

The Effects of Absorption and Traumatic Exposure on PTSD Symptoms after the  
September 11<sup>th</sup> 2001 World Trade Center Attacks

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PREVIEW

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## Abstract

Psychological literature showed that absorption was a distinct personality trait that was correlated with both positive and negative affective states. There was often an assumption made that traumatic life experiences were events that were highly absorptive experiences for those that had a high absorptive capacity. For some individuals, the results were PTSD symptoms or a PTSD diagnosis, while in others there was a sense of psychological resiliency. The amount and type of exposure to a traumatic life experience, whether in proximal or direct contact, peripherally through hearing the accounts of others, or from intense media coverage, resulted in PTSD symptoms for some individuals while others demonstrated more resiliencies. Given the fact that those high on absorption experienced these events more intensely than low absorbers, it seemed plausible that absorption, along with amount and type of exposure, influenced how one experienced these traumatic circumstances. This study evaluated several hypotheses based on these assumptions utilizing an archival database of Pace University students' experiences following the terrorist attacks on September 11<sup>th</sup> 2001.

Pearson Product Moment Correlation Coefficients were conducted for the predictor variables absorption and type of traumatic exposure with the three outcome variables PTSD symptom scores at time 1, PTSD symptom scores at time 2, and PTSD change scores. Proximity exposure, media exposure, and trait absorption were correlated positively with PTSD scores at time 1 and time 2, but not with PTSD change scores. To evaluate the moderation effects, exposure, absorption, and the absorption by exposure cross product were regressed on the three outcome variables. Significant interaction effects were found with PTSD symptom scores at time 2 for models with proximity and

media exposure and for PTSD change scores only with model for proximity exposure. However, these results were counterintuitive to theoretical postulations in some cases. Exploratory analyses were also conducted to look at results when depression, anxiety, and gender were held constant. One important implication for the field of School-Clinical Child Psychology is that these results indicate how type of traumatic exposure and absorption interact in different circumstances as both a buffer and risk factor for higher PTSD symptom report.

# The Effects of Absorption and Traumatic Exposure on PTSD Symptoms after the September 11<sup>th</sup> 2001 World Trade Center Attacks

## Introduction

### *Overview*

Absorption was a stable personality construct that measured how cognitively encompassing an external or internal experience, event, or object was for an individual (Tellegen & Atkinson, 1974; Tellegen, 1976, 1978, 1981, 1982, 1992). Underlying trait absorption were six intercorrelated factors: (1) responsiveness to engaging stimuli, (2) synesthesia, (3) enhanced cognition, (4) enhanced awareness, (5) vivid reminiscence, and (6) dissociative involvement that were positioned on two dimensions, “internal versus external focus” and “narrowing versus expansion of consciousness” (Tellegen, 1992). High absorptive capacity required the entirety of one’s attentional, perceptual, motivational and motoric resources in order to fully experience the absorbed object (Tellegen & Atkinson, 1974; Tellegen, 1976, 1978, 1981, 1982, 1992). This stable personality trait was reported to correlate with positive affective states such as involvement in highly creative experiences, imaginative multisensory experiences, fantasy proneness and openness to new and unique experiences (Church, 1994; Glisky, Tataryn, Tobias, Kihlstorm, & McConkey, 1991; Levin & Young, 2002; Levin, Sirof, Simeon, & Guralnick, 2004; Lynn & Rhue, 1988; Roche, Barnier, & McConkey, 1998; Roche & McConkey, 1990; Wild, Kuiken, & Schopflocher, 1995). Absorption was also reported to be associated with negative affective states including anxiety, anxiety sensitivity, anhedonia, borderline personality disorder, dissociation and psychological trauma (Allen, Fultz, Huntoon, & Brethour, 2002; Bryant, 1995; DiTommaso & Routh,

1993; Levin & Spei, 2003; Levin et al., 2004; Lilienfeld, 1996; Lilienfeld, 1997; McNally, Clancy, Schacter, & Pittman, 2000; Naring & Nijenhuis, 2004; Vassend & Nysveen, 1989; Radtke & Stam, 1991; Zachariae, Jorgensen, Bjerring, & Svendsen, 2000; Zannarini, Ruser, Frankenberg, & Hennen, 2000). The assumption was often made that traumatic life experiences were, by definition, events that were highly absorptive experiences especially for those high in trait absorption (Allen et al., 2002; Bryant, 1995; DiTommaso & Routh, 1993; McNally et al., 2000; Naring & Nijenhuis, 2004).

