

August 2019

A Controlled Examination of Motivational Strategies: Reviewing Positive Consequences for Goal Achievement, Negative Consequences for Undesired Behavior, and a Relaxation Exercise

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A CONTROLLED EXAMINATION OF MOTIVATIONAL STRATEGIES: REVIEWING
POSITIVE CONSEQUENCES FOR GOAL ACHIEVEMENT, NEGATIVE CONSEQUENCES
FOR UNDESIRED BEHAVIOR, AND A RELAXATION EXERCISE

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A dissertation submitted in partial fulfillment
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Doctor of Philosophy - Psychology

Department of Psychology
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University of Nevada, Las Vegas
December 2017

December 1, 2017

This dissertation prepared by

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entitled

A Controlled Examination of Motivational Strategies: Reviewing Positive Consequences for Goal Achievement, Negative Consequences for Undesired Behavior, and a Relaxation Exercise

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ABSTRACT

A Controlled Examination of Motivational Strategies: Reviewing Positive Consequences for Goal Achievement, Negative Consequences for Undesired Behavior, and a Relaxation Exercise

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Introduction: Motivation is an integral part of human life and one of the most fundamental aspects of behavior change. Of interest to the present study are two motivational approaches, Negative Consequences Review (NCR) and Positive Consequences Review (PCR). NCR is an intervention component originally designed as part of Family Behavior Therapy (FBT) to motivate individuals with their goals through a discussion of negative consequences associated with undesired behaviors. PCR was developed as an auxiliary component of FBT to inspire individuals' motivation to achieve their goals through a discussion about positive consequences of reaching goals. **Purpose:** The purpose of this study was to examine the relative effects of NCR, PCR, or a relaxation exercise (active control) in their ability to (1) increase motivation of college students to perform healthy lifestyle behaviors, (2) facilitate goal achievement, (3) improve mood, and (4) increase openness to seeking professional assistance. **Method:** Participants were 93 undergraduate students who were randomly assigned to one of the three conditions. They were assessed at three time-points: baseline, post-session, and 7-day follow-up. **Results:** Separate mixed-design repeated measures ANOVAs with one between-subjects factor (i.e., condition, three levels) and one within-subjects factor (i.e., time, three levels), and subsequent Fisher's Least Significant Difference (LSD) post-hoc tests, indicated both NCR and

PCR were more effective than the active control condition in enhancing motivation, goal achievement, and positive affect, with PCR yielding larger effect sizes ($ps < .05$). No significant interaction effects were found in reducing negative affect and increasing desire to seek professional assistance ($ps > .05$). **Discussion:** This randomized controlled trial provides robust empirical support for the efficacy of these interventions as brief motivational techniques that can be used as stand-alone interventions or complementary techniques for other treatment approaches. Other future directions are discussed in light of the results.

Keywords: motivation, consequence review, goal achievement, mood, help-seeking

ACKNOWLEDGEMENTS

I wish to express my deepest gratitude to individuals who have assisted me in this endeavor and provided invaluable support throughout the process. A special thank you goes to my advisor, Dr. Brad Donohue, for believing in me since the beginning and affording numerous opportunities for me to grow as a person and as a professional. His unparalleled support, mentorship, and wisdom have helped me establish a strong research foundation that allowed me to share a little bit of what I have learned in this volume. I would like to thank my fellow graduate student, Marina Galante, who devoted her personal time to this project in a role of an interviewer. I also wish to acknowledge Elena Gavrilova, my sister and my best friend, and now my fellow graduate student, for administrative and research assistance in this project and for being a source of inspiration. I wish to thank my committee members, Dr. Kimberly Barchard, Dr. Andrew Freeman, and Dr. Liam Frink, for their time, expertise, and assistance in bringing this project to fruition. Thanks to Dr. Gina Sully for sharing her expertise in academic writing and providing feedback on this volume. I also would like to acknowledge the UNLV Graduate College Rebel Research and Mentorship Program for their financial support, and my research assistants for their help and dedication. Finally, from the bottom of my heart, I would like to thank my family, friends, and my significant other for their encouragement and steady support throughout this journey.

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CHAPTER 1

LITERATURE REVIEW

Motivation

Motivation is an integral part of human life and one of the most critical topics in the field of psychology (Ryan, 2012a). Motivation affects a multitude of important domains of performance, including work (Grant & Shin, 2012), education (Wigfield, Cambria, & Eccles, 2012), health care (Rollnick, Miller, & Butler, 2008), parenting (Pomerantz, Cheung, & Qin, 2012), interpersonal relationships (Gable & Prok, 2012), sports and exercise (Roberts & Treasure, 2012), and psychotherapy (Michalak & Holtforth, 2006). In 1981, Kleinginna and Kleinginna identified over 100 definitions of *motivation* taken from articles and textbooks on motivation, physiological psychology, animal behavior, and introductory psychology. Jones (1955) characterized *motivation* in terms of “how behavior gets started, is energized, is sustained, is directed, is stopped, and what kind of subjective reaction is present in the organism while all this is going on” (p. vii). In other words, motivation is the “driving force” behind behavior (Madsen, 1974).

Methods of Increasing Motivation

Positive reinforcement. Methods of increasing motivation have been postulated from psychologists in various fields and theoretical orientations (e.g., Berridge, 2004; Elliot & Dweck, 2005; Landy & Conte, 2016; Osbaldiston & Schott, 2012; Rollnick et al., 2008; Ryan, 2012b; Vansteenkiste & Mouratidis, 2016; Wentzel, Wigfield, & Miele, 2009). From a behavioral psychology perspective, motivation can be influenced through positive and negative reinforcement. The principles of reinforcement were pioneered by B.F. Skinner in the 1950s, leading to decades of behavioral research (Weiten, 2013a). To this day, reinforcement

contingencies are used to positively shape behavioral patterns of individuals (Flora, 2004). In attempting to change the frequency of behavior, positive reinforcement may involve desired incentives or rewards contingent on the desired behavior. Once a reward has been provided or a positive consequence has naturally occurred in the environment at a sufficient frequency following the behavior, an individual may become more motivated to engage in that behavior in the future. Rewards that increase the likelihood of future behavior are *reinforcers*, and they may be tangible (e.g., paycheck) or intangible (e.g., positive social support).

Extensive empirical evidence points to the effectiveness of positive reinforcement in shaping the frequency of desired behavior. For instance, positive reinforcement is effective in treating drug addiction by incentivizing abstinence from drug use (Stitzer, Petry, & Peirce, 2010). Similarly, token economy contingencies increase adaptive, prosocial behaviors and improve self-care skills (e.g., hygiene, dressing, self-feeding) in psychiatric inpatients by allowing them to earn tokens for positive behaviors and exchange tokens for desired rewards (Ayllon & Azrin, 1968; Doll, McLaughlin, & Barretto, 2013; Kazdin, 2012). In a landmark study, a token-based learning program implemented with chronic psychiatric inpatients demonstrated more effective results on a number of outcome measures compared to the active comparison groups (Paul & Lentz, 1977). In Family Behavior Therapy (FBT), significant others systematically reward adolescents for accomplishing treatment goals (e.g., making curfew, abstaining from illicit substances, attending classes), using previously agreed-upon reinforcers (Azrin, McMahon, et al., 1994; Donohue & Azrin, 2011). In non-behavioral psychotherapy (e.g., Rogerian), therapists provide positive reinforcement through listening, empathizing, and praising, among other actions, which in turn increases clients' motivation to engage in treatment (Truax, 1966). In other contexts, instructors use rewards or tokens to increase students'

motivation to participate in class discussions (Nelson, 2010), students self-reward themselves to accelerate the base rate and accuracy of reading papers (Humphrey, Karoly, & Kirschenbaum, 1978), and public health proponents create incentive programs that increase prosocial behaviors such as recycling and conservation of energy, water, and gasoline (Osbaldiston & Schott, 2012).

Incentive theory. Positive reinforcement lies at the core of the incentive theory of motivation, which posits that actions are motivated by a desire for reinforcement or rewards (Bolles, 1975; Toates, 1994). An individual will be more likely to engage in a behavior if he or she believes that engaging in that behavior will result in a gain. Although the incentive theory mainly emphasizes external rewards, it nonetheless takes into account intrinsic motives of an individual that *pull* him or her toward goal attainment (Weiten, 2013b). The incentive theory of motivation explains why individuals initiate and sustain goal-directed behavior even when they are required to engage in challenging and oftentimes prolonged activities. Graduate students, for instance, spend several years in school to earn a doctoral degree, which is associated with incentives such as a stable career, higher salary, and knowledge. Similarly, the incentive theory of motivation is widely applied in the world of business as the mechanism for productivity (Maslen & Hopkins, 2014), motivating millions of people to complete their job duties to gain tangible and intangible incentives (e.g., financial bonuses, job promotion).

Negative reinforcement. Negative reinforcement involves the removal of a negative or unpleasant consequence contingent on the behavior with the goal of strengthening that behavior. Once an unpleasant stimulus is removed (e.g., seatbelt alarm) following a behavior (e.g., putting seatbelt on), an individual becomes more motivated to engage in that behavior in the future to avoid an aversive experience. Through associative learning, people learn that by engaging or ceasing to engage in certain activities they can escape or avoid unpleasantness (Flora, 2004).

Similar to positive reinforcement, negative reinforcement is widely used in addressing problematic behavior. Azrin and colleagues published one of the earliest studies in psychology that employed the principles of negative reinforcement in humans (Azrin, Rubin, O'Brien, Ayllon, & Roll, 1968). In this study, participants wore a device designed to correct postural slouching by providing an audible click followed 3 seconds later by a tone. Maintenance of correct posture or a prompt correction after an initial click permitted participants to avoid the unpleasant tone, while a delayed postural correction provided escape from the tone. Negative reinforcement techniques are effective in treating incontinence (Hansen, 1979) and enhancing toilet training (Azrin & Foxx, 1971), among other behaviors (Iwata, 1987). In psychotherapy, reviewing what is inconvenient about nervous habits (e.g., tics, fingernail biting, hair pulling) has been shown to increase clients' motivation to terminate undesired habits (Habit Inconvenience Review; Azrin & Nunn, 1973; Azrin, Nunn, & Frantz, 1980). Similarly, reviewing what is unpleasant about illicit drug use has been used to increase clients' motivation to abstain from drugs (Annoyance Review; Azrin et al., 2001) and writing about negative drinking occasions has been shown to reduce future drinking intentions (Young, Rodriguez, & Neighbors, 2013).

Response cost, a procedure in which reinforcers are taken away contingent on problem behavior or the absence of positive behavior (Weiner, 1962), is effective in numerous contexts (Kazdin, 1972). Examples include increases in students' on-task behavior in the classroom (Jowett Hirst, Dozier, & Payne, 2016), children's compliance to parental instructions (Little & Kelley, 1989), and avoidance of aggressive behaviors (Forman, 1980). To take a closer look at the response-cost procedure, consider a randomized controlled trial in which obese psychiatric patients lost money for failure to lose weight (Harmatz & Lapuc, 1968). Patients in the response-cost group lost more weight after 6 weeks than controls and continued to lose weight at a four-

week follow-up, whereas group therapy patients lost as much weight after 6 weeks but gained weight at the time of follow-up. Although the response-cost procedure is an example of punishment, negative reinforcement is at work when individuals increase desirable actions to avoid aversive consequences (i.e., loss of reinforcement).

Drive theory. The drive theory of motivation, derived from negative reinforcement, posits that individuals engage in goal-directed behavior to remove an aversive experience, i.e., the lack of homeostasis in the body (Cannon, 1932; Hull, 1943; Weiten, 2013b; Wise, 2004). To illustrate, a person who is experiencing a headache is motivated to take ibuprofen to relieve the pain because this strategy worked in the past and led to drive reduction. A state of anxiety is another example of an aversive internal experience that individuals are motivated to avoid (see also terror management theory; Kesebir & Pyszczynski, 2012). Unlike the incentive theory, which purports that an individual *pulls* toward a stimulus to gain a favorable outcome, the drive theory asserts that a person *pushes* toward a stimulus to remove the negative condition and regain homeostasis. Although the drive theory has been typically associated with biological or physiological needs to restore a certain balance within the organism (Cannon, 1932), it can nevertheless explain human behaviors that do not directly involve physiological need satisfaction. To illustrate, individuals are motivated to engage in activities that allow them to earn money (e.g., attend college, perform work duties), because, as a secondary reinforcer, money has been associated with the reduction of various drives such as hunger and safety (McClelland, 1985).

Combining positive and negative reinforcement. Typically, a combination of positive and negative reinforcement influences motivation for problematic as well as for adaptive behaviors. For example, a person with a drug addiction takes drugs to experience euphoria

(positive reinforcement) and eliminate withdrawal symptoms (negative reinforcement; Blume, 2001). In the parenting realm, parents can improve child behavior problems by providing praise for desirable behaviors and lack of attention or a timeout for misbehavior (McMahon & Forehand, 2003). Likewise, token economies can be designed to incorporate both positive and negative reinforcement by providing reinforcers for desirable behaviors and taking away reinforcers contingent on inappropriate behaviors, or *response cost* (Doll et al., 2013). The response-cost procedure, primarily rooted in punishment and negative reinforcement, also contains positively reinforcing properties; by engaging in appropriate behaviors, individuals retain the tokens provided at baseline (Kazdin, 1972).

Cognitive approach. From a cognitive perspective, motivation is influenced by thoughts, expectations, and goals (Deci & Ryan, 2000; Locke, 1996; Locke & Latham, 2002). A central assumption of this approach is that internal representations (e.g., interpretations, attributions, plans), as opposed to external events (e.g., reinforcers) or physical conditions (e.g., headache), regulate human behavior. However, recent evidence demonstrates that motivation comes from both intrinsic and extrinsic sources, given that internal representations usually lead to a combination of internal and external gains such as satisfaction and rewards, respectively (Deci & Ryan, 2000).

Goal-setting. Goal-setting is a vital component of motivation and achievement (Locke & Latham, 1990; Murayama, Elliot, & Friedman, 2012). It has long been established that deliberate goals influence actions (Ryan, 1970) and that specific, difficult goals generally motivate people to try harder, focus on goal-relevant activities, and use task-relevant knowledge, skills, and creative strategies (Locke & Latham, 1990; 2002). Goal-setting implies that an individual is

aware of the disconnect between the present state and the desirable outcome (Locke & Latham, 2006), thus building motivation to set an action plan to bridge the gap.

Scientists who have attempted to formulate goal-setting for optimal performance arrived at several conclusions. First, goals are more effective when they are specific, measurable, and realistic (Locke & Latham, 2002; 2006). Second, feedback is important for monitoring progress toward goal attainment (Locke & Latham, 2002; 2006). Third, a belief that one has the capacity to accomplish a certain goal, or *self-efficacy* (Bandura, 1977), and the importance of the goal strengthen a person's commitment toward goal achievement. Lastly, goal accomplishment is more likely when the striver shares goals with others and when goals are facilitated by supportive others (Donohue, Pitts, Gavrilova, Ayarza, & Cintron, 2013; Gavrilova, Donohue, & Galante, 2017; Siegert & Levack, 2014).

Professionals in diverse fields employ goal-setting as an essential component to achieving positive outcomes. To consider several examples, in the work context, goal-setting enhances employee productivity and reduces absenteeism and injuries (Locke & Latham, 1984). In the field of education, students are encouraged to direct their thoughts, feelings, and actions toward attainment of self-set goals (Boekaerts & Niemivirta, 2000). In rehabilitation, clinicians develop collaborative goals with patients to assist treatment planning, facilitate progress (Siegert & Levack, 2014), and enhance treatment adherence (Becker, Abrams, & Onder, 1974). In the context of psychotherapy, clients who participated in the selection and monitoring of goals had more positive post-treatment outcomes on the standardized measures of depression, anxiety, and self-esteem, and reported higher personal motivation to change compared to those who did not take part in goal-setting (LaFerriere & Calsyn, 1978). In the sports arena, goal-setting offers numerous benefits to performance, including increased motivation, focus, and perseverance,

which in turn influences athletes' approach to training and competition (Larsen & Engell, 2013; Weinberg & Butt, 2014).

Cognitive dissonance. Another approach that is capable of influencing motivation is cognitive dissonance (Harmon-Jones, 2000). Developed in the 1950s by Leon Festinger, the theory of cognitive dissonance continues to be one of the most influential theories in psychology and other sciences (Cooper, 2007). The theory posits that when individuals hold contradicting cognitions, such as beliefs, attitudes, or awareness of one's actions, they will experience an aversive arousal state (activation of the sympathetic nervous system; Elkin & Leippe, 1986), leading to enhanced motivation to reduce the discrepancy (Festinger, 1957). Ways to escape dissonance include changing or justifying one's behaviors or cognitions. Dissonance can vary in amplitude and is usually strongest when a person engages in behaviors that go against his or her self-concept (Aronson, 1969; Steele, 1988). By way of illustration, imagine a person who smokes a pack of cigarettes daily being told that smoking might lead to lung cancer. According to the theory, information about the dangers of smoking (cognitive component) and the ongoing behavior of smoking will lead the smoker to experience cognitive dissonance. He or she may then choose to either cease smoking (change the behavior) or ignore or minimize the information presented (change the cognition, e.g., "It's not likely to happen to me"; "I'm going to die anyway"). In a classic study on cognitive dissonance, new group members who underwent a severe initiation (hazing) reported liking the group more than those who underwent mild initiation or no initiation (Aronson & Mills, 1959). Consistent with the concept of cognitive dissonance, participants in the severe initiation condition changed their cognitions to justify their engagement in the unpleasant behaviors.

On a more practical side, cognitive dissonance has been implicated in parenting, economic behavior, politics, social behavior, and psychotherapy, among other domains (Cooper, 2007). Cognitive dissonance lies at the core of several psychological treatment approaches. For instance, to bring about positive change in therapy, one of the essential tasks is to increase the amount of dissonance between the client's problem behavior and beliefs (Miller, 1983). There is also evidence that victims of domestic violence who continue living with the perpetrator experience cognitive dissonance (Lempert, 1996), and if dissonance is not resolved it can lead to negative psychological adjustment such as low self-esteem and depression (Harmon-Jones, 2000). This suggests that recognition and restructuring of dissonance-minimizing cognitions can be an intervention target that will enable the victim to make a change. Along the same lines, cognitive dissonance is at play when trauma survivors with post-traumatic stress disorder (PTSD) alter their beliefs about self, others, and the world to fit the traumatic event (e.g., "I am a bad person"; "The world is dangerous") or blame themselves or others for causing or allowing the traumatic event to happen (e.g., "It is my fault that my father abused me"; American Psychiatric Association, 2013). Thus, one of the goals of treatment for PTSD is to address the erroneous beliefs and cognitions that resulted from the victim's attempts to reconcile cognitive dissonance (Resick, Monson, & Chard, 2017).

