expression may be impacted in more than one modality (i.e. speech as well as facial features) in individuals with schizophrenia.

Literature on emotion experience has been just as varied. Typically assessed using Ecological Momentary Assessment (EMA) methods, self-report data is collected daily over a period of time – such as five days, a week, or 10 days. Participants are asked numerous questions about their daily activities and asked to rate levels of emotions. Research has indicated that individuals with schizophrenia report comparable levels of emotions, however, some studies have found that individuals with schizophrenia report more negative and less positive emotions

(Kring & Moran, 2008). The research also suggests that individuals with schizophrenia are reporting emotions in a similar intensity, frequency, and valence compared with healthy controls. For example, individuals with schizophrenia report comparable negative emotions to negative stimuli than positive stimuli (Hempel, Tulen, van Beveren, van Steenis, Mulder, & Hengeveld, 2005). A notable, and consistent, finding in this literature on emotion experience is that individuals with schizophrenia often report emotions that the stimulus was not designed to elicit and that this happens most often with neutral or positive stimuli (Ursu, Kring, Germans Gard, Minzenberg, Yoon, Ragland, … Carter, 2011). Possible explanations for this finding are that these individuals represent a sub-sample of those with schizophrenia, the existence of difficulty with cognitive control, greater ambivalence, and cognitive deficits (e.g. episodic memory) (Kring & Ellis, 2013). In sum, the literature largely suggests that individuals with schizophrenia experience emotion in a way comparable to healthy controls, especially in the presence of a congruent stimulus (e.g. negative stimulus, negative emotion).

Schizotypy

In 2008, Phillips and Seidman published an informative review outlining emotion processing in individuals at risk for developing schizophrenia. The present discussion will include findings from the review in the domains of emotion expression and emotion experience. Studies examining emotion expression in schizotypy or 'clinical high risk' found that facial expressions made in response to emotional film clips was comparable to that of healthy controls, though there were fewer expressions made (Leung, Couture, Blanchard, Lin, Llerena, 2010). Further research suggests that affective facial expression may be related to sex as well, as Leung, et al. (2010) found reduced frequency but not intensity in men and Mitchell, Ragsdale, Bedwell, Beidel, & Cassisi, (2015) found that men high in schizotypy exhibited constricted facial affect to

negative stimuli when compared with male healthy controls and the same pattern was found for women with schizotypy compared to female healthy controls. Overall, Collins, Blanchard, & Biondo (2005) found that individuals scoring high on self-report measure of social anhedonia, defined as a diminished ability to experience pleasure, demonstrated reduced facial expressions (i.e. 'constricted facial affect'). It is unclear whether individuals high in social anhedonia produce similar facial micro-expressions compared with healthy controls, as has been found in individuals with SSDs. Another finding indicated that schizotypy was correlated with an increase in alexithymia, defined as difficulty identifying, verbalizing, and analyzing feelings (van t' Wout, Aleman, Bermond, and Kahn, 2007), which was primarily evidenced by difficulty in communicating one's emotions. Relatedly, research has found that individuals high in schizotypy exhibit limited emotional vocal expression (Collins, Blanchard, & Biondo, 2005). Though further studies did not find evidence for disruptions in speech prosody among individuals with schizotypy (Cohen, Iglesias, & Minor, 2009; Cohen & Hong, 2011). A study examining whether sex accounted for the different findings of speech prosody found that some aspects of vocal expression (e.g. pitch, etc.) and schizotypy were only apparent for males compared to females (Bedwell, Cohen, Trachik, Deptula, & Mitchell, 2014), suggesting that this could be a potential reason for the lack of findings in previous studies. Overall, similar to schizophrenia, there is some evidence to suggest the presence of reduced emotional expression in schizotypy, though of a lesser degree in these individuals.

Surprising results have been demonstrated across the literature examining schizotypy and emotion experience, namely that individuals with schizotypy report *more* impairments in emotion experience compared to healthy controls and individuals with schizophrenia (Cohen, Auster, MacAulay, & McGovern, 2014). Prior research found similar results (for a review see

Phillips and Seidman, 2008), whereby individuals with schizotypy reported more impairment in emotion experience on self-report questionnaires, though their performance on emotional laboratory tasks evidenced comparable levels of emotion with healthy controls and individuals with schizophrenia. This surprising finding has been termed an "emotion paradox." The "emotion paradox" is the phenomenon whereby individuals at risk for psychosis exhibit or self-report more severe impairments compared to individuals with schizophrenia, considered to be a more extreme manifestation of the spectrum (Strauss & Cohen, 2018). Phillips and Seidman (2008) also reported a different pattern of results in emotion experience correlated with schizotypy domain. For example, individuals with positive schizotypy reported higher levels of emotion experience in the domains of emotionality (increased affect intensity along with increased attention to and influence of emotions; Kerns, 2006), affective intensity (intensity of emotion experienced), and higher negative affect. Whereas individuals with disorganized schizotypy reported higher levels of emotion experience in the domains of emotional confusion (poor identification of emotions; Kerns, 2006), ambivalence, and neuroticism. Finally, individuals high in negative schizotypy reported decreased emotionality and increased emotional confusion. As such, the subtype of schizotypy may differentially influence impairment in emotion experience.

In sum, individuals with schizotypy are reporting more severe emotion deficits when compared with healthy controls and individuals with schizophrenia and there appears to be varying types of impairment depending on schizotypy subtype. Individuals at risk for psychosis present a unique population to study, which allows us to a) understand premorbid functioning and b) clarify effects of early intervention. Exploring emotion responding/regulation provides a more dynamic way of examining emotion experience in individuals at risk for psychosis as

elucidation may provide insight into targets for intervention, such as positive emotion regulation. While much of the research in this area has focused on negative affect/emotions, due to the self-reported and evidenced increase in negative affect among those at risk for SSDs, far less research has examined the impact of the regulation of positive affect/emotions and the effects of upregulating positive affect/emotions in an attempt to buffer against increased levels of negative affect in those at risk for SSDs.

Positive Emotion Interventions in SSDs and Schizotypy

Given the intractable nature of negative symptoms, specifically those associated with emotional experience (e.g. apathy, anhedonia), and the findings that individuals with schizophrenia may experience levels of positive emotions comparable to healthy controls, an interest in interventions targeting the experience of positive emotions has emerged. Two such programs are Positive Living (PL; Penn, et al, 2012) and the Positive Emotions Program for Schizophrenia (PEPS; Favrod, et al, 2015 & Nyguyen, et al, 2016). Positive psychology interventions emphasize and focus on positive events and well-being, elements that have been found to be important in order to live a more fulfilling and gratifying life (Penn et al, 2012). This is in contrast to interventions focused on remitting deficits, such as hallucinations or cognitive impairments, that are less likely to emphasize or focus elements such as positive emotions that may directly impact well-being. PL (Penn et al, 2012) is a group therapy adapted from positive psychology interventions and findings from a pilot study indicated possible positive outcomes for well-being, emotion regulation through savoring, hope, recovery, and some psychiatric symptoms. The PL program was comprised of the following techniques/methods adapted from Seligman (2006): using your strengths, writing down one good thing per day, daily savoring, active/constructive responding, positive goal and mindfulness minute. The PEPS program,

designed to reduce anhedonia and amotivation, is also conducted in a group format with a focus on making the most of pleasant moments. Preliminary data from the PEPS pilot study demonstrated modest effect sizes in reduction of anhedonia and depression. PEPS utilized techniques/methods such as savoring, behavioral emotion expression, capitalizing on positive moments, and anticipating pleasant moments.

Rationale for Studying Positive Emotion Regulation in Schizotypy

It is possible that the upregulation of positive emotion could buffer against negative effects of symptoms of depression and/or anxiety or stress. Of note, comorbid depression, anxiety, or stress has been hypothesized as a potential explanation for the "emotion paradox" in schizophrenia-spectrum psychopathology (Strauss & Cohen, 2018). Therefore, emphasis on positive emotion regulation in individuals with schizotypy is warranted. While both PL and PEPS have shown some benefit for individuals with schizophrenia-spectrum psychopathology, this has not been studied in individuals at risk for psychosis. However, given that individuals with schizotypy exhibit or report more severe emotion deficits, understanding whether any aspects of these programs can be used with this population is critical prior to testing complete interventions. More specifically, understanding whether capitalizing on positive events, an element of both PL and PEPS, would lead to increased positive emotions and a reduction in comorbid depression or anhedonia is warranted.

Target for Positive Emotion Regulation: Social Capitalization

Emotion regulation may occur at different stages in the emotion-generative process (Gross, 1998) and of particular interest to the present study is emotion regulation in the final stage, or response modulation. According to Gross, response modulation refers to a direct, deliberate influence on a number of systems (e.g. physiological, experiential, or behavioral).

When an individual experiences a positive event, they may attempt to maintain or enhance the corresponding positive emotions by a variety of methods. Once such method has been termed capitalization (Langston, 1994). Capitalization refers to a process occurring within the individual to mark the positive life event (PLE) in some way (e.g. posting on social media), which improves the memorability of an event and subsequent future event recall and perhaps self-esteem/evaluation. Research has demonstrated that upregulating positive emotions has an important role for overall adjustment and general mental health and well-being (Lyubomirsky, King, & Deiner, 2005).

The term 'social capitalization' has been used to further specify the method by which general capitalization of a PLE has occurred. In social capitalization, an individual shares a PLE with another individual and it is the response/reaction that follows that has the most benefit for upregulating positive emotions. Gable and colleagues (2006) codified four types of responses to the sharing of a PLE: active/constructive, active/destructive, passive/constructive, and passive/destructive. An active response is enthusiastic and supportive, whereas a passive response may be quiet or ignoring the PLE. A constructive response demonstrates engagement compared to a destructive response that demeans the PLE. An active/constructive response typically yields the most favorable outcomes, such as well-being and relationship quality (Gable, et al., 2004), in regards to one's positive emotion regulation. Therefore, a social capitalization attempt must have three components to ensure success: a) a PLE has occurred, b) the PLE is shared with another individual(s) and c) the response must be *perceived* as supportive and engaging. Similar to Bryant's (2005) term of 'savoring,' social capitalization is designed to maintain the duration or magnitude of positive emotions elicited by the PLE.

