Incorporating visual communication desensitization in the treatment of depression in women with sexual trauma histories

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Incorporating Visual Communication Desensitization in the Treatment of Depression in Women with Sexual Trauma Histories

Nino Chkhaidze

A dissertation submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

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Abstract

Depression is a complex condition which requires a multi-faceted approach and adjustment of the treatment method depending on the etiology of the disorder. One of the possible causes of depression is trauma experienced by an individual, especially when the traumatic event involves an interpersonal component. An innovative interview/therapeutic technique called Visual-Communication Desensitization (VCD) aims to help individuals process their traumatic experience and cope with negative effects of trauma by means of a line graph, which allows visualization of the event on timeline. In the current study, our goal was to identify VCD’s effects on depression in women with sexual trauma histories. A close examination of two cases revealed a pattern of initial increase of depression after the application of the VCD, followed by an eventual decrease as the treatment progressed. The results of one of the participant provided evidence for VCD’s effect on decreasing sadness, guilty feelings, self-criticalness, and worthlessness, while in the case of another participant, outcomes indicated reduced self-dislike as measured by the BDI-II. Several other variables such as PTSD, anxiety, the number of recalled trauma episodes, and distress associated with the recollection of trauma events were measured. The findings may be useful guidelines for treating depression in women with sexual abuse history in a clinical practice.

Keywords: depression, sexual trauma, visual-communication desensitization (VCD)
I. Introduction

According to the World Health Organization (WHO, 2016), “depression is the leading cause of disability worldwide, and is a major contributor to the overall global burden of disease.” This statement does not come as a surprise for clinical psychologists because it is usual to receive many referrals of patients who present with depressive symptomatology in everyday practice of psychotherapy. The concept is popular outside clinical practice as well – the term “depression” has long become an intrinsic part of everyday vocabulary due to the frequency of its use to signify anything ranging from a slightly negative mood to the leading cause of suicidality. The problem of depression is huge, and, in fact, it goes beyond the epidemiology of the disorder. With different labels, clinical descriptions, explanatory schemes, and treatment practices, the concept of depression has been around since the oldest times, describing various forms of people’s “pressed down” (Latin de – down from) states (Jackson, 1986), and due to its complexity, has always been a subject of extensive debates.

Historically, as described by Jackson (1986) in his book *Melancholia and Depression: From Hippocratic Times to Modern Times*, depression has been seen from various angles, based on the zeitgeist and dominant worldviews during particular time periods. In the Hippocratic writings dated between fifth and fourth centuries B.C., depression, labeled as “melancholia” then, was described as a distinct, chronic disease, usually caused by black bile (one of the four bodily humors). Medieval medicine differentiated between the types of melancholia based on whether it originated in the brain, or whether the brain was affected only secondarily. Some authors of the Renaissance
started to label melancholia as a form of “insanity,” and identified sadness and fear as the core feelings of the melancholic states. By the late 16th and early 17th century supernatural forces (namely, satanic influences and astrology) were emphasized in contributing to the development of the disease. Mechanical conceptualizations followed in the 1690s, claiming that melancholia, or the disorder of thought, was caused by the thickening of blood and its accumulation in the brain. In the 1740's electrical experimentation became popular, where melancholia was still viewed by some authors as a form of “madness,” with fixed images exciting certain areas of the brain and producing passions, which would influence the body. In the 19th century authors discussed the central role of hereditary dispositions regarding the development of the disorder, while placing an emphasis on upbringing and critical life circumstances (Jackson, 1986).

In this report on earlier approaches of depression, we can identify the different psychological perspectives that are still popular today. Namely, whether depression was a disease caused by black bile or thickened blood accumulating in the brain, a disorder associated with disturbed perceptions stemming from fixed images or supernatural forces, or a reaction to critical life circumstances. Similarly, some of the contemporary authors tend to attribute the causes of depression to neurobiological dysfunction, while others focus on negative life experiences which lead to maladaptive cognitions, emotional difficulties, and disturbed behavior. Henriques (2017) tries to incorporate this dichotomy into a unified vision by arguing that depression is, first of all, a state of behavioral shutdown (p. 13), and there are multiple potential ways that can lead to this shutdown. In most cases, a behavioral shutdown is an adequate
response to objective environmental stressors (loss of a job, death of a loved one), which can contribute to further complications such as distorted perceptions of environmental stimuli or maladaptive behavioral patterns, and form a vicious cycle to ultimately create a depressive disorder. On the other hand, depression should be considered a disease only in rare cases where the behavioral shutdown is facilitated by a neurobiological dysfunction (Henriques, 2016b).

In the current study, we discuss depression as a disorder, developed, at least partly, as a reaction to sexual trauma. It is fair to point out that because of the complex nature of the disorder, it is hard to make a valid conclusion that the current elevated level of depression is caused by the trauma which occurred earlier in life, or if that trauma is the only cause of it. However, we can apply reverse logic: by identifying a major trauma experience combined with an elevated level of depression in an individual, we can safely conclude that depression did not develop “out of the blue” and there is at least one potential contributor to it; therefore, it cannot be treated as a disease which can only be cured by medical intervention. We consider identifying psychological mechanisms of depression as a matter of the first importance.

Freud (1917) explicitly stated that discussing melancholia from a psychological perspective reflected his own bias:

“Melancholia, whose definition fluctuates even in descriptive psychiatry, takes on various clinical forms the grouping together of which in a single does not seem to be established with certainty; and some of these forms suggest somatic rather than psychogenic affections. Our material, apart from such impressions as are open to
every observer, is limited to a small number of cases whose psychogenic nature was indisputable. We shall, therefore, from the outset drop all claim to general validity for our conclusions...” (p. 243)

A similar assumption applies to the current paper; we choose to view and discuss depressive disorders entirely from a psychological point of view, while being aware of the diversity of its etiology as well as symptomatology.

As mentioned before, the current work focuses on a traumatic experience, specifically sexual trauma, as one of the possible causes of depression, and aims to show how the treatment directed to trauma may help decrease depression level. We will discuss each concept separately, as well as in relation to each other.

**Psychological Perspectives on Depression**

The 20th century, the era of the quickest development in the different fields of science, including psychology, provided us with the most conceptually systematic views on depression, with the most theory- and evidence-based treatments, and, with the accelerated development of the concept. Only to take one direction of this development, taxonomy of the disorder in the second half of 20th century has changed from forms of depression being classified under psychotic and psychoneurotic disorders in the first Diagnostic and Statistical Manual of Mental Disorders (DSM, 1952), to representing the category of affective disorders (the authors recognized “mood disorders” would be more appropriate name, however, the term “affective” was more familiar for the public) in the DSM-III (APA, 1980) and mood disorders in the
DSM-IV™ (APA, 1994), to being separated with its own category of “depressive disorders” in the DSM-V (APA, 2013).

If we take a look at the literature on depression worldwide, we will see that there have been numerous attempts at classifying depression in relation to other disorders and under broader diagnostic groups, as well as identifying and differentiating its subtypes. Gilbert (1984) categorized these attempts at classification the following way: 1. Statistical approach, the main method of which has been factor analysis, identifies different subtypes of depressions, such as anxious depression, hostile depression, vegetative depression, psychotic depression, or depression associated with personality disorder; 2. Theoretical approach, the biggest debate of which, the author presents, is whether the nature / etiology of depression is endogenous or exogenous / reactive; 3. Treatment outcome approach, according to which the nature of depression is determined by the type of treatment to which the patient responds. For instance, pharmacotherapy is seen to be more effective for treating psychotic depression; 4. Unipolar-bipolar distinction, which debates whether depression is a unitary concept, or if a manic state should be included in the diagnosis as well; 5. Primary-secondary distinction, which differentiates between the state of depression without any history of other disorders, and depression preceded by other mental or medical disorders; 6. Hierarchical model, which tries to arrange the symptoms of depression based on the level of disturbance of personal functioning by identifying various types of depression ranging from mild (e.g. dysthymia) to severe (e.g. depression with psychotic features) and differentiating between psychopathological and non-psychopathological forms of depression; 7. Biological approach, which identifies different types of depression
based on their biochemical or neurochemical characteristics; and 8. Longitudinal approach, which integrates the approaches discussed above to study the nature and different aspects of depression by observing the development of the disorders in individuals over a long time period. This approach, in particular, may be useful for making assumptions whether there are qualitative or only quantitative differences between neurotic and psychotic depression.

From this review, we can confidently draw at least one conclusion: depression is not a unitary, straightforward concept. It can be discussed from various angles and different aspects of it have a potential to give a rise to controversies of opinion.

Despite the disorder’s controversial nature, various psychological schools of 20th century were able to provide conceptually systematic views on depression. From those, psychodynamic, cognitive, and behavioral perspectives seem to have gained the most popularity in conceptualizing the disorder and therefore have been widely discussed in psychological literature. These approaches are described below.

*The psychodynamic approach* to depression is well reflected in Freud’s (1917) famous paper *Mourning and Melancholia*. In the paper, Freud discussed that a similarity between a grief process (i.e. mourning) and depression (i.e. melancholia) is an experienced loss. In the case of grief, the loss is clearly identified, usually a particular person/object or some ideal, while in the case of depression, it is more diffuse or even unconscious. According to Freud (1917), when the loss of the object is definite, e.g., a beloved person died, the libido gradually withdraws from the object and eventually finds another object for attachment. The process may be slow and painful but, in case
of non-complicated grief, it reaches its cathexis point. Depression occurs when the free libido, instead of attaching to another object, returns back to the ego and develops an identification of the ego to the lost object. This may happen because the object that is lost served as a fulfillment of one’s narcissistic tendencies and, therefore, relationship with him (the object) was characterized by a conflict. Now ego turns this conflict against itself and becomes self-destructive. As Freud (1917) stated, “in mourning it is the world which has become poor and empty; in melancholia it is the ego itself” (p. 246). While grief is considered as a normal process, depression is thought to reflect a “pathological disposition.”

Melanie Klein (1935), on the other hand, viewed depression as a natural stage of early development, labeling it as “infantile depressive position” (p. 14), which can be overcome by ego’s proper functioning. The themes that create a basis for infantile depressive position, can be found while analyzing adult melancholia as well: tension between internalized good and bad objects as well as between feelings of love and hatred, associated with these objects. Also, the anxiety and guilt evoked by this tension. According to Klein, depression originally stems from a paranoid anxiety about persecution. This anxiety, in turn, is developed by the infant’s projection of its own aggressive impulses to an external object (e.g. mother’s breast) and then by introjecting these impulses back as a threatening “bad object”. The same external object ego may internalize also as a “good object”, because it is able to satisfy infant’s needs. Along its development, ego’s identification with the good object grows and paranoid desire to get rid of a bad object creates a fear of losing a loved object with it too. Therefore, ego starts actions of reparation to save the good object; however, there
are a lot of strict demands to be met and ego is not confident in its abilities to preserve the object, internalized or external. This uncertainty creates more anxiety regarding the possible loss of the object, which causes the ego to try harder to preserve it and ultimately creates a basis for depressive position. As ego develops further and starts to internalize an object as a whole instead of its parts, then a feeling of guilt emerges as well, stemming from the contradiction between an extreme love and extreme hatred. If ego succeeds in managing its relations and maintaining identification with introjected as well as external loved objects, it will be able to overcome depressive position and proceed to the following stages of normal development.

Behavioral theories of depression emphasize the operant learning history of a person. Ferster (1973) saw avoidance of aversive situations as a main motivating factor for a depressed individual. He represented a behavioral view on depression as a functional rather than topographical explanation. In other words, he claimed that there is nothing in a depressed individual’s behavior that looks different from a non-depressed individual’s behavior. It is only the frequency of behaviors that differs. Depressed individuals are thought to be less actively engaged in their relationship with the environment, as throughout the long history of learning they have developed very few behavioral repertoires able to produce positive reinforcement. Therefore, they tend to be rather passive and reactive, which further prevents receiving positive reinforcement, leaving more space for negative reinforcement as a consequence of avoiding aversive situations. According to Ferster (1973), a situation may be perceived as aversive when a person does not have an appropriate repertoire of responding to them. Therefore, even some frequent repetitive behaviors of depressed individuals, such as pacing,
handwringing, can be considered as avoidant behaviors, as a person avoids the
aversiveness of “not behaving” and decreases discomfort by performing random
behaviors. Thus, Ferster saw depression as a lack of positively reinforced behaviors
and an increased frequency of other behaviors, the primary goal of which is avoidance.