Traumatic life experiences included any event or events that an individual experienced witnessed or confronted that involved actual or threatened death, serious injury, or threat to physical integrity of self and others, where the individual's response was fear, helplessness or horror (American Psychiatric Association, 1994). These traumatic experiences included such events as terrorist attacks, natural disasters, violent physical assault, and sexual assault, which in some experiences lead to Post Traumatic Stress Disorder (PTSD), a psychopathological condition (American Psychiatric Association, 1994; Saigh & Bremner, 1999), while in other individuals there was a sense of resiliency (Fullerton & Ursano, 2005). PTSD, viewed from a historical perspective, was a controversial disorder with deep roots preceding its formal entry into the nosology with the publication of DSM III in 1980 (Benyakar, 2002; Drell, Siegel, & Gaensburger, 1993; Flora, 1999; Fullerton & Ursano, 2005; Lasiuk & Hegadoren, 2006; Linder, 2004; Motta, 1995; Saigh & Bremner, 1999; Tomb, 1994).

The amount and type of exposure to traumatic circumstances often had profound effects on the individuals who experienced them whether through direct exposure, through the loss and recounted experiences of loved ones, or peripherally through the

media via intense television, newspaper, or internet coverage (Ahern, Galea, Resnick, Kilpatrick, Bucuvalas, Gold, & Vlahov, 2002; Ahern, Galea, Resnick, & Vlahov, 2004; Bleich, Gelkopf, & Solomon, 2003; DeRoma, Saylor, Swickert, Sinisi, Marable, & Vickery, 2003; Hilton, 1997; Pfefferbaum, Nixon, Krug, Tivis, Moore, Brown, Pynoos, Foy, & Gurtwitch, 1999; Pfefferbaum, Nixon, Tivis, Doughty, Pynoos, Gurwitch, & Foy, 2001; Pfefferbaum, Nixon, Tucker, Tivis, Moore, Gurwitch, Pynoos, & Geis, 1999; Pfefferbaum, Seale, McDonald, Brandt, Rainwater, Maynard, Meirhoeffer, & Miller, 2000; Putnam, 2002; Scholte, Olff, Ventevogel, de Vries, Jansveld, Cardozo, & Crawford, 2004; Saylor, Cowart, Lipovsky, Jackson, & Finch, 2003). In some individuals, exposure to these events resulted in the persistent reexperiencing of the event, persistent avoidance of stimuli associated with the event, numb responsiveness and persistent symptoms of increased arousal (American Psychiatric Association, 1994). Given the fact that those high in trait absorption experience their life circumstances more intensely than those low in this trait characteristic, it seemed reasonable to assume that this personality construct along with the amount and type of exposure influenced how individuals experienced a traumatic event and the outcomes of such an experience. Indeed this seemed to be the case (Amdur & Liberzion, 1996; Englehard, van den Hout, Arntz, & Schouten, 2003; Kunzendorf, Hulihan, Simpson, Pritykina, & Williams, 1998). Immersion in the events of September 11<sup>th</sup> certainly qualified as a traumatic experience. Nonetheless, not all individuals reported psychopathology in the aftermath of this event. Clearly some individuals were more vulnerable to the events and developed PTSD symptoms, while others demonstrated more resilience (Fullerton & Ursano, 2005).

The topic for this doctoral project had to do with the September 11<sup>th</sup> 2001 World Trade Center Disaster and how it effected the Pace University student population. Data collected 5-6 months after the attacks in February/March 2002 and again two months later in May/June 2002, at both Pace's New York City and Pleasantville campuses, was used in this study. The data collected in February/March 2002 and May/June 2002 was delineated as time 1 and time 2 in the present study. The aims of this study were to first replicate the correlations seen in previous research that exposure and trait absorption were correlated with PTSD symptoms. It was expected that traumatic exposure, both proximity exposure and media exposure, and trait absorption were correlated with PTSD symptom report at time 1 and time 2. Through correlational analysis, this study also evaluated whether PTSD change scores were correlated with both absorption and traumatic exposure. All other significant correlations among the major study variables were reported.