Social capitalization has been studied utilizing several different methods. A common method early in this research endeavor involved having college students fill out daily diaries for one week (Gable et al, 2004). The participants were asked to fill out information on daily mood/affect, life satisfaction, negative and positive events, and capitalization attempts and turned in a packet of paper at the end of the week. The daily diary method has also been utilized to study the effects of social capitalization in romantic partners on relationship-related outcomes (e.g. attachment & security; Gosnell & Gable, 2013). Social capitalization has been studied using EMA methodology as well. In a study by Ilies, Keeney, and Scott (2011), participants were asked to fill out surveys via e-mail and on a handheld Palm Pilot in order to study the effects of work-related event capitalization on employee job and relationship satisfaction. Other studies examined the effects of social capitalization in laboratory experiments by having romantic partners complete several social interactions and then fill out a questionnaire on the capitalization attempt (Gable, Gonzaga, & Strachman, 2006; Monfort, et al., 2014). A common denominator between these studies is that all of them utilized the Perceived Response to a Capitalization Attempt (PRCA; Gable et al., 2004) or a modified version to examine how the discloser perceived the response of the listener. As noted above, a critical component of social capitalization is the *perceived response*, with an active/constructive response yielding the largest benefits. Regardless of the methodology used to examine social capitalization attempts, each study largely found positive outcomes on well-being, satisfaction, overall positive affect, and happiness (depending on the targeted outcome). These results suggest that social capitalization is not only viable strategy for upregulating positive emotion but that it can be studied through a variety of methods that may yield convergent results.

Given the technological advances of the day, it is important to discuss the relationship between social capitalization and the role that digital social networking/social media. Preliminary research suggests that sharing positive events on a social media sites, such as Twitter or even through text messaging, is related to increases in self-reported positive affect (Choi & Toma, 2014). In a recent study, Zell and Moeller (2018) specifically examined social capitalization attempts on Facebook to explore whether the face-to-face benefits of social capitalization are replicated in the digital sphere. They found that more responses to one's Facebook post was associated with more positive outcomes and they found that volume of response (whether by 'likes' or 'comments' on a post) was correlated with subjective well-being and believing their Facebook community cared about them. The authors also modified the 'Perceived Responses to Capitalization Attempt' (Gable et al, 2014) for Facebook and found good reliability with the original subscales and that the overall composite score positively correlated with subjective well-being. These results provide preliminary evidence that social capitalization may have similar effects on the upregulation of positive emotions whether it occurs face-to-face or through masspersonal communication. However, no study has been conducted to explore whether there are differences in the positive outcomes of social capitalization depending on modality through which information is shared. More research is needed to better understand the unique contribution of social networking/media on both long-term and short-term outcomes of social capitalization as well as the benefits of social capitalization in psychopathology.

Social Capitalization in Psychopathology

Research exploring social capitalization and psychopathology has been examined to some extent in depression and anxiety. Li, Starr, and Hershenberg (2017) examined the relationship between daily positive rumination, negative rumination, hassles (negative events), and uplifts

(positive events) on depressive symptoms. They found that high positive rumination was associated with decrease in depressive symptoms on days when uplifts were low (i.e. a day without positive events) and that a decrease in depressive symptoms was related to days with more uplifts and less positive rumination. This result demonstrates that positive emotion regulation strategies that increase duration/frequency of positive emotions, despite an event not occurring, is important for a reduction in depressive symptoms. In socially anxious individuals, Kashdan, Ferssizidis, Farmer, Adams, and McKnight (2013) found that they engaged in fewer capitalization attempts and that they perceived unsupportive responses from their romantic partners. These findings were also related to declines in relationship satisfaction as well as relationship break-ups. These results suggest that social capitalization is not only important for well-being but also for interpersonal functioning.

There is a paucity of research examining social capitalization specifically in those at risk for psychosis, i.e. those high in schizotypy. As noted previously, there is evidence to suggest that interventions aimed at increasing positive emotion experience has benefits on outcomes such as a reduced anhedonia and depression in addition to increases in well-being and emotion regulation through savoring in individuals with an SSD, however, this remains unstudied in schizotypy. Research aimed at examining whether social capitalization confers benefits in individuals with schizotypy is warranted. Given that individuals with schizotypy often report more impairment on self-report measures but perform comparable in laboratory tasks and measures, studies examining whether social capitalization works would benefit from EMA studies as well as whether these individuals have the capacity during specific laboratory experiments.

Present Study

Examining capitalizing on positive events as a positive emotion regulation strategy may aid in the process of exploring possible targets of intervention for those at risk for psychosis. In the development and pilot testing of PEPS, the perceived reaction of the sharer to the listener's response was not evaluated and as noted, how the listener responds has important implications for the success of a capitalization attempt. In PL, the participants were taught to respond in supportive and engaging ways, however, examining this response when participants shared positive information was not an explicit focus. Sharing a positive event with others may not be rewarding or beneficial if the listener gives an unengaged and demeaning response, thus thwarting the potential advantages of increasing the memorability of an event or likelihood to engage in a similar positive event in the future. As such, taking the listener's response into account is a critical element to understanding how the successful upregulation of positive emotions occurs through social capitalization in individuals with schizotypy. Furthermore, given the association between positive emotion upregulation and the reduction of depressive symptoms, this strategy is an ideal candidate to explore in individuals with schizotypy due to a high rate of comorbidity with affective symptoms (e.g. anxiety and depression), which has been hypothesized as one possible mechanism behind the "emotion paradox," as noted above.

Study Aims

Aim One

The first aim of the present study was to describe, in general, how individuals with schizotypy experienced positive events and positive emotion. Data recorded included the number of positive events reported by individuals with schizotypy as well as the average level of positive emotion associated with each event reported. The type of positive events individuals with

schizotypy typically experienced/reported was also recorded. Given that the focus of this aim was descriptive in nature, no specific hypotheses were made.

Aim Two

Given that a large part of a successful capitalization attempt is based on the perceived response of the listener, it was important to examine the nature of the response and the sharer's perception. An active-constructive response has been associated with the most positive outcomes (Gable, Gonzaga, Strachman, 2006) and therefore, it was hypothesized that the largest outcomes would be seen when an active-constructive response was perceived. This was measured by comparing the active-constructive response subscale to the other three subscales on the Perceived Reaction to Capitalization Attempt scale (PRCA; Gable et al., 2004). A larger score on the active-constructive subscale indicated a perceived supportive and engaging response. Prior research has found impaired emotion perception and social functioning in individuals with schizotypy (Aguirre, Sergi, & Levy, 2008; Philips & Seidman, 2008), and therefore it was important to examine whether schizotypy was related to response perception after a capitalization attempt (i.e. perception of supportive, engaging responses).

Aim Three

Research has shown that social capitalization increases positivity ratings for a positive event over other mood induction methods, such as expressive writing about the positive event or generally positive film clips, after reporting positive events (Reis, Smith, Carmichael, Caprariello, Tsai, Rodrigues, & Maniaci, 2010). The present study examined this finding by having participants randomly assigned to a responsive feedback condition or an expressive writing condition. It was hypothesized that individuals in the responsive feedback condition would have higher post-manipulation positivity ratings for the focal positive event. Research on

affective traits in schizotypy suggest impairments in experiencing pleasure (Horan, Blanchard, Clark, & Green, 2008), which could influence positivity ratings for pleasurable events and subsequent emotion regulation. As such, the present study was interested in examining whether social capitalization would benefit individuals with schizotypy by increasing positivity ratings for the shared event.

Aim Four

Research has also demonstrated that social capitalization increases general positive affect following a successful capitalization attempt both in laboratory experiments (Monfort, et al., 2014) and via experience sampling (i.e. EMA) methods (Reis, et al., 2010). Therefore, it was hypothesized that positive affect ratings would increase after a successful capitalization attempt. Given that social capitalization has the potential to increase positive affect, examining whether this occurs in individuals with schizotypy was warranted, as prior literature has indicated impaired emotion experience in individuals with schizotypy (Horan, Blanchard, Clark, & Green, 2008; Philip & Seidman, 2008), which could benefit from positive emotion regulation.

Aim Five

There is also research to suggest that social capitalization may help to buffer against the effects of affective symptoms, such as anxiety and depression (Kashdan, et al., 2013; Li, et al., 2017). Given the high rates of comorbidity of depression and anxiety in individuals with schizotypy, understanding whether social capitalization reduces ratings of depression and anxiety is critically important. It was hypothesized that both ratings of depression and anxiety would decrease following a successful capitalization attempt.

Aim Six

The sixth aim of the present study examined whether social capitalization worked for the upregulation of positive emotion in individuals with schizotypy by increasing anticipatory pleasure for similar future positive events through memorability of the event and/or by increasing the likelihood that they would share positive events with others (i.e. build social resources). Research on the mechanisms of how social capitalization confers benefit has suggested that it may work by way of building social resources as well as increasing the memorability/future recall for the positive event (Reis, et al., 2010). The present study was designed to explore whether these mechanisms remain relevant for individuals with schizotypy and as such, no specific hypothesis regarding these mechanisms and schizotypy were made.

Aim Seven

Given that individuals with schizotypy often report significant impairment on self-report measures but perform comparably in laboratory tasks and measures, studies examining whether social capitalization works would benefit from EMA studies as well as whether these individuals have the capacity during specific laboratory experiments. Therefore, the present study examined the use of social capitalization through EMA, thus increasing ecological validity, to explore how individuals with schizotypy utilized social capitalization on a day to day basis. If social capitalization was a successful strategy for the upregulation of positive emotion in individuals with schizotypy, social capitalization should operate in a similar way both in the laboratory and in day-to-day experience. It was hypothesized that the same pattern of relationships between capitalization and the outcome variables in the laboratory experiment would be observed in the EMA data. More specifically, a successful capitalization attempt would increase positivity

ratings for the shared positive event, increase general positive affect, and reduce self-reported feelings of depression and anxiety.