Motivational Interviewing. Motivational Interviewing (MI) is an evidence-based therapeutic approach used to strengthen clients' personal motivation for change (Miller & Rollnick, 2013). Using a collaborative, client-centered counseling style with particular emphasis on the language of change, clients are allowed to explore and resolve ambivalence, thus evoking motivation for change. MI can be used as a brief, standalone treatment technique lasting between one to three sessions or in conjunction with other approaches.

Extensive empirical evidence points to the effectiveness and diverse application of the MI techniques. By the year 2013, more than 200 randomized controlled trials had been conducted addressing a wide array of problem behaviors (Miller & Rollnick, 2013). Growing from problem alcohol use research and treatment (Miller, 1983; Miller, Benefield, & Tonigan, 1993; Miller, Sovereign, & Krege, 1988; Miller, Zweben, DiClemente, & Rychtarik, 1992), MI applications have expanded to address other problematic substance use, such as tobacco (Heckman, Egleston, & Hofmann, 2010) and illicit drugs (Battjes et al., 2004; Grenard et al., 2007; Winters & Leitten, 2007). In promoting health, MI techniques have been used for medication adherence (Spoelstra, Schueller, Hilton, & Ridenour, 2015), treatment of eating disorders (Macdonald, Hibbs, Corfield, & Treasure, 2012), management of chronic diseases and HIV (Channon et al., 2007; Dillard, Zuniga, & Holstad, 2016; Spencer & Wheeler, 2016), weight loss (Armstrong et al., 2011; Borrello, Pietrabissa, Ceccarini, Manzoni, & Castelnuovo, 2015), and physical therapy (Vong, Cheing, Chan, So, & Chan, 2011). In terms of problem behaviors, MI is effective in treatment of domestic violence (Murphy & Maiuro, 2009), conduct problems (Naar-King & Suarez, 2011), and behavioral problems in correctional facilities (McMurrin, 2009; Walters, Clark, Gingerich, & Meltzer, 2007). Similarly, MI helps individuals with daily habits, such as improving study skills (Daugherty, 2009) and diet (VanWormer & Boucher, 2004), and reducing disordered gambling (Yakovenko, Quigley, Hemmelgarn, Hodgins, & Ronksley, 2015) and college drinking (Branscum & Sharma, 2010). Importantly, while effects of MI are typically reported to be small to moderate, some studies have found MI to have no effect (e.g., Horn, Dino, Hamilton, & Noerachmanto, 2007; Marsden et al., 2006; Miller, Yahne, & Tonigan, 2003). Further, in some trials, MI performed better when combined with existing interventions (Barnett, Sussman, Smith, Rohrbach, & Spruijt-Metz, 2012; Hettema, Steele, & Miller, 2005).

Rooted in cognitive theory with an emphasis on experimental social psychology, MI involves the processes of attribution, cognitive dissonance, and self-efficacy (Miller, 1983). Consistent with the literature on cognitive dissonance (Festinger, 1957), MI practitioners help clients become aware of the discrepancy among their thoughts, beliefs, and/or attitudes and their current behaviors. Several MI tools are used to elicit cognitive dissonance, build self-efficacy and positive internal attributions (or *self-esteem*), and enhance motivation (Miller, 1983). As illustrated in a treatment manual for substance use disorders (DeMarce, Gnys, Raffa, Karlin, 2014), the MI toolbox includes: eliciting self-motivational statements, providing objective assessment feedback, exploring the importance of and confidence in one's ability to change, identifying negative consequences of current behaviors, identifying benefits of changing current behaviors, looking forward, exploring the extremes, examining short-term goals, and identifying strengths and resources. Following elicitation of dissonance, MI therapists engage in empathic and reflective processes consistent with client-centered therapy (Rogers, 1962) to help clients channel cognitive dissonance toward positive change. Although MI contains a number of ingredients, it is unknown which processes mediate the outcomes of MI (Martins & McNeil, 2009). Of particular interest to the current study is the review of negative and positive consequences.

Review of Negative and Positive Consequences

Negative Consequences Review (NCR). NCR is an intervention component originally designed to motivate individuals with their goals through a discussion of negative consequences associated with undesired behaviors. It was developed in early trials of behavior therapy for substance misuse and undesired nervous habits (e.g., tics, fingernail biting, hair pulling; Azrin, McMahon et al., 1994; Azrin & Nunn, 1973; Azrin et al., 1980), and was later incorporated into

Family Behavior Therapy (FBT; Azrin et al., 2001; Chow et al., 2015; Donohue et al., 2015), an empirically-supported behavioral intervention evaluated in clinical trials with both adolescents and adults. FBT has been used to effectively treat a variety of co-occurring problem behaviors, including substance abuse and associated problems (Azrin et al., 1996; Azrin, Donohue, Besalel, Kogan, & Acierno, 1994; Azrin, McMahon et al., 1994; Donohue & Allen, 2011; Donohue & Azrin, 2011), conduct problems (Azrin et al., 2001), child maltreatment (Donohue et al., 2010; 2014; Donohue & Van Hasselt, 1999), and domestic violence (Romero, Donohue, & Allen, 2010; Romero et al., 2010), and to optimize sport performance, mental health, and relationships in collegiate athletes (Chow et al., 2015; Donohue et al., 2015; Gavrilova et al., 2017; Pitts et al., 2015). Previous trials involving NCR focused on increasing the amount of unpleasantness associated the target behavior (e.g., drug use, skin picking), thus indirectly influencing motivation to avoid the behavior, while the most recent clinical trial shifted the focus to directly increasing motivation to avoid the target behavior.

Clinicians implementing NCR ask individuals to report their baseline level of motivation to achieve a particular goal (e.g., quit drinking) on a scale ranging from 0 to 100 percent (0% = not motivated at all; 100% = completely motivated). If motivation is relatively low (e.g., less than 70%), the clinician asks the client what exactly is unpleasant about undesired behavior, making a comprehensive list of negative consequences, including more distant and global consequences. Next, the client is provided a prompting list of negative consequences reported by others to help recognize additional consequences associated with undesired behavior.

Throughout the review of negative consequences, the clinician listens carefully and remains non-judgmental. Once the review is completed, the clinician summarizes all negative consequences and empathizes with experienced or potential consequences. The client is then

asked to rate his or her post-review level of motivation using a 0 to 100 percent scale and to discuss potential discrepancies between baseline and post-ratings. Lastly, some implementations of NCR concluded with a brief review of potential positive consequences of avoiding undesired behavior and setting personal goals to facilitate desired behavior (Azrin et al., 2001; Chow et al., 2015; Donohue et al., 2015).

Positive Consequences Review (PCR). PCR was developed as an auxiliary component of FBT in a recent clinical trial to inspire individuals' motivation to achieve their goals through a discussion about positive consequences of reaching goals or engaging in desired behavior (see Goal Inspiration; Donohue et al., 2017). Clinicians implementing PCR follow a protocol similar to NCR with three major differences. First, instead of negative consequences, the client reports potential positive consequences associated with goal achievement. Second, the clinician asks the client to review a prompting list of positive consequences instead of negative consequences. Third, instead of empathizing with negative consequences, the clinician expresses excitement about positive consequences.

Mechanisms of change. Both NCR and PCR involve several important components theorized to enhance motivation for change. First, NCR is built on the tenets of negative reinforcement, suggesting that individuals are motivated to avoid potentially aversive situations. In contrast, PCR is intended to elicit motivation via positive reinforcement mechanisms.

Second, clients verbalize their own consequences for goal achievement or lack of thereof. Indeed, hearing oneself talk can be a powerful tool in evoking motivation (Bem, 1967). To strengthen this process during NCR and PCR, clients are encouraged to generate a comprehensive list of consequences covering numerous domains of functioning, including education, work, interpersonal relationships, family, financial status, and physical and mental

health, among others. Such a thorough review is theorized to elicit awareness of how lack of goal achievement can negatively impact an individual's life or how goal achievement can bring about an all-encompassing positive change to one's life. Besides, awareness of possible consequences can create a state of cognitive dissonance, thus motivating clients to make a change (Festinger, 1957; Miller, 1983).

Third, therapists implementing NCR and PCR remain neutral during the generation and final review of negative and positive consequences, respectively. This technique allows the therapist to cumulatively process all of the consequences and provide *accurate empathy*, the cornerstone of psychotherapy (Rogers, 1975; Watson, 2016), for potential negative consequences or express excitement and descriptive praise for anticipated positive consequences. Further, providing summaries of what the client has said (e.g., all reported consequences) back to the client has been established as a vital motivational technique, which allows the client to connect the dots (Miller & Rollnick, 2013). Such feedback is delivered in a strategic manner, using the language of change (e.g., "You also said that if you did not exercise, you might develop heart complications, especially given that it runs in your family").

The review concludes with an open-ended question of "having reviewed all of these negative/positive consequences, how motivated are you to [target behavior] on a 0 to 100 percent scale, where 0 is not important at all and 100 is extremely important?" to allow clients to assess their own motivations. If clients report increased motivation after the review, the therapist expresses excitement for the change in scores from baseline to post-review, thus positively reinforcing client's improvement. To further strengthen motivation, clients are queried how they arrived at such a high score; during this discussion, clients state their own reasons for change while the therapist provides verbal (e.g., "Wow!", "What an insight!") and non-verbal (e.g.,

facial expression demonstrating excitement) positive reinforcement and agreement with optimal reasons for the discrepancy in scores. The therapist then asks how the client can maintain high motivation, again guiding them toward further change talk, and provides affirmations or empowerment (Miller, 1983; Rogers, 1962), stating that the client has the capacity to change negative consequences into positive or to achieve anticipated positive consequences if he or she engages or continues to engage in desired behavior. This is important because empowerment and affirmations have the capacity to increase clients' self-efficacy and instill a stance of optimism, which in turn helps them achieve goals (Miller, 1983; Miller & Rollnick, 2013).

Lastly, the session concludes with generation of goals specific to the client's target behavior. As the client generates an action plan, the therapist provides suggestions and encouragement for goal accomplishment. As reviewed previously, goal-setting is one of the essential components of behavior or attitude change (Murayama et al., 2012).

Both NCR and PCR may be advantageous compared to other motivational approaches in several respects. These interventions are founded on empirically sound evidence, stemming from behavioral science. Both are efficient, one-session interventions that can be used with a vast range of behaviors and incorporated into other existing therapies or treatment approaches. Each intervention comes with a protocol checklist and handouts, making it user-friendly for clinicians of all skill levels.

However, unlike NCR, which taps into both negative and brief positive consequences, PCR is a "pure" positive approach. Indeed, PCR is consistent with the tenets of positive psychology (Seligman & Csikszentmihalyi, 2000) and optimization (Gavrilova et al., 2017; Gavrilova & Donohue, in press), making it appealing to clients and mental health providers as a stigma-free tool. While NCR might draw attention and inform the person of the negative

consequences, PCR does not require the person to experience the aversives. Nevertheless, the decision about which of these interventions should be used to elicit greater motivation is not as clear-cut.

The Effects of Positive and Negative Events

The effects of positive and negative events on human cognition and behavior have been of scientific interest for decades (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). In their seminal work, entitled *Bad is Stronger than Good*, Baumeister and colleagues (2001) conducted a comprehensive review of research evidence pertaining to the general hypothesis that negatives are more powerful than positives. They examined the effects of positive and negative events on human cognitions and behavior across a wide range of domains, including reactions to events, interpersonal relationships, emotions, learning, neurological responses, information processing, and memory, among others. Despite carefully searching for evidence to the contrary, their conclusion was unequivocal – bad is stronger than good in the majority of domains. Areas of exception included: prevailing optimism about future events (e.g., Weinstein, 1980), universal bias for positive words and ideas (Boucher & Osgood, 1969), tendency to maintain a positive self-concept and remember positive information about the self while ignoring the negative, or a *self-enhancement effect* (Baumeister, 1998; Baumeister & Cairns, 1992), and studies that discovered individual differences in approach-avoidance motivations (Elliot & Covington, 2001; Scholer & Higgins, 2012).

The disproportionately stronger effects of negative events have been reported in numerous fields within psychology. For instance, there is a greater prevalence of negatively valenced phenomena, such as psychological disorders, problems, and adversities, than positive ones (Czapinski, 1985; Seligman & Csikszentmihalyi, 2000). From a social psychology standpoint,

negative information carries more weight than positive information, especially in the fields of impression formation and decision making (see *positive-negative asymmetry hypothesis*; Peeters & Czapinski, 1990). Namely, learning something bad about an acquaintance (e.g., “Dishonest”) significantly outweighs learning something equally good (e.g., “Honest”). Similarly, when making decisions, humans tend to process negative information more carefully than positive (Bolster & Springbett, 1961). Neuropsychological studies further corroborate these findings by showing that the brain responds more strongly to negative information (Ito, Larsen, Smith, & Cacioppo, 1998). Findings from developmental and clinical psychology indicate that the effects of a single bad event, such as child abuse or divorce, are significantly stronger and more long-lasting than the effects of a single positive event, such as exceptionally positive childhood experiences or marriage (Baumeister et al., 2001). In marriage, negative interactions are more influential for relationship satisfaction than positive ones (Gottman & Silver, 1995).

From an evolutionary standpoint, it is adaptive to be more attuned to preventing and escaping aversive conditions than attempting to maximize positive gains because survival takes priority over advancement (Baumeister et al., 2001). Indeed, the ability to remember negatively valenced information better than positive (e.g., Pratto & John, 1991) and for longer periods of time (e.g., Brickman, Coates, & Janoff-Bulman, 1978) has an adaptive value. Thus, thinking of negative consequences is likely to elicit negative affect and distress, which in turn is likely to produce motivation to escape bad feelings (Baumeister, Heatherton, Tice, 1994).

A theory of *approach-avoidance motivation* can be used to explain human motivation within the context of anticipated positive and negative circumstances. Approach motivation occurs when individuals take action because they desire or expect a positive outcome. In contrast, avoidance motivation occurs when people take action (or cease to act) to prevent

something bad from happening (Elliot & Covington, 2001). It has been established that, all else being equal, motivation to avoid losing something, or *loss aversion*, is more powerful than motivation to gain something of equal value (Costantini & Hoving, 1973; Kahneman & Tversky, 1984).

Nevertheless, some contrary evidence exists indicating that positive circumstances may be more effective in motivating behavior. Skinner, for instance, concluded that positive reinforcement is more effective in behavior modification than punishment (Skinner, 1948), and his postulations were later formally validated (Azrin & Holz, 1966). In the business realm, although negative reinforcement motivates workers' productivity in the short-term, it may hinder creativity, engagement, and growth in the long-term (Harter, Schmidt, & Keyes, 2003). Additional examples of the power of positive phenomena include the aforementioned tendencies of humans to think optimistically about *the future* (Boucher & Osgood, 1969) and favor positive information in regard to *the self* (Baumeister, 1998; Baumeister & Cairns, 1992).

In psychological approaches that emphasize cognitions and self-talk, therapists often encourage clients to change their thoughts and language to be more positive and action-oriented (e.g., what clients want instead of what they do not want to happen; Wright, Basco, & Thase, 2006). In an outcome study evaluating the effects of a cognitive-behavioral therapy program on mood outcomes, clients who framed their goals in terms of avoidance had less symptomatic improvement compared to clients who framed their goals positively, although they were still able to achieve their goals (Wollburg & Braukhaus, 2010). This suggests that goal attainment might be unaffected by the type of motivation, while mood symptoms may improve when goals are framed positively. Similarly, positive psychology proponents focus on individuals' strengths, virtues, and positive emotions to aid in the achievement of life satisfaction, which in turn can

counteract the problems of living and enhance striving for self-improvement (Seligman & Csikszentmihalyi, 2000). In addition, the mental health optimization approach focuses on optimization of skills, as opposed to exclusive remediation of psychopathology, to promote goal achievement along the non-optimal to optimal continuum (Gavrilova et al., 2017; Gavrilova & Donohue, in press).

Extensive research has been conducted in psychology and other behavioral sciences exploring the power of positive versus negative events. Unfortunately, in psychotherapy, the effects of reviewing potential positive consequences of goal achievement or negative consequences of not achieving goals on motivation, goal achievement, mood, and help-seeking remain relatively unexplored. The closest example found in the domain of task performance illustrated that thinking about negative information resulted in better performance on a test than thinking about positive information (Goodhart, 1986), which could be linked to greater goal attainment. Taken together, the aforementioned evidence suggests that review of negative consequences should generally have a superior impact on the person's memory, information processing, neurological processes, emotions, and learning, and it should produce longer-lasting effects on motivation and goal achievement compared to review of positive consequences.

Although the abovementioned factors might lead to greater motivation and goal achievement when reviewing negative consequences, the outcomes may look different under certain circumstances. Specifically, the effects might become non-significant when negative information relates to the self because humans are motivated to preserve positive self-views and protect self-esteem (see *self-enhancement effect*; Baumeister, 1998; Baumeister & Cairns, 1992; Skowronski, Betz, Thompson, & Shannon, 1991). In addition, a review of negative information is likely to produce negative affect (Baumeister et al., 1994), which in turn may limit creative

goals and action repertoires (Fredrickson, 2001) and may deter an individual from seeking further psychological assistance (e.g., due to a strong desire to avoid unpleasant feelings). In contrast, a review of positive information is likely to produce a positive affective state, which has been associated with expanded creativity and behavioral activation (Bless & Fiedler, 2006; Fredrickson, 2001), which are essential for goal attainment. Besides, having a positive experience with psychological services (e.g., reviewing positive consequences) may lead to a greater openness to seeking professional assistance in the future (Vogel & Wester, 2003). Lastly, it is worth noting that results may vary based on individual differences, a view that is consistent with the *regulatory focus theory* (Higgins, 1998). This theory suggests that individuals might be driven by the prevention and promotion ways of thinking. Those who are prevention-oriented tend to focus on avoiding or escaping unpleasantness while those who are promotion-oriented seek opportunities for growth and accomplishments (Scholer & Higgins, 2012).

In conclusion, a dearth of literature on the effects of reviewing positive and negative consequences in psychotherapy and lack of agreement on the relative power of positive versus negative information on motivation and behavior warrant an empirical investigation.

Why Target Lifestyle Behaviors in College Students?