Utilizing regression analyses, this study evaluated whether an interaction existed between traumatic exposure, level of trait absorption at high, medium, and low levels of absorption, PTSD symptom report at time 1 and time 2, and rate of PTSD change from time 1 to time 2. Separate regression analyses were run for proximity exposure and media exposure. Specifically, this study determined whether the associations between traumatic exposure and PTSD symptom report at time 1 and time 2 were moderated by trait absorption and whether the correlations between traumatic exposure and PTSD change scores were moderated by trait absorption. It was expected that as the level of trait absorption increased, the strength of the relationship between traumatic exposure and PTSD symptom report increased. Conversely as absorption was lowered or decreased,

the strength of the relationship between traumatic exposure and PTSD symptom report also decreased. Secondly, it was also predicted that those individuals higher on trait absorption showed less rate of decrease in PTSD symptom report from time 1 to time 2 than those individuals lower on trait absorption. In other words, as a function of the longitudinal factor of time, it was expected that there was significantly less change in PTSD symptom report for those high in trait absorption than those low in trait absorption. Lastly in exploratory fashion, the present study examined the impact of several of these predicted effects when anxiety, depression, and gender were held constant.

### *Literature Review*

#### *Absorption*

From their seminal studies to ascertain what higher order personality dimensions were associated with hypnotic susceptibility, Tellegen and Atkinson (1974) discovered and identified a separate and distinct personality construct or trait they called “absorption”. They demonstrated that this new personality construct called “openness to absorbing and self altering experiences” or “absorption” had the highest factor analytic loading associated with hypnotic susceptibility, yet was a separate and distinct construct (Kremen & Block, 2002; Glisky, et al., 1991; Pekala et al., 1985; Roche & McConkey, 1990; Roche et al., 1998; Tellegen & Atkinson, 1974, Wild et al., 1995). Several of their original research studies (Tellegen & Atkinson, 1974; Tellegen, 1978, 1981, 1982) discussed how absorption loaded on a trait separate and distinct from several other personality dimensions including Eysenck’s Stability versus Neuroticism and Introversion versus Extraversion (Eysenck & Eysenck, 1969), as well as Block’s (1965)

Stability (Ego Resiliency) and Introversion (Ego Control). Meanwhile, O'Grady (1980) also found in his factor analytic assessment of Tellegen's absorption scale that absorption was separate and distinct from several other personality scales including Repression Sensitization, the F factor, State-Trait Anxiety, Internal-External Locus of Control and Marlowe-Crowne Social Desirability.

Absorption was made up of scaled items related to reality absorption, fantasy absorption, dissociation, openness to experience, and to a lesser extent devotion-trust and autonomy-criticality (Kremen & Block, 2002; Glisky, et al., 1991; Pekala et al., 1985; Roche & McConkey, 1990; Roche et al., 1998; Tellegen & Atkinson, 1974, Wild et al., 1995). Examples of Tellegen and Atkinson's (1974) original items from the reality and fantasy absorption scales of the absorption factor included, "I can sometimes recollect certain past experiences in my life with such clarity and vividness that it is like living them again or almost so;" and "If I wish, I can imagine (or daydream) some things that hold my attention in the way a good movie or story does." From the dissociation and sleep automatism scales of the dissociation factor, item examples included, "If I wish, I can imagine that my body is so heavy that I could not move if I wanted to;" and "I know at some time I have walked in my sleep" (Tellegen & Atkinson, 1974). The openness to experience scale, devotion and trust scale, and the autonomy-skepticism scale that was part of an overarching trust factor included the following item examples, "I enjoy-or would enjoy-getting beyond the world of logic and reason to experience something new and different;" "It gives me-or would give me-deep satisfaction to devote myself to someone I care about;" and "I would rather stick to my own ideas than be guided by others" (Tellegen & Atkinson, 1974).