Similar to Ferster, Lewinsohn (1985) stated that the amount of response-contingent
positive reinforcement is what distinguishes depressed and non-depressed individuals’
states from each other. Here the author made a special emphasis on the words
“response-contingent,” as only providing rewards to individuals does not help improve
their depressed state. Rather, there need to be a variety of events that would potentially
lead to positive reinforcement, a sufficient number of opportunities for positive
reinforcement provided by the environment, and the skills with which an individual
would perform behaviors leading to positive reinforcement. Lewinsohn (1985) stated
that the lack of response-contingent positive reinforcement is directly connected to
certain depressive symptoms, such as dysphoria, fatigue, and somatic complaints, and
can also explain other depressive symptoms, such as low rates of behavior.

Costello (1972) viewed depression the same way as his colleagues, stating the
importance of the lack of reinforcement in developing the disorder. However, he made
a slightly different emphasis, proposing that depression stems not from the decrease in
the number of reinforcers, but from the decrease in the individual’s interest in them,
i.e. from the loss of reinforcer effectiveness.

Another representative of behavioral school, Rehm (1977) proposed a self-control
model of depression. He suggested that each element of self-control is performed
differently by depressed versus non-depressed individuals, which is then reflected in depressive symptoms. For instance, during self-monitoring depressed persons tend to attend to more negative events than positive, from which pessimism and a negative view of self, world, and future may follow. During self-evaluation, depressed people may consider themselves not able to perform effective actions or may exaggerate the importance of external factors, and therefore be less motivated to make efforts. This may result in helplessness and low self-esteem. Furthermore, depressed persons tend to self-reinforce at low rates because, on one hand, their performance may be generally slow, and on the other hand, their self-evaluative criteria are stringent. This, as Rehm (1977) noted, may result in psychomotor retardation, lack of initiative, inability to sustain effort, emotional liability, and self-directed hostility.

_Cognitive theory_, another mainstream school for conceptualizing depression, made emphasis on an individual’s interpretations of the events and claimed subjective cognitive representations of reality as the root of depression. Beck and Alford (2009), as shown on the Figure 1, described the primary cognitive triad of depression – viewing world, self, and future in a negative way – which they considered as a trigger for the rest of the symptomatology of the disorder.
Negative view of world was defined by the authors as an individual’s tendency to interpret his experiences in a negative way, making negative assumptions from neutral or even positive situations, or exaggerating the meaning of negative situations – seeing minor barriers as impossible to overcome, mistakes as failure, and others’ relative success as their own deprivation. Negative view of self may be developed from the negative interpretation of one’s own experiences – a person tends to blame herself for the perceived failures and inferiority, which leads to negative self-concept, which, in turn, is associated with self-rejection. Negative view of future refers to the expectations depressed individuals have regarding what will happen in a long-term perspective, or even as near future as that day. Usually, as Beck and Alford (2009) stated, people tend to appraise their future based on what they experience at present; therefore, if a person perceives his experiences as negative and moreover, does not perceive himself as capable of changing them, he will most likely imagine the future in a negative way and ruminate over the possible threats.
Beck and Alford (2009) claimed that mood as well as motivational changes in depression are only secondary symptoms to the cognitive patterns described above. The authors indicated that, based on the variety of the feeling states depressed patients report, it is possible to identify the predominant cognitive pattern: “the way individuals structure their experiences determines their mood. Since depressed persons consistently make negative conceptualizations, they are prone to consistently negative moods” (p. 231). Similarly, the authors concluded that changes in motivation, which include paralysis of the will, avoidant and suicidal wishes, and intensified dependency wishes, stem from different components of the cognitive triad of a depressed person.

Social cognitive theorist Albert Bandura (1999) believed that the extent to which a person is confident in his abilities to cope with stress determines her vulnerability to depression. The author identifies various ways in which “perceived inefficacy” (p. 30) may lead to depression. One of the routes is setting overly high standards for oneself, which almost inevitably leads to failure, which, in turn, causes a feeling of worthlessness and depression. Research by Arutuinov and Chkhaidze (2010) confirmed this conceptualization by showing statistically significant correlations between negative perfectionism (setting unattainable standards and/or having low tolerance towards failure, as opposed to positive perfectionism, which implies setting high, but achievable standards and/or being tolerant towards mistakes), low self-esteem, and depression. Another route which leads to depression, identified by Bandura (1999), is perceived inefficacy in making social contacts, which deprives a person from important sources of support. The crucial role of relational value in a person’s well-being is also highlighted by Henriques (2012). The third path to
depression, according to Bandura (1999), is perceived inefficacy to manage ruminative negative thoughts. The tendency toward this type of rumination is also characteristic of negative perfectionism, which was found to be in correlation with depression (Arutiunov and Chkhaidze, 2010). Bandura considered efficacy beliefs in one’s motivational, emotional, and cognitive functioning as crucial in determining the choices the person makes regarding her social environment and activities which, in turn, influences person’s everyday life and mental health.

The author of a unified theory of psychology Gregg Henriques (2011) offered an integrative approach to depression where he combined the crucial elements of the mainstream views and presented them with a new conceptual frame called behavioral shutdown model (BSM). According to BSM, depression is a state developed as a response to the continued failures to find ways of positive investment and avenues for achieving desired outcomes through one’s actions (Henriques, 2017). Central for depression is activation of a negative affect system over positive affect system. The negative affect system is associated with an emotional pain and is characterized by cognitive focus on past losses leading to avoidance orientation which, in turn, is a key concept in the development of depression, while the positive affect system is associated with pleasure and characterized by approach orientation (Henriques, 2016a). The Behavioral Shutdown Model stems from one of the components of the unified theory of psychology proposed by Henriques (2011), Behavioral Investment Theory (BIT). BIT proposes that evolution of nervous system was shaped by the tendency of a living organism to conserve energy. Therefore, the behavior of humans, as well as of other animals, is drawn toward finding ways to achieve maximum benefit
from minimum effort, or in other words, to achieve an optimal energy expenditure / energy gain ratio. As a general principle, those behaviors with a better ratio tend to be maintained in the behavioral repertoire. From this point of view, depression is seen as a result of repeated failures to control the flow of one’s resources and to gain appropriate return from one’s energy expenditure. When an individual’s attempts to achieve desired results, fail, options are to increase the energy expenditure for a better outcome – perceived as a desire and excitement – or to cease the attempts in order to conserve energy. After an individual tries all the behaviors in her repertoire and the gain is still not enough, then the only option is to “shutdown” the positive investment system and activate a defensive avoidance, which eventually leads to an inability to find and engage in productive ways of investment (Henriques, 2016b). In other words, when an organism goes to the energy-conserving mode, the positive affect system of approach shifts to a negative affect system of avoidance, which leads to ceasing an active investment in growth (Henriques, 2014). As Henriques (2016a) stated, “depression may represent an evolved tendency to decrease behavioral expenditure in response to chronic danger, stress, or consistent failure to achieve one’s goals.” Using the behavioral shutdown model, Henriques (2011) also illustrated the function of different symptoms of depression. For example, anhedonia and low energy level (as opposed to desire for achieving better outcomes by spending more energy) account for low behavioral investment, emotional pain alerts a person about the potential danger coming from disturbed energy economics, and negative perceptions maintain an image of potential failure in case of further efforts and trigger hypersensitivity to this failure.
Thus, the model draws a clear picture of the etiology of depression and the vicious cycle by which the condition is maintained.

Jackson (1986) appropriately observed that there has hardly been any theory of depression which has not suggested a relevant treatment for the disorder based on the theory’s fundamental principles. As we can see, various schools of psychology have their unique view on what is a fundamental contributor to depression. The same emphases on certain aspects of depression are translated from theory to the therapy practices: a psychodynamic psychotherapist focuses on unfolding unconscious processes and triggering insight, a behavioral therapist tries to motivate behavioral activation which may lead to new contingencies for positive reinforcement, and a cognitive therapist helps individuals with depression to identify their thought patterns and leads them towards more positive appraisal of reality. “New descriptions lead to new prescriptions”, as Lynch and Kilmartin (2013, p. 22) smartly noted.

In the current research, we focus on depression’s connection to trauma and discuss an experience of sexual abuse as a potential contributor to the development of depression. Therefore, we propose that a treatment that will help individuals process their abuse experience will also lead to a decrease in depression level. A number of research evidence as well as theoretical conceptualizations suggest this type of connection between trauma and depression.
Trauma and the Connection to Depression

On many occasions depression arises as a result of an exposure to a traumatic event (Momartin, Silove, Manicavasagar, and Steel, 2004; O’Donell, Creamer, and Pattison, 2004). Everly and Lating (2004) suggested that an event is considered traumatic when it disturbs the protective mechanism, the aim of which is to filter stressful experiences in order to maintain an individual’s normal psychological functioning. Making comparisons with biology, the authors defined a traumatic event as “a pathogen that overwhelms one’s psychological ‘immune system’” (p. 35). In order for an event to evoke such an intense distress to an individual, Everly and Lating (2004) theorized, it has to directly attack one or more of the core beliefs or needs of a person: the belief of a justice of the world; the need to be attached to others and trust them; the need to be physically safe; the need for a positive self-concept; and the need for an existential meaning of life. The authors explain that these beliefs are adopted by people in order to reduce anxiety regarding the uncertainty of the world, and they serve as a psychological substitute of actual physical safety. Therefore, any event contradicting these beliefs will be perceived as overly painful. The authors viewed trauma as an antithesis to safety.

By the APA Dictionary of Clinical Psychology (APA, 2013) trauma is defined as “any disturbing experience that results in significant fear, helplessness, dissociation, confusion, or other disruptive feelings intense enough to have long-lasting negative impact on person’s attitudes, behavior, and other aspects of functioning.” This definition implies the possibility of developing various psychological symptoms /
disorders as a result of traumatic exposure. However, the diagnosis most widely associated with trauma is post-traumatic stress disorder (PTSD), which, by the definition of DSM-V (APA, 2013), develops as a result of traumatic experience, and is characterized by intrusion symptoms such as recurrent memories, flashbacks and disturbing dreams, avoidance behavior, negative changes in cognition and mood, and heightened arousal and reactivity. *Trauma* and *PTSD* are sometimes even used interchangeably, which must be due to the criterion A of PTSD (p. 271) in the DSM-V specifying that trauma is a necessary condition for development of the disorder, the title itself: “*post-traumatic stress disorder,*” and the described symptomatology of PTSD which is quite exhaustive and includes a wide range of potential reactions to trauma. Still, PTSD is not the only possible psychological condition that can result from traumatic experience. Other diagnoses, such as dissociative disorders, acute stress disorder, and major depressive disorder may be also given to the individuals in the aftermath of trauma, separately or as a comorbid state of PTSD (APA, 2013). In their article on reviewing comorbidity between PTSD and depression, O’Donnell et al. (2004) introduced a discussion as to whether PTSD and depression, which arise after an individual’s experiencing of trauma, can be combined in a single construct of traumatic stress, or if it is more plausible to view them as separate constructs which may arise in the aftermath of trauma, in comorbidity with each other, or individually. Based on the data from 363 trauma survivors, the authors found that the diagnoses of PTSD and comorbid PTSD / depression were similar regarding the risk-factors with which they were associated, such as higher severity of a traumatic event, while the diagnosis of depression alone was associated with different factors, such as alcohol use
history. Also, the results showed that both, the diagnosis of PTSD and comorbid PTSD/depression predict a more chronic course of disorder, and that the diagnosis of depression alone will most likely result in a quicker improvement. Therefore, the study leaned towards supporting the idea of separate constructs in the acute post-trauma period, while a single construct was seen as more applicable for chronic post-traumatic reactions.