METHODS

Participants

Participants were recruited from the Louisiana State University Subject Pool via the on-line SONA system. The participants received research credit that was applied to undergraduate psychology courses in partial fulfillment of a research assignment. A total of ninety-three individuals were recruited for the present study and were enrolled in both the laboratory portion and ecological momentary assessment (EMA) portion of the study. One participant was removed from analysis due to incomplete laboratory session data (missing questionnaires) and 20 participants were omitted from EMA analyses due to having fewer than 25% of EMA surveys completed, which is consistent with published EMA studies and typical guidelines (Palmier-Claus, Myin-Germeys, Barkus, Bentley, Udachina, Delespaul, Lewis, &Dunn, 2011; Kwapil, Brown, Silvia, Myin-Germeys, Barrantes-Vidal, 2012; Kwapil, Kemp, Mielock, Sperry, Chun, Gross, & Barrantes-Vidal, 2020). Follow-up data was obtained from sixty participants (65%). The participants received research credit that was applied to undergraduate psychology courses in partial fulfillment of a research assignment and those who completed at least 70% of the EMA surveys received additional research credit.

Measures

Schizotypy

The present study utilized the Schizotypal Personality Questionnaire – Brief Revised (SPQ-BR; Cohen et al., 2010) as a measure of schizotypy. The 32-item scale contains a 5-point Likert scale ranging from '0' (Strongly Disagree) to '4' (Strongly Agree). The SPQ-BR contains three superordinate factors: positive, negative, and disorganized; and seven subordinate factors: Ideas of Reference/ Suspiciousness, Odd or Eccentric Behavior, Constricted Affect/ No Close

Friends, Odd Speech, Excessive Social Anxiety, Unusual Perceptual Experiences, Odd beliefs/Magical Thinking. The present study focused on the total schizotypy score and superordinate factors of schizotypy.

Psychological Symptoms

General psychological symptoms were measured utilizing the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). The BSI is a 53-item scale that assesses a broad range of psychological symptoms across nine categories (Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, Psychoticism) and contains global scores as well. This measure queried symptoms occurring in the past week and items were rated from 'Not at All' to 'Extremely.' Of particular interest to the present study were the scores reflecting depressive or anxious symptoms.

Affect/Mood

Participants were asked to rate their current mood in the laboratory prior to and after the experimental manipulation. Participants were asked six questions on which to rate their mood–keyed-up/excited, content/peaceful, happy/glad, angry/annoyed, sad/unhappy, and anxious/nervous. Response options were made to mimic the content that would be displayed via EMA and participants moved a slider along a scale from 'Not at all' to 'Extremely.' Values ranged from 0 – 30 and of particular interest to the present study were happy/glad, sad/unhappy, and anxious/nervous.

Capitalization

A modified version of the Perceived Response to Capitalization Attempt (PRCA; Gable et al., 2004) was utilized in the present study. The PRCA is a 12-item measure designed to assess the how the sharer of a positive event perceives the response of the listener. The 7-point Likert

scale (1 = Not at all True/Never True to 7 = Vey True/True All the Time) categorized responses along the four dimensions of responses: active/constructive, active/destructive, passive/constructive, and passive/destructive.

Event Rating

For the positivity of each event, participants rated their current feelings about each event by placing an X along a horizontal 17.10 cm line with anchors at the beginning (pretty good), middle (great), and end (the best thing that ever happened to me), with values ranging from 0 – 30 for the laboratory task. The follow-up survey via Qualtrics utilized the same anchors, however, values ranged from 0 – 100, with higher scores indicating more positivity.

Procedure

Laboratory Experiment

Participants first engaged in a modified social capitalization task (Reis, et al., 2010) for one of three positive events that they reported. Next, participants completed the self-report measures assessing psychological symptoms and positive and negative affect (BSI and mood ratings). Finally, participants were enrolled in the EMA portion of the study before leaving the laboratory. See below for the steps in this protocol.

Step 1. Participants rate current mood.

Step 2. Participants were asked to describe three of their best positive events. Sample Instructions: *Please take a moment to think about the things that have made you happiest within approximately the last 2 years. These can include concrete events such as going on vacation, getting a date with someone you like, and so on. They can also include states of mind such as connecting with God or some higher power, recovering from a period of depression, and so on. Please list below three of these positive events or states of mind that stand out to you.*

Step 3. Participants then rated the positivity of each event and rated each one in order from 1 to 3. For the positivity of each event, participants rated their current feelings about each event by placing an X along a horizontal 17.10 cm line with anchors at the beginning (pretty good), middle (great), and end (the best thing that ever happened to me). This method was used to prevent participants from remembering their initial responses when rerating their events after the approximately six-minute task.

Step 4. One of the events was randomly selected, either the second or third most highly rated event, to be the focal event. This was done by having participants chose one of three slips of paper marked '1', '2', or '3' from a fishbowl. If '1' was selected, participants were told this would not be the discussion topic, and they were asked to choose another slip. The first event listed, the most positive, was intentionally never selected to avoid a ceiling effect of providing the highest positivity rating with no room for change (i.e. an increase in positivity rating after social capitalization). After selecting the focal event, participants were randomly assigned to one of two conditions.

Step 5. Response conditions.

Responsive feedback. Participants in this condition were told that they were interacting with interviewers who were undergoing training for a future project in which they would conduct interviews about positive events. Participants were videotaped discussing the focal event with the interviewer, who was trained to provide supportive, enthusiastic feedback.

Expressive writing. Participants in this condition were asked to write an essay that no one was expected to see. In this essay, participants were asked to explore their very deepest emotions and thoughts about the focal event.

Step 6. Event and Mood Ratings. At the conclusion of the task participants were asked to re-rate their three events and current mood. Participants in the responsive feedback condition also rated the interviewer and the interaction via the PRCA.

Mobile Data Collection

Participants were asked to complete daily surveys/questionnaires via a mobile application two times per day for seven days, yielding a total of 14 possible surveys. The participants were asked to make daily ratings of mood and asked questions regarding the occurrence of any capitalization attempt for a positive event. If the participant endorsed the occurrence of a positive event and capitalization attempt, the participant was prompted to make an event rating and answered a modified version of the PRCA.

Follow-Up

One week following the laboratory experiment, participants were e-mailed a survey regarding their experience at the laboratory session. They were prompted to write a brief description of the positive event discussed during the interaction that took place. They then made an event rating about each of the three positive events they initially listed during the laboratory session and answered questions about the likelihood of sharing positive event information with others in the future.

Statistical Analyses

Analysis One

Descriptives. The analysis of descriptive statistics was aimed at providing information on the experience of positive emotions in individuals with schizotypy that may be related to schizotypy or emotion regulation, which could have influenced subsequent findings. Significance tests (chi-square, r, t-tests) were conducted with key demographic variables to ascertain whether

group differences were related to these variables. Demographic data was missing for one participant and as such descriptive data is reported for ninety-two participants. All subsequent analyses were run with this participant excluded. Positive events were reviewed by research assistants and assigned to one of the following categories: academic, occupational, dating/romance, sports, recreation, purchases, relocation, pets, interpersonal, self-identity, religion, and travel. Given the importance of interpersonal events to the current study, all positive events were then coded for whether the event involved other individuals (binary – yes/no), such as family or friends (items categorized as 'interpersonal' already, were coded as well). For example, "attending a music festival with friends" was categorized as 'recreational' but also coded as 'involving others' (yes). Whereas "getting a scholarship to college" was categorized as 'academic' and not coded as 'involving others' (no).

Analysis Two

Perceived Response. To ensure that the capitalization attempt was successful, *t*-tests were utilized to examine the feedback response on the active-constructive subscale compared to the other three subscales (active/destructive, passive/constructive, and passive/destructive). For the laboratory portion of the present study, this analysis occurred in the 'responsive feedback' condition (the PRCA scale was *not* administered to those in the 'expressive writing' condition). For the EMA portion of the present study, this analysis occurred for positive events where participants reported capitalizing on them (i.e. it was possible for a positive event to have occurred but no capitalization attempt was made). Correlations between the PRCA subscales and schizotypy were also conducted to clarify if schizotypy was related to response-perception.

Analysis Three

Positivity of Event. In the laboratory social capitalization task, the condition (responsive feedback, RF or expressive writing, EW) was the independent variable and pre- and post-positivity rating was the dependent variable. A condition (RF or EW) by time (pre or post) mixed Analysis of Variance was utilized to examine mean differences in positivity rating. For the EMA portion of the present study, this analysis occurred for positive events where participants reported capitalizing on them compared to when they did not. Additionally, correlations between positivity ratings and schizotypy were utilized to examine whether schizotypy was related to how positive events were rated.

Analysis Four

Self-Reported Affect Ratings. In the laboratory portion of the present study, participants were asked to rate happiness, depression, and anxiety on scales similar to the ratings made via EMA. These were measured prior to and after the social capitalization task. A condition (RF or EW) by time (pre or post) mixed Analysis of Variance was utilized to examine mean differences in self-reported affect rating.

Analysis Five

Multi-level Models of EMA Data. To account for the nested nature of EMA data – days nested within subjects – multi-level modeling was utilized to examine the effects of social capitalization on the outcome variables. The outcome variables were happiness, depression, and anxiety. The first set of multi-level models examined the relationship between schizotypy and the sharing of an event or not sharing of an event on daily affect ratings of happiness (model 1), sadness (model 2), and anxiety (model 3). The second set of models, for those that shared an event, the relationship between schizotypy and response perception (active-constructive subscale

of PRCA) on daily affect ratings of happiness (model 1), sadness (model 2), and anxiety (model 3) was examined. For parsimony and given that overall schizotypy correlated with affect in the laboratory-based social capitalization task, total SPQ-BR score was used in these models (rather than the subscales). The sharing of a positive event was dichotomous and coded as '0' (no, an event was not shared) or '1' (yes, an event was shared). *Successful* capitalization is defined here by the perception of the listener (the participant) that the individual they shared with was enthusiastic and supportive, which is captured in the active-constructive subscale score of the PRCA.

Analysis Six

Memorability. This analysis was specific to the laboratory portion of the present study. Approximately, one week after participation in the laboratory session, participants were e-mailed a follow-up survey. The follow-up survey was implemented to determine whether participants accurately recalled the focal event, assess a positivity rating for the focal event, and examine whether this was related to the likelihood of sharing positive event information in the future. As before, condition (RF or EW) differences on each variable were analyzed utilizing *t*-tests.

Analysis Seven

Methodological Convergence. Given that social capitalization was examined via two methods in the present study, it was important to explore how they are related, if at all. This was accomplished by utilizing a general linear multi-level model by predicting a binary criterion variable ('was an event shared?' yes/no) and examining whether variables measured in the laboratory predicted whether or not social capitalization occurred in daily life as well as whether the variables predicted response perception in daily life. Several correlations between laboratory

measurements and data collected via EMA were also conducted to assess for laboratory and daily life associations.