Although several researchers (Finke & MacDonald, 1978; Glisky et al., 1991; Kremen & Block, 2002; Pekala et al., 1985; Roche & McConkey, 1990; Roche et al., 1998; Tellegen, 1978, 1981, 1982, 1992; Zachariae et al., 2000) frequently described and replicated the moderate correlation found between absorption and hypnotic susceptibility in Tellegen and Atkinson's original study, the psychological trait of absorption was best understood as an inductive capability that predicted hypnotic susceptibility in a correlational manner yet was a separate and distinct construct from hypnotizability. In fact, Tellegen (1981, 1982, 1992) moved his research on absorption away from studying its relationship with hypnotizability and more towards the expansion and understanding of absorption as a separate, distinct, and reliable trait measure of personality.

The evolution of a conceptual understanding of absorption as a multifaceted, reliable trait dimension of personality began with Tellegen and Atkinson's (1974) study. They described the trait of absorption as:

A state of total attention which involves the full commitment and dedication of perceptual, motoric, imaginative, and ideational resources to the experiencing and modeling of a unified representation of an attentional object, which may include items such as a landscape, a human being, a sound, a past remembered incident, or a specific aspect of one's self. (p.274)

Further understanding of the personality trait absorption was advanced with Tellegen's development of the Differential Personality Questionnaire, which was later changed to the Multidimensional Personality Questionnaire (MPQ). This was a self-report questionnaire developed out of the need to clarify the structural and psychological misconceptions of the "self view" of personality (Church, 1994; Glisky et al., 1991;

Kremen & Block, 2002; Roche & McConkey, 1990; Tellegen, 1976, 1978, 1981, 1982; Wild et al., 1995). Tellegen's factor analytic development of the MPQ included absorption as one of eleven separate and distinct personality factors. There were three "higher order" personality traits extracted from the eleven primary personality scales. These three personality traits were positive affectivity, negative affectivity, and restraint (Church, 1994; Kremen & Block, 2002; Roche & McConkey, 1990; Tellegen, 1976, 1978, 1981, 1982; Wild et al., 1995). In order to obtain a complete conceptual understanding of absorption, it is necessary to describe the nine underlying factor scales of the MPQ that were encompassed in the three higher order personality traits and how they were separate and distinct from the factor absorption. By doing so, this further demonstrated how absorption was a separate, distinct individual trait characteristic from other dimensions of personality.

The first metafactor of the MPQ, positive affectivity, was associated with the personality dimensions of well-being, social potency, and achievement. High positive affectivity involved the group of personality traits that contributed to joy, excitement and pleasurable states related to positive engagement. In contrast, low positive affectivity was related to the feelings of joylessness, unhappiness, loss of interest in once pleasurable activities and possible depressive mood states. Tellegen (1978, 1982) described high scorers on the well-being scale, the second component, as possessing a happy and cheerful disposition while low scorers as joyless and unhappy. High scorers on the social potency personality dimension were reported as forceful, decisive, and highly competent in social situations while low scorers preferred others to be forceful and make decisions, defer leadership, and act more reserved in social situations. Those high

on the achievement dimension put work and accomplishments before other things and were often perfectionistic while low scorers lacked ambition, persistence, and perfectionism.

The second metafactor, negative affectivity, was related to the personality dimensions stress reaction, alienation and aggression. This factor reflected feelings of anxiety, anger, and negative forms of engagement in high scorers, while low scorers were described as calmer, more relaxed, and less prone to negative disengagement. High scorers on the stress reaction scale were described by Tellegen (1978, 1982) as anxious, worried, sensitive, and easily angered, while low scorers, were described as having the ability to put fears and anxieties out of their mind. High scorers on the alienation scale were described by Tellegen (1978, 1982) as frequent victims of bad luck, maltreatment, and felt that others were out to harm them, while low scorers did not perceive themselves as victims and did not feel taken advantage of. High scorers on the aggression scale were described as individuals that were physically aggressive, likely to hurt others in a self interested pursuit for their own benefit, and were prone to act malevolently in taking advantage of others. Low scorers were described as less likely to take advantage of others for personal gain and were not invested in violence and aggression.