College-age individuals are afforded great opportunities not only to advance their education and career goals, but also to develop personal competencies, establish identities, become autonomous, and learn to balance interpersonal relationships (Howard, Shiraldi, Pineda, & Campanella, 2006). It is important to assist and motivate students in establishing healthy habits in college because habits developed during the college years often persist into adulthood. For example, college students who do not eat well are likely to maintain poor eating habits in adulthood (Zuercher & Kranz, 2014). Along the same lines, college substance use is associated

with poor academic outcomes (Pascarella et al., 2007), post-graduation unemployment (Arria et al., 2013), and development of substance use disorders later in life (Jennison, 2004).

A high proportion of college students do not adhere to public health recommendations for health behaviors, such as getting restful sleep (Taylor & Bramoweth, 2010), using condoms when engaging in sexual activity (Centers for Disease Control and Prevention, 2010), avoiding substance use (Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2016), and exercising and consuming healthy foods (Wald, Muennig, O'Connell, & Garber, 2014). Achieving sufficient sleep is particularly important in college because sleep is implicated in the neurological mechanisms that underlie learning and memory (Maquet, 2001). Students who do not get enough sleep (estimated as 73 percent of college students) perform significantly worse than students who had a normal night's sleep (Buboltz, Brown, & Soper, 2001). Additionally, insufficient sleep in college students is linked to drowsy driving and motor vehicle accidents due to sleepiness (Taylor & Bramoweth, 2010).

Furthermore, sexually active college-age individuals are at an increased risk for unwanted pregnancy and contracting sexually transmitted diseases (STDs), especially when students concurrently engage in other risk behaviors such as substance use (Centers for Disease Control and Prevention, 2010; Ceperich & Ingersoll, 2011; Downing-Matibag & Geisinger, 2009). Presence of an STD or stress from dealing with an unwanted pregnancy may significantly impair the student's academic performance and social adjustment.

Substance use among college-age individuals is a serious concern (Johnston et al., 2016; Wechsler & Nelson, 2008). Numerous negative consequences have been linked to alcohol and drug use in students, including impeded academic performance (Meda et al., 2017), unsafe

sexual behaviors (Ceperich & Ingersoll, 2011), and significant health consequences such as injuries and overdoses (White & Hingson, 2013).

In regard to exercise and healthy eating, students who engage in moderate to vigorous physical activity and consume fruits and vegetables have higher grade point average (GPA) in college compared to their counterparts (Wald et al., 2014). Besides, exercising is associated with optimal physical and mental health outcomes (Penedo & Dahn, 2005), which buffers against stress commonly experienced by college students (Edenfield & Blumenthal, 2011; Leary & DeRosier, 2012).

These examples provide sufficient evidence that highlights the need to address college students' motivation to adhere to public health recommendations for health behaviors. Other habits that are worth promoting in college students include studying for courses, maintaining employment, creating a clean and organized living environment, and eliciting positive mindsets. Successful student learning and academic performance are the chief aims of college attendance, yet the majority of students do not study for their courses (Aquino, 2011). Lack of motivation, poor study habits, and negative attitudes toward studying interfere with students' educational achievement. In fact, study motivation and study skills had the strongest relationship with college GPA and grades (Credé & Kuncel, 2008). Therefore, to improve students' academic performance, it is important to facilitate student motivation for studying and promote healthy study habits. On a related note, helping students with motivation to maintain a clean and organized living environment may assist students with promoting study habits while minimizing distractions.

Helping students maintain motivation for work while they are pursuing academic degrees is another goal-worthy endeavor. Approximately 74 percent of undergraduate college students

maintain a 25-hour work load while going to school (National Postsecondary Student Aid Society, 2000). Although, logically, one might expect students who do not work or work few hours to perform better in school, Dundes and Marx (2006) found that students who worked 10-19 hours per week performed as well or better academically than their non-working peers. The results suggest that, through employment experiences, working students acquire the necessary skills that benefit them in college, including time-management, self-sufficiency, and personal responsibility. Therefore, it would be beneficial to motivate students to maintain employment and develop positive working habits while they are in college.

Optimism in college is associated with positive college adjustment, higher self-esteem, and lower loneliness (Montgomery, Haemmerlie, & Ray, 2003). Besides, students who think more positively tend to perceive college as less stressful compared to students who are less optimistic (Krypel & Henderson-King, 2010). Perceived stress, in turn, can have significant effects on students' physical and emotional health (Leppink, Odlaug, Lust, Christenson, & Grant, 2016) and can lead to student disengagement from learning (Krypel & Henderson-King, 2010). Therefore, helping students deal with stress by building optimistic mindsets can be beneficial for the students' health and education, and it may alleviate the wait list crisis at campus counseling centers (Mowbray et al., 2006; Reetz, Bershad, LeViness, & Whitlock, 2016). In summary, it is important to promote students' adherence to a healthy lifestyle to facilitate successful adjustment to social, academic, and occupational demands that will likely persist into adulthood.

CHAPTER 2

AIMS OF THE STUDY

The efficacy of NCR and PCR has not been evaluated empirically as independent interventions, and it is unknown how PCR compares to NCR. Therefore, the primary aim of the present study was to examine the relative effects of these interventions (as compared to an active control condition that consisted of listening to a relaxation audio exercise) in their ability to (1) increase motivation of college students to perform healthy lifestyle behaviors that students reported to be low in motivation (i.e., exercising, healthy eating, achieving sufficient sleep, avoiding alcohol, smoking, and illicit drug use, using condoms during sex, studying for courses, performing work duties, doing chores, and thinking positively) and (2) increase achievement of these goals. This study was also concerned with the effects of NCR and PCR in their ability to (3) improve participants' mood and (4) increase openness to seeking professional assistance.

CHAPTER 3

METHOD

Participants

Participants were 93 undergraduate students from an urban southwestern university who were interested in participating in a study aimed at increasing motivation for various behaviors. Study inclusion criteria required that participants were at least 18 years of age. Demographic characteristics are presented in Table 1. Participants ranged in age from 18 to 72 years ($M = 21.31$, $SD = 6.96$), were predominately female ($n = 65$, 70%) and single ($n = 85$, 91%), and were ethnically diverse. Most of the participants were freshman ($n = 45$, 48%) and employed part-time ($n = 51$, 55%).

Experimental Design

The present study utilized randomized controlled methodology in a 3 (intervention condition) x 3 (time of assessment) between-within experimental design. Participants were randomly assigned to NCR, PCR, or Active Control (relaxation exercise) conditions. They were assessed at three time-points: baseline, post-session, and 7-day follow-up. No attrition occurred in the study. See study flowchart in Figure 1 for a review of the procedures.

Procedures

All study procedures were approved by the university's Institutional Review Board. Participants were recruited through the psychology subject pool (i.e., SONA Systems) and offered research credit for their participation. Upon arrival, students were screened for inclusion criteria, consented, and invited to complete baseline questionnaires. Following random assignment to conditions (i.e., NCR, PCR, or active control), study participants either met with an interviewer one-on-one or remained in a private room for the control procedures. Immediately

after the assigned session, all participants completed post-session questionnaires and were reminded about a 7-day follow-up. One week after the initial session, participants received an email with the survey link and completed follow-up questionnaires. At the end of the follow-up assessment, participants were invited to participate in an additional workshop if they desired to continue working on motivation.

Experimental Conditions

The interventions were implemented in one session. Two interviewers with a Master's degree, who had been comprehensively trained in Family Behavior Therapy (FBT), provided both motivational sessions. Standardized, detailed protocol checklists (see Appendix A) were utilized to guide intervention implementation and measure protocol adherence. Motivational sessions were audio-recorded to assist assessment of intervention integrity utilizing an independent reviewer. Ongoing clinical supervision by a licensed clinical psychologist was provided, including review of selected audio-recordings and corrective feedback.

Negative Consequences Review (NCR). NCR was adapted from an intervention component of FBT (Azrin et al., 2001) designed to motivate individuals with goals for which their motivation is relatively low. Participants in this condition were asked to report negative consequences of not reaching their desired goal or not adhering to their desired behavior (e.g., “What negative consequences are likely if you do not exercise?”). Once initial consequences were reported, the interviewer asked why these initial consequences are unpleasant. Using a “peel the onion” technique, the interviewer helped each participant identify as many potential negative consequences as possible, including more distant and global consequences. Each participant was then provided a prompting list of negative consequences reported by others to

help recognize additional consequences associated with not reaching the desired goal or behavior (see the Negative Consequences Worksheet in Appendix A).

During the review of negative consequences, the interviewer listened carefully and remained non-judgmental. Once negative consequences of not reaching the goal were exhausted, the interviewer summarized all generated and prompted negative consequences, and subsequently provided empathetic feedback. Having reviewed the potential negative consequences of not reaching the goal, each participant was asked to rate his or her post-review level of motivation utilizing a 0 to 100 percent scale. After comparing the baseline and post-review ratings, the interviewer prompted the participant to explain why the discrepancies might or might not have occurred. The interviewer descriptively praised the participant for the insights and desire to work on the target behavior and, if motivation was less than 100 percent, asked how the participant can further optimize motivation. Lastly, personal goals were set to facilitate desired behavior. See Appendix B for exemplary session excerpts that illustrate several steps in intervention implementation.

Positive Consequences Review (PCR). Participants in this condition were asked to report positive consequences of reaching their desired goal or adhering to their desired behavior (e.g., “What positive consequences are likely if you eat healthy?”). The implementation process is similar to that of NCR described above with three exceptions: (1) each participant identified potential positive consequences associated with goal accomplishment, including more distant and global positive consequences, (2) each participant was provided a prompting list of positive consequences reported by others to help recognize additional consequences associated with desired behavior (see the Positive Consequences Worksheet in Appendix A), and (3) instead of

empathy at the end of the review, the interviewer expressed excitement about the anticipated positive outcomes.

Active Control. The Active Control condition involved listening to an audio relaxation exercise (i.e., body scan; Hickman, 2007). This exercise was selected because it is comparable with the motivational sessions in terms of duration and participation, but without the expected motivation enhancement effect. Participants in this condition were invited to sit comfortably on a sofa in a private room where they listened to a 45-minute body scan exercise through noise-canceling headphones. To minimize distractions, participants were asked to avoid using cell phones during the exercise.

Measures

The study flowchart in Figure 1 outlines what measures were used at each assessment time-point (baseline, post-session, and 7-day follow-up).

Demographics Form. This form was used to obtain demographic information from the participants, including gender, age, marital status, ethnicity, primary language, income, employment and financial status, academic information, and other information (weight, height, sleep, exercise, and drinking).

Importance-Motivation Scales. This measure consisted of three parts. First, in the Importance Scale, participants reported the *importance* of various lifestyle behaviors/goals (i.e., exercising, healthy eating, achieving sufficient sleep, avoiding alcohol use, smoking, and illicit drug use, using condoms during sex, studying for courses, performing work duties, doing chores, thinking positively) on a scale 0 to 100 percent (0% = not important at all; 100% = extremely important). Second, in the Motivation Scale, participants indicated how *motivated* they were to accomplish each of the aforementioned behaviors/goals on a scale 0 to 100 percent (0% = not

motivated at all; 100% = extremely motivated). Items that were high on the importance scale (e.g., above 70% importance) and low on the motivation scale (e.g., below 50% motivation) were identified as target behaviors/goals. Third, the participants were asked to report in an open-ended format *why they would want to focus* on this target behavior/goal.

University of Rhode Island Change Assessment Scale (URICA). The URICA (McConnaughy, Prochaska, & Velicer, 1983) is a 32-item self-report measure of the four primary states of change, including Pre-contemplation, Contemplation, Action, and Maintenance. Participants respond to questions using a 5-point Likert scale ranging from 1 (strong disagreement) to 5 (strong agreement). The Pre-contemplation, Contemplation, Action, and Maintenance subscales can be combined using a formula to arrive at a continuous Readiness to Change Index (RCI), which can be used to predict outcomes. The URICA yields good internal consistency (Cronbach's alphas ranging from .79 to .89 for the four subscales) and validity (McConnaughy, Prochaska & Velicer, 1983; McConnaughy, DiClemente, Prochaska & Velicer, 1989). For the purpose of this study, the URICA was adapted for use in non-clinical populations (similar to Dozois, Westra, Collins, Fung, & Garry, 2004) to measure participants' degree of motivation for a range of behaviors. Participants were instructed to answer all statements that refer to a "problem" in terms of their target behavior. In this study, in addition to the RCI scores, the Action subscale was considered in the outcome analyses because higher scores on the Action subscale are associated with better treatment outcomes (DiClemente, Schlundt, & Gemmell, 2004). This subscale measures individuals' beliefs that they have the ability to modify their behaviors and that they are actively taking steps toward positive change.

Goal Achievement Scales. This measure consisted of three parts. First, participants indicated how much *effort* they put into accomplishing their target behavior during the past seven

days on a scale 0 to 100 percent (0% = non-optimal; 100% = optimal). Second, participants indicated how *successful* they were with their target behavior during the past seven days on a scale 0 to 100 percent (0% = completely unsuccessful; 100% = completely successful). Third, participants were asked to report in an open-ended format specific *behavioral steps* taken to accomplish the goal. This item served as a behavioral marker of goal achievement.

The Positive and Negative Affect Schedule (PANAS). The PANAS (Watson, Clark, & Tellegen, 1988) comprises two mood scales, one that measures *positive affect* and the other that measures *negative affect*. Each scale consists of 10 items (words) that describe different feelings and emotions. Participants are prompted to report the extent to which they feel this way at the moment, using 5-point scale that ranges from very slightly or not at all (1) to extremely (5). The two scales have high internal consistency and excellent convergent and discriminant validity (Watson, Clark, & Tellegen, 1988).

Likelihood of Seeking Professional Assistance Scale. This scale assessed participants' likelihood of seeking professional assistance for their target behavior on a 0 to 100 percent scale (0% = extremely unlikely; 100% = extremely likely).

Helpfulness with Session Scale. This measure was used to assess intervention acceptability from the participants' perspective. Participants provided 1 through 7 ratings of helpfulness with their assigned intervention (1 = extremely unhelpful; 7 = extremely helpful).

Client Satisfaction Questionnaire-8 (CSQ-8). The CSQ-8 (Larsen, Attkisson, Hargreaves, & Nguyen, 1979), a brief 8-item questionnaire (4-point scale), was used to measure participants' satisfaction with services received. A total score can be calculated by summing the responses to all 8 items, which produces a score range of 8 to 32, with higher scores reflecting higher satisfaction. The CSQ-8 yields excellent reliability (Attkisson & Zwick, 1982).

Statistical Plan and Approach

Study hypotheses. The present study aimed to evaluate the effects of PCR and NCR sessions on motivation, goal achievement, mood, and openness to seeking professional assistance, as compared to the Active Control condition. It was hypothesized that both PCR and NCR would lead to significant improvements in motivation and goal achievement from baseline to post-session and follow-up assessments, and that both would be superior to the Active Control condition. No significant differences were expected between PCR and NCR in self-reported motivation and goal achievement across time. It was also predicted that, due to the positive nature of the intervention, PCR would lead to significantly better mood from baseline to post-session, as indicated by higher positive and lower negative affect scores, and that PCR would demonstrate better mood outcomes compared to NCR. No significant differences were expected between PCR and the Active Control condition on mood outcomes because the Active Control condition involved relaxation and mindfulness components, which had the capacity to influence mood. Lastly, it was hypothesized that PCR would lead to significant improvements in openness to seeking professional assistance from baseline to post-session and follow-up assessments, and that PCR would lead to significantly greater improvements compared to the NCR and Active Control conditions.

Data management and analyses. Data was obtained using Qualtrics survey software and the output was exported into IBM SPSS Statistics 24.0 software for analyses. Additional information (e.g., condition, protocol adherence) was entered into SPSS using a double entry procedure. Data screening was performed to ensure accuracy of entered data and to identify missing data and potential outliers. Missing data points in baseline assessment (seven cases, each missing one to two items), were treated using series mean substitution. Missing data points in

follow-up assessment (three cases, each missing one item) were treated using series mean substitution for the respective intervention group at that time point. To identify multivariate outliers, Mahalanobis Distance test was performed. Four cases were identified as having an outlying pattern of responses ($p < .001$). The critical value of .001 is considered to be a very conservative criterion that is appropriate for outlier identification using Mahalanobis Distance (Tabachnick & Fidell, 2007). The outlier scores were replaced using series mean substitutions for the respective intervention group at the respective time period (Allison, Gorman, & Primavera, 1993).

Preliminary analyses were conducted on baseline measures to identify potential differences between groups. Potential differences in categorical demographic variables (e.g., gender, ethnicity) and which interviewer met with the participants (for motivational sessions only) were examined utilizing chi-square analyses. Potential differences in continuous demographic variables (e.g., age), level of motivation for the target behavior, effort and success in achieving the target behavior during the past week prior to motivational session, likelihood of seeking professional assistance, and mood state were examined using one-way analyses of variance (ANOVAs), with the assigned condition as the independent variable. The probability to determine statistical significance was set at $< .05$.

Separate mixed-design repeated measures ANOVAs with one between-subjects factor (i.e., condition with three levels) and one within-subjects factor (i.e., time with three levels) were performed to examine the effects of these independent variables on the outcome measures. If the interaction between time and condition was significant ($p < .05$), Fisher's Least Significant Difference (LSD) post-hoc tests were conducted to determine which groups were statistically different at each time point using $\alpha = .05$. Partial eta squared (η^2) were reported as estimates of

the effect size for each outcome measure. Effect sizes were considered large at $\eta^2 = .14$ and above, medium between $\eta^2 = .06$ and $.14$, and small between $\eta^2 = .01$ and $.06$. Additionally, standardized differences between means (Cohen's d effect sizes) and confidence intervals were computed using within-group mean gain scores, standard deviations, and pre-post or pre-follow-up correlations (r) for each outcome measure. In the interpretation of Cohen's d , absolute magnitude from zero demonstrates larger effect sizes ($.2 =$ small, $.5 =$ medium, and $.8 =$ large; Cohen, 1988).

Additionally, to examine participants' satisfaction with services, one-way ANOVAs were performed to examine the effect of condition on session helpfulness and client satisfaction. If a significant main effect of condition on these variables was established ($p < .05$), Fisher's LSD post-hoc tests were conducted to determine which groups were statistically different at $p < .05$.

Intervention integrity. Intervention integrity was calculated in a 3-step process. First, the interviewer computed percentage of adherence to standardized session protocols (i.e., number of steps reported to have been implemented divided by the total number of steps in the protocol). Second, an independent rater randomly selected and reviewed for adherence approximately 10% of all intervention session audio recordings using the same computational method. Third, inter-rater reliability between the interviewer and independent rater's scores was examined by computing percentage of agreement (i.e., number of steps agreed upon divided by the number of steps agreed upon plus the number of steps disagreed upon, and multiplied by 100).