Observed Power Analysis

Prior research examining emotion experience in individuals with schizotypy typically yield large effect sizes ($d = 0.8$; Blanchard, Collins, Aghevli, Leung, Cohen, 2011; Cohen et al., 2012) demonstrating higher negative affect and lower positive affect generally. Post-hoc power analysis indicated that 93 participants, an alpha of 0.05, and a medium effect size yielded a power estimate of 0.98 in the current study (Cohen, 1992; Calculated with G*Power; Faul, Erdfelder, Lang, & Buchner, 2007). As recommended in the literature, simulated data was modeled from the current data for the post-hoc power analysis of EMA data to examine if there was enough power to obtain a positive result, if the study were replicated (Green & MacLeod, 2016). The results indicated approximately 70 participants would achieve observable power of 0.80 in a study replication (Figure 1; Calculated with SIMR; Green & MacLeod, 2016).
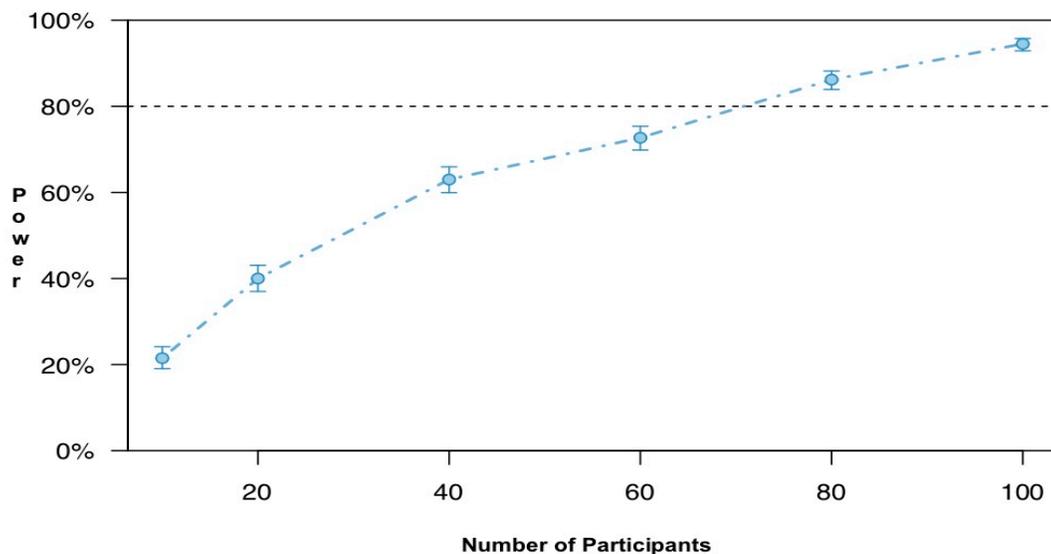

Figure 1. Observed Power Analysis by Number of Participants

RESULTS

Descriptive Statistics

Sample characteristics can be found in Table 1. No significant differences on key demographic variables were found between the responsive feedback (RF) and expressive writing (EW) condition. No significant differences were observed between conditions on any of the SPQ-BR scores. Similarly, no significant differences between conditions were found on the Brief Symptom Inventory (BSI) subscales of depression and anxiety.

Participants completed an average of 11.5 EMA surveys (82%, SD = 2.4), which is consistent with completion rates typically reported in EMA studies in college-aged samples with schizotypy (Kwapil, et al., 2020; Visser, Esfahlani, Sayama, & Strauss, 2018). The number of completed surveys was not correlated with total (r = -0.16), positive (r = -0.19), negative (r = -0.03), or disorganized (r = -0.15) schizotypy or measures of depression (r = -0.09) and anxiety (r = -0.08).

Table 1. Sample Characteristics

	Whole Sample (N=92)	Responsive Feedback (N=45)	Expressive Writing (N=47)	X^2	p
Age[†]	19.87 (1.36)	19.89 (1.21)	19.85 (1.50)	0.13	0.89
Gender				0.37	0.55
Female	70 (75.3%)	33 (73.3%)	37 (78.7%)		
Race				3.99	0.55
White	68 (73.9%)	30 (66.8%)	38 (80.9%)		
Black	11 (11.9%)	6 (13.3%)	5 (10.6%)		
Asian-American	6 (6.5%)	4 (8.9%)	2 (4.3%)		
Multi-racial	2 (2.2%)	1 (2.2%)	1 (2.1%)		
Other: Not American	3 (3.3%)	2 (4.4%)	1 (2.1%)		

(table cont'd)

	Whole Sample (N=92)	Responsive Feedback (N=45)	Expressive Writing (N=47)	X^2	P
Other: Not Specified	1 (2.2%)	2 (4.4%)	0 (0%)		
Hispanic/Latino	6 (6.5%)	4 (8.9%)	2 (4.3%)	0.81	0.37
SPQ-BR[†]					
Total Score	52.40 (18.74)	50.78 (18.68)	53.96 (18.87)	-0.81	0.42
Positive	17.63 (8.88)	16.60 (8.82)	18.74 (7.68)	-1.09	0.28
Negative	18.37 (8.28)	17.98 (8.94)	18.74 (7.68)	-0.44	0.66
Disorganized	16.40 (6.53)	16.20 (6.39)	16.60 (6.72)	-0.28	0.77
BSI[†]					
Depression	7.04 (5.32)	7.02 (4.69)	7.06 (5.91)	-0.37	0.97
Anxiety	6.68 (5.23)	6.71 (4.89)	6.66 (5.58)	0.05	0.96

[†]t-test used to test for condition differences

Aim One. What types of positive events are reported and how positively are the events rated?

Laboratory Task

Each participant provided three positive events for a total of 279 events across the sample. Example items that correspond with each category are provided in Table 2. Most of the events listed fell into the following three categories: interpersonal (19.35%), academic (17.56%), and recreational (16.85%; see Table 2 for frequency counts). Across all provided events, including the 'interpersonal' category, 53% of positive events involved other people. Based on average positivity rating, religion was rated as the most positive, followed by purchases and dating/romance, whereas sports were rated as the least positive.

Table 2. Positive Event Categories, Frequencies and Example Items

Category	Count (N=279)	Positivity Rating Mean(SD)	Example Items
Academic	49	22.45(5.40)	"Getting the MCAT score I wanted" "Getting a scholarship to my dream school"
Occupational	21	20.43(6.92)	"Getting the summer counseling job" "Able to figure out my career path"
Romance	29	23.93(4.95)	"Going on a date with my significant other" "Meeting and beginning a relationship with my current significant other"
Sports	5	19.60(8.62)	"Scoring a winning goal in a football game" "Played in a beach volleyball tournament"
Recreation	47	21.61(6.60)	"I had a free day and stayed in bed to watch TV" "Bid day of rush [Greek life]"
Purchases	4	24.00(4.58)	"Getting a license and a car" "My mom bought me a new car"
Relocation	8	23.13(5.19)	"Moving out of my parents' house" "Moving into an apartment with my three friends"
Pets	9	23(9.07)	"Getting a new puppy" "Finding a medication that helped my cat's asthma"
Interpersonal	54	22.30(6.31)	"My sister's wedding" "I recently reconnected with an old friend"
Self-Identity	25	22.24(7.21)	"Realizing how far I've come in life and understanding my role as an adult in my family" "I have become more myself"
Religion	6	26.67(3.27)	"Becoming closer to my religion and accepting life" "Connecting with God over the past two years"
Travel	22	22.77(5.49)	"Being on a safari in Africa with my girlfriend and some other people" "Vacation to Hawaii with my family"

EMA Data

Similar to positive events reported in the lab, most of the events listed fell into the following three categories: interpersonal (35.1%), academic (22.2%), and recreational (14.6%; Table 3). Across all types of events, including the 'interpersonal' category, 70.7% of the events listed involved other people in some way. Based on average positivity rating, purchases and sports were rated as the most positive, followed by self-identity, dating/romance, occupational, and pets whereas academic events were rated as the least positive.

Table 3. Positive Event Categories, Frequencies, and Positivity Ratings

Category	Count (N=171)	Positivity Rating Mean(SD)
Academic	38	0.81(0.17)
Occupational	7	0.85(0.10)
Dating/Romance	12	0.85(0.15)
Sports	16	0.89(0.15)
Recreation	25	0.81(0.16)
Purchases	1	1.00
Pets	4	0.85(0.08)
Interpersonal	60	0.84(0.16)
Self-Identity	3	0.86(0.23)
Travel	5	0.84(0.16)

Aim Two. Do participants perceive a supportive, enthusiastic response to a capitalization attempt?

Laboratory Task

Participants in the RF condition filled out the PRCA, designed to assess how the sharer of a positive event perceives the response of the listener, with higher scores on the active-constructive subscale indicating a perceived supportive and enthusiastic response. The results indicated that participants perceived the research assistant as supportive and engaging (M_{AC} =17.09, SD = 2.48; M_{PC} = 12.67, SD = 3.57; M_{AD} = 5.57, SD = 3.70; M_{PD} = 4.48, SD = 2.47). Paired t-tests demonstrated a significant difference between active-constructive feedback scale and the other three subscales – passive-constructive, $t(45) = 7.31$, p = 0.001; active-destructive, $t(45) = 18.09$, p = 0.001; passive-destructive, $t(45) = 21.58$, p = 0.001.

EMA Data

When participants reported capitalizing on a positive event in daily life, they were asked to describe the event and then respond to the PRCA items. Across all observations when participants reported capitalizing on an event (k = 175), they perceived a supportive and enthusiastic response (M_{AC} = 13.52, SD = 4.32; M_{PC} = 9.28, SD = 4.28; M_{AD} = 4.47, SD = 3.11; M_{PD} = 4.70, SD = 2.97). Paired t-tests demonstrated a significant difference between active-constructive feedback scale and the other three subscales – passive-constructive, $t(174)$ = 7.99, p = 0.001; active-destructive, $t(174)$ = 21.69, p = 0.001; passive-destructive, $t(174)$ = 19.48, p = 0.001.