Traumatic events may differ in the extent of how broad and all-encompassing they are. They may be tragic events involving many people, such as a war or natural disaster, or they may be more personal, such as sexual assault or betrayal from a loved one. In the first case, when the traumatic influence is obvious, affected people are usually considered as trauma survivors, and their mental health evaluation would be primarily focused on PTSD screening. Depression may only be discussed secondarily. In the second case, when the traumatic event occurs on an interpersonal level, the psychological consequences may not be readily known by a support network, and sometimes not fully recognized even by the person experiencing them. Depression may develop as a more obvious or primary state and only a careful psychological assessment may lead to recognizing trauma as a possible cause.

The research conducted by Goldsmith, Chesney, Heath, and Barlow (2013) aimed to find a connection between high betrayal versus low betrayal trauma with the psychological symptoms of intrusion, avoidance, depression, and anxiety. The connection was hypothesized to be mediated by emotion regulation difficulties. High betrayal (HB) trauma was defined as “trauma perpetrated by someone to whom the victim is close” (p. 377), and low betrayal (LB) trauma was defined as “trauma that
involve[s] relatively low level of betrayal, such as accidents, natural disasters, or assault perpetrated by a stranger” (p. 377). Goldsmith et al. (2013) investigated a sample of 593 student participants aged 17 to 52, female and male, using measures which provided information on their emotion regulation, experienced traumas, the level of betrayal in it, and symptoms of post-traumatic stress. The results indicated that HB trauma, with or without the mediating factor of emotion regulation difficulties, predicted depression significantly. With the mediating factor it also predicted intrusions, avoidance, and anxiety. LB trauma was not identified to be connected with disturbed emotion regulation, and directly predicted only anxiety.

Along with a high level of betrayal involved in interpersonal trauma, there are other factors that determine its adverse psychological effects. As Sanderson (2010) stated, many trauma survivors tend not to label abusive interpersonal experience as trauma, which prevents them from legitimizing this experience and seeking professional help. This may happen because of the secrecy of abusive relationship and the ambivalence connected to the persona of an abuser: “To entrap their victims, abusers have to dissemble their real motives under the guise of affection, interest or protection. Through a potent fusion of charm, seduction and ‘love bombing’, the abuser entrances the victim, and lures them into a masquerade” (pp. 26-27). Moreover, Sanderson noted that interpersonal abuse, in most cases, involves a series of violations rather than one single event of abuse. Achieved by continuous deception, the abusive control may lead the victim to the permanent cognitive dissonance and “a collapse of psychological and physical integrity” (p. 26).
Using components of the theories and research discussed above, figure 2 shows a mechanism by which trauma may lead to depression. The chart contains three major parts, presented along the horizontal axis: 1. components of trauma presented in the squares, 2. a psychological meaning of each component, and 3. the potential psychological consequences. A solid arrow means that an indicated piece will follow with certainty, while a broken arrow implies that a piece may or may not follow.

**Figure 2: Connection between Trauma and Depression**

As indicated on the chart, a traumatic event can be broken down to three main components, presented in squares along the vertical axis: (a) an actual situational threat of the event, which may represent a danger to one’s physical and/or psychological well-being; (b) a major frustration of a person’s one or more core needs, which are listed by association with lower betrayal towards higher betrayal trauma; and (c) a major loss. A situational threat to one’s well-being naturally causes major distress and makes an individual vulnerable towards developing a psychological
disturbance (e.g. PTSD). However, with the help of supportive factors, a person may be able to overcome this vulnerability and return to normal psychological functioning. If, on the other hand, this vulnerability is combined with a continuous perceived threat to one’s physical safety, meaning or purpose of life, positive self-concept, etc., then it is more likely that a person will develop symptoms of one or more psychological disorders related to trauma. The disturbed system is more likely to shape specifically towards depression if combined with the following risk factors: 1. Occurrence of a high betrayal traumatic event which may negatively impact one’s sense of purpose, ability to trust, and/or self-concept; 2. Losing an object in which an individual had invested significant amount of energy. At present, this may mean being deprived of actual positive ways of investment and/or losing interest in activities in general due to lack of purpose.

*Sexual abuse* is a unique type of interpersonal trauma, presenting yet other challenges and complications. The National Center for Injury Prevention and Control (2014) defines sexual violence as “a sexual act that is committed or attempted by another person without freely given consent of the victim or against someone who is unable to consent or refuse” (p. 11). As further clarified, a wide range of sexual experiences may fall under the category of a “sexual act”, starting from any unwanted non-contact exposure to sexual content, to forced sexual penetration.

Sexual abuse may occur at any stage of a person’s life and may convey a different psychological meaning based on the person’s level of awareness of societal attitudes towards sexual abuse and her ability to label the experience appropriately. It is not
uncommon for adult clients coming to psychotherapy, who have experienced a
childhood sexual abuse (CSA), to share that at that time they had a limited awareness
of what was done to them. Only later in life did they realize they had been the victims
of sexual abuse, and because they had only minimal recollection of what happened
many years before, it was hard for them to concentrate on and emotionally process the
experience. Thus, sexual abuse experienced in childhood presents additional
challenges for individuals to cope with the negative consequences of it. Lewis et al.
(2003) investigated a sample of 255 college students with the mean age of 21 years to
study the difference of psychological characteristics of women with and without a
reported history of CSA. More specifically, they measured and compared the intensity
of trauma symptoms, depression, anxiety, and borderline features. 64% of participants
reported some sort of experience labeled as “sexual abuse” before the age of 18, of
which 62% percent indicated unwanted sexual interaction with penetration. The
psychological characteristics were compared between two groups, differentiated by the
criterion of any sort of sexual abuse versus no abuse. The results showed that the
participants with a history of sexual abuse indicated more depression, trauma, anxiety,
and borderline personality features, more anxious attachment and likelihood of
insecure attachment, more clinically elevated depression, anxiety, self-blame,
helplessness, and self-criticism. The authors noted that these results are alarming, and
the survivors of childhood sexual abuse require heightened awareness and early
intervention. As thoroughly discussed by Stokes and Chkhaidze (2017), the roles of
parents, community, and mental health professionals are crucial in the case of
childhood trauma.
The difficulty of labeling an event as sexual abuse may occur in the case of adulthood sexual trauma as well, especially if a person was under the influence of substances during the abuse, and has no clear recollection of the experience. Furthermore, victims may feel a sexual arousal in a response to abuse as a natural physiological reaction. This may create an illusion of giving consent for the sexual act, which may trigger a feeling of guilt and prevent the victim from identifying the experience as an abuse (Sanderson, 2010).

The taboo connected to sexuality and its expressions adds another layer to the already complicated process of overcoming a sexual trauma experience. Within our society, sexual assault is connected to a pervasive stigma. Deitz, Williams, Rife, and Cantrell (2015) investigated stigma as a mediator between sexual assault and trauma. The authors distinguished between three types of stigma: cultural stereotypes, public stigma, and self-stigma. While cultural stereotypes refers to general negative attitudes towards sexual assault victims, public stigma refers to the negative treatment towards a particular person who has experienced sexual assault. Self-stigma is public stigma internalized by an individual, which may result in self-rapprochement for the traumatic experience. Deitz et al. (2015) hypothesized that, on one hand, the severity of sexual assault would be in positive correlation with the three aspects of stigma, and on the other hand, the severity of stigma would correlate with the severity of trauma symptoms. The authors assessed 223 female student participants aged 18 to 55. The instruments administered included a measurement of sexual assault intensity, trauma symptoms, social reactions, self-blame, social support, and cultural stereotypes. The results indicated that, while severity of sexual assault had a significant positive
correlation with two out of three aspects of stigma, public stigma and self-stigma, only self-stigma had a significant correlation with traumatic symptoms. Thus, the authors suggest that a negative self-image developed as a result of a sexual assault may be a unique mediating factor between sexual assault and trauma symptoms.

Swanholm, Vosvick, and Chng (2009) conducted a study to show a relationship between pessimism, trauma, risky sex, and depression in college students. They collected self-report data from 648 undergraduate students of age range 17 to 54, with 70% of female representation from different racial backgrounds. Questionnaires applied measured optimism and pessimism constructs, trauma history, risky sexual behaviors, and depression. Data analysis was conducted with SPSS 14.0 using correlational analysis, hierarchical regression analysis, multicollinearity diagnostics, and T-tests. The results indicated that the three variables of pessimism level, history of sexual trauma, and engagement in risky sexual behaviors showed a positive correlation with depression. Additionally, two demographic variables were identified as strong predictors of depression: relationship status and work status. Students who reported being in a romantic relationship, and having either a part-time or a full-time job indicated lower level of depression, and vice versa. The authors stated their results confirmed the previous research; however, the study had several limitations. The correlational design used did not give an opportunity to make conclusions about causal relationships. The data were solely gathered by self-report inventories, which creates a risk of self-report bias. Furthermore, the sample might not have been representative as students were recruited from psychology and health courses, and were receiving credits for participation.
In summary, there is evidence that traumatic experience in general, and sexual trauma in particular, is connected to the development of depression. Factors that may interfere in effective processing of traumatic experience, and therefore, mediate the development of depression and other disorders, are the repression of traumatic memories, not labeling the experience as such, and avoiding thoughts about it. There are different potential ways to think about these factors. One would be viewing them as symptoms of trauma, which could be treated by gaining more conscious awareness about the initial negative experience and triggering its emotional processing. This view reflects psychodynamic approach. Cognitivists, on the other hand, would label these factors as blocks in cognition or “stuck points” (Resick and Schnicke, 1992, p. 750) and would direct their work towards facilitating the integration of the trauma experience in cognitive schemata. From the behavioral perspective, repression of memories is a behavior which should be a subject matter per se. Skinner (1953) argues that, rather than attributing causal relationships to “pent-up emotions” (p. 379) and current disorganized behavior, and trying to “cure” the cause in order to improve present functioning, it is more effective to view behaviors such as repression and avoidance as a product of a complex set of environmental variables and to direct therapeutic work towards altering these variables. In this way both behavioral and emotional functioning may improve, not because of their causal relationship, but because of their connection to same conditioning factors.
Visual-Communication Desensitization (VCD)

In the current research, we propose a trauma-focused interview-therapeutic tool called Visual Communication Desensitization (VCD©; Castelfranc-Allen and Hope, 2015; Castelfranc-Allen et al., 2016, and Castelfranc-Allen, Hope, Mumladze, Mikaia, and Saamishvili, 2014; Castelfranc-Allen, 2012) as a therapeutic practice for helping decrease depression in women who have experienced sexual abuse. This tool can meet the criteria of various approaches. On one hand, it helps individuals focus on trauma memories (as opposed to avoiding them) in maximally safe and supportive environment, which may appear reinforcing for the behavior of approaching trauma. On the other hand, visualizing the traumatic experience and reflecting on distress facilitates emotional access to the initial disturbing event and triggers affective as well as cognitive processing.

The VCD is an innovative interview-therapeutic tool developed by Castelfranc-Allen in 2012. The major goal of the technique is to facilitate the process of remembering an experience while maintaining the narrative about the event maximally intact. This is achieved via visual communication established with the help of a line graph (see figure 3 and appendix A) and a pencil provided to a person to share her traumatic experience(s). On the line graph the X axis represents a client-determined timeline, and the Y axis represents a distress level ranging from 0, the least amount of distress, to 100, the most amount of distress.
Figure 3: VCD Narrative Graph, Blank

The clinician/researcher asks the client/participant to start by thinking about the trauma from a less distressful moment just before the event or sequence of events began (or, in case of limited memory, from the earliest point the client can remember), and continue to visualize the timeline of the event(s) until it ends at a less distressful moment, typically when the trauma memory is over (or until the last moment she can remember).