CHAPTER 4

RESULTS

Preliminary Analyses

Comparison of experimental conditions at baseline. Potential baseline differences between conditions (PCR, NCR, and Active Control) were analyzed using chi-square (for categorical demographic and outcome variables) and one-way ANOVAs (for continuous demographic and outcome variables), with the assigned condition as the independent variable. The results indicated no statistically significant differences between conditions on all variables at baseline ($ps > .05$).

Examination of Primary Outcomes

Mixed-design repeated measures ANOVAs were conducted to compare the three conditions (i.e., PCR, NCR, and Active Control) in terms of pre-test to post-test to follow-up change in scores on the measures of motivation and help-seeking; pre-test to post-test change in scores on the measures of mood; and pre-test to follow-up change in scores on the measures of goal achievement. In instances where Mauchly's test of sphericity was significant, results were reported using the Huynh-Feldt (when epsilon, ϵ , $> .75$) or Greenhouse-Geisser (when $\epsilon < .75$) correction. Pre-test, post-test, and follow-up means and standard deviations for the outcome measures for participants in each intervention group are presented in Table 2. Table 3 displays effect sizes (Cohen's d) and 95% confidence intervals comparing standardized mean differences between PCR and Active Control, NCR and Active Control, and PCR and NCR on primary outcome measures.

Motivation. There was a significant main effect of time on the Motivation Scale scores overall, $F(1.952, 175.70) = 160.141, p < .001$, partial $\eta^2 = .640$. As expected, Fisher's LSD post-

hoc test showed that all three groups significantly improved their self-reported motivation from baseline to post-session ($ps < .001$) and from baseline to follow-up ($ps < .01$). As hypothesized, there was a significant interaction between time and condition, $F(3.904, 175.70) = 6.430, p < .001$, partial $\eta^2 = .125$, indicating that change in scores across time was different between the three conditions. Consistent with the study hypothesis, Fisher's LSD post-hoc analysis of this interaction effect revealed that participants in the PCR and NCR conditions increased their post-session motivation significantly more than the Active Control group ($p = .001, d = .91$, and $p = .036, d = .58$, respectively) and maintained significantly greater motivation at follow-up ($p < .001, d = 1.22$, and $p = .001, d = .93$, respectively). As expected, there was no significant difference between PCR and NCR on the Motivation Scale scores ($p > .05$).

There was a significant main effect of time on the URICA's Readiness for Change Index scores overall, $F(1.845, 166.082) = 19.494, p < .001$, partial $\eta^2 = .178$. As predicted, Fisher's LSD post-hoc test showed that both PCR and NCR groups significantly improved from baseline to post-session ($ps < .001$). Only participants in the NCR condition improved from baseline to follow-up ($p = .003$), and participants in the Active Control condition showed no significant improvement across time, as expected ($p > .05$). There was a significant interaction between time and condition, $F(3.691, 166.082) = 3.118, p = .019$, partial $\eta^2 = .065$. However, post-hoc examination revealed that differences existed only at baseline.

There was a significant main effect of time on the URICA's Action subscale overall, $F(1.494, 134.445) = 43.064, p < .001$, partial $\eta^2 = .324$. As hypothesized, Fisher's LSD post-hoc analysis showed that both PCR and NCR groups significantly improved their scores from baseline to post-session assessment ($ps < .001$) and from baseline to follow-up assessment ($ps < .001$). Participants in the Active Control condition significantly improved their scores from

baseline to post-session assessment ($p = .014$), but not from baseline to follow-up ($p > .05$). In addition, there was a significant interaction between time and condition, $F(2.988, 134.445) = 3.472, p = .018, \text{partial } \eta^2 = .072$. Partially supporting the study hypothesis, subsequent Fisher's LSD post-hoc test revealed that, at follow-up, only PCR (but not NCR, $p > .05$) participants significantly improved their scores compared to the controls ($p = .04, d = .69$). There was a trend for the PCR group to be different from the Active Control group at post-session assessment ($p = .051, d = .69$).

Goal achievement. There was a significant main effect of time on the Effort Scale of the Goal Achievement Scales overall, $F(1, 90) = 87.944, p < .001, \text{partial } \eta^2 = .494$. As expected, subsequent Fisher's LSD post-hoc analysis showed that participants in the PCR, NCR, and Active Control conditions all reported significantly increased effort at follow-up ($p < .001, p < .001, \text{ and } p = .022$, respectively). There was a significant interaction between time and condition, $F(2, 90) = 6.954, p = .002, \text{partial } \eta^2 = .134$. As hypothesized, post-hoc examination using Fisher's LSD indicated that, at follow-up, participants in the PCR and NCR conditions significantly increased their effort in accomplishing goals compared to the Active Control condition ($p = .005, d = 1.00, \text{ and } p = .01, d = .65$, respectively). As expected, there was no significant difference between the active conditions on the Effort Scale scores ($p > .05$).

There was a significant main effect of time on the Success Scale of the Goal Achievement Scales overall, $F(1, 90) = 52.861, p < .001, \text{partial } \eta^2 = .370$. Consistent with the study hypothesis, Fisher's LSD post-hoc test revealed that participants in the PCR and NCR conditions evidenced an increase in their success rate from baseline to follow-up ($ps < .001$). Participants in the Active Control condition demonstrated no significant improvement ($p > .05$). In addition, there was a significant interaction between time and condition, $F(2, 90) = 4.837, p =$

.01, partial $\eta^2 = .097$. Partially supporting the study hypothesis, Fisher's LSD post-hoc analysis showed that only NCR (but not PCR) participants significantly improved their scores at follow-up compared to the controls ($p = .002$, $d = .80$). Although there was a trend for the PCR group to be different from the Active Control group at follow-up, the results did not reach statistical significance ($p = .093$, $d = .73$), contrary to the study hypothesis. As expected, there was no significant difference between PCR and NCR on the Success Scale scores ($p > .05$).

Mood. There was a significant main effect of time on the PANAS's Positive Affect Scale overall, $F(1, 90) = 42.695$, $p < .001$, partial $\eta^2 = .322$. As predicted, subsequent Fisher's LSD post-hoc analysis revealed that PCR and NCR participants had an increase in positive affect immediately following participation in their respective sessions ($ps < .001$). Active Control participants evidenced no improvement in positive affect ($p > .05$). In addition, there was a significant interaction between time and condition, $F(2, 90) = 14.304$, $p < .001$, partial $\eta^2 = .241$. Specifically, Fisher's LSD post-hoc test showed that both PCR and NCR conditions increased participants' positive affect compared to the Active Control condition ($p = .002$, $d = 1.32$, and $p = .011$, $d = .71$, respectively). In contradiction with the study hypothesis, there was no significant difference between PCR and NCR ($p > .05$) and the Active Control condition (relaxation exercise) had no effect on participants' positive mood ($p > .05$).

There was a significant main effect of time on the PANAS's Negative Affect Scale overall, $F(1, 90) = 26.328$, $p < .001$, partial $\eta^2 = .226$. Consistent with the study hypothesis, Fisher's LSD post-hoc test revealed that the PCR and Active Control conditions significantly reduced participants' negative affect immediately following participation in their respective sessions ($p = .001$ and $p < .001$, respectively). Participants in the NCR condition evidenced no reduction in negative affect ($p > .05$). No significant interaction effect was found ($p > .05$). This

finding did not support the study hypothesis that PCR would lead to a significantly greater reduction in negative affect compared to NCR.

Help-seeking. There was a significant main effect of time on the Likelihood of Seeking Professional Assistance Scale overall, $F(2, 180) = 16.173, p < .001, \text{partial } \eta^2 = .152$. As predicted, subsequent post-hoc examination using Fisher's LSD indicated that PCR and NCR participants significantly increased their desire to seek professional assistance from baseline to post-session ($p < .001$ and $p = .009$, respectively) and from baseline to follow-up ($p < .001$ and $p = .004$, respectively). Active Control participants evidenced no significant improvement across time ($p > .05$), although their score change from baseline to post-session approached significance ($p = .058$). The interaction term did not produce statistically significant results ($p > .05$). This result is inconsistent with the study hypothesis that PCR would lead to significantly greater openness to seeking professional assistance compared to the NCR and Active Control conditions.

Furthermore, at the end of follow-up assessment, participants were asked whether they would be interested in participating in a workshop to address motivation. The results revealed that while 50% of PCR and 51.3% of NCR participants were interested in coming back for a motivational workshop, only 35.7% of Active Control participants expressed interest. A chi-square test was performed and indicated no statistically significant differences between groups in the desire to participate in a motivational workshop, $\chi^2(2, 93) = 1.795, p = .408$.

Examination of Secondary Outcomes

Intervention integrity. Interviewer-reported adherence to standardized protocols in the active conditions was high ($M = 98.82, SD = 2.8$). Inter-rater reliability between the interviewers' and independent rater's scores was 99%, indicating that interviewers' estimates of protocol adherence were reliable.

Consumer satisfaction. A one-way ANOVA indicated a significant effect of condition on the Helpfulness with Session Scale scores, $F(2, 90) = 8.145, p = .001, \text{partial } \eta^2 = .153$. Subsequent post-hoc analysis using Fisher's LSD test revealed that participants in the PCR and NCR conditions perceived their respective sessions to be significantly more helpful than participants in the Active Control condition did ($p = .003$ and $p < .001$, respectively).

Similarly, one-way ANOVA yielded a significant effect of condition on the CSQ-8, $F(2, 90) = 13.322, p < .001, \text{partial } \eta^2 = .228$, suggesting that participants' satisfaction with services differed based on the assigned condition. Specifically, Fisher's LSD post-hoc test indicated that participants in the PCR and NCR conditions experienced significantly greater satisfaction with services compared to participants in the Active Control condition ($ps < .001$). Furthermore, the mean scores for the CSQ-8 reported by participants in the PCR ($\bar{x} = 29.0$) and NCR ($\bar{x} = 29.2$) conditions were notably higher than the mean satisfaction scores reported in previous studies of psychological services involving CSQ-8 (\bar{x} scores ranging from 26.35 to 27.8; Attkisson & Greenfield, 2004). In contrast, the mean satisfaction score for the Active Control condition ($\bar{x} = 24.6$) was notably lower than the average satisfaction with services scores in previous studies.

CHAPTER 5

DISCUSSION

The present study was the first to empirically evaluate the effects of reviewing positive consequences of goal achievement (i.e., PCR) and negative consequences of not reaching goals (i.e., NCR) as independent strategies designed to improve motivation, and to compare PCR to NCR. The current randomized controlled trial examined the relative effects of PCR and NCR on motivation, goal achievement, mood, and help-seeking of college students compared to the Active Control condition (audio relaxation exercise). It was hypothesized that both PCR and NCR would lead to significant improvements in motivation and goal achievement from baseline to post-session and follow-up and would be superior to the Active Control condition on these outcomes. No significant differences were expected between PCR and NCR in self-reported motivation and goal achievement across time. It was also predicted that, due to the positive nature of the intervention, PCR would lead to better mood (greater positive affect and lower negative affect) from baseline to post-session assessment and would result in significantly better mood outcomes compared to NCR. Lastly, it was hypothesized that PCR would result in greater openness to seeking professional assistance from baseline assessment to post-session and follow-up and would be superior to the NCR and Active Control conditions on this measure.

The findings indicated within-subject improvements on most measures across time and several hypothesized interaction effects. For motivational outcomes, as hypothesized, both PCR and NCR were more effective than the Active Control condition in enhancing college students' motivation to perform healthy lifestyle behaviors, such as exercising, healthy eating, and studying for courses, for which students reported low motivation, initially. Specifically, participants assigned to PCR and NCR evidenced greater improvements in motivation from

baseline to post-session (50% and 43% improvement, respectively, as compared to 30% improvement for Active Control participants) and from baseline to follow-up assessment (44% and 38% improvement, respectively, as compared to 15% improvement for Active Control participants). PCR demonstrated a large effect size in increasing motivation compared to the Active Control condition while NCR demonstrated a medium to large effect size. These differences, however, were not significantly different between PCR and NCR, as expected.

In assessing individuals' level of motivation for change, only PCR and NCR participants evidenced significant improvements in their readiness for change across time, although the effects were not statistically different from the Active Control participants, in contrast with the hypothesis. Interestingly, however, only participants in the PCR condition endorsed significantly greater beliefs that they are actively taking steps toward positive behavior change compared to the Active Control condition one week after intervention (a medium-large effect size). Consistent with previous literature on the levels of motivation for change, this finding may help explain the more favorable outcomes for this group (DiClemente et al., 2004; Mander et al., 2012), specifically greater effort in achieving goals as will be evident below.

As hypothesized, both PCR and NCR were more effective than the Active Control condition in increasing students' effort in accomplishing goals from baseline to follow-up assessment. Participants assigned to PCR experienced an improvement of 35%, NCR participants experienced an improvement of 27%, and Active Control participants experienced an improvement of only 11%. PCR demonstrated a large effect size in increasing students' effort compared to the Active Control condition, while NCR demonstrated a medium effect size. These differences, however, were not significantly discrepant between PCR and NCR, as expected.

In terms of success in achieving goals, partially supporting the hypothesis, only NCR participants performed statistically better than controls at follow-up. Contrary to the study hypothesis, PCR participants did not outperform controls, although there was a trend. NCR, PCR, and Active Control participants evidenced an increase of 30%, 29%, and 9%, respectively. Both NCR and PCR demonstrated large effect sizes in increasing participants' success in accomplishing goals compared to the Active Control condition, and no differences between PCR and NCR were found, as hypothesized.

On the measure of mood, both PCR and NCR were more effective in enhancing positive affect from baseline to post-session, compared to the Active Control condition. Participants assigned to the PCR and NCR conditions experienced an improvement of 40% and 20%, respectively, while Active Control participants experienced a 2% decrease in positive affect. This finding was unexpected as the Active Control condition involved relaxation and mindfulness components that typically produce a positive mood state (Jain et al., 2007). PCR demonstrated a large effect size in increasing positive affect compared to the Active Control condition while NCR demonstrated a medium-large effect size. In contrast with the study hypothesis, PCR and NCR were not significantly discrepant in their ability to improve positive mood. Furthermore, neither PCR or NCR was more effective in reducing negative affect compared to the Active Control condition from baseline to post-session, although PCR and Active Control led to significant within-subject improvements. Specifically, PCR participants experienced an improvement of 26%, controls experienced an improvement of 27%, and NCR participants experienced an improvement of 10%. This finding did not support the study hypothesis that PCR would significantly reduce negative affect compared to NCR. The lack of effect may be

explained by the relatively low negative affect scores at baseline across all three conditions, suggesting that participants could not improve them substantially at post-session assessment.

Lastly, while both PCR and NCR conditions led to an increase in participants' openness to seeking professional assistance from baseline to post-session and follow-up, these conditions were not significantly discrepant from the Active Control. Participants assigned to PCR evidenced a 21% improvement from baseline to post-session, NCR participants evidenced an 11% improvement, and the Active Control participants evidenced a 10% improvement. This trend was maintained from baseline to follow-up assessment (20%, 13%, and 6% improvement, respectively). This finding did not support the study hypothesis that PCR would lead to significantly greater openness compared to the NCR and Active Control conditions. When assessed for desire to attend a motivational workshop following study completion, 51% of NCR, 50% of PCR, and 36% of Active Control participants were interested in coming back, although the differences were not significant.

In regard to client satisfaction, participants in the PCR and NCR conditions believed that their respective sessions were more helpful and satisfying compared to participants in the Active Control condition. Interestingly, PCR and NCR participants reported greater satisfaction with services compared to other psychological studies that employed the same measure (Attkisson & Greenfield, 2004), suggesting that these interventions may be well-received by clients.

Study Strengths and Implications

The present study has a number of strengths, including an adequate sample size, rigorous research method, intervention integrity, and absence of attrition. Given the lack of literature on the effects of reviewing positive and negative consequences in psychotherapy and inconclusive findings specific to the relative power of positive and negative information on human motivation,

this investigation attempted to clarify these inquiries. Despite the overwhelming research evidence that negative events are more influential in human cognition and behavior (e.g., reactions to events, interpersonal relationships, emotions, learning, neurological responses, information processing, memory; Baumeister et al., 2001; Costantini & Hoving, 1973; Kahneman & Tversky, 1984), the present study provided support to the contrary.

In a therapeutic context, a review of positive consequences yielded larger effects than a review of negative consequences on the measures of motivation, action-oriented mindset about behavior change, effort in achieving goals, and positive mood (although both interventions performed better than Active Control). In trying to understand these findings, it is important to consider that positive reinforcement is more effective in behavior modification than punishment (Azrin & Holz, 1966; Skinner, 1948), that humans are biased to think optimistically about *the future* (Boucher & Osgood, 1969) and favor positive information in regard to *the self* (Baumeister, 1998; Baumeister & Cairns, 1992), and that framing one's goals positively leads to a more positive mood (Wollburg & Braukhaus, 2010). From a theoretical perspective, PCR includes all of these elements: It is rooted in positive reinforcement, it employs a future-oriented approach that highlights positive outcomes, it focuses on personal information, and it prompts the person to consider what he or she can achieve, thereby improving positive mood.

The development of PCR was prompted by the concern that a review of negative consequences was too unpleasant to clients and not as beneficial as a review of positive consequences, consistent with the positive psychology (Seligman & Csikszentmihalyi, 2000) and optimization (Gavrilova et al., 2017; Gavrilova & Donohue, in press) approaches. These concerns were not substantiated in the present study. In fact, students assigned to NCR reported increases in motivation, goal achievement, and positive affect comparable to students assigned to

PCR, and their ratings of helpfulness and satisfaction with services were slightly higher. A review of negative consequences failed to produce negative affect as previous literature suggests (Baumeister et al., 1994). Furthermore, NCR was more effective in students' success with goal achievement than the Active Control condition while PCR was not significantly different from Active Control. This finding is consistent with the limited literature on task performance when participants are prompted to think about either positive or negative information. In this design, thinking about negative information resulted in better outcomes than thinking about positive information (Goodhart, 1986). In the current study, it is possible that a review of negative consequences acted as a stronger stimulus to achieve goals than a review of positive consequences. Thus, clinicians should not be concerned about eliciting potentially aversive information from clients during a review of negative consequences.