Response Perception and Schizotypy

Correlations between PRCA subscales and schizotypy can be found in Table 4. For laboratory ratings of response perception, a significant positive correlation was found between the passive-constructive subscale score and positive schizotypy, however, no other significant correlations were found between schizotypy and the PRCA subscales. Interestingly, for EMA ratings of response perception, negative schizotypy was negatively correlated with the active-constructive scale and positively correlated with the passive-constructive scale.

Table 4. Correlations between Response Perception and Schizotypy in the Laboratory (N=92) and Daily Life (k = 175)

	Total Schizotypy	Negative	Positive	Disorganized
PRCA - Laboratory				
Active-Constructive	0.02	-0.03	0.08	-0.03
Passive-Constructive	0.26	0.11	0.34*	0.14
Active-Destructive	0.05	-0.06	0.12	0.06
Passive-Destructive	-0.14	-0.16	-0.10	-0.06
(table cont'd)				

	Total Schizotypy	Negative	Positive	Disorganized
PRCA - EMA				
Active-Constructive	-0.04	-0.27*	0.15	0.01
Passive-Constructive	0.19	0.28*	0.07	0.14
Active-Destructive	0.08	0.04	0.14	-0.02
Passive-Destructive	-0.11	-0.11	-0.06	-0.09

* $p<0.05$

Aim Three. Does responsive feedback increase positivity ratings for the shared event?

Laboratory Task

An ANOVA was utilized to examine the differences in pre- and post- event positivity rating for the focal event between conditions. The result of the mixed ANOVA demonstrated a main effect of time, $F(1,88) = 17.61, p < 0.001$, but did not yield a significant interaction, $F(1,88) = 2.59, p = 0.11$. These results suggest that mean event positivity ratings increased in both conditions after sharing or writing about the event, but they were not statistically different. Mean event positivity ratings can be found in Table 5 and Figure 2.

Table 5. Pre- and Post- Event Positivity Ratings by Condition

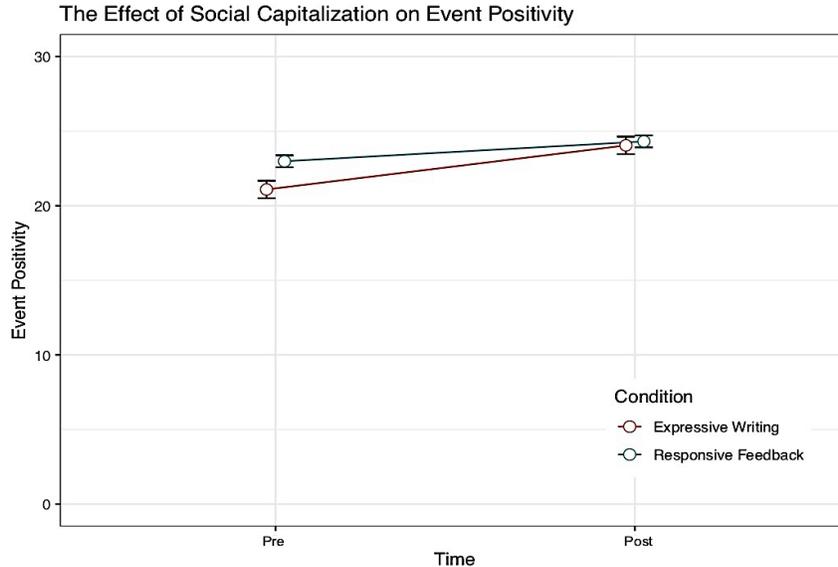| Condition	Pre	Post
Responsive Feedback	23.00	24.32
Expressive Writing	21.09	24.04

Figure 2. Estimated Marginal Means of Event Positivity Rating by Condition

EMA Data

As participants reported having already shared an event via EMA, it was not possible to

obtain positivity ratings prior to and after sharing an event and positivity ratings were only

obtained for the positive event shared, not for several positive events as in the laboratory task. As

such, changes in positivity ratings for these scores were unable to be conducted. Mean positivity

ratings were measured via slider scale from 'Not at all' to 'Extremely.' Across the positive

events shared, participants rated events positively (M = 0.84, SD = 0.15, minimum = 0 ,

maximum = 1).

Event Positivity Rating and Schizotypy

Correlations between event positivity ratings and schizotypy can be found in Table 6. For

event positivity ratings made in the laboratory, there were no significant correlations between

schizotypy and pre- or post- event positivity ratings. Similarly, there were no significant

correlations between schizotypy and daily ratings of event positivity. These results indicate that

schizotypy was not related to how positive an event was rated.

Table 6. Correlations between Schizotypy and Positivity Ratings in Laboratory (N=92) and Daily Life (k = 73)

	Total Schizotypy	Negative	Positive	Disorganized
Pre - Laboratory				
Focal Event	-0.11	-0.18	-0.01	-0.07
POST - Laboratory				
Focal Event	-0.01	-0.16	0.14	-0.03
Positivity Rating – EMA				
Event	-0.01	-0.14	0.09	0.03

Aim Four. Does social capitalization increase self-reported positive affect?

Laboratory Task

A mixed ANOVA was utilized to examine the differences in pre- and post- event self-reported positive affect rating between conditions. The result of the ANOVA demonstrated a main effect of time, $F(1,88) = 18.69$, $p < 0.001$ and a significant time by condition interaction, $F(1,88) = 5.43$, $p = 0.02$. These results indicated that self-reported positive affect increased from pre- to post- measurement in both conditions and that the difference between conditions was significant. Estimated marginal means found in Figure 3 demonstrate that self-reported positive affect was, unexpectedly, higher for those in the EW writing condition ($M_{EW} = 21.15$, SD = 0.82; $M_{RF} = 20.67$, SD = 0.842).
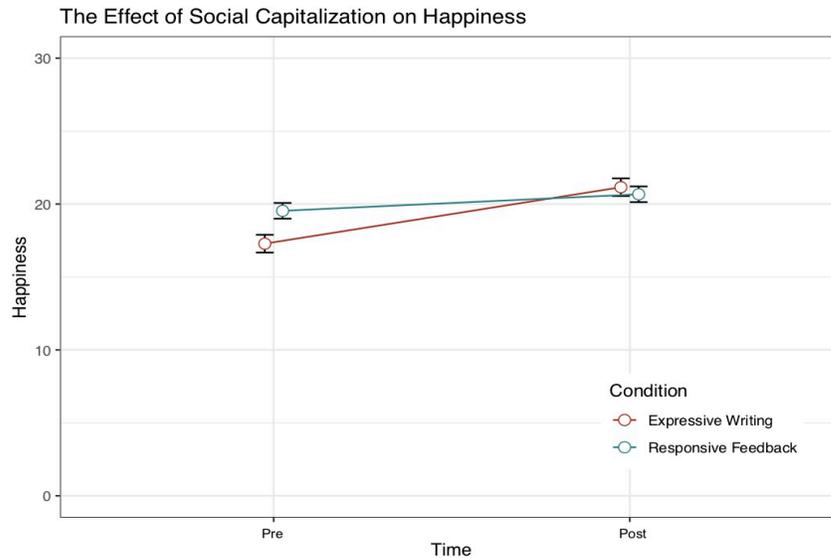
Figure 3. Estimated Marginal Means of Self-Reported Positive Affect by Condition

EMA Data

The results can be found in Table 7. The first multi-level model examined the relationship between a positive event occurring and sharing or not sharing the event on ratings of happiness (measured two times per day). In this model, happiness was the criterion variable and whether a positive event occurred and whether it was shared were the explanatory variables. The results indicated that the sharing of a positive event was related to increased happiness, above and beyond a positive event simply occurring, but there was no interaction between the two. The next multi-level model examined the relationship between schizotypy and social capitalization, whereby happiness was the criterion variable and in the first model schizotypy, whether an event was shared, and their interaction were entered hierarchically as explanatory variables and in a second model schizotypy, the active-constructive scale of the PRCA, and their interaction were entered hierarchically as explanatory variables. The results indicated that schizotypy and *not* sharing an event was associated with decreased daily ratings of happiness. The interaction was not significant. Results also indicated that a supportive and enthusiastic response from the

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listener was associated with increased daily ratings of happiness. The interaction between

schizotypy and response perception was not significant.

Table 7. Multi-level Model Predicting Happiness

	X^2 – Fit Statistic	Estimate	S.E.	t
Positive Event & Sharing (k = 837)				
Positive Event	23.77***	-0.41	0.44	-0.94
Shared Event	45.82***	-0.80	0.11	-7.01
Positive X Shared Event	1.81	0.60	0.45	1.35
Event Sharing (k = 837)				
Schizotypy	11.53***	-0.25	0.09	-2.72
Shared Event	69.23***	-0.64	0.07	-8.50
Schizotypy X Shared Event	0.14	0.03	0.08	0.37
Response Perception (k = 175)				
Schizotypy	8.06**	-1.81	0.07	-2.45
Active-Constructive	9.19**	2.26	0.07	3.12
Schizotypy X Active-Constructive	0.41	-4.43	0.07	-0.64

** $p<0.01$, *** $p<0.001$

Self-Reported Positive Affect and Schizotypy

Correlations between schizotypy and self-reported positive affect are located in Table 8.

With regard to laboratory ratings, total schizotypy scale score and negative schizotypy correlated

negatively with pre- positive affect rating of happy/glad ratings. Additionally, disorganized

schizotypy correlated negatively with the pre- happy/glad affect rating. Only negative schizotypy

was correlated with post- happy/glad affect rating. No other significant correlations were found

between schizotypy and positive affect change score. EMA ratings of positive affect

demonstrated significant negative correlations with total, negative, and disorganized schizotypy.

Positive schizotypy was not correlated with daily ratings of positive affect.

Table 8. Correlations between schizotypy and positive affect in the laboratory (N=92) and via EMA (k = 73)

	Total Schizotypy	Negative	Positive	Disorganized
Pre – Laboratory				
Happy	-0.22*	-0.25*	-0.05	-0.25*
Post – Laboratory				
Happy	-0.10	-0.22*	0.04	-0.07
Daily Ratings - EMA				
Happy	-0.39**	-0.47**	-0.16	-0.29*

* $p<0.05$, ** $p<0.01$

Aim Five. Does social capitalization decrease negative affect?