The third higher order factor, constraint, was most closely connected with the personality dimensions control, harmavoidance and traditionalism. Constraint reflected ones' pleasure-pain regulatory system with high scorers described by Tellegen (1978, 1982) as self-restrictive and cautious, and low scorers more self-indulgent and impulsive. High scorers on the control personality scale were described as reflective, cautious and sensible, while low scorers were described as impulsive, spontaneous, careless and

reckless (Tellegen, 1978, 1982). High scorers on the harmavoidance scale were described, as individuals who preferred situations that were safe, predictable and free of danger, while low scorers preferred risky situations that bred excitement and those that might expose one to danger. High scorers on the traditionalism scale valued high moral standards, religious values and condemned selfishness toward others, while low scorers did not invest themselves in morality or religious values, saw the benefits of selfish behavior, and valued rebelliousness and independence in the face of authority (Tellegen, 1978, 1982).

Absorption was the final scale contained in the MPQ questionnaire (Tellegen, 1978, 1981, 1982). It was described as a separate, distinct personality trait that was moderately correlated with both the higher order personality traits positive and negative affectivity and little to no relationship with the higher order personality trait, constraint. It was apparent from Tellegen and Atkinson's seminal (1974) study, later articles by Tellegen (1978, 1981, 1982), his later contemporaries (Glisky et al., 1991; Kremen & Block, 2002; Roche et al., 1998; Roche & McConkey, 1990; Pekala et al., 1985; Wild et al., 1995), and Tellegen's (1992) most recent description of absorption that multiple cognitive aspects came into play with this personality trait. In general, high scorers on absorption were described as emotionally responsive to engaging sights and sounds, easily captured by entrancing stimuli, possessing the capability to think in images, having greater propensity for synaesthetic and multisensory experiences, becoming easily absorbed in dramatic and compelling images and recollections, experiencing objects and events with expanded awareness, and adopting an experiential mode of functioning characterized by a willingness to engage and experience attentional objects, often images,

for their own affective meaning (Kremen & Block, 2002; Roche & McConkey, 1990; Tellegen, 1978, 1981, 1982; Wild, et al., 1995). Low scorers on absorption were described as individuals who were not easily caught up or absorbed in sensory experiences, more likely to maintain a realistic frame of reference, and more prone to adopting an instrumental mode of functioning by putting more of an emphasis on planning, decision-making and goal oriented behaviors (Roche & McConkey, 1990; Tellegen, 1978, 1981, 1982; Wild et al., 1995).

There were several key points that were important in understanding the development of absorption as a stable, separate personality trait. Absorption as a personality construct was broken down into two separate yet equally important combinatory parts. One was cognitive and the other was affective-motivational. Cognitively, attentional processes were highlighted as the core aspect of this trait. The focus of an individual's absorbed attention was either generated through external multisensory stimuli or through self generated internal stimuli (Church, 1994; Kremen & Block, 2002; Roche et al., 1998; Roche & McConkey, 1990; Tellegen, 1981). From an external perspective, the highly absorbed individual was so fully committed to the attentional object that other external stimuli normally noticed in other circumstances did not penetrate one's attentional awareness (Roche & McConkey, 1990; Tellegen & Atkinson, 1974; Wild, et al., 1995). For example, the absorbed individual seemed so engrossed in a movie, song, or perhaps, the media coverage of a traumatic event that, it appeared as if no other external stimuli penetrated his or her awareness. From an internal perspective, highly absorbed individuals naturally focused their attention on their internal physical or psychological states, including one's heartbeat, breathing, or anxiety (Roche

& McConkey, 1990; Zachariae et al., 2000), images or recollections of recent or past events, projections of future events, or entrancing fantasies (Kremen & Block, 2002; Tellegen, 1981, 1992; Wild et al., 1995). Absorbed individual's construction or recollection of a past memory, for example, his or her recollection of an emotionally charged interaction with their parental figure, seemed to him or her as real and occurring in the present moment (Tellegen & Atkinson, 1974; Tellegen, 1981, 1992). Individuals high in trait absorption relied on their imaginations (Kremen & Block, 2002; Roche & McConkey, 1990), fantasies (Kremen & Block, 2002; Roche & McConkey, 1990; Wild et al., 1995), or creative productions (Wild et al., 1995) in order to engage, access and immerse themselves in intense internal experiences. This cognitive component of absorption also allowed the highly absorbed individual to simultaneously experience the operation of more than one cognitive representational system where attentional, perceptual, auditory and motoric systems worked in unison of one another. They perceived auditory tones as having colors, for example. In this sense, they were synaesthetic.