Given the positive outcomes for both PCR and NCR on the measures of motivation, goal achievement, and positive mood, this randomized controlled trial provides robust empirical support on the efficacy of these interventions as brief, independent motivational techniques. Indeed, the efficacy of brief psychological interventions is an area of growing interest. Providers, insurance companies, funding agencies, and legislators are concerned with maximizing the benefits of psychotherapy while cutting the costs associated with client care (Clinical Utilization, 2017; Coverage and Service Design, 2012). Health industry professionals recognize the utility of integrating brief psychological interventions into existing approaches to client care to produce meaningful behavior change (Hunter, Goodie, Oordt, & Dobmeyer, 2017). For example, several brief interventions (e.g., MI; Motivational Enhancement Therapy; Screening, Brief Intervention, and Referral to Treatment, SBIRT) have proven effective in addressing substance use, medication non-adherence, weight management, and other concerns (Agerwala & McCance-

Katz, 2012; Armstrong et al., 2011; Dunn, Neighbors, & Larimer, 2006; Miller, 1983; Spoelstra et al., 2015). Similarly, interventions such as PCR and NCR evaluated in the present study can be seamlessly integrated into various psychological treatments and health care settings.

Furthermore, the availability of a step-by-step protocol checklist and handouts make these interventions user-friendly for clinicians of all skill levels and training backgrounds. Clinicians can use these interventions for a wide range of clinical and non-clinical behaviors for which individuals experience low motivation (Azrin et al., 2001; Chow et al., 2015; Donohue et al., 2015; 2017).

In terms of help-seeking, while no one intervention performed better in enhancing openness to help-seeking, the within-subject results suggest that a 45-60 minute psychological experience with an interviewer may have the potential to encourage future help-seeking behaviors. This may be an important avenue for reducing stigma associated with seeking psychological services (Corrigan, 2004). Indeed, students with prior counseling experience have more positive attitudes toward seeking help and are more likely to seek future services (Kahn & Williams, 2003; Vogel & Wester, 2003).

PCR and NCR can also serve as preventative interventions. One-session motivational services may help students increase adherence to a healthy lifestyle and boost goal achievement, thereby preventing poor adjustment and mental health problems. This is important because reducing student visits to campus counseling (by preventing problems from escalating) can help alleviate the wait list crisis at campus counseling centers (Mowbray et al., 2006; Reetz et al., 2016). Thus, counseling center directors should consider integrating motivational techniques into curriculum as a means of preventing stress and behavioral health difficulties, as well as to

promote healthy lifestyle habits that will likely persist into later adulthood (e.g., Jennison, 2004; Zuercher & Kranz, 2014).

This study additionally functions as a componential analysis or dismantling study for FBT, a multi-component behavioral intervention. The objective of componential or dismantling studies is to identify active treatment components and to establish the degree to which specific components contribute to the magnitude of change (Papa & Follette, 2015). The present findings suggest both PCR and NCR intervention components have the capacity to contribute meaningfully to behavior change. Knowing that both interventions are effective in enhancing motivation, goal achievement, and positive mood, providers of FBT will have the discretion to choose which intervention to implement with clients presenting with low motivation for various behaviors.

Limitations and Future Directions

This study is not without limitations, and future research might improve upon the current procedures. First, this investigation examined only short-term effects of the PCR and NCR sessions. Therefore, future research should focus on examining the long-term effects. Long-term follow-up is warranted because negative and positive information produces a differential wearing off effect, suggesting that negatives are remembered longer than positives (Brickman et al., 1978), with the exception of information about the self (Skowronski et al., 1991). Second, although both motivational sessions have shown positive effects in college students desiring to improve motivation for healthy lifestyle behaviors, future studies should attempt to generalize the results to other populations and should include additional target behaviors that were not part of the current study, such as medication adherence, completion of therapeutic homework, engaging in pleasurable activities, attending classes, and so on. Third, given that Active Control

participants in this study evidenced significant improvements in motivation across time, future controlled studies should exercise caution in monitoring potential expectancy effects (e.g., not advertising the project as a study for improving motivation). Lastly, future studies might shed some light on the potential mediation effects of self-esteem or presence of self-depreciating beliefs, given that individuals with low self-esteem are concerned with self-protection (desire to avoid negative outcomes), while individuals with high self-esteem generally seek self-enhancement (desire to gain positive outcomes; Baumeister, Tice, & Hutton, 1989). Mediation studies may prove useful in determining which intervention (PCR or NCR) should be used based on specific client characteristics or client preferences.

Conclusion

In conclusion, this investigation suggests that brief motivational sessions that focus on reviewing positive consequences for goal accomplishment (PCR) or negative consequences for undesired behavior (NCR) are effective in increasing: (1) motivation to engage in healthy lifestyle behaviors, (2) effort and success in achieving goals, (3) positive affect, and (4) openness to seeking professional assistance. PCR was additionally effective in reducing negative affect. Compared to the Active Control condition (audio relaxation exercise), PCR and NCR sessions produced significantly better outcomes on the measures of motivation, goal achievement, and positive mood at post-session and follow-up assessments. In comparing PCR to its predecessor NCR, PCR did not produce statistically discrepant results, although it consistently yielded larger effect sizes on most measures. Thus, these results provide empirical support for use of both PCR and NCR within its parent multi-component treatment, Family Behavior Therapy. Additionally, PCR and NCR can be used as stand-alone or complementary to other interventions strategies that

clinicians could easily incorporate into treatment planning with clients expressing low motivation for various lifestyle behaviors.

Figure 1. Study Flowchart

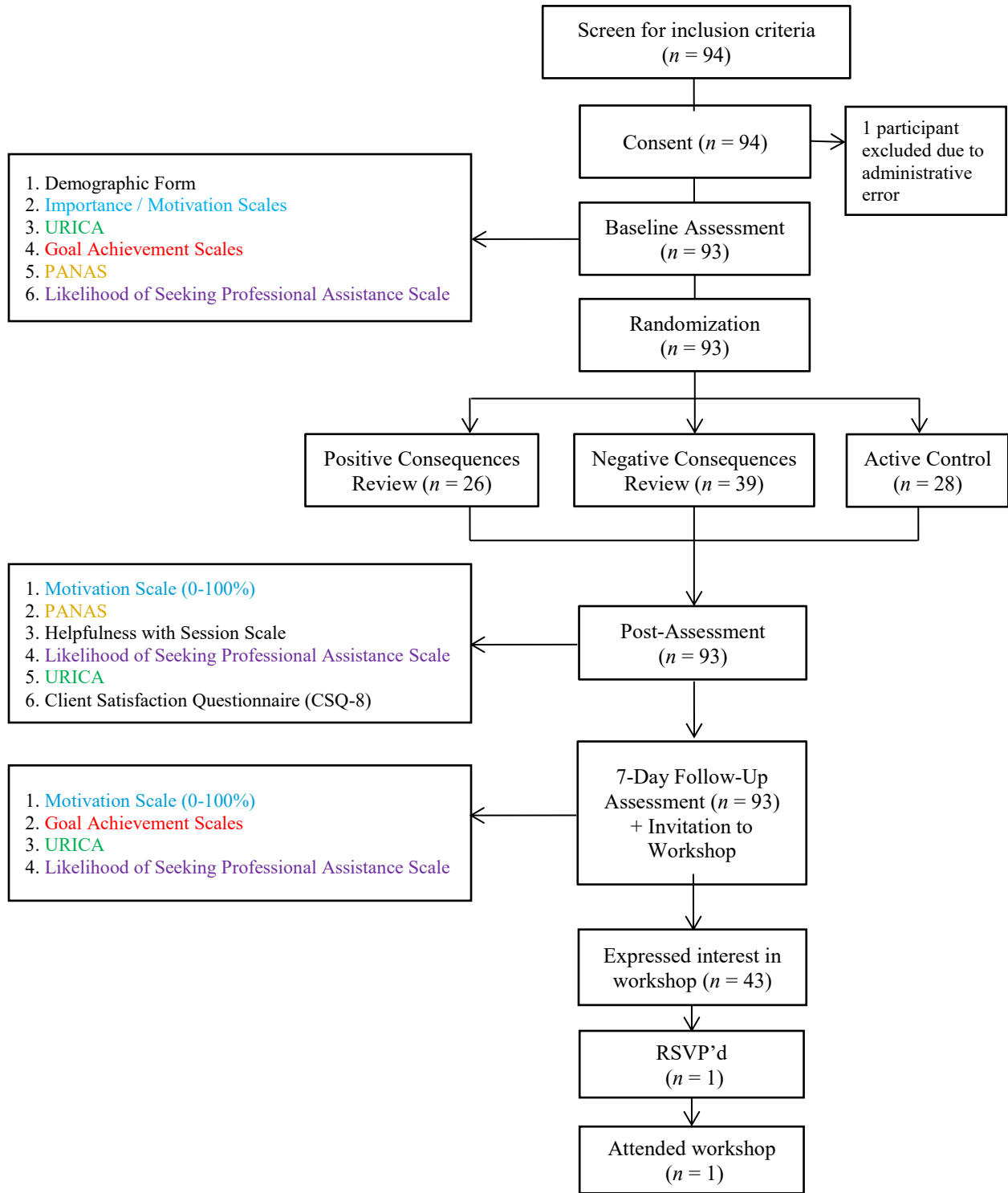


Table 1

Demographic Characteristics of Participants with Numbers Shown as Mean (SD) or Frequency (%)

Characteristics	Total (n = 93)	PCR (n = 26)	NCR (n = 39)	CON (n = 28)
Mean Age (SD)	21.31 (6.96)	20.62 (5.34)	22.13 (8.74)	20.82 (5.42)
Gender				
Female	65 (69.9%)	19 (73.1%)	26 (66.7%)	20 (71.4%)
Male	27 (29.0%)	7 (26.9%)	12 (30.8%)	8 (28.6%)
Prefer not to answer	1 (1.1%)	0 (0.0%)	1 (2.6%)	0 (0.0%)
Ethnicity				
Caucasian	32 (34.4%)	8 (30.8%)	12 (30.8%)	12 (42.9%)
Black/African American	4 (4.3%)	0 (0.0%)	3 (7.7%)	1 (3.6%)
Hispanic/Latino	25 (26.9%)	4 (15.4%)	12 (30.8%)	9 (32.1%)
Asian American	19 (20.4%)	7 (26.9%)	9 (23.1%)	3 (10.7%)
Pacific Islander	3 (3.2%)	1 (3.8%)	1 (2.6%)	1 (3.6%)
American Indian	1 (1.1%)	1 (3.8%)	0 (0.0%)	0 (0.0%)
Multiple/Other	9 (9.7%)	5 (19.2%)	2 (5.1%)	2 (7.1%)
Marital Status				
Single	85 (91.4%)	23 (88.5%)	36 (92.3%)	26 (92.9%)
Married	3 (3.2%)	2 (7.7%)	0 (0.0%)	1 (3.6%)
Cohabiting	3 (3.2%)	1 (3.8%)	1 (2.6%)	1 (3.6%)
Divorced / Separated	2 (2.2%)	0 (0.0%)	2 (5.1%)	0 (0.0%)
English is Primary Language				
Yes	83 (89.2%)	23 (88.5%)	36 (92.3%)	24 (85.7%)
No	10 (10.8%)	3 (11.5%)	3 (7.7%)	4 (14.3%)
Year in School				
Freshman	45 (48.4%)	13 (50.0%)	18 (46.2%)	14 (50.0%)
Sophomore	18 (19.4%)	6 (23.1%)	7 (17.9%)	5 (17.9%)
Junior	21 (22.6%)	4 (15.4%)	10 (25.6%)	7 (25.0%)
Senior	9 (9.7%)	3 (11.5%)	4 (10.3%)	2 (7.1%)
Employment Status				
Full-Time Job	10 (10.8%)	2 (7.7%)	5 (12.8%)	3 (10.7%)
Part-Time Job	51 (54.8%)	12 (46.2%)	21 (53.8%)	18 (64.3%)
Unemployed	32 (34.4%)	12 (46.2%)	13 (33.3%)	7 (25.0%)

Note. PCR = Positive Consequences Review; NCR = Negative Consequences Review; CON = Active Control

Table 2

Pre, Post, and Follow-up Means and Standard Deviations for Outcome Measures

Measure	PCR (n = 26)			NCR (n = 39)			CON (n = 28)		
	Pre	Post	Follow-up	Pre	Post	Follow-up	Pre	Post	Follow-up
Motivation Scale	41.9 (25.7)	92.0 (11.1)	86.0 (15.6)	41.6 (24.2)	84.4 (17.4)	79.8 (24.0)	44.6 (22.6)	74.5 (25.5)	60.0 (27.9)
URICA									
Pre-contemplation	1.9 (0.4)	1.5 (0.5)	1.9 (0.6)	1.9 (0.6)	1.6 (0.6)	1.8 (0.6)	1.9 (0.5)	1.8 (0.6)	2.0 (0.6)
Contemplation	4.1 (0.5)	4.1 (0.4)	3.9 (0.4)	3.8 (0.7)	4.0 (0.6)	3.7 (0.7)	4.1 (0.4)	4.1 (0.5)	3.8 (0.4)
Action	3.5 (0.7)	4.1 (0.5)	4.1 (0.5)	3.4 (0.8)	4.0 (0.6)	4.0 (0.5)	3.6 (0.6)	3.8 (0.5)	3.8 (0.5)
Maintenance	3.1 (0.8)	2.9 (0.9)	3.1 (0.7)	2.8 (0.8)	2.9 (0.9)	2.8 (0.9)	3.2 (0.7)	3.0 (0.6)	3.2 (0.6)
Readiness for Change	8.8 (1.5)	9.6 (1.4)	9.2(1.4)	8.1 (2.0)	9.3 (1.8)	8.8 (2.2)	8.9 (1.2)	9.2 (1.5)	8.8 (1.3)
Goal Achievement									
Effort Scale	41.9 (23.4)	N/A	77.2 (21.7)	47.1 (26.2)	N/A	74.2 (22.0)	47.6 (22.7)	N/A	58.4 (28.9)
Success Scale	39.6 (27.8)	N/A	68.8 (23.9)	47.3 (24.6)	N/A	77.0 (20.8)	48.2 (27.9)	N/A	57.0 (32.0)
PANAS									
Positive Affect	27.3 (8.7)	38.3 (8.3)	N/A	30.1 (9.9)	36.2 (9.3)	N/A	30.7 (7.6)	30.1 (10.3)	N/A
Negative Affect	16.8 (9.0)	12.5 (4.2)	N/A	13.8 (4.5)	12.4 (2.8)	N/A	16.2 (6.7)	11.9 (3.9)	N/A
Likelihood of Seeking Professional Assistance	33.1 (30.8)	54.2 (35.8)	53.1 (34.4)	31.2 (25.7)	42.3 (32.1)	44.2 (34.0)	38.0 (29.0)	47.5 (32.6)	44.1 (34.9)
Helpfulness with Session	N/A	6.0 (1.5)	N/A	N/A	6.1 (1.0)	N/A	N/A	4.9 (1.3)	N/A
CSQ-8	N/A	29.0 (3.0)	N/A	N/A	29.2 (3.1)	N/A	N/A	24.6 (5.3)	N/A
Interested in Workshop*	N/A	N/A	13 (50.0%)	N/A	N/A	20 (51.3%)	N/A	N/A	10 (35.7%)

Note. PCR = Positive Consequences Review; NCR = Negative Consequences Review; CON = Active Control; URICA = University of Rhode Island Change Assessment Scale; PANAS = Positive and Negative Affect Schedule; CSQ-8 = Client Satisfaction Questionnaire–8.

* Numbers shown as Frequency (%)

Table 3
Effect Sizes (Cohen's d) and 95% Confidence Intervals for Outcome Measures*

Measure	PCR vs. CON		NCR vs. CON		PCR vs. NCR	
	Pre-to-Post	Pre-to-FU	Pre-to-Post	Pre-to-FU	Pre-to-Post	Pre-to-FU
Motivation Scale	.91 (.32, 1.50)**	1.22 (.65, 1.80)**	.58 (.09, 1.06)**	.93 (.41, 1.44)**	.35 (-.22, .93)	.26 (-.29, .81)
URICA						
Readiness for Change	.36 (-.04, .75)	.37 (-.03, .77)	.53 (.19, .87)	.44 (.05, .84)	-.23 (-.57, .11)	-.16 (-.55, .23)
Action	.69 (.24, 1.14)	.69 (.16, 1.22)**	.62 (.19, 1.04)	.64 (.11, 1.18)	0 (-.39, .39)	0 (-.56, .56)
Goal Achievement						
Effort Scale	N/A	1.00 (.48, 1.53)**	N/A	.65 (.18, 1.13)**	N/A	.35 (-.19, .89)
Success Scale	N/A	.73 (.14, 1.31)	N/A	.80 (.25, 1.36)**	N/A	-.02 (-.63, .59)
PANAS						
Positive Affect	1.32 (.71, 1.93)**	N/A	.71 (.27, 1.15)**	N/A	.53 (.07, .99)	N/A
Negative Affect	0 (-.57, .57)	N/A	.64 (.09, 1.18)	N/A	-.55 (-1.11, .02)	N/A
Likelihood of Seeking Professional Assistance	.36 (-.12, .84)	.43 (.00, .86)	.05 (-.33, .43)	.22 (-.19, .64)	.32 (-.12, .76)	.22 (-.22, .67)

Note. PCR = Positive Consequences Review; NCR = Negative Consequences Review; CON = Active Control; URICA = University of Rhode Island Change Assessment Scale; PANAS = Positive and Negative Affect Schedule.

* Cohen's *d* and confidence intervals were calculated using mean gain scores, pre and post or pre and follow-up standard deviations, and pre-post or pre-follow-up correlations (*r*). In the interpretation of Cohen's *d*, absolute magnitude from zero demonstrates larger effect sizes ($\pm .2$ = small, $\pm .5$ = medium, and $\pm .8$ = large; Cohen, 1988).

** Statistically significant at $\alpha < .05$.

APPENDIX A
SESSION PROTOCOLS

NEGATIVE CONSEQUENCES REVIEW
Session Protocol

Participant's Name (First, Last): _____

Interviewer's name: _____ Date: ____/____/____

Materials Required:

- Pre-session Procedures Protocol for RAs to identify target behavior & baseline motivation score
- Negative Consequences Worksheets (NCW)
- Voice recorder

Before Session

___a. Determine target behavior, importance, & baseline motivation based on baseline assessment results (see Pre-Session Procedures Protocol for RAs) & record it in respective spaces below.

Begin Time: _____ am / pm

Rationale

___b. State: "You are going to participate in a procedure to determine its effects on your motivation to accomplish a desired goal/behavior for which you feel you may lack optimum motivation. This procedure involves very carefully reviewing neg. consequences of not accomplishing the desired goal/behavior. There are no right or wrong answers. Do you have any questions before we begin?"

Reviewing Negative Consequences of Not Achieving Behaviors Rated Relatively Low in Motivation

___c. Indicate participant's *target behavior* that is relatively low in motivation based on baseline assessment results: _____.