Laboratory Task

An ANOVA was utilized to examine the differences in pre- and post- event self-reported negative affect rating between conditions. The result of the ANOVA for sadness demonstrated a main effect of time, $F(1,88) = 7.73$, $p = 0.007$, but did not yield a significant time by condition interaction, $F(1,88) = 0.21$, $p = 0.65$. These results indicated that ratings of sadness decreased from pre- to post- manipulation, however, this was not significantly different between conditions ($M_{EW} = 6.26$, SE = 0.76; $M_{RF} = 3.46$, SE = 0.78). A visualization of these results can be found in Figure 4. The result of the ANOVA for anxiety similarly demonstrated a main effect of time, $F(1,88) = 25.25$, $p <0.001$, but did not yield a significant time by condition interaction, $F(1,88) = 0.36$, $p = 0.55$. These results indicate that ratings of anxiety decreased from pre- to post- manipulation, however, this was not significantly different between conditions ($M_{EW} = 8.91$, SE = 1.18; $M_{RF} = 9.14$, SE = 1.21). A visualization of these results can be found in Figure 5.
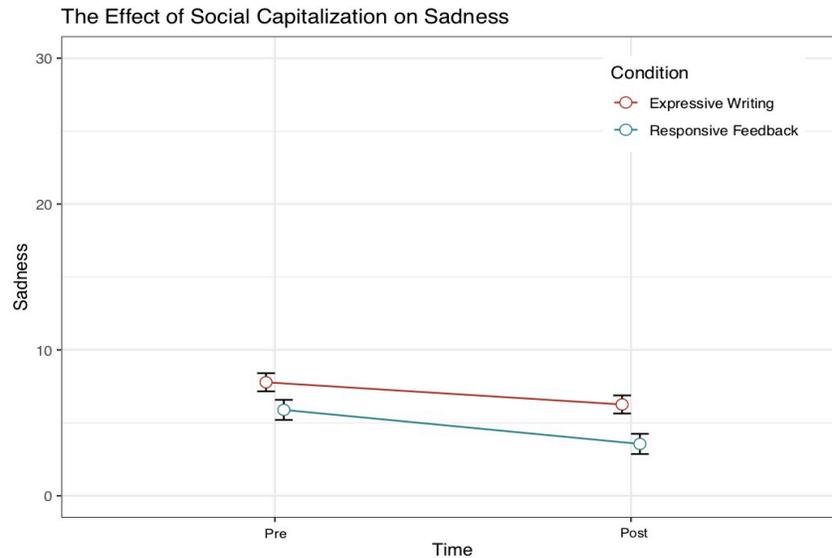
The Effect of Social Capitalization on Sadness

Figure 4. Estimated Marginal Means of Self-Reported Sadness by Condition

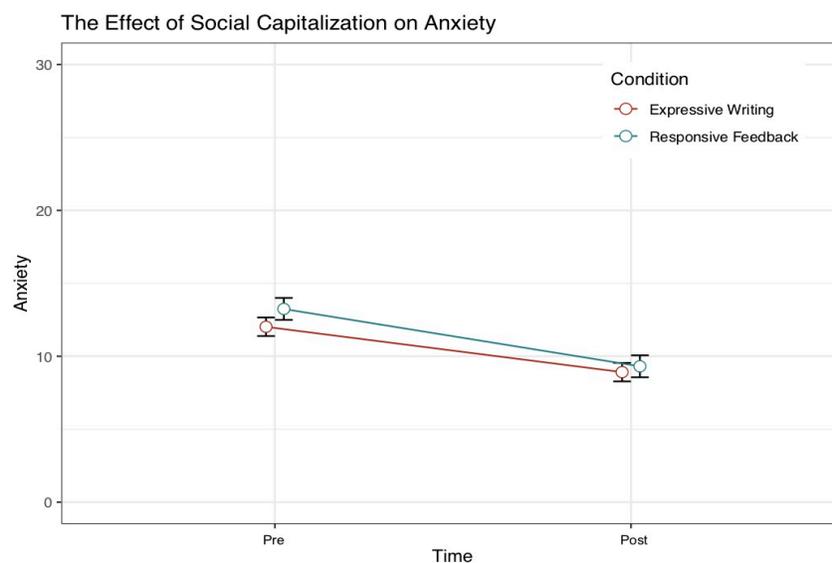The Effect of Social Capitalization on Anxiety

Figure 5. Estimated Marginal Means of Self-Reported Anxiety by Condition

EMA Data

The results can be found in Tables 9 and 10. The first multi-level model examined the

relationship between a positive event occurring and sharing or not sharing the event on ratings of

sadness or anxiety (measured two times per day). In this model, either sadness or anxiety was the

criterion variable and whether a positive event occurred and whether it was shared were the

explanatory variables. The results indicated that *not* sharing a positive event was related to

increased sadness and anxiety, but there was no interaction. In the next set of multi-level models examining schizotypy and social capitalization, sadness or anxiety was the criterion variable and in the first model schizotypy, whether an event was shared, and their interaction were entered hierarchically as explanatory variables and in a second model schizotypy, active-constructive scale of the PRCA, and their interaction were entered hierarchically as explanatory variables. The results indicate that schizotypy and *not* sharing an event was associated with increased daily ratings of sadness. The interaction between schizotypy and event sharing was not significant. There was no significant finding on sadness related to response perception, i.e. a supportive and enthusiastic perception of their response, though schizotypy was associated with more sadness. The interaction between schizotypy and response perception was not significant. Regarding anxiety, schizotypy and *not* sharing an event were associated with increased levels of daily anxiety; the interaction was not significant. Response perception and the interaction with schizotypy was not significantly associated with daily ratings of anxiety, though schizotypy alone was associated with increased daily anxiety.

Table 9. Multi-level Model Predicting Sadness

	X² – Fit Statistic	Estimate	S.E.	t
Positive Event & Sharing (k = 837)				
Positive Event	12.99***	0.02	0.43	0.04
Shared Event	16.53***	0.45	0.11	4.03
Positive X Shared Event	0.03	-0.08	0.44	-0.17
Event Sharing (k = 837)				
Schizotypy	20.58***	0.28	0.09	3.03
Shared Event	30.20***	0.40	0.07	5.51
Schizotypy X Shared Event	0.16	0.03	0.08	0.40
Response Perception (k = 175)				
Schizotypy	5.86*	0.19	0.09	2.08
Active-Constructive	1.44	-0.08	0.07	-1.20
Schizotypy X Active-Constructive	1.59	0.09	0.07	1.28

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 10. Multi-level Model Predicting Anxiety

	X² – Fit Statistic	Estimate	S.E.	t
Positive Event & Sharing (k = 837)				
Positive Event	1.01	-0.31	0.41	-0.75
Shared Event	12.05***	0.36	0.11	3.33
Positive X Shared Event	0.11	0.14	0.42	0.33
Event Sharing (k = 837)				
Schizotypy	9.93**	0.30	0.09	3.10
Shared Event	9.65**	0.23	0.07	3.19
Schizotypy X Shared Event	1.07	-0.08	0.07	-1.03
Response Perception (k = 175)				
Schizotypy	5.96*	0.19	0.09	2.05
Active-Constructive	0.72	-0.05	0.06	-0.80
Schizotypy X Active-Constructive	2.45	0.12	0.06	1.60

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Negative Affect and Schizotypy

Total schizotypy scale score plus all three subscales (positive, negative, and disorganized) correlated positively with the pre- sad/unhappy affect rating (Table 11) made in the laboratory. Total schizotypy scale score, positive and negative subscale scores correlated positively with post- sad/unhappy affect rating. There were no significant correlations between schizotypy and the pre- or post- anxious/nervous affect rating. Daily ratings of negative affect

were positively correlated with total, negative, and disorganized schizotypy. Positive schizotypy was correlated with daily ratings of sadness but not daily ratings of anxiety.

Table 11. Correlations between Negative Affect and Schizotypy in the Laboratory (N=92) and Daily Life(k = 73)

	Total Schizotypy	Negative	Positive	Disorganized
Pre - Laboratory				
Sad	0.32**	0.26**	0.22*	0.30**
Anxious	0.18	0.17	0.16	0.09
Post - Laboratory				
Sad	0.36***	0.33***	0.30**	0.20
Anxious	0.09	0.06	0.14	-0.02
Daily Ratings - EMA				
Sad	0.50**	0.40**	0.38**	0.41**
Anxious	0.36**	0.33**	0.21	0.33**

$* p<0.05, ** p<0.01, *** p<0.001$

Aim Six. Does social capitalization increase memory for an event and increase the likelihood that positive events will be shared in the future?

Memorability

Almost all of the participants (97%) were accurately able to recall the event that was either shared with a research assistant or written about in an essay. Due to lack of variability in recall performance, statistical analyses were unable to be conducted in the present study. Of note, however, only two participants reported an incorrect event and both were in the EW condition. The event that they indicated they wrote about was one of three events they had listed during the laboratory task, but was not the randomly selected event (i.e. the focal event).

Positivity Rating

Interestingly, the focal event follow-up positivity rating was in the opposite direction as expected – the positivity rating was slightly higher for those in the EW condition compared to the RF condition ($M_{EW} = 84.57$, SD = 9.82; $M_{RF} = 81.93$, SD = 16.61). An independent samples

t-test was utilized to examine group differences in positivity rating for the focal event. The results did not indicate a significant difference between conditions, $t(58) = -0.75$, $p = 0.46$.

Likelihood of Sharing

At follow-up, participants in both conditions were asked how likely they were to share positive events with other people again in the future. Contrary to the hypothesis there was no significant difference between those in the RF condition and those in the EW condition (M_{RF} = 83.50, SD = 22.23; M_{EW} = 79.80, SD = 17.91), $t(58) = 0.71$, $p = 0.48$. In the RF condition, participants indicated that they enjoyed interacting with the research assistant (M = 75.72, SD = 21.92) and that they would share other positive events with the same research assistant again (M = 74.93, SD = 23.68). As participants in the EW did not interact with a research assistant, no comparative statistical analysis could be conducted.

Schizotypy, Event Positivity, and Likelihood of Sharing

Correlations between schizotypy and follow-up variables of interest can be found in Table 12. Negative schizotypy was negatively correlated with interest in sharing events with others in the future and focal event positivity rating. Positive schizotypy was positivity correlated with enjoying interacting with the research assistant and being willing to share other positive events with the same research assistant again and disorganized schizotypy was positively correlated with enjoying the interaction with the research assistant. Total schizotypy score was not correlated with any of the follow-up variables.