It is optional for the individual to verbally narrate the unpleasant event. She is only required to visualize the event and reflect on her distress level at the moment, simultaneously drawing a line on the graph, taking it upwards while feeling heightened distress, and downward when distress decreases. If the person makes pauses during the process of drawing, those moments are marked on the graph by the clinician/researcher or by the person herself and any words spoken by the client/participant at those times are written on the graph alongside pause marks or on a separate sheet of paper in a corresponding sequence to the pause marks. The client is
encouraged to continue her event visualization and graphing until she reaches the end of the event, but she also is informed that she can stop the process whenever it becomes uncomfortable / unbearable. In the latter case, the clinician provides support to the client in order to relax and be able to choose to either continue the timeline from the moment she left off, restart the timeline, or cease the session. In every session, the person is asked to start the process from the beginning, on a blank line graph, without seeing what she drew on the previous session.

The VCD procedure was originally developed as a response to the problem of contamination of trauma reports in court cases in which time-confused trauma victims were repeatedly questioned, sometimes with leading questions, and the narrative would change, making it hard to distinguish between real facts and false memory elements.

Guided by the scientific research on memory, best practices in investigative interviewing, and clinical experience working with traumatized adults and children, Castelfranc-Allen concluded that repeated leading questions, especially when combined with visualization techniques risked narrative contamination and confabulation with trauma victims, and thereby risked contamination of evidence in Criminal Court cases. In an effort to overcome or minimize this, Castelfranc-Allen (2012) examined a technique which would not require that the trauma victims verbally narrate a traumatic event, but would ask them to remember it in a structured timeline, and provide a visual product – a line path – which would subsequently facilitate the
process of interviewing by asking questions such as: “please tell me what was happening at this moment (an examiner points to a certain point on a line graph)”.

After implementing the procedure in practice, Castelfranc-Allen observed that the line paths, which examinees started over on every meeting, would remain consistent from session to session. An example is shown on Figure 4.
Figure 4: Example of a Completed VCD Graphs (Castelfranc-Allen, 2015)
This record served as an indication of test-retest reliability. Furthermore, an observation was made that with continuous VCD sessions, individuals’ PTSD symptoms were decreasing as well. Therefore, additional, therapeutic use of VCD was proposed. The reasoning behind the therapeutic use of the VCD is the following: 1. The technique helps structuring a traumatic experience by identifying its beginning and development over time, and end; 2. It helps objectivizing the experience by putting the visual timeline on paper; 3. The VCD impels a person to be more in touch with his feelings, as it requires reflection on the distress level one experiences while remembering a traumatic event; 4. It facilitates cognitive and affective processing of the traumatic experience by visualizing it in a safe and structured environment, while not having to share the traumatic experience verbally, which could potentially be a source for an additional distress.

Moreover, as Strange and Takarangi’s (2012) research suggests, people tend to distort their traumatic memories towards the negative direction, and therefore, the authors hypothesize, memory distortions lead to maintenance as well as worsening of PTSD symptoms. Following this logic, preventing distortion of traumatic memories by the use of the VCD can help avoid potential negative contaminations, which can be considered another positive outcome of the technique.

The VCD’s memorial capacity has been assessed as an effective practice in verbal interviewing (Castelfranc-Allen and Hope, unpublished paper), and it also has been used in a clinical practice of several licensed psychologists, including its author, in New Zealand and Georgia-Sakartvelo with small samples of the victims of gender-
based violence and/or internally displaced trauma victims. However, its clinical assessment and therapeutic value still need to be determined by systematic study. The current research is focused on determining VCD’s therapeutic effect on treating depression, trauma, and anxiety in people who have experienced sexual abuse.

VCD’s Connection to Other Trauma Treatments
There are number of evidence-based treatments which are shown to effectively help individuals in overcoming post-traumatic stress. The three most well-known trauma-focused therapy models are cognitive processing therapy (CPT), prolonged exposure therapy (PE), and eye-movement desensitization reprocessing (EMDR). VCD shares some characteristics with each of these models.

The central concepts of cognitive processing therapy (CPT) are assimilation and accommodation – terms developed by a Swiss clinical psychologist Jean Piaget (1969). Assimilation refers to the incorporation of new information in already existing cognitive schemata, with a minimal alteration of the information if needed. Accommodation, on the other hand, refers to the process of adjustment of the schemata in order to fit new information. This process is needed when an individual’s new experience is so unusual and discrepant from already existing cognitive structures that a slight alteration would not be enough for its incorporation. Resick and Schnicke (1996) proposed that, as a traumatic event can be radically different from what a person had experienced before, it may cause any of the following undesirable cognitive effects: factual information may be altered dramatically in order to fit the existing schemata, which contributes to the contamination and false interpretation of the event; “overaccommodation” of the schemata may occur for the sake of
incorporating the new information, which may cause a major shift in an individual’s beliefs, not only in the context of trauma, but generalized across different domains including self-esteem, trusting people, etc.; and lastly incorporation of the new information may be rejected entirely and the memory of the trauma may remain “alive” for long periods of time, causing intrusive thoughts and emotional difficulties.

CPT is focused on helping individuals process a traumatic experience so that it fits cognitive schemata with neither a drastic alteration of the information nor an overaccommodation of the schemata. Resick and Schnicke (1992) suggest that this treatment method aims to not only activate the traumatic memories, but also to take care of the “stuck points” (p. 750) which prevent processing of traumatic experience. The “stuck points” may stem from multiple sources, such as conflicts between new information and already existing cognitive schemata as described above, faulty modes of interpretation imposed by other people, or an individual’s avoidance to process a painful experience. CPT is proved to help individuals process trauma (Resick and Schnicke, 1992; Chard, 2005) by first allowing them to define the experience and its meaning, then providing corrective information or psychoeducation, and assisting them to gradually redefine the meaning.

Prolonged exposure (PE) therapy, developed by Foa, Rothbaum, Riggs, and Murdock (1991), is a widely-recognized treatment for trauma symptoms. PE emerged from the exposure therapy for anxiety and the emotional processing theory (EPT) of PTSD, and as such, the model involves repeated in vivo and imaginary exposure to trauma reminders, as well as emotional processing of the distressing experiences (Foa, Hembree, and Rothbaum, 2007). More specifically, PE aims to facilitate emotional
processing by means of exposure (Foa, 2011), which is thought to directly target a
cognitive structure containing information about a feared stimulus, also known as
“fear structure.” According to EPT, “a fear (emotional) structure is a program for
escaping or avoiding danger that includes representations of feared stimuli, responses,
and the meaning of stimuli and responses. This structure is activated by input that
matches the information stored in the structure” (Foa, 2011, p. 1044). Fear structures
may contain information about pathological as well as adequate fear. Foa and Kozak
(1986) differentiate pathological fear structures by their exaggerated reactions towards
feared stimuli and resistance to modification. Furthermore, EPT suggests that types of
fear structures may vary for different disorders. For individuals with PTSD, feared
stimuli which create an urge of avoidance may include a range of trauma reminders –
external, such as certain items, people, or situations, or internal, such as thoughts or
dreams. A tendency of avoiding the feared stimuli prevents individuals from an
appropriate processing of traumatic experiences and maintains the PTSD symptoms.
Via imaginary and in vivo exposure, patients’ erroneous beliefs regarding the feared
stimuli are challenged by activating the fear structure in a safe environment, which
disconfirms the feared expectations and creates a new experience, incompatible with
pathological elements of the previously existing fear structure. PE procedures also
include psychoeducation about trauma and posttraumatic symptoms, and breathing
retraining (Foa, Hembree, and Rothbaum, 2007), which help patients gain more
control over trauma symptoms through cognitive and physiological domains. Foa
(2011) and McLean and Foa (2011) note that PE is the most empirically supported
treatment for PTSD, and a wide range of research (e.g. Foa et al., 1991; Powers, Halpern, Ferenschak, Gillihan, and Foa, 2010) unequivocally supports this statement.

Eye-movement desensitization reprocessing (EMDR), developed by Francine Shapiro since 1987 (EMDR Institute, Inc., n.d.), is another evidence-based psychotherapy for post-traumatic stress disorder, as demonstrated by Wilson, Becker, and Tinker (1995), Spector and Read (1999), and Capezzaci et al (2013). The EMDR is based on a model of adaptive information processing (AIP), which followed the development of EMDR to explain its effectiveness and efficiency (Shapiro, 2001). AIP, consistent with earlier theories, suggests the importance of neurological balance in information processing. Once a new experience is processed appropriately and adaptive resolution is reached, associations with relevant memories are made and the experience is integrated with positive cognitive and affective schema, an individual is able to use the experience constructively and guide his future actions by it. From this thinking stem the main principles of EMDR, which are: learn from the past, desensitize present intrusive images, and create appropriate templates of action for the future. When, in contrary, a highly traumatic event causes an imbalance in the nervous system, the negative images, sounds, affects, etc. remain unprocessed and continue to have a disturbing influence on a person. AIP proposes that psychopathology mainly stems from dysfunctional storing and/or incomplete processing of traumatic / disturbing life events (EMDRIA, 2012). As Shapiro (2001) states, “In a wide variety of cases … pathology is viewed as configured by the impact of earlier experiences that are held in the nervous system in state-specific form” (p. 17). Due to the earlier experiences that have not been sufficiently processed, current stressors, even relatively mild, may evoke an
intense negative emotion in an individual. Therefore, EMDR aims to liberate these memories and store them in an appropriate form. The model proposes an eight-phase treatment which states to facilitate generalization of more positive affect and cognition to the dysfunctional memories stored in the neurophysiological network, and subsequently leads to evoking more appropriate behavior in an individual (Shapiro, 2001). The eight phases of EMDR are Client History Phase, Preparation Phase, Assessment Phase, Desensitization Phase, Installation Phase, Body Scan Phase, Closure Phase, and Reevaluation Phase (EMDRIA, 2012). One of the main assumptions of the model is that information processing is inherently adaptive; in other words, the natural tendency of a cognitive system is to strive towards a healthy state unless there is a neurological imbalance or a block that prevents memories from being stored in the relevant schema. Therefore, once the block is removed and processing is activated, it will necessarily lead to psychological healing (Shapiro, 2001).

As we can see from the review above, all three of the models discussed make emphasis on the importance of information processing. Likewise, VCD aims to help individuals cognitively and emotionally process their painful experience in order to integrate the trauma memory into the larger narrative of life. Furthermore, to prevent a possible contamination of information, which according to cognitive processing therapy (CPT) may happen in the process of assimilation, VCD uses a clear instruction to “recall ... without guessing” (p. 51) and keeps the data of recalled information in order to track the consistency of the content from session to session. In connection to prolonged exposure therapy (PE), VCD can be viewed as a form of imaginal exposure
– a person is asked to think of the experienced trauma and simultaneously draw a line on a graph, one of the functions of which is to keep the person’s focus on task. Also, the person is asked to reflect her distress level on the line graph, which facilitates emotional processing of the experience. By allowing the individual to repeatedly face the trauma memory in a safe and structured environment, VCD, similar to PE and EMDR, assists in the desensitization of the distressful image or scene.

The uniqueness of VCD is that it allows trauma survivors to first go through the cognitive process of remembering the traumatic event on their own without having to verbally express it, and with an available assistance from a clinician if needed. This allows an individual to expose herself to the painful memories to the extent she feels appropriate, and keeps defensiveness against the exposure to a minimum. Furthermore, the line graph that is produced in this process serves as an important tool for facilitating verbal narration of trauma in case a person decides to do so. Following the line while narrating the trauma event aids an individual in self-expression because it helps her be more specific and consistent, objectivize the information, and structure it appropriately. As a result of triggering the memory process, establishing a consistent narrative of the trauma experience, and continuing to repeatedly be exposed to it, a person is able to “digest” the information and integrate it in the cognitive system, which is necessary for healthy psychological functioning.