___d. State "You rated this behavior as _____% *important* to you on a scale from 0 to 100, where 0 = not important at all; 100 = extremely important, and you were _____% *motivated* to do it on a scale from 0 to 100%, where 0 = not motivated at all; 100 = completely motivated. Is this accurate?"

___e. Query "What neg. consequences are likely if you don't do this behavior?"

- Record responses in the table below.
- Remain neutral & use "Anything else?" as a prompt to get more neg. consequences.

___f. For each initial neg./unpleasant consequence generated solicit additional neg. consequences.

- Get specific details & record in the table below.
- Remain neutral & use "Anything else?" as a prompt to get more neg. consequences.

___g. Prompt & record additional neg. consequences (e.g., "other people say") in the table below.

- Stop when answers get redundant.

___h. Instruct participant to complete NCW for respective target behavior.

___i. Review & record neg. consequences from NCW rated relatively high in unpleasantness & likelihood (both usually > 70).

- Get specific details & record in the table below.

Initial neg. consequences →	Prompted neg. consequences

- ___j. Summarize all generated neg./unpleasant consequences.
- ___k. Pause & think before providing empathy & supportive statements for neg. consequences.
- ___l. State “Having reviewed these neg. consequences, how motivated are you to do this behavior on a scale 0 to 100%, 0 = not motivated at all; 100 = completely motivated?”
- Record final rating: _____.
- ___m. Compare initial & final ratings, and determine why discrepancies may have occurred, if so.
- Indicate agreement w/ optimal reasons for discrepancies.
 - Descriptively praise participant for desire to work on this behavior.
- ___n. If motivation is < 100, discuss how motivation can be increased to accomplish respective behavior.
- ___o. Develop goals to optimize/maintain high motivation.
- Provide suggestions to assist motivation to accomplish respective behavior.
 - Provide encouragement and support.

End Time: _____ am / pm

NEGATIVE CONSEQUENCES WORKSHEET

Potential negative consequences if you do not do your target behavior	How unpleasant is this consequence for you? (0 = not at all unpleasant, 100 = completely unpleasant)	How likely is this consequence for you if you do not do your target behavior? (0 = not at all likely, 100 = will happen)
1. Poor health		
2. Negative relationships with others		
3. Hurting/upsetting others		
4. Arguments with others / Getting into fights		
5. Disrespect from others/ Losing respect		
6. Doing poorly in school /work		
7. Less energy		
8. Getting into trouble (e.g., DUI, doing things I'd regret)		
9. Not being able to get / losing a job		
10. Having less/no spending money		
11. Being unproductive		
12. Disappointing others		
13. People talking about me via social media or gossip		
14. Loss of scholarship		
15. Increased risk for STI's or unplanned pregnancy		
16. Decrease in performance		
17. Being out of shape		
18. Less confidence / self-esteem		
19. Worry more / Stress		
20. Wasting time		
21. Live a shorter life		

POSITIVE CONSEQUENCES REVIEW

Session Protocol

Participant's Name (First, Last): _____

Interviewer's name: _____ Date: ____/____/____

Materials Required:

- Pre-session Procedures Protocol for RAs to identify target behavior & baseline motivation score
- Positive Consequences Worksheets (PCW)
- Voice recorder

Before Session

___ a. Determine target behavior, importance, & baseline motivation based on baseline assessment results (see Pre-Session Procedures Protocol for RAs) & record it in respective spaces below.

Begin Time: _____ am / pm

Rationale

___ b. State: "You are going to participate in a procedure to determine its effects on your motivation to accomplish a desired goal/behavior for which you feel you may lack optimum motivation. This procedure involves very carefully reviewing positive consequences of accomplishing the desired goal/behavior. There are no right or wrong answers. Do you have any questions before we begin?"

Reviewing Positive Consequences of Achieving Behaviors Rated Relatively Low in Motivation

___ c. Indicate participant's *target behavior* that is relatively low in motivation based on baseline assessment results: _____.

___ d. State "You rated this behavior as _____% *important* to you on a scale from 0 to 100, where 0 = not important at all; 100 = extremely important, and you were _____% *motivated* to do it on a scale from 0 to 100%, where 0 = not motivated at all; 100 = completely motivated. Is this accurate?"

___ e. Query "What positive consequences are likely if you do this behavior?"

- Record responses in the table below.
- Remain neutral & use "Anything else?" as a prompt to get more pos. consequences.

___ f. For each initial pos. consequence generated solicit additional pos. consequences.

- Get specific details & record in the table below.
- Remain neutral & use "Anything else?" as a prompt to get more pos. consequences.

___ g. Prompt & record additional pos. consequences (e.g., "other people say") in the table below.

- Stop when answers get redundant.

___ h. Instruct participant to complete PCW for respective target behavior.

___ i. Review & record pos. consequences from PCW rated relatively high in importance & likelihood (both usually > 70).

- Get specific details & record in the table below.

Initial pos. consequences →	Prompted pos. consequences

- ___j. Summarize all generated pos. consequences.
- ___k. Express excitement about anticipated pos. outcomes if participant does the behavior.
- ___l. State “Having reviewed these pos. consequences, how motivated are you to do this behavior on a scale 0 to 100%, 0 = not motivated at all; 100 = completely motivated?”
- Record final rating: _____.
- ___m. Compare initial & final ratings, and determine why discrepancies may have occurred, if so.
- Indicate agreement w/ optimal reasons for discrepancies.
 - Descriptively praise participant for desire to work on this behavior.
- ___n. If motivation is < 100, discuss how motivation can be increased to accomplish respective behavior.
- ___o. Develop goals to optimize/maintain high motivation.
- Provide suggestions to assist motivation to accomplish respective behavior.
 - Provide encouragement and support.

End Time: _____ am / pm

POSITIVE CONSEQUENCES WORKSHEET

Potential positive consequences if you do your target behavior	How important is this consequence for you? (0 = not at all important, 100 = completely important)	How likely is this consequence for you if you do your target behavior? (0 = not at all likely, 100 = will happen)
1. Better health		
2. Positive relationships with others		
3. Helping others		
4. Communicating / Getting along well with others		
5. Respect from others / Gaining respect		
6. Doing well in school /work		
7. More energy		
8. Staying out of trouble		
9. Being able to get a job / Maintain employment		
10. Having more spending money		
11. Being more productive		
12. Inspiring others		
13. Others recognizing me practicing good behaviors		
14. Keeping / earning scholarship		
15. Being a responsible sexual partner		
16. Increasing optimum performance		
17. Being/staying in shape		
18. More confidence / Self-esteem		
19. Worry less / Stay stress-free		
20. Having free time / Using time effectively		
21. Live a longer life		

APPENDIX B

EXEMPLARY SESSION EXCERPTS

Note: Interviewer = I; Participant = P

Example 1:

During the review of negative consequences (last consequence is letting parents down):

I: What would that mean to you if you knew you let your parents down?

P: My parents did everything for me, and the fact that I did nothing to help them or I did nothing with it... it just kinda sucks.

I: Got it... Why is it so important to you to give them back?

P: My family always taught me that when they get older, we also have to give back to them because they gave so much to us, they've done so much, and that one day we're going to be in their place.

I: So, if you are wasting time [one of the negative consequences] you're going to completely miss out on that opportunity to give back?

P: Yes.

I: Ok... What would be unpleasant to you if you missed out and did not follow your family's tradition?

P: It'd be unpleasant because I didn't get to experience what they did and it's a big deal for me. So, I guess I'd be ignoring all my moral values.

I: Oh, ok...

After the Interviewer summarized all negative consequences while remaining neutral:

I: ...Wow. That's a lot of negative stuff that's possible if you don't work on your goal [think positive]. It's pretty overwhelming actually if you think about it and I would not want any of it to happen to you. You have such incredible ambitions and lots of things that you can accomplish to fulfill your values. And you said nothing is more important than values in your life.

P: Yeah.

I: So now that we have reviewed all these negative consequences, how motivated are you to work on your goal on a scale of 0 to 100%, were 0 is completely unmotivated and 100 is completely motivated?

P: 100.

I: Wow! Initially you were at 60% and now you went all the way up to 100%! That is just massive, it's such an improvement! Help me understand how you got to that?

P: I do think about those things actually, they actually go through my mind, but hearing it from somebody else is just like... oh yeah... that can happen to me... and somebody else now knows that it could happen to me.

I: This doesn't have to happen to you. You have pretty much full control over how you think.

P: Yeah!

Example 2:

During the review of negative consequences (last consequence is passing away due to a disease as a result of not eating healthy):

I: And if you had kids, how would that affect them?

P: [Pause] I'd say... I mean I grew up being raised just by my dad because my mom died when I was young. We grew up well because my dad tried his hardest and he has been a great parent. So, I'd definitely say it would affect my kids. I think it would make them sad and it would hurt them that they lost someone. It might lead them to have trust issues with their spouse or their children because they will be scared that the same thing might happen to them and they wouldn't want to put someone through that... Yup, and it could also lead to some radical decisions and worse consequences for them in their future.

After the Interviewer obtained post-rating of motivation and stated the difference in scores:

I: ...That's huge! That's such a big jump. What do you attribute such a big difference in your motivation to?

P: Well, coz I just realized how much of a... those are the extremes, but those extremes can become realities. That's like the last thing I'd want to happen. I want to be proud of myself, and I want to be happy, and I want to be all of these great things, and that's not a part of that list at all. Everything that I *don't* want to be is on that page if I don't do one thing like eat healthy ... because it could lead to the weight gain, and loss of self-esteem, and then depression, and depression leads to everything that I don't want to be. So that's why.

I: That's very insightful of you to look at it that way and see how the snowball effect can happen.

P: Yeah. It's just different when you write down the thought process and you hear it back, and then you realize that, yeah, it does happen... And it's preventable! That's the biggest thing about it.

I: And that's what I'm talking about! [High five] You have all the power in the world to change that because it's *you*, your thoughts and actions.

P: Yeah, it's *me*.

Example 3:

During the review of positive consequences (last consequence is earning a job and achieving financial stability).

I: What else is good about being able to have a job and having financial stability?

P: Besides financial stability, I would say accomplishment. I know that a big factor in me wanting to do well in school is my parents. And my mom's mainly the one who pushes me to do well because she's always talking about how she wanted to finish college, so she wants me to finish college. So, I was like "Ok, I can do this." ...

I: Why is it so important for you to do that because of your parents?

P: I guess because they sacrificed a lot for me. ... I want to give [the accomplishment of achieving a degree] to her. She did so much for me that I want to give her fulfillment. But also for me, I mean, I want to do well in school. ...

I: If you were able to do that and show to your mom, give that fulfillment like you said, how do you think she might feel?

P: She would feel really happy. ... I mean, I want to make her proud because she's my Mom.

I: Gotcha. If you were able to make her proud and show her that you can fulfill her dream, so to speak, what would be great about that?

P: I guess that would just give me fulfillment too. If she's happy, I'd be happy too. I mean I want my parents to be happy. Also, they don't need help with finances or anything, but if I was older, I would like to give back to them.

I: Gotcha. And what would that mean to you that over the years they have been giving/sacrificing things for you and that now you could give them back?

P: It would give me a sense of achievement, like I actually did something with my life and all the opportunities they gave me, I was able to use it.

After the Interviewer obtained post-rating of motivation and stated the difference in scores:

I: That's pretty amazing! It's very inspiring. You have so many cool opportunities ahead of you and just incredible aspirations. Going to med school is so awesome too! What I love about what you told me is how you will fulfill your family values. It's very respectable.

P: I feel like you know me now!

I: [Laughs]. It's a lot of potential! And it's very impressive. If you tweaked one thing in your habits, this all becomes doable. That's very exciting. So now that we have reviewed all these positive consequences, how motivated are you to study on a scale of 0 to 100%, were 0 is completely unmotivated and 100 is completely motivated?

P: I would say I'm at a 100! I mean, I've always been somewhat motivated, but I never really put it all together. ... After breaking it down, I want to do this.

I: Yeah, that's awesome!

P: I know I will. I just needed the motivation to do it.

I: Well now you got it! So, you were at 55% and now you're at 100%. That's a day and night difference! Help me understand how your motivation has increased so much.

P: I guess because you pointed out everything, as in just the simple concept of studying and just how this one thing can lead to the rest of my life.

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CURRICULUM VITAE

YULIA GAVRILOVA

(702) 895-2468

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EDUCATION

- Ph.D., Clinical Psychology**, University of Nevada, Las Vegas (APA-Accredited) Expected 2019
Dissertation: *A controlled examination of motivational strategies: Reviewing positive consequences for goal achievement, negative consequences for undesired behavior, and a relaxation exercise.* **Chair:** Brad Donohue, Ph.D.
- M.A., Clinical Psychology**, University of Nevada, Las Vegas (APA-Accredited) May 2016
Thesis: *Concurrent mental health and sport performance enhancement in an athlete initiating behavioral intervention with no assessed pathology: A case examination supporting optimization.*
Chair: Brad Donohue, Ph.D.
- B.A., Psychology (Summa Cum Laude)**, California State University, Northridge June 2012
- Secondary Vocational Education (3-year College), Pedagogue of Sport and Physical Exercise**,
Omsk State College of Olympic Reserves, Omsk, Russia June 2009
Thesis: *The differences in swimmer body shapes among four different swimming styles.*
Chair: Lyudmila Medvedeva, M.A.

AWARDS AND SCHOLARSHIPS

- Rebel Research & Mentorship Program Awards, Grad. College, UNLV (2016-2018) \$5500
- Book Scholarship, GPSA, UNLV (2017) \$200
- Psych. Dept. Summer Research Award, UNLV (2017) \$3000
- Outstanding Poster Presentation (2nd place), NPA Conf. (2017) \$100
- Outstanding Poster Presentation (1st place), GPSA Research Forum, UNLV (2017) \$100
- Conference Travel Awards, GPSA, UNLV (2014-2017) \$2430
- College of Liberal Arts Student Summer Research Stipend, UNLV (2016) \$3000
- Outstanding Poster Presentation (2nd place), GPSA Research Forum (2016) \$125
- Outstanding Poster Presentation (2nd place), NPA Conf. (2015) \$100
- Graduate Funds Access Award, UNLV (2014-2017) \$4000
- Assessment Mini-Grant, Office of Academic Assessment, UNLV (2014) \$1000
- Conference Travel Award, Psi Chi, CSUN (2012) \$300
- Outstanding Poster Presentation (3rd place), Psi Chi Chapter, CSUN (2011) \$100

OUTSTANDING HONORS AND ACCOMPLISHMENTS

- Mentorship Certification, UNLV 2017
- Undergraduate Dean's List, CSUN 2009-2012
- Full Athletic Scholarship, CSUN 2009-2012
- 5 Division I University Swimming Records, CSUN 2010-Present
- 2010 Big West Conference Champion in 100 and 200 Yards Butterfly 2010
- Russian National Champion, Swimming 2007
- Russian National Swimming Team 2006-2007
- Omsk State College of Olympic Reserves Honors List 2006-2009
- Governor Letter of Appreciation for Athletic Accomplishments, Omsk 2006-2007

CLINICAL PRACTICA

Psychology Trainee, VA Southern Nevada Healthcare System, Evidence-Based Psychotherapy Program

Las Vegas, NV

July 2017 - Present
Supervisor: Robert Mirabella, Ph.D.
10 to 12 hours per week

- Implemented clinical interviews (e.g., CAPS-5) and evidence-based treatments (e.g., CPT, PE, CBT for Insomnia) with Veterans suffering from PTSD and other co-occurring psychological diagnoses and health conditions.
- Provided *Psychological First Aid* to Veterans affected by the mass shooting.
- Adapted for group-format and co-facilitated a weekly ACT for Depression group for Veterans.
- Implemented screening and treatment monitoring assessments (e.g., PHQ-9, BDI-II, PCL-5, ISI).
- Utilized the integrated Computerized Patient Record System (CPRS) for diagnostic interviews, treatment planning, and session notes.
- Received weekly individual supervision, including in-vivo observations and audiotape review.

Psychology Trainee, VA Southern Nevada Healthcare System, Addictive Disorders Treatment Program Evidence-Based Psychotherapy Program

Las Vegas, NV

July 2016 - June 2017
Supervisor: Heather Manor, Psy.D.
Supervisor: Robert Mirabella, Ph.D.
15 to 18 hours per week

- Selected as Chief Practicum Student to be a voting member of Psychology Training Committee.
- Implemented evidence-based treatments (e.g., CBT-SUD, MI, FBT, CPT, PE) with Veterans with substance use disorders, PTSD, and other co-occurring psychological diagnoses & health conditions.
- Developed a curriculum for group-format FBT for Veterans and led a weekly skills group.
- Conducted diagnostic intake assessments with Veterans referred for substance use treatment.
- Conducted comprehensive psychological assessments and wrote integrated reports.
- Implemented screening & treatment monitoring assessments (e.g., PHQ-9, PCL-5, AUDIT, BAM-R).
- Conducted diagnostic interviews, treatment planning, and session notes within CPRS.
- Attended inpatient unit treatment team meetings with hospitalized Veterans.
- Attended weekly evidence-based practice seminar with Robert Mirabella, Ph.D.
- Received weekly individual & group supervision, including in-vivo observations & audiotape review.

Psychology Trainee, Development of Mental Health Programming in Circus

University of Nevada, Las Vegas

Cirque du Soleil, Las Vegas, NV & Montreal, QC, Canada
National Circus School, Montreal, QC, Canada

July 2015 - May 2016
Supervisor: Brad Donohue, Ph.D.
20 hours per week

- Created and implemented a mental and behavioral health clinic.
- Developed components of a skill-based intervention program designed specifically for circus artists, coaches, and teachers.
- Provided group workshops of up to 28 participants for circus artists, coaches, and teachers, targeting skills relevant to optimization of relationships, communication, and thought management.
- Provided individual, couple, & group skill-based interventions (CBT/FTB) for circus artists in teletherapy and in-person formats with a caseload of approximately 5-8 clients per week.
- Provided consultation services, networked with agency representatives, and provided individual assessment feedback to clients and summative feedback to agencies.
- Supervision consisted of weekly individual meetings and audiotape review.

Psychology Trainee, Department Community Mental Health Clinic

University of Nevada, Las Vegas
Las Vegas, NV

Aug. 2014 - Aug. 2015
Supervisors: Jason Holland, Ph.D. & Michelle Paul, Ph.D.
12 to 16 hours per week

- Provided individual psychotherapy with a caseload of approximately 5-8 clients per week in an outpatient psychology department-sponsored mental health training clinic.