Table 12. Correlations between schizotypy and follow-up positivity rating, future sharing, and research assistant interaction (N = 60)

	Total Schizotypy	Negative	Positive	Disorganized
Follow-Up				
Focal Event	-0.08	-0.29*	0.08	0.02
Future Sharing	-0.16	-0.40**	-0.01	0.09
Enjoyed RA	0.24	-0.15	0.38*	0.38*
Future Share RA	0.12	-0.28	0.38*	0.25

* *p*<0.05, ***p*<0.01

Exploratory Aim. How does social capitalization in the laboratory relate to social capitalization in daily life?

Table 13 provides the results for the general linear multi-model predicting sharing an event in daily life. Given the high rates of clinical depression and anxiety in schizotypy, BSI scores of depression and anxiety and overall schizotypy were entered as explanatory variables. The results indicated that neither laboratory condition, schizotypy, nor anxiety were associated with a social capitalization attempt (i.e. the sharing of a positive event) in daily life. In the overall model, depression was significant at a trend level ($p = 0.07$) and indicated that more depression was associated with the sharing a positive event. These results suggested that higher levels of overall depression increased the sharing of a positive event with others.

The multi-level model examining response perception in daily life utilized the active-constructive subscale of the PRCA as the criterion variable and condition (RF/EW), depression (BSI score), anxiety (BSI score), and schizotypy as explanatory variables. The results, presented in Table 13, were not significant indicating that neither condition, depression, anxiety, nor schizotypy account for the perception of a supportive, enthusiastic response by the sharer in daily life. The same analysis was conducted for the laboratory portion of the study, where the active-constructive subscale of the PRCA was the dependent variable and depression (BSI score), anxiety (BSI score), and schizotypy were entered as independent variables in a multiple regression. Results of this analysis were in line with the multi-level model analysis, yielding nonsignificant results of depression, anxiety, and schizotypy on response perception. Condition was left out of the multiple regression for the laboratory data as this analysis was conducted as part of an earlier aim of the study.

Table 13. Multi-level Model Predicting Sharing an Event and Response Perception

	X^2 – Fit Statistic	Estimate	S.E.	z
Event Sharing (k = 837)				
Condition (RF)	1.27	0.23	0.19	1.21
Schizotypy	1.47	-0.19	0.13	-1.52
Depression (BSI)	2.60	0.40	0.17	2.40[†]
Anxiety (BSI)	3.24	-0.29	0.16	-1.83
Response Perception (k = 175)				
Condition (RF)	0.16	-0.08	0.17	-0.48
Schizotypy	0.70	-0.11	0.09	-1.10
Depression (BSI)	0.33	0.01	0.14	0.09
Anxiety (BSI)	0.23	0.07	0.14	0.49

* $p<0.05$, ** $p<0.01$, *** $p<0.001$, [†]trend level, $p=0.07$

Lastly, correlations were utilized to elucidate possible associations between measures taken in the laboratory and those acquired via EMA. Of interest was whether measures of affect taken in the laboratory, prior to sharing an event, were correlated with similar measures obtained via EMA. These correlations are presented in Table 14. Ratings of positive affect were positively correlated with daily ratings of positive affect and negatively correlated with ratings of negative affect. Negative affect ratings in the lab correlated positively with daily ratings of negative affect. Response perception of a social capitalization attempt was examined as well. Scores on the active-constructive subscale and active-destructive scale of the PRCA in the laboratory correlated positively with the same scales measured via EMA. Finally, the post-positivity rating for the focal event in the laboratory was positively correlated with the positivity ratings and the active-constructive subscale obtained via EMA.

Table 14. Correlations between Laboratory and EMA Measures

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Lab.Content[a]	--								
2. Lab.Happy[a]	.70***	--							
3. Lab.Sad[a]	-.46***	-.43***	--						
4. Lab.Anxious[a]	-.30**	-.30**	.40***	--					
5. Lab.AC.PRCA[b]	0.08	.13	-.04	.25	--				
6. Lab.AD.PRCA[b]	.29*	.14	-.05	-.15	.07	--			
7. Lab.PC.PRCA[b]	0.17	.26	.02	.24	.12	.11	--		
8. Lab.PD.PRCA[b]	-.01	-.11	.19	-.13	-.29	.06	-.13	--	
9. Lab.Positivity[c]	0.01	0.01	.14	.10	.13	.04	.18	-.13	--
10. Ema.Content[a]	**0.28****	**.37*****	**-.29****	-.03	-.13	-.19	.03	.23	.07
11. Ema.Happy[a]	0.16	**.40*****	-.21	-.01	-.12	-.23	.18	.07	.08
12. Ema.Sad[a]	-.19	**-.32****	**.52*****	**.25***	.06	.32	.10	.07	-.03
13. Ema.Anxious[a]	-.22	-.22	**.43*****	**.27***	-.08	.25	.20	-.23	-.15
14. Ema.AC.PRCA[b]	**.33****	**.27***	-.04	.05	**.34***	.11	.19	.01	**.31****
15. Ema.AD.PRCA[b]	-.22	**-.26***	.05	-.01	.15	**.46****	.04	.14	.03
16. Ema.PC.PRCA[b]	-.15	-.12	.23	.17	.14	.17	.26	.02	-.13
17. Ema.PD.PRCA[b]	**-.31****	-.14	-.01	-.07	-.10	.13	.02	.20	-.17
18. Ema.Positivity[c]	0.05	.18	-.15	-.06	-.04	-.02	.01	.23	**.33****

* $p<0.05$, ** $p<0.01$, *** $p<0.001$
[a] N = 73, [b] N = 34, [c] N = 64

DISCUSSION

The present study was designed to explore whether social capitalization, as a positive emotion regulation strategy, may operate by increasing positive affect, decreasing negative affect, and building social resources in a college-aged sample of individuals on a schizotypy continuum. Participants completed a social capitalization task in the laboratory, followed by seven days of ecological momentary assessment (EMA) focusing on positive events and social capitalization attempts in daily life. In the following section, findings for each aim are discussed.

In aim one, the present study sought to understand the type of positive events typically experienced and positive events reported in the laboratory and via EMA fell largely in the following categories: interpersonal, academic, and recreational. The majority of all events involved others in some capacity (53% of events reported in the laboratory and 70% of events reported via EMA) as noted in Table 2. During the EMA portion of the study, participants noted and shared positive events approximately 21% of the time. These percentages are consistent with other studies (Gable, et al., 2004) that examined positive events in college-aged student samples, which suggests that college-aged students experience a wide variety of positive events in their day to day lives for which social capitalization may be utilized to upregulate positive emotion.

Given that benefits from social capitalization are based, in part, by perceiving the listener's response as supportive and enthusiastic, the focus of aim two was to evaluate whether response perception was related to degree of schizotypy in sample of college-aged individuals. The results of this study found that the active-constructive subscale of the PRCA had a statistically significant higher score compared to the other subscales in both the laboratory task and daily life. This suggests that participants perceived responses to a social capitalization attempt in a supportive and enthusiastic way. These findings indicate that the responsive

feedback manipulation in the laboratory was successful as participants did indeed perceive supportive, enthusiastic responses from the research assistants, which is a critical element of social capitalization that is hypothesized to yield the largest benefits on well-being (Gable, et al, 2004).

Interestingly, the present study found that positive schizotypy was positively correlated with the passive-constructive scale in the laboratory and that negative schizotypy was negatively correlated with the active-constructive scale and positively correlated with passive-constructive scale in the daily life. The correlations were small but this may suggest that certain dimensions of schizotypy are more likely to perceive a different pattern of responses. However, it is important to note that schizotypy did *not* interact with response perception in a way that suggests an impairment in perceiving a supportive, enthusiastic response from the listener. This may indicate that degree of schizotypy would not necessarily impair an individual's potential to benefit from the use of social capitalization as an emotion regulation strategy. Future research manipulating the type of response provided by the listener may further elucidate and clarify the nature of the relationship between dimensions of schizotypy and response perception.

Aims three, four, and five predicted that a successful capitalization attempt, compared to writing about the event, would yield larger ratings of positivity for the shared event, increases in positive affect, and decreases in negative affect. In contrast to prior literature and the stated hypotheses, the present study found no significant differences between conditions for event positivity ratings or decreases in negative affect. However, regarding self-reported positive affect (i.e. happiness), the results indicated an unexpected significant difference between conditions, whereby those in the expressive writing condition reported higher levels of happiness. These results indicate that social capitalization in the present study did not operate by increasing

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positivity for an event, decreasing negative affect, or increasing positive affect. Regarding schizotypy, the present study found the same pattern of correlations between schizotypy and positive/negative affect (Kwapil, Brown, Silvia, Myin-Germeys, & Barrantes-Vidal, 2012), but did not find evidence that degree of schizotypy is related to the under-utilization of social capitalization or impaired perceived response to a social capitalization attempt. It may be the case that there are other factors related to social capitalization, e.g. familiarity with listener, type of event, duration since event occurred, modality of capitalization, that led to the unexpected findings in the present study and are more imperative for emotion regulation via social capitalization.

Successful capitalization is also hypothesized to work by increasing memorability for the shared event and building social resources as it likely encourages individuals to share positive events again with the same people, or others, in the future, which was the focus of aim six. Approximately 65% of the sample responded to the follow-up survey and 97% were accurately identified which event they shared or wrote about. Contrary to the stated hypothesis, there was no significant difference between conditions on positivity rating at follow-up, indicating that social capitalization did not work in the present study by maintaining a higher positivity rating over time. Similarly, there was no significant difference between conditions on more interest in sharing positive events with others in the future, indicating that social capitalization did not operate by influencing individuals to share positive events with others over time. This may be related to a short-duration of follow-up (one week) and effects of this nature develop over longer periods of time after repeated successful capitalization attempts. Regarding schizotypy, negative schizotypy was associated with lower ratings of positivity and a decrease interest in sharing positive events with others in the future, which is not unsurprising given the previous findings of

lower positivity ratings and increased negative affect, which likely contribute to a decreased interest in sharing events with others. Positive schizotypy and disorganized schizotypy were positively correlated with enjoying the interaction with the research assistant and positive schizotypy was also positively correlated with being willing to interact with same research assistant again. Some literature has suggested that individuals with schizotypy have a disinterest in interacting with others, however, perhaps these individuals have an interest (which is reflected here) and fewer social interactions are driven by social anxiety for those high in positive schizotypy or emotional confusion in disorganized schizotypy, compared to anhedonia in negative schizotypy (Kerns, 2006; Horton, Barrantes-Vidal, Silvia, Kwapil, 2014).