In this study, our goal was to find out whether the application of VCD helps decrease the level of depression in women with sexual trauma histories. Also, we were interested to see the effect of VCD on other relevant variables – anxiety and PTSD. We used a single-case experimental design in order to identify the baseline level of
each of the variables – depression, anxiety, and PTSD – in our participants, and then measure the outcomes of the VCD treatment. To assess the social significance of the treatment method, we asked the participants to complete the VCD Feedback Form as well. Findings of the study suggest VCD may be a valuable tool to use in clinical practice.
II. Method

This study was approved by the university institutional review board (IRB) under protocol number 16-0578.

Participants

Our goal was to recruit three to five adult females within the age range of 18 to 55-years-old to participate in the study. The criteria for inclusion were: 1. Clinical level of depression; 2. History of sexual abuse; 3. Ability to understand the principle of line graph and to draw a data path.

For recruiting participants, we reached out to a number of relevant clinics and centers locally. As a result, only four individuals, whom we will call Amanda, Betty, Celine, and Dianne, expressed the interest to participate. We will provide qualitative information on all four participants in this work. However, only two of them, Celine and Dianne completed the whole course of the study. Therefore, the quantitative results of this research will be based on the data obtained from these two participants.

Amanda was a white female in her 40s. She was single and lived on her own; Betty was a white female in her 40s. She was in a same sex relationship and lived with her partner; Celine was a middle-eastern female in her 30s. She was in a heterosexual marriage and lived with her husband; Dianne was a white female in her 30s. She was a single mom and lived with her family of origin. All participants, except for Amanda, in parallel to participating in the study, were involved in a form of psychotherapy / counseling, which did not include any procedures related to the VCD.
The pattern among Amanda, Betty, Celine, and Dianne regarding the experienced sexual trauma was similar: all four of them reported having experienced childhood sexual assault, of which they had not had any recollection for the major part of their lives. It was only several years since the images of trauma had been retrieved in their memories, and since then they had been trying to cope with the distress caused by this realization as well as recollect the whole experience.

**Setting**

All the assessments and intervention were conducted at the Baird Center clinic at James Madison University. The Baird Center provides a practice and research space for JMU psychology students, under the supervision of licensed clinical psychologist, Dr. Trevor Stokes.

The clinic room used for assessment and intervention contained an area of 3m by 4m and was furnished with two armchairs, coffee table, and a desk. The room also had a one-way mirror for observation. The participants were given an opportunity to see the observation room. They were reassured that only the study supervisor, Dr. Stokes, would occasionally observe the sessions for supervising purposes, about which they would be informed in advance.

Baird Center’s records room was used to store the participants’ data in a locked cabinet.

**Independent Variable**

The use of the Visual Communication Desensitization (VCD©; Castelfranc-Allen, 2012) procedure served as an independent variable for the current study. The
intervention sessions using the technique were conducted in order to answer our research question: does application of the VCD result in the decrease in the level of depression in adult females who have experienced a sexual assault?

**Dependent Variables**

We planned to assess the effect of the VCD on three variables: depression, anxiety, and PTSD. The main dependent variable of the study was the level of depression, as measured by the Beck Depression Inventory-II (BDI-II; Beck, Steer, and Brown, 1996). Because our goal was to answer the research question – whether the application of the VCD resulted in the decrease in the level of depression – we based our decisions regarding changing experimental conditions (see *Experimental Design* on the page 43) on this variable. PTSD and anxiety were assessed as additional variables. This was accomplished by using the PTSD Checklist for DSM-5 (PCL-5; Weathers, Marx, Friedman, and Schnurr, 2014) with Criterion A, and the Beck Anxiety Inventory (BAI; Beck and Steer, 1993), respectively.

The descriptions of the inventories used in the study are provided below.

**Beck Depression Inventory-Second Edition (BDI-II)**

The Beck Depression Inventory – Second Edition (BDI-II; Beck, Steer, and Brown, 1996) is a 21-item self-report, multiple-choice inventory, widely used for measuring depression in adults and adolescents. Each item of the BDI-II is rated by an examinee using a scale with the scores from 0 to 3, which gives the final score ranging from 0 to 63, classifying the level of depression in four different categories of severity – minimal depression (0-13), mild depression (14-19), moderate depression (20-28), and
severe depression (29-63). Including its previous versions (BDI, BDI-IA), Beck Depression Inventory has been in use for almost 60 years as a valid measure of the construct of depression across populations.

The psychometric characteristics of the BDI-II, as described by Beck, Steer, and Brown (1996), indicate high reliability and validity of the inventory. The statistical analysis of the data gathered by the authors through implementing the inventory with the population of outpatients and college students showed that the coefficient alpha reflecting internal consistency of the BDI-II was .92 for the outpatients (N=500) and .93 for the college students (N=120). The test-retest correlation for the outpatients (N=26) was .93; the content validity of the BDI-II is determined by adjusting its items to the DSM-IV criteria for depression. To assess for construct validity, convergent as well as discriminant validity was estimated by the authors. For measuring convergent validity, the results of BDI-II were compared to the results of BDI-IA, after administering the instruments in counterbalanced way with 191 outpatients. The correlation between the two measures was .93. In order to obtain the evidence for both convergent and discriminant validity, BDI-II results were compared with the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960), and Hamilton Rating Scale for Anxiety (HARS; Hamilton, 1959), resulting in correlations of .71 and .47, respectively. Low correlation with the anxiety inventory indicates a discriminant validity.

The PTSD Checklist for DSM-5 (PCL-5) with Criterion A

The PTSD Checklist for DSM-5 (The PCL-5; Weathers, et al, 2014) is a 20-item inventory with Likert-type scale, aiming to assess the severity of PTSD based on
DSM-5 criteria. PCL-5 represents a revised version of PCL (Weathers, Litz, Herman, Huska, Keane, 1993), a widely-used measure of PTSD for almost 20 years, which has been distinguished by its psychometric properties (Blanchar, Jones-Alexander, Buckley, and Forneris, 1996; Wilkins, Lang, and Norman, 2011). The PCL-5 provides the measure of symptom severity within the clusters (B, C, D, E) of PTSD as determined by DSM-5. If an individual identifies at least a “Moderate” severity of one/two symptoms within each cluster, he will be considered as a candidate of PTSD diagnosis (National Center for PTSD, n.d.).

Psychometric properties for the PCL-5, as measured by Wortmann et al (2016), are characterized by high internal consistency, ranging from .75 at baseline and .95 at follow-up, and high convergent and discriminant validity, showing effect sizes of .94 and .92 for matching between observed and predicted patterns of correlations with other measures. In addition, Blevins et al (2015) showed PCL-5’s test-retest reliability of .82.

**Beck Anxiety Inventory (BAI)**

The Beck Anxiety Inventory (BAI, Beck & Steer, 1993) is a 21-item scale which is used to measure anxiety level in adolescents and adults. BAI is typically self-administered, and requires 5 to 10 minutes to complete. Individuals rate each item with the scores from 0 to 3, which results in a final score within a range from 0 to 63. Scores from 0 to 21 indicate low anxiety, 22-35 – moderate anxiety, and 36-63 – severe anxiety.

According to the research conducted by Beck, Epstein, Brown, and Steer (1988), BAI’s psychometric properties are satisfactory. Reliability was determined by
measuring internal consistency which resulted in high Cronbach’s alpha .92, and test-retest reliability which was .75. Also, BAI showed discriminant validity, being correlated with Hamilton Anxiety Rating Scale by .51 and Hamilton Depression Rating Scale only by .25.

**Experimental Design**

This research used a single-case experimental design, the unique characteristic of which is that it allows studying individual cases and establishing experimental control within a small number of participants (Kazdin, 2001). This design does not require a control group, because here participants serve as their own control (Bailey and Burch, 2002).

The essential features of the different types of single-case design are (a) repeated baseline measurements before applying any intervention. This enables a researcher to establish a picture of individuals’ performance in “natural” / “no treatment” condition and, therefore, make a prediction about what the performance would likely be in the future if no intervention was implemented. For instance, if our aim is to decrease the level of depression, and we see a stable or increasing pattern of depression on the baseline, a decision should be made to end the baseline and move to the intervention phase as soon as the pattern is established; (b) alternating conditions of baseline and intervention(s) with the continuous repeated measurements. This gives an opportunity to compare data of individual’s performance from different conditions (e.g. baseline, intervention 1, intervention 2) and draw conclusions regarding the effects of specific interventions (Kazdin, 2001).
Another characteristic of single-case design is that it allows interpreting data by visual analysis, which gives us information regarding the trend the data take (e.g. increasing, decreasing), their level (high, low) and variability (stable or variable), patterns and sequences, range and overlap of data between conditions, and number of measurements within each condition (Parsonson, 2003). Furthermore, according to Parsonson (2003), visual analysis allows researchers to “discover and explore phenomena of interest” (p. 40). This is achieved by close ongoing monitoring of any changes in the data of repeated measurements, which allows making connections with potential factors causing these changes and gives direction to further investigations.

The specific type of a single-case design that was used for the current study is an A-B design with replication. A-B design, also referred to as comparison design, contains basic elements of single-case experimentation – baseline (A) and intervention (B). As described above, this design is based on the comparison of the data of a dependent variable (DV) from the times when independent variable (IV) is not applied and when it is applied. If there is a stable difference in DV between the two conditions, this difference is attributed to the IV, as long an absence / presence of IV is the only factor that changes. However, it is also recognized, that an experimental control in the case of a simple A-B design is not as strong as in other forms of single-case experimentation, because there is a possibility for the changes in individual’s life to coincide with the change from baseline to intervention phase and, therefore, DV to be affected by compounding variables (Miller, 2005). For this reason, stable difference in DV between single baseline and intervention phases is considered as an evidence, but not a proof, for the effect of IV. In order to establish a causal relation, an evidence
produced by an experiment needs to be replicated (Cooper, Heron, and Heward, 2007). In the current study, replication was achieved by applying A-B design with two different participants.

An A-B design was used to examine the effects of introducing the independent variable (VCD) on two participants’ data of repeated measures of depression, PTSD, and anxiety levels. As discussed above, depression level was the main dependent variable in the research, therefore, only this variable was taken into account for making a decision to change study conditions from baseline to intervention. With each participant, we saw an increasing trend of depression within three baseline sessions; therefore, a decision was made to move to the treatment phase after the third baseline assessment.

**Procedures**

All the procedures were conducted by Nino Chkhaidze under the supervision of Dr. Trevor Stokes.

**Identification and Recruitment.** It was planned that participants would be identified via requests through the centers serving people with sexual abuse histories. We reached out to a number of relevant units locally, including James Madison University Counseling Center, JMU Counseling and Psychological Services (CAPS), and the Collins Center – a community clinic which focuses its work on the issues of sexual violence. The activities involved email and phone contacts, meeting with the directors, coordinators, and individual clinicians of the centers, giving presentations about the research and the VCD procedure to the staff, and handing out the flyers about the
research (see the Appendix B) to make them available for the clientele. Our request to these centers was that, after adult females with sexual trauma histories were identified, for clinicians to hand them the flyer as well as give an additional information about the research; we asked the centers to encourage their clients to contact the researcher in case they were interested to find out more and/or to sign up for the study.

As a result, we were contacted by four individuals, with whom initial appointments were scheduled at the Baird Center to provide them with a more comprehensive information about the research, to review the informed consent form (see Appendix C), and to answer their questions. During this meeting, it was emphasized for the potential participants that, despite signing the informed consent form, they could drop out of the study at any point if they wanted to do so. Therefore, all four of them, including those who were still making a decision about participation, decided to sign the informed consent form and complete the questionnaires which were used to determine their eligibility for the study, in order to save an additional visit to the Baird Center.