- Diagnoses included affective disorders, anxiety disorders, obsessive-compulsive disorders, trauma-related disorders, ADHD, intermittent explosive disorders, neurocognitive disorders, and adjustment disorders. Primary theoretical approaches utilized included CBT and FBT.
- Received weekly individual and group supervision with digital video review. Attended weekly practicum seminars, which included didactic, group supervision, and case conference components.

Psychology Trainee, Department Psychological Assessment & Testing Clinic Aug. 2014 - Aug. 2015
University of Nevada, Las Vegas, NV Supervisor: Andrew Freeman, Ph.D.

- Conducted psychodiagnostic and neuropsychological assessments in an outpatient department-sponsored mental health training clinic using a flexible battery of psychometrically validated tests and measures with adults and children referred from the community with a range of referral questions.
- Further responsibilities included interviewing, scoring, interpretation, integrated report writing, differential diagnosis, and provision of feedback to clients.
- Supervision consisted of weekly individual and group meetings with digital video review, reviewing cases, training in case conceptualization, joint determination of evidence-based assessment battery and interpretation of results, integrated report revisions, and discussion of feedback.

SUPPLEMENTAL CLINICAL PRACTICA

Psychology Trainee, The Optimum Performance Program in Sports June 2012 - April 2017
University of Nevada, Las Vegas Supervisor: Brad Donohue, Ph.D.
Las Vegas, NV Up to 10 hours per week

- Conducted manualized 12-session evidence-based treatment (FBT) in the context of a clinical trial with Division I athletes and their supportive others, including family members, teammates, coaches, and peers, to decrease substance use & risk of HIV/STIs, and optimize mental health, relationships, and sport performance.
- Provided team workshops for UNLV student-athletes on various topics, including motivation, thought management, goal-setting, focus, communication, and team cohesion.
- Received weekly individual and group supervision with in-vivo observations and audiotape review.

Psychology Trainee, Consultant for Cirque du Soleil April 2014 - Nov. 2014
Las Vegas, NV Supervisor: Brad Donohue, Ph.D.

- Provided weekly mental health, relationships, and performance optimization services for Cirque du Soleil employees, including performers, technicians, and administrative staff (in individual, group, and couple formats) after they had experienced a work-related traumatic event.

OTHER CLINICAL EXPERIENCE

Therapist, Lovaas Center for Autism Summer 2012
Las Vegas, NV Supervisor: Mansi Rajadhyaksha, M.S., BCaBA

- Conducted in-home one-on-one ABA interventions using PRT, DTT, & PECS with children diagnosed with ASDs and collected session data (e.g., ABCs of behaviors).
- Participated in monthly consultations with supervisor and direct interventionists team focused on client's goal acquisition, generalization, and treatment planning.

Therapist, Foothill Child Development Services Inc. Spring 2012
Tujunga, CA Supervisors: Adriana Gracias, BCBA, & Karen Moreno, M.A.

- Provided in-home ABA interventions (PRT, DDT, PECS) with developmentally disabled children (physical handicaps, learning disorders, and pervasive developmental disorders), provided parent training to promote skill generalization, prepared sessions materials (e.g., label/categorical/function cards, PECS cards, social stories), collected and entered data, and prepared summary progress reports.

CLINICAL SUPERVISION TRAINING AND EXPERIENCE

Supervisor-in-Training

Summer 2016 & 2017

Department Community Mental Health Clinic, UNLV

Supervisor: Michelle Paul, Ph.D.

- Supervised two junior clinical psychology doctoral students for two consecutive summer terms while concurrently enrolled in a Supervision course in the summer of 2016.
- Received weekly individual and group supervision of supervision, including digital video review, and participated in weekly case rounds.
- Emerging philosophy of supervision integrates a CBT orientation with developmental and discrimination models.

Peer-Supervisor

Jan. 2014 - April 2017

Family Research & Services, UNLV

Supervisor: Brad Donohue, Ph.D.

- Supervised junior graduate student-clinicians implementing FBT with collegiate athletes in a NIDA-funded clinical trial (1R01DA031828).
- Utilized session audio recordings to provide feedback and measure protocol adherence.

RESEARCH EXPERIENCE

Family Research and Services

June 2012 - Aug. 2017

University of Nevada, Las Vegas, NV

Advisor: Brad Donohue, Ph.D.

Study (Dissertation): The effects of reviewing positive consequences for goal achievement and negative consequences for undesired behavior on motivation, goal achievement, mood, and help-seeking.

- Designed and implemented an RCT examining the efficacy of two brief interventions to improve motivation for various behaviors that are low in motivation, such as exercising, healthy eating, getting sufficient sleep, avoiding tobacco or alcohol use, and studying.

Study: Evaluation of Family Behavior Therapy in collegiate athletes (NIDA grant, 1R01DA031828).

- As *Project Coordinator*, responsible for the immediate day-to-day oversight of a clinical RCT focused on the development and controlled evaluation of Family Behavior Therapy (FBT) for substance abuse adapted for collegiate athletes.
- Supervised clinic management, data management, outcomes assessments, treatment adherence, IRB, participant incentives, quality assurance, research and staff meetings, program membership, and adherence to standardized administrative protocols.
- Prepared and presented comprehensive reports for annual Data Safety and Monitoring Plan meetings.
- Developed and revised intervention components, clinic records, and standardized protocols to be culturally sensitive to athletes.
- Prepared a treatment manual for use with athletes, presented findings at professional conferences, and wrote manuscripts for publications in refereed journals.
- Supervised and mentored a team of graduate students and undergraduate research assistants.
 - Sub-study: Recruitment methods to assist enrollment into treatment outcome research (Alcohol Beverage Medical Research-funded).
 - Implemented semi-structured interviews utilizing norming techniques and dialogues about participants' cultural experiences, data collection, development of protocols, dissemination, and publications.
 - Developed promotional and recruitment materials to increase engagement.
 - Sub-study (Thesis): Mental health and sport performance programming in athletes who present without pathology: A case examination supporting optimization.
 - Implemented FBT intervention w/ an athlete; published 2 peer-reviewed articles.

Study: Development of mental health programming for Cirque du Soleil & National Circus School (Cirque du Soleil and National Circus School-funded).

- As *Project Coordinator*, responsible for the immediate day-to-day oversight of the project, including clinic management, data management, assessments, IRB, recruitment and retention of participants, and organization of research meetings with the agencies.
- Project focused on evaluation of mental, social, and physical health factors in circus performers and development and pilot evaluation of a program tailored for this population.
- Assisted in the development of screening procedures to identify artists at risk for mental, social, and physical health factors that interfere with performance.
- Presented at professional conferences and wrote manuscripts for publications in refereed journals.

Study: Alcohol prevention for freshman student-athletes (Alcohol Beverage Medical Research-funded).

- Coordinated study recruitment and data collection, assisted in the development of intervention, implemented alcohol prevention intervention with student-athletes, and disseminated study findings.

Study: Concurrent drug abuse treatment and HIV prevention in child neglecting mothers (NIDA grant, 1R01DA020548)

- Assisted in dissemination of results and management of IRB modifications.

Sport Psychology Research Lab

California State University, Northridge, CA

April 2011 - May 2012

Advisor: Mark Otten, Ph.D.

Study: Examination of “clutch” performance in athletes.

- Study examined performance under pressure, expertise, sport confidence, reinvestment, negative cognitive & somatic anxiety, positive anxiety, and perceived control.
- Assisted in study recruitment, administration of assessment measures, data entry, and dissemination of study results at a professional conference.

Study: Archival review of pitching and “clutch” hitting in baseball.

- Assisted in data collection and entry.

GRANT INVOLVEMENT

Family Behavior Therapy for Collegiate Athletes (1R01DA031828) \$1,998,000

Project Coordinator and Clinician

Funding Agency: NIDA. PI: Brad Donohue, Ph.D.

Development of Mental Health Programming for Cirque du Soleil & National Circus School \$30,000

Project Coordinator and Clinician

Funding agencies: Cirque du Soleil and National Circus School. PI: Brad Donohue, Ph.D.

Great Plays: Alcohol Abuse Prevention \$20,000

Project Coordinator and Prevention Educator

Funding Agency: Alcohol Beverage Medical Research. PI: Brad Donohue, Ph.D.

Effect of Recruitment Strategies on Enrollment into Treatment Outcome Research \$10,000

Clinician

Funding Agency: Alcohol Beverage Medical Research. PI: Brad Donohue, Ph.D.

PEER-REVIEWED PUBLICATIONS

Peer-Reviewed Journal Publications

- 9) **Gavrilova, Y.**, & Donohue, B. (in press). Mental health and sport performance interventions in athletes: A call for optimization models sensitive to sport culture. *The Journal of Sport Behavior*.
- 8) Galante, M., Donohue, B., **Gavrilova, Y.**, Phillips, C., Burnstein, B., Aubertin, P., & Corral, A. (2017). The relationship between problem-solving skills and factors associated with performance in the

world's elite circus artists. *Journal of Performance Psychology*, 11, 1-17.

- 7) **Gavrilova, Y.**, Donohue, B., & Galante, M. (2017). Mental health and sport performance programming in athletes who present without pathology: A case examination supporting optimization. *Clinical Case Studies*, 1-20.
- 6) Donohue, B., Plant, C. P., Dowd, A., Phillips, C., Loughran, T., **Gavrilova, Y.** (2016). Controlled evaluation of a method to assist recruitment of participants into treatment outcome research and engage student athletes into substance abuse intervention. *Journal of Clinical Sport Psychology*, 10, 272-288.
- 5) Donohue, B., Loughran, T., Pitts, M., **Gavrilova, Y.**, Chow, G. M., Soto-Nevarez, A., & Schubert, K. (2016). Preliminary development of a brief intervention to prevent alcohol misuse and enhance sport performance in collegiate athletes. *Journal of Drug Abuse*, 2, 3-26.
- 4) Donohue, B., Chow, G. M., Pitts, M., Loughran, T., Schubert, K. N., **Gavrilova, Y.**, & Allen, D. N. (2015). Piloting The Optimum Performance Program in Sports: A family-supported approach to concurrently enhancing mental health and sport performance in athletes. *Clinical Case Studies*, 14, 159-177.
- 3) Pitts, M., Donohue, B., Schubert, K. N., Chow, G. M., Loughran, T., & **Gavrilova, Y.** (2015). A systematic case examination of The Optimum Performance Program in Sports in a combat sport athlete. *Clinical Case Studies*, 14, 178-190.
- 2) Chow, G. M., Donohue, B., Pitts, M., Loughran, T., Schubert, K. N., **Gavrilova, Y.**, & Diaz, E. (2015). Results of a single case controlled study of The Optimum Performance Program in Sports in a collegiate athlete. *Clinical Case Studies*, 14, 191-209.
- 1) Donohue, B., Pitts, M., **Gavrilova, Y.**, Ayarza, A., & Cintron, K. (2013). A culturally sensitive approach to treating substance abuse in athletes using evidence-supported methods. *Journal of Clinical Sport Psychology*, 7(2), 98-119.

Manuscripts Submitted for Publication

- 2) Donohue, B., **Gavrilova, Y.**, Galante, M., Loughran, T., Plant, C., Scott, J., ... Allen, D. (resubmission under review). Controlled evaluation of an optimization approach to mental health and sport performance. *Journal of Clinical Sport Psychology*.
- 1) Donohue, B., **Gavrilova, Y.**, Galante, M., Burnstein, B., Aubertin, P., Benning, S., ... & Funk, A. (resubmission under review). A method of identifying mental, social, and physical health factors interfering with performance in professional and student circus artists. *Psychology of Aesthetics, Creativity, and the Arts*.

Book Chapters

- 1) Galante, M., Donohue, B., & **Gavrilova, Y.** (in press). The Optimum Performance Program in Sports: A case example of bulimia nervosa in a lean sport athlete. In G. Breslin & G. Leavey (Eds.), *Mental health and well-being interventions in sport: A case study analysis*. Routledge.

PRESENTATIONS

Conference Presentations

- 27) Galante, M., **Gavrilova, Y.**, Gavrilova, E., Bricker, M., Danlag, A., Stucki, K., & Donohue, B. (2017, November). *The effects of a culturally adapted intervention for student-athletes on engagement in mental health services, treatment adherence, and satisfaction with services*. Poster presented at the annual convention for the Association of Behavioral & Cognitive Therapies, San Diego, CA.

- 26) **Gavrilova, Y.**, Galante, M., Phillips, C., Gavrilova, E., & Donohue, B. (2017, January). *The Semi-Structured Interviews for Sport and Ethnic Culture in mental health and sport performance programming: A rapid method of enhancing athletes' engagement*. Workshop conducted at the annual conference of the Center for Performance Psychology, National University's Sanford Education Center, Carlsbad, CA.
- 25) Donohue, B., **Gavrilova, Y.**, Plant, C. & Galante, M. (2016, October). *Managing the environment for adolescents evidenced to abuse drugs utilizing stimulus control strategies within the context of Family Behavior Therapy*. Ninety-minute mini-workshop conducted at the annual convention of the Association of Behavioral and Cognitive Therapies, New York, NY.
- 24) **Gavrilova, Y.**, Plant, C. P., Galante, M., Millwood, S., Pitts, M., Donohue, B. (2016, October). *Preliminary development of a brief intervention to prevent alcohol misuse and enhance sport performance in collegiate athletes*. Poster presented at the annual convention for the Association of Behavioral and Cognitive Therapies, New York, NY.
- 23) Plant, C. P., **Gavrilova, Y.**, Pitts, M., Galante, M., Andrewjeski, K., Gavrilova, E., & Donohue, B. (2016, October). *Controlled evaluation of a method of recruiting participants into treatment outcome research*. Poster presented at the annual convention for the Association of Behavioral and Cognitive Therapies, New York, NY.
- 22) Plant, C. P., Pitts, M., **Gavrilova, Y.**, Galante, M., Andrewjeski, K., & Donohue, B. (2016, October). *Family supported dynamic goal and contingency management intervention components within the context of evidence-supported treatment for mothers referred by Child Protective Services*. Poster presented at the annual convention for the Association of Behavioral and Cognitive Therapies, New York, NY.
- 21) Donohue, B., **Gavrilova, Y.**, Galante, M., Phillips, C., & Burnstein, B. (2016, September). *Piloting The Optimum Performance Program in Circus: Exploration into an important domain of performance psychology*. Panel presented at the annual conference of the Association of Applied Sport Psychology, Phoenix, AZ.
- 20) Galante, M., **Gavrilova, Y.**, Phillips, C., Corral, A., Corey, A., Burnstein, B. & Donohue, B. (2016, September). *TOPP performance: Anxiety and problem-solving skills in circus artists*. Poster presented at the annual conference of the Association of Applied Sport Psychology, Phoenix, AZ.
- 19) **Gavrilova, Y.**, & Donohue, B. (2016, April). *Concurrent mental health and sport performance enhancement in an athlete initiating behavioral intervention with no assessed pathology: A case examination supporting optimization*. Poster presented at the annual convention of the Western Psychological Association, Long Beach, CA.
- 18) **Gavrilova, Y.**, Phillips, C., & Galante, M. (2016, January). *An evidence-supported timeline functional analysis method of performance optimization*. Workshop conducted at the annual conference of the Center for Performance Psychology, National University's Sanford Education Center, Carlsbad, CA.
- 17) Kenny, M. C., Lopez-Griman, A. M., Donohue, B., Plant, C. P., & **Gavrilova, Y.** (2015, November). *Development and initial evaluation of an innovative online training program to assist professionals in reporting child maltreatment*. Poster presented at the annual convention of the Association for Behavioral and Cognitive Therapies, Chicago, IL.
- 16) Loughran, T., Soto-Nevarez, A., Pitts, M., Schubert, K., **Gavrilova, Y.**, Chow, G., & Donohue, B. (2015, November). *Evaluation of a goal-oriented alcohol prevention program in student-athletes*. Poster presented at the annual convention of the Association for Behavioral and Cognitive Therapies, Chicago, IL.
- 15) **Gavrilova, Y.**, Dowd, A., Loughran, T., Pascua, A., Mitchell, R., & Donohue, B. (2015, April). *The*

- effect of engagement strategy on client's disclosure.* Poster presented at the annual convention of the Western Psychological Association, Las Vegas, NV.
- 14) Garner, C., **Gavrilova, Y.**, Phillips, C., Pascua, A., Gillis, D., Donohue, B. (2015, April). A *systematic method of recruitment of collegiate athletes.* Poster presented at the annual convention of the Western Psychological Association, Las Vegas, NV.
 - 13) Dowd, A., Torres, A., Pascua, A., Leon, D., **Gavrilova, Y.**, & Donohue, B. (2015, April). *Examination of two engagement strategies on athlete RCT consent.* Poster presented at the annual convention of the Western Psychological Association, Las Vegas, NV.
 - 12) **Gavrilova, Y.** & Phillips, C. (2015, February). *Pre-performance and post-performance mindset training in the context of therapy: A workshop aimed at establishing optimum mindset in performers.* Workshop conducted at the annual conference of the Center for Performance Psychology, National University's Sanford Education Center, Carlsbad, CA.
 - 11) **Gavrilova, Y.**, Donohue, B., Pitts, M., Loughran, T., Schubert, K., & Chow, G. & (2014, October). The Optimum Performance Program in Sports overview. In B. Donohue, M. Pitts, & K. Schubert (Chairs), *Development and initial examination of the Optimum Performance Program in Sports: Bridging the gap between mental health and sport performance.* Symposium conducted at the annual conference of the Association for Applied Sport Psychology, Las Vegas, NV.
 - 10) Loughran, T., Chow, G., Pitts, M., Schubert, K., **Gavrilova, Y.**, & Donohue, B. (2014, October). *Frequency of alcohol use as a predictor of mental health symptoms in collegiate athletes.* Poster presented at the annual conference of the Association for Applied Sport Psychology, Las Vegas, NV.
 - 9) Chow, G. M., Donohue, B., Diaz, E., Pitts, M., Loughran, T., Schubert, K. N, & **Gavrilova, Y.** (2014, October). *A sport-specific Family Behavior Therapy for athletes: A multiple-baseline case study of a collegiate cheer and dance athlete.* Poster presented at the annual conference of the Association for Applied Sport Psychology, Las Vegas, NV.
 - 8) Swarzman E., Loughran, T., Dowd, A., Tran, T., Torres, A., Gonzalez-Bueno, A., **Gavrilova, Y.**, Chow, G., & Donohue, B. (2014, October). *Development and initial evaluation of a dynamic performance goal intervention.* Poster presented at the annual conference of the Association for Applied Sport Psychology, Las Vegas, NV.
 - 7) **Gavrilova, Y.** (2014, April). Factors contributing to underutilization of mental health services by student-athletes. In M. Pitts (Chair), *Process of developing a non-stigmatizing, positive environmental context for The Optimum Performance Program in Sports: An alternative to the traditional campus counseling approach to addressing mental health with implications for college students.* Symposium conducted at the annual convention of the Western Psychological Association, Portland, OR.
 - 6) **Gavrilova, Y.**, Armenta, S., Palou, Q., Torres, A., Schubert, K. N., Pitts, M., & Donohue, B. (2014, April). *Development and dissemination of administrative procedures of an evidence-supported clinic.* Poster presented at the annual convention of the Western Psychological Association, Portland, OR.
 - 5) Pitts, M., El Ansari, K., **Gavrilova, Y.**, Schubert, K., & Donohue, B. (2014, April). *Are client preferences for intervention components consistent with treatment dosage? Results from an intervention outcome study in a sample of college athletes.* Poster presented at the annual convention of the Western Psychological Association, Portland, OR.
 - 4) Diaz, E., Kong, P., Swarzman, E., Holler, A., Gonzalez-Bueno, A., **Gavrilova, Y.**, Loughran, T., Wrzeciona, K., Pitts, M., Murrieta, V., Dunn, R., Chow, G., Kelleher, L., & Donohue, B. (2013, October). *Factors that interfere with sport performance and alcohol use among collegiate*

athletes. Poster presented at the annual conference of the Association for Applied Sports Psychology, New Orleans, LA.