The EMA portion of the study, and aim seven, was designed to explore whether participants utilized social capitalization in daily life and how a successful capitalization attempt was associated with positive and negative affect. Two sets of multi-level models were utilized: 1) to examine how sharing a positive event in general was associated with self-reported affect and 2) to examine how response perception was associated with self-reported affect. The results indicated that higher schizotypy and not sharing an event was associated with lower daily happiness, increased daily sadness, and increased daily anxiety. When an event was shared, lower schizotypy and supportive, enthusiastic response perception was associated with increased happiness. A supportive, enthusiastic response perception was not associated with sadness or anxiety, however, higher schizotypy was associated with increased sadness and anxiety. These results are largely in line with findings that schizotypy is related to affect and that sharing an event and perceiving a supportive, enthusiastic response are related to affect as well, but there was no interaction.

The final exploratory aim of the present study was designed to examine how behavior in the laboratory was associated with social capitalization in daily life. Correlations between affect, PRCA subscales, and positivity ratings made in the laboratory and via EMA were significant, but modest, indicating that these measurements capture similar but not the same experiences. It may be the case that measurements taken in the laboratory better measure *capacity* for emotion experience, whereas measurements taken in daily life reflect *typical* emotion experience. For example, scores on the active-constructive subscale of PRCA were lower in daily life compared to the laboratory task, perhaps reflecting that interactions in daily life are more tempered in day-to-day interpersonal situations. The results indicated that laboratory condition, anxiety, and schizotypy were not associated with whether an event was shared, however, higher depression was associated with sharing an event. It could be the case the individuals higher in depression utilize social capitalization as an emotion regulation strategy to buffer against the negative effects of depression. As the perception of a supportive, enthusiastic response is critical to deriving benefit from sharing an event, a multi-level model of the EMA data predicting the active-constructive subscale response was run and a multiple regression predicting the active-constructive subscale response was run for the laboratory task data. Neither analysis yielded significant results, suggesting that neither depression, anxiety, nor schizotypy were associated with response perception. These findings may indicate that response perception is related to other social functioning processes, such as facial expression or prosody, for example, which were intact in the recruited population. Overall, there is some preliminary evidence to suggest that similar processes, but not entirely overlapping, processes can be captured in the laboratory and daily life and are complementary to understanding the variability of emotion experience.

Overall, the present study did not find evidence that sharing a positive event increased positive affect, decreased negative affect, or positivity for the event compared to simply writing a short essay about a positive event. In fact, the present study found that writing about a positive event may yield more benefits, such as increased positive affect. These results are contrary to much of the extant literature on social capitalization and there are several potential explanations for these findings, which naturally pave the way for additional exploration of social capitalization as there is preliminary evidence that it may operate similarly for those across the schizotypy continuum.

Much of prior literature that has been conducted on social capitalization has utilized dyads of familiar partners, e.g. romantic partners, best friends, family members, rather than a stranger, e.g. a research assistant (Gable, et al, 2004; Gable, Gonzaga, Strachman, 2006; Gosnell & Gable, 2013; Kashdan, et al, 2013; Monfort, et al, 2014). These studies typically find positive outcomes on well-being, life and relationship satisfaction, overall positive affect, and happiness. The present study utilized an unfamiliar individual with whom the participants shared a positive event. It is possible that while participants perceived the research assistant as supportive and enthusiastic, the response lacked "weight" as it came from someone previously unknown. While there are studies that have examined social capitalization in unfamiliar dyads (Reis, et al, 2010), the results suggest that 'general liking' of the listener may not be sufficient and that feelings of closeness, trust, and willingness for self-disclosure play a role as well. It could be the case in the present study that while participants 'liked' the research assistant, deeper experiences of closeness or trust may have limited the potential benefit from sharing with an unfamiliar individual. Relatedly, scores on the active-constructive scale of the PRCA were lower in EMA than the laboratory, and it is possible that closeness, trust, and willingness for self-disclosure also

played a role in who participants shared their positive event with (i.e. shared with those they felt less close to or trusted less in daily life as well). Further research may be needed to clarify the role that familiarity with listener, as well as other elements such as willingness for self-disclosure or trust, play in social capitalization and the specific effects of those elements on affect and positive emotion toward the shared event.

The present study found that the post-manipulation positive affect ratings were higher for participants in the expressive writing condition compared to the responsive feedback condition. These findings are in direct contrast to prior literature (Reis, et al, 2010). A possible explanation for this finding may be that writing about an event allowed an individual to reflect solely on the event and their emotions associated with it, compared to the responsive feedback condition where an individual may have been simultaneously focused on the social demands (e.g. impression monitoring). Indeed, the directions for the expressive writing condition encouraged participants to "...explore your deepest emotions and thoughts about the focal event…" which may have prompted a more intimate review of the event than sharing may have encouraged. Some literature examining the effect of writing about a positive event has found increases in happiness and self-confidence (Herbert, Bending, Rojas, 2019), increases in general positive emotion (Kloss & Lisman, 2002; Burton & King, 2004), and life satisfaction (Lyubomirsky, Sousa, & Dickerhoof, 2006). It could be the case that the expressive writing condition in the present study facilitated these benefits more so than the responsive feedback condition. Future research may benefit by encouraging sharing through different modalities, e.g. posting on social media or recording a video of someone talking about the event, to compare with writing about the event. It may be the case that technological advances have allowed for sharing through electronic means, such as e-mail and text messages, and writing about the event mimicked these

methods as well. For example, Zell and Moeller (2018) found that more responses to one's Facebook post was associated with more positive outcomes and that volume of response was correlated with subjective well-being and believing their Facebook community cared about them.

This study was primarily concerned with examining social capitalization in schizotypy measured on a continuum. Prior research has found aberrant experience of positive emotion and interpersonal functioning in schizotypy (Aguirre, Sergi, and Levy, 2008; Horan, Blanchard, Clark & Green, 2008; for a review, see Giakoumaki, 2016) that could be benefitted by an emotion regulation strategy such as social capitalization. The present study found limited evidence that schizotypy was associated with increased or decreased use of social capitalization in daily life, indicating that social capitalization may operate similarly across the continuum. The present study corroborated relationships between schizotypy and positive/negative affect, but the extent to which social capitalization may regulate affect remains unclear. Uncovering additional elements, for example social anxiety or trust, that enable or hinder the benefits of social capitalization are warranted. For example, some literature suggests that social anxiety may be associated with whether a positive event will be shared or if a positive event is shared that it will reap the hypothesized benefits (Kashdan, Ferssizidis, Farmer, Adams, and McKnight, 2013) and perhaps it is social anxiety that impairs social capitalization rather than schizotypy, which could be relevant as it has been found that individuals with schizotypy may experience comorbid social anxiety (Brown et al, 2008).

There are several limitations to the present study. First, the EMA data collection period was restricted to one week, two times per day (once in the morning and once in the evening). It could be the case that obtaining more data within that time frame (e.g. seven days, eight times per day) or lengthening the time frame (e.g. 14 or 21 days) would yield more robust results.

Current literature has demonstrated that longer periods of data collection are feasible in populations with psychosis or prone to psychosis (Schlier, et al, 2017; Visser, et al, 2017; Mote & Fulford, 2019). Next, the present study utilized a college-aged sample and the results would benefit from community samples that may be predisposed to developing psychosis. Examining emotion regulation across the illness trajectory, e.g. clinical high risk, prodrome, or first episode would likely elucidate the nature and extent of such impairments, as well as the potential for viable emotion regulation interventions. Relatedly, the present study selected one specific emotion regulation strategy, social capitalization, however, it could be the case that a different emotion regulation strategy may be more beneficial or feasible. Additionally, prior literature has indicated that a benefit of social capitalization is better memory for the shared event (Reis, et al., 2010), however, in the present study nearly the entire sample correctly recalled the focal event. It is likely that the memory test (recall at one-week follow-up) was easy resulting in a ceiling effect. Future research could be aided by manipulating memory for the focal event at a longer duration (e.g. one, three, or six months) post-manipulation or by increasing the difficulty of the memory recall task at follow-up. Lastly, examining deficits in reward-related behavior was beyond the scope of the present study, however, given the literature suggesting that individuals with schizophrenia and those at risk for psychosis find social interactions less rewarding, future research examining socially-oriented emotion regulation strategies may benefit from assessment of how rewarding individuals find the interaction. Unrewarding social interactions are likely to decrease the use of socially-oriented emotion regulation strategies or may be likely to thwart any potential benefit from engaging in a socially-oriented emotion regulation strategy.

In conclusion, there is limited evidence to suggest that social capitalization functions differently for individuals along a schizotypy continuum, however, more research on social

capitalization as a positive emotion regulation strategy is warranted. In the present study, social

capitalization did not increase positive affect, decrease negative affect, or increase positivity for

an event, however, there are many elements to social capitalization that were unable to be

examined. For example, research probing specifically for aspects of trust and closeness may be

particularly relevant for *who* individuals choose to share an event with and social anxiety may be

linked with *whether* someone decides to share an event or not. A large portion of the positive

events reported (53% of laboratory reported events and 70% of EMA reported events) in this

study were interpersonal in some way, suggesting that a socially-oriented emotion regulation

strategy may still be a potentially viable intervention option for building social support, though

further research is needed.

APPENDIX. IRB FORM

ACTION ON PROTOCOL APPROVAL REQUEST

LSU

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Psychology

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: March 19, 2019

RE: **IRB#** 4205

TITLE: Happiness, personality and social capitalization

New Protocol/Modification/Continuation: New Protocol

Review type: Full ____ Expedited _X_   **Review date:** 3/18/2019

Risk Factor: Minimal ___X___ Uncertain _____ Greater Than Minimal_____

Approved_____X_____ Disapproved_____

Approval Date: 3/19/2019 **Approval Expiration Date:** 3/18/2020

Re-review frequency: (annual unless otherwise stated)

Number of subjects approved: 100

LSU Proposal Number (if applicable)**:**

By: Dennis Landin, Chairman _____

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:
1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc.**

All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb

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VITA

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