During the conversation with the potential participants it was determined by the researcher that they had a good understanding of the concept of a linear graph. After they were administered BDI-II, BAI, and PCL-5 with Criterion A, it was confirmed that they all had had a history of sexual abuse, and were showing a mild or higher level of depression (participation did not depend upon PTSD or anxiety levels). Therefore, all four of them were informed that they were recruited for the study. Only half of them decided to proceed through the whole study. More information about this is given in the Results (p. 52) section.
Baseline. After the individuals were qualified for the participation in the study, the assessment scores obtained from the initial appointment (BDI-II, PCL-5, and BAI) were counted as the first baseline data points, and the subsequent baseline sessions were scheduled with three of the participants (one of them decided to drop out after the initial meeting) on the following weeks. The second and third baseline sessions were designed as intake sessions, where the participants’ background as well as presenting concerns were explored through the clinical intake interview, rapport was established, and the variables that could be an impediment for the individuals’ participation in the study were identified. The clinical interview was conducted using the semi-structured survey designed by Drs. Henriques and Shealy (see the Appendix D for the Life Information Survey which was slightly modified from the original version for the use in the current study), inquiring about the participants’ current life circumstances and daily functioning, family background, socio-emotional and medical history, major life events/transitions, prior and current treatments, perception of self, and expectations from the research. A comprehensive discussion of participants’ sexual trauma at this stage was intentionally avoided. By the end of these hour-and-a-half-long weekly meetings, additional data points were obtained by administering the BDI-II, PCL-5, and BAI.

As A-B design requires (see the Experimental Design on the page 43), the length of the baseline for each participant was dependent upon establishment of a stable picture for at least the level of depression, and ideally, both depression and PTSD. Under stable picture we mean having at least three data points on a graph showing a stable or
increasing trend for depression. In the current study, all three participants achieved stability after three sessions.

**Training.** After baseline assessments, before moving to the intervention phase, participants were individually trained in VCD application. At the beginning of the training, the therapist introduced VCD to the participants. The introduction took up to ten minutes, during which the therapist explained the structure of a line graph and its specific use for the VCD, discussed the process of a visual sharing of an experienced trauma, and reviewed each component of the technique. Also, the therapist-researcher briefly demonstrated to the participants how to draw a line on a graph while completing the VCD procedure.

Upon the introduction of the VCD, the participants were given an opportunity to express any misunderstandings and reservations about the process. After every concern was responded to and the participants declared readiness for the process, they were given a blank line graph (appendix A) and a pencil, and were asked to think of a moderately stressful event which occurred during the past two weeks. When the event was identified, the following instruction was given:

“Please take a moment to try to recall as much of the stressful event as you can; try to recall or identify people, places, items, and sequence without guessing; I realize that some parts of the experience may have stressed you more than others (0-100); please use this graph to draw a line while recalling the event from beginning to end and show how you are feeling while you are remembering. Your line should go up and down to show how you are feeling while you are remembering; you can put as many marks or words on your line as you like to help you remember particular things; I will be asking
you to describe everything after you have drawn your line; you can take as long as you like drawing your line, and you can put as many marks or words on or near the line as you like” (Castelfranc-Allen, 2015).

Further clarifications were made in the process when necessary while the participants were drawing the data path. After the line was drawn, the participants were encouraged to describe the graph, as much as it was comfortable for them. Then another graph was given to the participants with the same instruction, to ensure their mastery in VCD procedure. The mastery was determined by the researcher’s judgment regarding the participants’ behavior – whether they initiated drawing a line without additional help after the initial instruction, how smoothly the process went, whether the participants appeared to be thinking while drawing, and whether they expressed any misunderstanding regarding the procedure. All three participants who reached this stage demonstrated a high level of mastery during the training session.

Intervention. This phase was the continuation of the training phase with a difference that this time participants were asked to visualize their sexual trauma experiences, and narratives of a traumatic event in terms of persons, actions, role of participant, places, items, and timeline were obtained through the graph via Narrative Graphs form (Appendix E). Only two individuals continued participation on the intervention phase.

During the VCD intervention, the participants were encouraged to reach the end of their event timeline in order to reach a lower distress level before ending a session. However, they had a choice to stop the process whenever they thought it was becoming too uncomfortable or, as was the case with our participants, when they could not remember any more of the event. On each subsequent session, participants were
asked to restart visualizing the trauma events and to draw the data path from the beginning, on a new graph.

The VCD was conducted weekly during a one-hour individual appointment, after which participants would complete BDI-II, BAI, and PCL-5 in a varying order. At the end of each session there was a brief discussion to make sure that the participants did not leave in a high distress state. If an elevated distress was identified, the participant would be taught coping techniques such as deep breathing and relaxation, and, if necessary, would be provided an additional therapy session. The latter opportunity was used by a participant once.

It was intended that, if after four VCD sessions there was a decreasing trend of depression and/or participants expressed a satisfaction with the treatment, the VCD intervention would be prolonged for six more sessions or until the BDI-II and PCL-5 scores (BDI-II ≤ 19, PCL-5 < 2 – “moderate” for most of the items), and/or participants’ narrative report, reflected sufficient level of functioning, whichever would come first. However, if the VCD sessions did not result in a decreasing trend in participants’ BDI-II scores or the participant did not report a subjectively felt “healing” effect of the procedure, then a decision would be made to suggest an already evidence-based, cognitive-behavioral treatment for depression and trauma within the Baird Center for free, or refer the participants to other community settings which offer an affordable psychological care.

In case of one of our participants, Celine, a decreasing trend for all three variables was showing by the fourth session, strengthened by her report that she found VCD helpful; in case of another participant, Dianne, there was, in fact, increase instead of decrease
in all three variables by the fourth intervention session. However, she expressed highly positive attitudes towards the treatment and strongly stated the need of continuation. Therefore, a decision was made to continue the intervention with both participants.

**Participant Feedback.** After an intervention phase was over, the participants were given a questionnaire Monitoring and Feedback Support Form (see Appendix F) which aimed to assess their attitudes toward the VCD: how user friendly was the procedure, how much it helped reduce emotional distress, and in what extent it matched participants’ expectations for therapy. Obtaining feedback from the participants regarding the VCD was helpful to determine the social significance of the study procedure and to identify the ways of further improvement of the VCD.
III. RESULTS

Along with focusing on the visual analysis of the quantitative data obtained from the two participants who completed the whole course of the study, we considered it important to present qualitative information regarding all four participants. This will be informative in relation to the issue of sexual violence in general, and to the future studies on VCD’s effect on sexual trauma.

*Amanda*

Amanda, coming in, made it clear that, at the moment, her only intention was to find out more about the study. She asked a range of informed questions, referring to the VCD technique, the design of the study, and her relevance to the research. Also, she described how difficult it was for her to cope with traumatic memories, and that she was not sure whether she was ready to activate these memories again. As long as the study allowed her to drop out at any point without repercussions, after our discussion Amanda decided to sign the informed consent and fill out inventories determining her eligibility for participation, while she would take her time to reflect on her readiness. BDI-II indicated a “severe” level of depression and Amanda was notified about her eligibility for the study. A week later she informed the researcher that, after a lot of reflection, she determined she would not be able to cope with an activation of trauma memories; therefore, she had to drop out of the study.

*Betty*

Betty, too, presented with the hesitation regarding the participation of the study, especially because in parallel she was engaged in a therapy which was already
activating her painful memories. However, she expressed a willingness to start the sessions and use the right to drop out in case the experience became unbearable for her. Betty came in for four sessions in total. The baseline data of three sessions showed a stable / increasing trend for her BDI-II (22, 22, 28, reflecting “moderate” depression), as well as BAI (30, 30, 39) and PCL-5 (57, 52, 64) scores. Therefore, the decision was made to move on to the training phase of the research on the fourth session. The VCD training involves completion of the procedure by a participant, instructed to think of a moderately traumatic event from the past two weeks' period and reflect her distress on the graph. Betty was able to complete the training session successfully; however, after a couple of days she announced to the researcher that she would not be able to participate anymore. The reason for her dropout was that, even with the instruction to think about a *moderately stressful event*, her traumatic memories from the past became activated after the session and caused her a significant level of distress. Considering other stressors in her life, Betty decided that she was not ready to proceed to the intervention phase of the research.

*Celine*

Celine came with a more decisive attitude to participate in the study. Her motivation was to support development of science as well as to give a chance to a new treatment to help her cope with the traumatic experience. Celine reported that, despite a significant discomfort she felt while focusing on painful memories, she also knew that this was the only path to healing; therefore, it was a firm decision of hers to complete the whole course of the VCD.
The only concern Celine expressed was regarding having only limited recollection of her trauma, because it took place many years ago, in her childhood. She was reassured by the researcher that VCD was a technique, which, not requiring a verbal sharing of experience, allowed to work on any material – images, scenes, sensations, or feelings – which one could access in her mind. Therefore, she was a good fit for the study and there was no pressure on her to have to remember more than she did.

After three baseline sessions with Celine we saw a slightly increasing trend for depression (see figure 17) and the decision was made to end the baseline and move to the training phase. During the training phase, Celine was able to quickly learn and show proficiency in the VCD procedure, which allowed us to move to the intervention phase. Each intervention session is described below. To maintain confidentiality, we will not specify details of Celine’s trauma experience; for clarity, we will only reveal that it involved number of sexual assaults throughout a significant period of her childhood years.

In the first intervention session Celine hesitated to start the VCD procedure, stating that she did not have enough recollection of her traumatic experience. She only remembered two brief scenes, which she had recollected several years before, and another vague image which had been retrieved recently. She reported that she could not locate these events in time, and could not start reflecting on them from when they began and end when they ended, because she only remembered brief moments. Celine was reassured that what she remembered was enough material to work with. She decided to combine the two initial scenes, as the environment, the people involved, and their characteristics coincided from these two scenes – and to present them as one
event. After she finished drawing (see figure 5), she shared her brief memories verbally, not being sure of many details or whether they really happened. She seemed disappointed. Her depression score reached the “severe” range on this session.

As seen on the figure 5, Celine’s recollection of the event started from the point when she already experienced a moderate level of distress, and reached its peak as the event progressed. The memory faded at the moment of high distress.

In the second session Celine noted that she had remembered more of her trauma experience during the week. She reported being disappointed in the previous session, because she was not able to retrieve much information regarding the event. In this session, she put more details of the same memory on the VCD graph, and drew a
separate line for the more recent memory (see figure 6). Celine was able to retrieve more information during the subsequent discussion, when the researcher asked her detailed, non-leading questions about the events (e.g. What do you see around you in the room? What is the hair color of the person? Do you remember any specific smells?). It is important to note here, that during these discussions the possibility of contamination of the memories was repeatedly emphasized, and a clear communication was established between the researcher and the participants that no “filling in the gaps” was expected and they were only supposed to report what they recalled without guessing. In this session, Celine reported feeling better about completing the VCD procedure. Her depression score went down few points and fell into the “moderate” range.

Figure 6: VCD Graph from intervention 2 with Celine
Celine seemed to be dissociated from her childhood trauma experiences by the third session. She noted that she did “know” what had happened because she remembered herself talking about it on previous sessions; however, she had a difficulty recollecting the actual events at a given moment. She reported that it was a “weird feeling” and she had an obvious discomfort when drawing a line graph. Celine was still able to draw previously recollected memories and even add another brief memory at the beginning (see figure 7. Note that the researcher’s notes are erased from this and following graphs for confidentiality purposes). Her depression score moved back to the “severe” range. A mechanism of dissociation was discussed at the end of the session.

*Figure 7: VCD Graph from intervention 3 with Celine*
Because Celine was not confident regarding the of the events, she would put them in a random order and separate different episodes by the bigger lines. With smaller lines, she marked the moments where she recalled significant details, and would put a one-word descriptions to them.

Celine canceled the following session since she had nightmares the night before and needed to catch up on sleep. Also, it needs to be noted that during the whole course of our sessions Celine was encountering major stress connected to her personal life, her job, medical health, and the lack of time in general. By the fourth session significant changes in two of these domains – personal life and medical health – had imposed even more stress on her.