- 3) **Gavrilova, Y.**, Gonzalez-Buena, A., Loughran T., Swarzman E., Tran, T., Bigler, L., Donohue, B. (2013, July). *Family Behavior Therapy for substance abuse and associated problems*. Presentation conducted at the international conference and exhibition of the Addiction Research & Therapy, Las Vegas, NV.
- 2) Bigler, L., Gonzalez-Buena, A., Loughran, T., Swarzman, E., **Gavrilova, Y.**, Chow, G. & Donohue, B. (2013, July). *Family Behavioral Therapy's influence on alcohol use in collegiate athletes' performance*. Poster presented at the international conference and exhibition of the Addiction Research & Therapy, Las Vegas, NV.
- 1) **Gavrilova, Y.** & Perez, D. (2012, April). Measuring positive appraisal as an alternative to competitive state anxiety. In M. Otten (Chair), *Modeling clutch performance in sport: The keys to success revealed*. Symposium conducted at the annual convention of the Western Psychological Association, San Francisco, CA.

Conference Presentations Accepted or Submitted

- 2) **Gavrilova, Y.**, Stucki, K., Galante, M., Gavrilova, E., Danlag, A., Bricker, M., & Donohue, B. (2018). *A controlled examination of motivational strategies: Reviewing positive consequences for goal accomplishment, negative consequences for undesired behavior, or a relaxation exercise*. Poster submitted for the annual convention of the Western Psychological Association, Portland, OR.
- 1) Galante, M., Donohue, B., & **Gavrilova, Y.** (2018). *A culturally adapted optimization intervention for collegiate student-athletes: A case of Bulimia Nervosa in a lean sport athlete*. Poster to be presented at the International Conference for Eating Disorders, Chicago, IL.

Other Presentations

- 9) Longo, J., Donohue, B., **Gavrilova, Y.**, & Dufek, J. S. (2017, April). *Strategies on handling the publication revise and resubmit process*. Invited panel presentation conducted as part of the Graduate College Workshop at the University of Nevada Las Vegas, Las Vegas, NV.
- 8) **Gavrilova, Y.**, Galante, M., & Donohue, B. (2016, January). *Mental performance of student-artists at the National Circus School*. Presentation conducted for school administrators at the National Circus School, Montreal, Canada.
- 7) Donohue, B., Light, A., & **Gavrilova, Y.** (2015, February). *Adapting performance psychology to fit the culture of Cirque du Soleil*. Presentation conducted at Cirque du Soleil Summit, Las Vegas, NV.
- 6) Donohue, B., & **Gavrilova, Y.** (2014, March). *An empirically-supported method of being culturally competent*. Presentation conducted for Cultural Competence Academy (CCA) at the University of Nevada Las Vegas, Las Vegas, NV.
- 5) Donohue, B., **Gavrilova, Y.**, & El Ansari, K. (2013, September). *Family Behavior Therapy for substance abuse and associated problems*. Presentation conducted for Osher Lifelong Learning Institute (OLLI), Las Vegas, NV.
- 4) Donohue, B., **Gavrilova, Y.**, & Pitts, M. (2013, July). *Family Behavior Therapy for adults*. Workshop conducted for mental health professionals at the Veterans Healthcare Administration of Southern Nevada, Las Vegas, NV.
- 3) Donohue, B., & **Gavrilova, Y.** (2012, December). *Family Behavior Therapy for substance abuse and associated problems*. Presentation conducted for All About You Counseling and Support Services, Las Vegas, NV.

- 2) Donohue, B., **Gavrilova, Y.**, Loughran, T., & Pitts, M. (2012, October). *Family Behavior Therapy: An evidence-based approach for adolescent substance abuse and associated problems*. Workshop conducted for State of the Nevada Division of Child & Family Services, Las Vegas, NV.
- 1) Donohue, B., **Gavrilova, Y.**, & Wrzeciona, K. (2012, September). *Reducing stress at home and work using communication skills, environmental skills & emotional regulation*. Presentation conducted for the Rodey Law Firm, Las Vegas, NV.

EDITORIAL EXPERIENCE

Editorial Assistant April 2016 - Present
Journal of Child and Adolescent Substance Abuse

Ad Hoc Reviewer Summer 2016
Journal of Child and Adolescent Substance Abuse
Association for Applied Sport Psychology

TEACHING & TRAINING EXPERIENCE

Instructor Aug. 2017 - Present
University of Nevada, Las Vegas, NV Supervisor: Wayne Weiten, Ph.D.

- Taught 2 sections of live-classroom Psychology 101 courses each semester. Concurrently enrolled in Teaching of Psychology with a supervisory component for the initial semester of teaching.
- Developed syllabi, planned courses, prepared and presented lectures, facilitated class discussions, developed online content pages, utilized MindTap learning platform, and created and graded exams.

Family Behavior Therapy (FBT) for Adolescents Training March & June 2016
Santa Barbara County Department of Behavioral Wellness Supervisor: Brad Donohue, Ph.D.
Buellton, CA

- Assisted Dr. Brad Donohue in conducting comprehensive 2- and 3-day training workshops in FBT for Adolescents, an evidence-based behavioral treatment for substance abuse and associated behavior problems, developed with support from NIDA and NIMH.
- Provided modeling of therapeutic skills, oversaw role-playing exercises, and provided corrective feedback to clinicians.

Guest Lecturer 2014 - 2016
University of Nevada, Las Vegas, NV Supervisor: Brad Donohue, Ph.D.

- Undergraduate classrooms of Child Behavior Disorders course (Psychology).
 - Lectures on Anxiety (Spring 2016) and on Depression (Fall 2015)
- Undergraduate classroom of Enhancing Mental and Motor Abilities course (Kinesiology).
 - Lecture on Future Directions for Comprehensive Care of Student-Athletes (Spring 2016)
- Graduate classroom of Child Intervention course (Psychology).
 - Lecture on Depression (Spring 2014)

Teaching Assistant Fall 2011
California State University, Northridge, CA Supervisor: Frederick Elias, Ph.D.

- Undergraduate Personality Psychology course.
- Assisted students through and role-playing therapeutic skills.
- Evaluated therapeutic style and assured adherence to therapy paradigms.
- Assisted clinical exams, final project recording, and analyzing therapy sessions.

LEADERSHIP, MENTORSHIP, AND SERVICE

UNLV Clinical Psychology Doctoral Student Committee

Co-Chair

June 2017 - Present

Cohort Representative

Sept. 2016–May 2017

- Provided advocacy and support of clinical psychology doctoral students.
- Organized and attended monthly committee meetings, acted as liaison between faculty and students, organized social events and faculty appreciation fundraisers, coordinated pre-interview events and housing for program applicants.

Graduate Student Mentor, Research and Mentorship Program

2016 - Present

Graduate College, UNLV

Supervisor: Brad Donohue, Ph.D.

- Collaborated weekly with an undergraduate student to increase their knowledge and research skills critical for graduate education and professional development.

Graduate Student Mentor, Outreach Undergraduate Mentoring Program

Spring 2016

College of Liberal Arts, UNLV

Supervisor: Brad Donohue, Ph.D.

- Mentored psychology undergraduates from underrepresented backgrounds to complete undergraduate degrees, prepare graduate school applications, and explore potential career paths in psychology.

President, Registered Student Organization

Jan. 2016 – Aug. 2017

Family Research & Services (FRS), UNLV

Supervisor: Brad Donohue, Ph.D.

- FRS is a non-profit applied research laboratory that hosts several cutting-edge research projects that are supported by NIH and other federal agencies. FRS won Outstanding New Student Organization of the Year in 2014 and Outstanding New Program in 2013.
- Provided day-to-day oversight of ongoing projects, outreach efforts, & charity events.

Peer Educator, The Blues Project

Spring 2012

University Counseling Center

Supervisors: Marshal Bloom, Ph.D.

California State University, Northridge, CA

Carrie Saetermoe, Ph.D.

- Peer organization dedicated to raising awareness about depression and suicide. Provided educational presentations for university and community college students in the greater Los Angeles County.
- Attended weekly 3-hour trainings held by the director & coordinators of project.
- Assisted in organizing and hosting an outreach event in honor of Depression Awareness Week to provide resources and reduce stigma.

Peer Psychology Tutor

Summer 2010 - Fall 2011

California State University, Northridge, CA

- Tutored peer students for various psychology courses, including Research Methods, Personality Psychology, Social Psychology, Cognitive Psychology, and Psychology of Motivation.

RELEVANT TRAINING RECEIVED

Cross-Battery Assessment, Pattern of Strengths and Weaknesses, and X-BASS for Specific Learning Disability (SLD) Identification

Oct. 2017, 3 hours

Vincent Alfonso, Ph.D., Las Vegas, NV

- History of cross-battery assessment, role of CHC theory in cross-battery assessment, methods of SLD identification, & steps in using the pattern of strengths and weaknesses analyzer of X-BASS software.

Psychological First Aid (PFA) and Skills for Psychological Recovery (SPR) Training

Oct. 2017

Noelle Lefforge, Ph.D., University of Nevada, Las Vegas, NV

- PFA is an evidence-informed modular approach to help individuals in the immediate aftermath of disaster and terrorism. It is designed to reduce the initial distress caused by traumatic events and to foster short- and long-term adaptive functioning and coping.

- SPR is an evidence-informed modular intervention that aims to help survivors gain skills to manage distress and cope with post-disaster stress and adversity.

Cognitive-Behavioral Therapy for Insomnia (CBT-I) May - June 2017, 6 hours
Robert Mirabella, Ph.D., VA Southern Nevada Healthcare System, Las Vegas, NV

- CBT-I is an evidence-based first-line treatment for adults with chronic insomnia that can be effective in as few as 4 sessions. CBT-I addresses cognitive and behavioral factors maintaining insomnia.

Regression Workshop May 2017, 18 hours
Andrew Freeman, Ph.D., University of Nevada, Las Vegas, NV

- Comprehensive 6-day workshop on regression and use of R statistical programming for data analysis.

Integrating Behavioral Health into Primary Care May 2017, 6 hours
Jeffrey Reiter, Ph.D., Las Vegas, NV

- Rationale, strategies, and tools for effective integration of behavioral health services in primary care.

Prolonged Exposure (PE) Therapy February 2017, 16 hours
Robert Mirabella, Ph.D., & Nicole Anders, Psy.D., VA Southern Nevada Healthcare System, Las Vegas

- Two-day comprehensive training focused on PE, structured cognitive-behavioral therapy to treat PTSD symptoms. PE is a short-term treatment that may work in as few as 8 90-minute treatment sessions that focus on gradually approaching trauma-related memories, feelings, and situations that patients have been avoiding since the trauma.

Cognitive Processing Therapy (CPT) July 2016, 16 hours
Robert Mirabella, Ph.D., VA Southern Nevada Healthcare System, Las Vegas, NV

- Two-day comprehensive training focused on CPT, a structured cognitive-behavioral treatment to address the unique needs of patients suffering from PTSD symptoms. CPT is a short-term treatment that may work in as few as 12 treatment sessions, which focuses on the connections between thoughts, feelings, behaviors, and bodily sensations.

Developing Healthy Academic Writing Habit: Writing with POWER May 2016, 8 hours
Patricia Goodson, Ph.D., Las Vegas, NV

- All-day live workshop. Promoting Outstanding Writing for Excellence in Research (POWER) provides motivational and instrumental support for academic writing of graduate students and faculty.

Interprofessional Education Day Feb. 2015, Feb. 2016, 16 hours
University of Nevada, Las Vegas, NV
Supervisor: Michelle Paul, Ph.D.

- Two 8-hour events aimed at increasing awareness of interprofessional education, practice concepts, roles, responsibilities, and myths for the participating professions, as well as initiating an understanding of how interprofessional teams should function to better serve patients.

Integrated Behavioral Health in Primary Care Course Fall 2015
University of Nevada, Las Vegas, NV
Supervisor: Michelle Paul, Ph.D.

- 16-week course developed based on recommendations from Interprofessional Education Collaborative for clinical professions who plan on delivering integrated behavioral health services and who serve populations with complex needs in physical health, mental health, and substance use.
- Areas of training included assessment, intervention, and consultation skills and working together within interdisciplinary teams in developing treatment plans and establishing appropriate referrals.

Current Procedural Terminology (CPT) System May 2015, 8 hours
Antonio E. Puente, Ph.D., Las Vegas, NV

- Comprehensive training to address the CPT system, a scientifically-based model for coding, billing, and documenting professional psychological services, including psychotherapy and testing.

Adverse & Serious Adverse Events, Child Abuse Reporting, Suicidal Ideation, & Substance Withdrawal Training 2013 - 2015, 6 hours

Bradley Donohue, Ph.D., University of Nevada, Las Vegas, NV

- Comprehensive trainings in the context of an ongoing NIDA trial on assessment and appropriate reporting of: adverse events (AEs) & serious adverse events (SAEs) that may arise in working with athletes, suspected child maltreatment, suicidal ideation, and substance withdrawal symptoms.

Dialectical Behavior Therapy (DBT) Spring 2015, 48 hours

Alan Fruzzetti, Ph.D., Las Vegas, NV

- Comprehensive 6-day training focused on DBT, an evidence-based treatment for complex, difficult to treat mental disorders. DBT combines standard cognitive-behavioral techniques for emotion regulation and reality-testing with concepts of distress tolerance, acceptance, and mindful awareness largely derived from Buddhist meditative practice.

Family Behavior Therapy (FBT) for Adolescents July 2013, 30 hours

Bradley Donohue, Ph.D., University of Nevada, Las Vegas, NV

- Comprehensive training course in FBT for Adolescents, evidence-supported behavioral treatment for substance abuse and associated behavior problems (e.g., depression, unemployment, conduct disorders, family discord, child maltreatment), developed with support from NIDA & NIMH.
- FBT involves engagement of significant others as change agents in bringing about a substance-free lifestyle. Core intervention components include Behavioral Goals & Rewards, Environmental- and Self-Control, Job-Getting Skills Training, Consequence Review, and Communication Skills Training.

Responsible Conduct of Research (RCR) Oct. 2012, 8 hours

Office of Research and Integrity, University of Nevada, Las Vegas, NV

- Live training on professional development and various ethical issues in conducting research in accordance with federal requirements.

Family Behavior Therapy (FBT) for Adults Aug. 2012, 16 hours

Bradley Donohue, Ph.D., Las Vegas, NV

- Comprehensive 2-day training focused on FBT for Adults, evidence-supported behavioral treatment for substance use and mental health disorders, developed with support of NIDA and NIMH.

Community Reinforcement Approach (CRA) Aug. 22-23, 2012, 16 hours

Raymond Anderson, Ph.D., University of New Mexico, Albuquerque, NM

- Comprehensive 2-day training on CRA, an evidence-based substance use behavioral intervention to replace environmental contingencies supporting substance use with prosocial activities and behaviors.

Community Reinforcement & Family Training (CRAFT) Aug. 13-14, 2012, 16 hours

Raymond Anderson, Ph.D., University of New Mexico, Albuquerque, NM

- Comprehensive 2-day training on CRAFT, a unilateral family treatment approach developed with support from NIAAA and NIDA to help concerned significant others (CSOs) of alcohol/drug users who refuse to seek treatment. CRAFT utilizes a variety of interventions based on functional assessment (i.e., use of positive reinforcement, communication skills, and natural consequences).

Applied Behavior Analysis (ABA) Therapist Development Training Feb. - March 2012, >50 hours

Emilia Broberg, BCBA, & George Dancel, BCaBA, Tujunga, CA

- Comprehensive training on ABA intervention components (e.g., Pivotal Response Training (PRT), Discrete Trial Training (DTT); Picture Exchange Communication System (PECS), reinforcement, extinction, shaping, task analysis, chaining, generalization), ethics, and therapist-family dynamics.

Autism Training Solutions (ATS) Training April 2012, 24 hours

- Professional training focused on interventions for autism and related behavioral disabilities.

Behavioral Instructor Training Feb. 2012, 24 hours

Mariela Feldman, M.S., BCBA, & Theresa Demus, M.S., BCaBA, Van Nuys, CA

- Comprehensive 3-day training on Autism Spectrum Disorders (ASDs), developmental milestones, parenting styles, social/play skills, ABA, antecedent/consequence strategies, data collection, DTT, PRT, verbal behavior, and functions of behavior. Passed with a score of 100%.

OTHER WORK EXPERIENCE

Translator and Oral Interpreter

Summer 2010

Polymer Global Holdings Inc., Woodland Hills, CA

- Traveled between Los Angeles, Beijing, and Moscow, interpreting for the company's executive director in business meetings as well as translating written documents.

PROFESSIONAL AFFILIATIONS

- Association for Behavioral and Cognitive Therapies (ABCT), student member 2015-Present
- Nevada Psychological Association (NPA), student member 2014-Present
- Center for Performance Psychology, student member 2014-Present
- American Psychological Association (APA)
 - Division 47 (Sport & Performance Psychology), list serve member 2012-Present
- Western Psychological Association (WPA), student member 2012-Present
- Association for Applied Sport Psychology (AASP), student member 2013-2017
 - Performance Consulting in Collegiate Sport Special Interest Group (SIG) 2016-2017
- Association for Psychological Science (ASP), student member 2013-2014, 2017
- Addictions Research and Therapy, student member 2013-2014

REFERENCES

Brad Donohue, Ph.D.

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