Highly absorbed individuals also tended to be quite empathetic. Whether the experience originates internally or externally, it possessed, for highly absorbed people, an inherent "self"-like quality. In some specific circumstances, absorption resulted in an altered sense of an individual's self when the object of attention was another person's activities or experiences, which inherently enhanced the empathy for that other individual. This resulted in situations where there was a temporary experience of equivalence between the absorbed human object and the individual self (Tellegen & Atkinson, 1974; Tellegen, 1992). Absorbed attention also affected an individual's sense

of reality. This helped one better understand the cognitive processes involved in absorption. People high in absorption experienced one part of reality in a deep and amplified manner while all other aspects of one's experience receded from awareness. In this sense, there was a disconnection between the current self and an individual's usual self during episodes of high absorption (Tellegen & Atkinson, 1974; Tellegen, 1992). The cognitive processes that produced these highly absorbing experiences were much akin to a nonpathological type of dissociation.

The motivational affective component of trait absorption was also seen in the highly absorbed individual's openness to new experiences. There was a greater propensity for high absorbers to be open to new and personally unique attentional experiences and a readiness to engage in deeply involving interpersonal relationships. This appeared to explain absorption's correlation with Openness to Experience and Devotion-Trust Scales on Tellegen and Atkinson's original scale. Costa and McCrae (personal communication) argued that absorption was most closely associated with their "Openness to Experience" dimension of personality (Church, 1994; Glisky, et al., 1991; Kremen & Block, 2002; Roche et al., 1998; Roche & McConkey, 1990; Wild et al., 1995), despite Tellegen's (1978, 1981, 1982, 1992) unwillingness to fit absorption into this five-factor model of personality. They also pointed out absorptions separateness from the Neuroticism dimension of Costa and McCrae's five-factor model of personality (Church, 1994; Costa & McCrae, personal communication, Glisky, et al., 1991; Kremen & Block, 2002; Roche et al., 1998; Roche & McConkey, 1990; Wild et al., 1995).

Most recently in his description on the structure and meaning of the MPQ Absorption Scale, Tellegen (1992) reiterated, redefined, and expanded his original

description of absorption. Similar to his earlier descriptions, he defined the construct of absorption as “a disposition to enter under conducive circumstances, psychological states that were characterized by marked restructuring of the highly absorbed individual’s self and world” (p.1). Tellegen reiterated that absorption could take on an external or an internal focus of attention, resulting in a restructuring of both the individual’s experience of self and reality (Kremen & Block, 2002; Tellegen, 1992). Absorption was also described as containing a nonpathological dissociative and integrative quality (Kremen & Block, 2002; Tellegen, 1992). The personality trait absorption worked with both positive and negative emotions to heighten the emotional activation potential of a person. Absorption magnified an individual’s attentional state in an additive nature, drawing an individual’s attention and perception to his or her experience (Tellegen, 1992). For example, highly absorbed individuals listening to music felt as if the external world cannot penetrate their awareness; they were one with the music, and no other external stimuli can enter their experience. An individual’s other personality traits, dispositions, and experiential history acted in combination with absorption to determine how a given event affected an individual. For example, highly absorptive individuals differing in positive or negative affectivity likely were affected very differently by the same circumstances. Due to the interaction between absorption, affectivity and other experiential factors, some individuals experienced absorption as an adaptive positive experience while others experienced high absorption as disruptive and distressing (Tellegen, 1992). Underlying trait absorption were six intercorrelated factors: (1) responsiveness to engaging stimuli, (2) synesthesia, (3) enhanced cognition, (4) enhanced awareness, (5) vivid reminiscence, and (6) dissociative involvement (Tellegen, 1992).