In the fourth session Celine reported that she recollected a new image, which was likely a continuation of the recent vague memory. She also noted that she still felt distanced from her trauma experiences, especially the one she just remembered. The latter, she said, she did not want to combine with the “older” memories, and requested a separate sheet for it (see figures 8 and 9). After drawing a timeline of the new memory on a line graph, she shared it verbally; however, she was reluctant to answer researcher’s further questions; she said that it made her uncomfortable to talk about the trauma, “it is like as if my intellect wants to know more, but my body resists.” Taking into account her distress which we discussed earlier in session, we made a decision to stop the procedure and continue next time.
On the figure 8 we see that Celine switched the order of the first two memories from how she put them on the previous session, placing her initial memory at first again. It is noteworthy that the distress level caused by this memory was significantly lower than before; on the third place, she put another distressful memory which was not connected to a sexual abuse; she ended with the same memory as on the two previous sessions.
On the graph 9 Celine put a newly recollected image of a man, and specified some of his characteristics, such as smell and certain visual features.

Celine’s depression was down to the “mild” range at that point. At the end of the session we also discussed the ways to proceed with the intervention. The researcher let Celine know that this was a point of deciding, whether it would be useful to continue the VCD intervention for several more sessions. While Celine’s results allowed to continue, it was also important to hear her subjective evaluation of the process and whether she thought the intervention was beneficial. Celine started her evaluation by saying “I hate coming here”, which, she explained, was because she had to face the painful memories which she would rather avoid. She added that she knew she had to
work on her trauma, and she would rather do it in a safe, supportive, and structured environment [referring to the study], than deal with it alone. Besides, she had already noticed progress in her ability to recollect trauma experiences, and she wanted to achieve more. Therefore, we decided to extend our sessions.

Celine contacted the researcher on the same week, saying that she remembered something else and asking for an urgent meeting to talk about it. The meeting was arranged on the same day. In the session, Celine drew a timeline of a memory, which contained several such elements (not specified out of confidentiality) that threw a light to some of her confusions for a long time – they gave her an insight in her lifelong fears. She reported feeling “weird” because this memory was unbelievable, “something that you know happens, but to the other people”. Also, she noted that before, she would wait for at least a week to let a memory fade, and then would share it with someone; but now she wanted to preserve what she could remember, and that was why she wanted to meet as soon as possible. Additionally, she reflected on how her hypervigilance symptoms disappeared since the start of the sessions – e.g. she did not sleep facing the door anymore. Although VCD procedure was conducted in this session in order to maintain a newly retrieved memory uncontaminated, Celine was not asked to complete questionnaires. Therefore, this session will not be included in the numerical sequence of the intervention meetings. Figure 10 shows the line graph for the new memory.
In the fifth session Celine was able to combine newly retrieved experiences with the older trauma memories, and to put them on a graph together (see figure 11). She reported still being somewhat dissociated from the memories, but at the same time accepting them more. Her BDI-II score was in the “middle” range.
Here (figure 11) Celine started with another distressful memory, not connected with a sexual trauma. The third section of the line reflects her initial memory which Celine had been consistently reporting. The one before that is a newly emerged recollection of a brief episode, which, Celine suspected, was something that happened immediately before her initial memory. The line ends with the recently recollected episode.

In the next, sixth session, Celine presented with more problems concerning her health and personal life, and her exhaustion was obvious by her physical appearance.

Therefore, we dedicated most of the session to the discussion of the current matters, and then proceeded to the VCD procedure. Celine noted that she had not been thinking much about her trauma experiences recently, and no new memories had come up. She
drew the timeline of some of her experiences on the graph while omitting the others, saying that this was all she remembered at the moment. As she needed more space to draw, Celine used two graphs on this session (see figures 12 and 13). We discussed Celine ways she found the VCD helpful. She noted that the procedure helped her “accept” her memories as real experiences. Interestingly, Celine also noted that regularly feeling out the questionnaires after each session helped her become more aware of some of her symptoms, especially those of anxiety, and enabled her to control the symptoms better whenever she anticipated their emergence.

Figure 12: VCD Graph from intervention 6 with Celine
On these graphs (figures 12 and 13) Celine visualized her two earlier memories in the same order as in the session fourth, and ended with her recent recollection.

In the last, seventh session, Celine reported having remembered a new detail of her most recent memory, which she put at the end of the graph again (see figure 14), peaking at the moment of the “new” distressful detail. She reported having felt uncomfortable for some time after she remembered this new element, however, she managed to cope with it on her own without becoming overly disturbed. In the session itself, she remembered a “new” short episode after being asked to draw a timeline of
her sexual trauma experiences, which she put first. In the middle, she drew her very initial memory.

![Graph](image)

*Figure 14: VCD Graph from intervention 7 with Celine*

Also, in the final session Celine was asked to complete the VCD Feedback Form, and to verbally summarize the results VCD treatment had on her. She expressed a high satisfaction regarding the treatment, saying that it was a “life-changing experience” and the first treatment that appeared productive after the years of therapy and counseling. She gave maximum points to the easiness of using VCD, and to how much the procedure as well as its outcomes met her expectations. She gave 8 out of 10 points to how much VCD facilitates communication of trauma, and 7/10 to how much VCD
help reduce emotional distress. Her answers to open-ended questions were: “Great emotional support, great guidance through the process;” “VCD helps in recovering lost memories;” “VCD is very clear and easy to use;” “continuous guidance and support provided a safe environment for me to take a memory fragment and explain it using the VCD graph. This led to the recovery of many influential memories.”

For more clarity in seeing the development of Celine’s two most repeated memories session after session, we present their progress individually in the figure 15.

*Figure 15: Combined VCD Graphs of Celine*
As long as Celine was continuously reported having recalled trauma memories throughout our intervention, we found it important to present her progress on this aspect and transfer her narrative and visual report to quantitative measures. It was challenging to decide which element to choose for quantitative analysis, as Celine’s memories were gradually growing in various directions. Finally, it was decided to count the number of new episodes remembered. We operationally define a “new episode” the following way: a reported narrative of a past experience, not reported before, labeled as a “new memory” by a participant, which involves a description of specific environment, person(s), and/or action(s) connected to sexual abuse or its anticipation. Because Celine would report recollecting new episodes session after session, but she would not discuss all the episodes on every session, we decided to use cumulative graph for presenting her progress (see figure 16).

Figure 16: Cumulative Graph of the Number of Trauma Episodes of Celine
On the graph presented on the figure 16 we see that the number of trauma episodes recollected by Celine increased from one to eight over the course of seven intervention sessions (we started counting from the fourth session, because intervention was preceded by three baseline sessions). Celine herself considered this outcome the most beneficial result of our intervention.

Over the course of ten sessions we were also quantitatively measuring our main DV, depression, and two additional variables, anxiety and PTSD. Celine’s progressive scores of BDI-II, BAI, and PCL-5 are presented below on the Figure 17.
Figure 17: Progress of Celine’s BDI-II, BAI, and PCL-5 Scores
The data within each of the measures, presented on the figure 17, are characterized by variability. The first graph, BDI-II, presents a baseline of an increasing trend and medium level of scores. Baselines of other two graphs contain the data of higher level, but decreasing trend. During intervention, BDI-II scores slightly increased in level, but indicated a decreasing trend. BAI scores created a stable trend of a lower level compared to the baseline, and the PCL-5 scores continued a slightly decreasing trend from the same level as the baseline.

Because no decrease in the level of depression was indicated over the course of seven intervention sessions, compared to the baseline, we decided to take a closer look to the individual items of the BDI-II, to identify if there were particular domains of depression where the VCD had an effect. This decision was prompted by two main factors. First, as was reported before, in the middle of our intervention Celine started to encounter increasing stressors in her personal life, reflected in her level of fatigue, sleep difficulties, eating etc. Because of this, we were wondering whether the items of the BDI-II which were connected to the abovementioned variables, were affecting Celine’s depression scores by artificially increasing the overall measure, while certain indications of depression could have lessened. Second, Celine was permanently presenting a very strongly positive evaluation of the VCD procedure and its outcomes; therefore, we wondered if we could find an objective, quantitative basis for this report within the data we had obtained.

By analyzing the individual items, scores in four domains – sadness, guilty feelings, self-criticalness, and worthlessness (see figure 18), were found to be decreased after the VCD intervention was applied.
After obtaining this important finding through the more detailed analysis of the BDI-II data, it was decided to analyze the data obtained from the other two measures the same way. On the BAI, three indications of anxiety – being terrified, fear of losing control, and discomfort in the abdomen, showed decrease after the VCD application (see figure 19).
Figure 19: Three Components of BAI where Decrease in Celine’s Scores was Identified After Introducing the VCD Intervention
We also looked at each PTSD criterion, measured by PCL-5, separately (see figure 20). According to the DSM-V (2013), criteria B to E (pp. 271-272) reflect various clusters of PTSD symptomatology, which are the following: intrusion symptoms (criterion B), persistent avoidance (criterion C), negative alterations in cognitions and mood (criterion D), and marked alterations in arousal and reactivity (criterion E).

*Figure 20: Progress of Celine’s Scores within the Criteria of PTSD*
As shown on the figure 20, baseline of each of the criteria presents a decreasing trend; therefore, it is hard to make any assumptions on the effects of the intervention. However, it is important to note, that the symptoms of the criteria B and D consistently decreased throughout the ten sessions, and that on each of the four criteria, Celine’s symptoms were lower on the last session compared to the first session.

In summary, although Celine’s data did not indicate progress in a straightforward manner, we found that, after applying the VCD, her scores went down on several indicators of depression and anxiety, the number of sexual trauma memories recalled by her increased, and she expressed a highly positive evaluation of the VCD procedure as well as the progress she made. Therefore, the VCD intervention with Celine over the course of seven sessions was considered successful.

Dianne

Dianne came in without a firm decision to participate. She reported that she was not sure if she wanted to remember her childhood experiences of abuse, and was afraid that taking part in the study would bring up memories that she would not be able to handle. After the discussion regarding the study and what the process looked like, she decided to give it a try. Three baseline sessions identified a stable trend of depression in the “mild” range (see figure 32), therefore the sessions moved on to the training phase. Dianne was quickly able to learn the procedure, which allowed the start of the intervention phase.

Because Dianne had experienced multiple sexual trauma on different stages of her life, intervention phase started with a discussion on which experience(s) she considered
most disturbing and wanted to focus on first. She identified a series of sexual abuse
which happened during her mid-adolescence, about which she had only limited
recollections. She was able to recollect and put on the graph two incidents (see figure
21). Notably, later Dianne reported that, it was only the first incident she had had a
clear recollection of before starting the intervention; the second incident she only
remembered after being asked to draw the timeline. Before, she had “known” about it
on the “back of my head” but had never become fully aware of it. After the
visualization, Dianne reported symptoms of “being tight in throat” and difficulty
breathing; however, she said that the symptoms were manageable and she allowed the
researcher to further inquire regarding the incidents. Her BDI-II score after the session
was 20, slightly above the baseline level.

Figure 21: VCD Graph from intervention 1 with Dianne
As seen on the figure 21, Dianne drew a timeline of two separate memories of trauma, the pattern of which were similar: they both started from a low/lower distress level, gradually reached their peak, and then decreased again to the lower distress level. We cannot specify the content of the memories for the confidentiality reasons; we can only reveal that these two memories were similar also in their content. Only major difference was that the perpetrators were not the same person.

In the second session Dianne reported that she was remembering more details about her sexual trauma. She drew the same two incidents on the graph (see figure 22) and was able to narrate them to the researcher. Her depression score showed to be the same as at the previous session. Dianne reported that, although bringing up her trauma memories was emotionally difficult, she thought that she was “doing the right thing” and the intervention felt healing for her.

*Figure 22: VCD Graph from intervention 2 with Dianne*
On the figure 22 we can see that the pattern of the episodes drawn was the same as on the first session; however, the peaks of distress were slightly lower than previously.

In the third intervention session Dianne shared some history regarding her relation with the perpetrator from her first memory, and talked about the second perpetrator whom she could not identify. When it came to visualizing the timeline of the trauma events, she indicated that it was much harder for her to start drawing this time, than the previous two times. She noted that it was easier for her to talk about the events, because she could tell them in the form of stories which she could distance herself from, whereas in the visualization she needed to include herself and it made the memory more real and painful. She drew the same pattern of the timeline of two memories, with the peaks higher than in the previous session (see figure 23).

Figure 23: VCD Graph from intervention 3 with Dianne
At the beginning of the fourth session Dianne reported that in the previous week she found herself ruminating over her memories of sexual trauma, mostly for the purpose to find out whether she could have done more to protect herself. When drawing the timeline, she noted that she “felt” as if there was some other incident of sexual abuse, but she did not have any recollection of it. After putting two previously reported incidents on the line graph (see figure 24), she proceeded to describing these incidents to the researcher. In this process, Dianne caught herself pronouncing a sentence (not specified for confidentiality reasons) which appeared surprising to her and, further reflecting on it, she said that this sentence would “fit” only if there was another incident between the reported two. She also expressed a fear that, as long as she remembered the second episode, there could potentially be more incidents to be recollected. On this session Dianne’s depression stayed the same as in the previous session. The researcher reflected on Dianne’s elevated distress and welcomed to hear her attitudes regarding the treatment. Dianne said that, although it was emotionally hard for her, she wanted to continue the sessions, because “deep down I feel better about myself.”
In the fifth session Dianne reported feeling better than on the previous session. She said she had not thought about her trauma experiences much during the week, and had not tried to remember another sexual assault incident that, she suspected, took place between the two remembered incidents. Although not being able to “put my finger on it”, she was becoming more certain that this incident happened. On the visual narrative graph (see figure 25) she presented this vague recollection as a slight peak between the regular incidents of the assault. Measuring Dianne’s BDI-II score showed a one-point increase on this session.
In the sixth session, after starting drawing a line on a graph, Dianne realized that she was taking the line upward to the high distress level despite not feeling as severely distressed at the moment. With more reflection, she recognized that recently she had not been feeling an intense distress regarding her sexual abuse experiences; however, she had been indicating the high distress on the graphs as she was thinking of how it felt at the moment of trauma. After this realization, she started over drawing the line, indicating lower distress level for the first trauma incident (see figure 26). The second trauma incident appeared emotionally more difficult to visualize. Dianne paused, saying that she caught herself starting to dissociate before going to the second memory. She took couple of minutes to breathe deeply and then resumed drawing the timeline on the graph. After she finished, Dianne said that she visualized the memory.
more “carefully”, meaning that she avoided thinking of details, to keep herself present and not dissociate. Dianne’s depression level slightly dropped on this session.

Figure 26: VCD Graph from intervention 6 with Dianne

In the seventh session, Dianne indicated significantly lower distress level on the narrative graph for both incidents of trauma (see figure 27). However, she found herself having more visceral reactions during visualization of the events – heavy breathing, pain in the chest. She paused again before starting with the second incident, but this time she was able to return to the visualization with more easiness. In this session, Dianne’s depression level dropped significantly – to the mild range.
Eighth session was similar to the previous session in terms of Dianne expressing less distress (see figure 28), but more visceral reactions during visualization. Again, it was emotionally harder for Dianne to visualize the second incident; however, she only paused for a second before putting it on timeline. On this session Dianne’s depression level was slightly higher than on the previous session; however, it is important to note that, while completing the BDI-II, Dianne would make comments that on certain items her responses fell between the scores 1 and 0; she felt improvement but the recovery was not absolute yet, therefore she still circled 1 instead of 0. We scored the responses in a conventional way which resulted in a slightly higher score than was Dianne’s subjective verbal report.
In the ninth and final tenth sessions Dianne’s distress level connected to her sexual trauma experience, as reflected on the narrative graphs (figures 29 and 30), decreased further. Her depression level was slightly higher than on the previous session; however, now she indicated more items where she thought her score could be 0.5 rather than 1. In these last sessions, Dianne also inquired about the possibility to apply VCD to her other sexual abuse experiences, because it appeared effective for the most disturbing experience she decided to focus on first. The possibility of continuing the treatment outside research was discussed.
Figure 29: VCD Graph from intervention 9 with Dianne

Figure 30: VCD Graph from intervention 10 with Dianne
In the final session Dianne was also asked to evaluate her experience with the VCD procedure by using the VCD Feedback Form (Appendix E). She gave 8/10 points to the easiness of using VCD and to the extent VCD facilitates communication of trauma; 9/10 points to how much the procedure met her expectations and to the extent VCD helps reduce emotional distress; Dianne indicated that effects of VCD matched the outcomes she was hoping for extremely well (10/10 points). Her answers to open-ended questions were: “I was able to process anything that came up during the sessions;” “I realized that what happened to me doesn’t define me. What they did was wrong and on them; it doesn’t reflect anything about me except the strength to go forward and deal with it so it doesn’t shadow my future.” To the question, what was the most unclear or difficult part of the VCD and why, Dianne answered: “Remembering another event and processing it along with the one I had already remembered. Because it was physically very painful and bled into the memories and felt like I was reliving it a few times. It was also a realization to know that it was not as stressful as in the beginning.” Later Dianne followed up with a thank note to the researcher, indicating that she would not have been where she was without participating in the research, and that she became more confident and saw herself differently by the help and insight provided by the treatment.

On the figure 31 we combined Dianne’s visual narrative graphs from all ten intervention sessions to facilitate comparison of her distress level on different points of the treatment.
Figure 31: Combined VCD Graphs of Dianne
As seen on the figure 31, Dianne’s distress stayed on about the same level during the first six sessions. On the seventh session, when Dianne had a realization that her attitudes towards her trauma experiences had changed, her distress dropped dramatically and continued decreasing until the end of the intervention.

The sudden drop of the scores on the seventh intervention session (tenth session including the baseline) was also identified in the quantitative measures of depression, anxiety, and PTSD. The data obtained from the three baseline and ten intervention sessions are presented below on the figure 32.
Figure 32: Progress of Dianne’s BDI-II, BAI, and PCL-5
As seen on the graphs on the figure 32, Dianne’s scores are characterized with a low variability. On the baseline phase, BDI-II and BAI scores showed an increasing trend. Therefore, starting of an intervention phase was justified for both measures. PCL-5 showed stable / slightly decreasing trend of the data. Levels of the data were medium for each baseline. On the intervention phase data for all three measures showed an initial increase in level; however, by the middle of the treatment, they started to decrease. By the end of treatment, the BDI-II scores showed a slightly lower level than the baseline, and, as stated above, could be even lower if we were able to apply more sensitive measures allowing Dianne to score “half points” instead of “full points” on certain items. Level of anxiety increased during the intervention and, although showed a slightly decreasing trend, remained higher than baseline after the course of ten sessions. PCL-5 was the only measure scores of which ended substantially lower than baseline. However, in this case data were already showing a slightly decreasing trend at the baseline; therefore, we cannot attribute this result to the effect of the VCD.

Looking closer to the domains of depression as measured by the BDI-II, we found decrease in Dianne’s scores in one domain, “self-dislike”. This evidence of the effectiveness of the intervention is presented on the figure 33.
Figure 33: One Component of BDI-II where Decrease in Dianne’s Scores was Identified After Introducing the VCD Intervention

According to the visual analysis of each PTSD criterion measured by the PCL-5 (see figure 34), almost every cluster – intrusion symptoms (criterion B), persistent avoidance (criterion C), and negative alterations in cognitions and mood (criterion D) – showed at least a slight decrease after the application of the VCD intervention.
In summary, intervention with Dianne can be considered successful as, along with her high satisfaction with the treatment, we saw dramatic decrease in her distress regarding the trauma memories, and some decrease in her depression and PTSD levels.

Overall, the VCD treatment with both Celine and Dianne resulted in important outcomes. Two major results that Celine’s and Dianne’s cases had in common, were initial increase in the level of depression followed by eventual decrease, and subjective evaluation of the treatment and its outcomes as highly positive.
IV. DISCUSSION

The goal of this research was to identify the effect of the visual communication desensitization (VCD; Castelfranc-Allen, 2012) procedure on the depression level of women with sexual trauma histories. Depression is a complex disorder, the etiology of which may relate to sets of variables in a person’s life. Experienced interpersonal trauma and, particularly, sexual abuse, is shown to be one of the factors leading to the disorder (Lewis et al., 2003; Swanholm et al., 2009; Goldsmith et al., 2013). Therefore, when a sexual abuse history is identified in depressed individuals, we think that a treatment focused on processing the trauma experience will help decrease depression. The challenge is that, the individuals coming to psychotherapy often display difficulties remembering and/or appropriately labeling the sexual abuse experience and tend to avoid thinking and talking about it. VCD is an interview-therapeutic tool which facilitates visualization of a traumatic event through the process of drawing a line on a graph, helps with placing the experience on a structured timeline, and prompts the person to identify her distress connected to the memories. In the current study, we aimed to find out whether implementation of the VCD procedure would help decrease an individual’s level of depression, as measured by the BDI-II. We also investigated several other factors, such as anxiety, PTSD, and the number of recollected episodes, to identify relevant variables that could guide clinical practice. We had four potential participants express interest in the study – Amanda, Betty, Celine, and Dianne; however, we only had an opportunity to implement the VCD with two of them.
The outcomes of this research suggested several important findings. Celine’s data created evidence that application of the VCD procedure results in the decrease of certain aspects of depression and anxiety, including sadness, guilty feelings, self-criticalness, worthlessness, and fear of losing control. Dianne’s data showed a decrease in self-dislike. The evidence of the VCD-induced change in these particular indications of depression and anxiety is crucial, given the earlier findings of Lewis et al. (2003) that women with the experience of childhood sexual abuse (CSA) showed especially elevated self-blame, helplessness, and self-criticism. In the current work, we proposed that, as long as high betrayal / interpersonal trauma is shown to be connected to depression (Goldsmith et al., 2013), using the VCD procedure to help women process the trauma would cause a decrease in the overall depression level. Based on the outcomes of the study, it can be argued that sexual trauma experience is specifically connected to certain abovementioned aspects of depression, as well as anxiety, and therefore, an intervention directed towards processing the traumatic experience will result in affecting these particular domains.

The study revealed several other findings that may be beneficial for clinical practice. After starting the intervention with Celine, recollected episodes of CSA increased from one to eight over the course of seven sessions. This effect can be confidently attributed to the VCD due to the “baseline” reported by the participant, which involved consistently remembering only one episode through the period of several years before the participation in the research. The similar effect was observed in the case of Dianne; however, she only recalled one additional episode, which, she reported, had been “on the back of my head” for many years, and only became activated when she was asked
to draw the timeline of her trauma experience on the paper in the first intervention session.

While recollecting more of a traumatic experience can be considered a desired effect, we recognize that the value of this type of outcome is debatable due to the very nature of memory, and its capacity to contaminate information / create false recollections. However, as opposed to the statements made during the repressed memory controversy in 90s – which completely invalidated the accounts of recovered memory (Penfold, 1996) – we have arguments to believe that our participants’ accounts were based on reality. First, VCD as a tool was created for minimizing contamination of memories, and all its procedures, as described previously in this work, are directed towards this goal: individuals are explicitly instructed to remember “without guessing,” questions, if asked at all, are neutral and non-suggestive, the feedback from the researcher / therapist remains consistently positive regardless of the amount of recollection. Second, the intervention was conducted with the awareness of possible contamination, which was consistently declared by the researcher as well as participants, as it is a recommended practice to minimize contamination (Penfold, 1996). Third, even when the participants recollected certain traumatic events, they were struggling to remember them clearly – faces, actions, or places were reported as being vague. In some instances, it was clearly identified that the details participants could not remember were those that were impossible to know. For example, Dianne reported a certain combination of the factors (e.g. lighting) which did not allow her to identify any significant characteristics of one of her perpetrators at the time of the abuse. Despite many attempts, she could not remember enough details of the person to
be able to identify him at present. This is an indication of authentic recollection versus the creation of a mental image from the imagination, which is more easily accessible.

Due to the arguments above, we believe that VCD does help individuals recall more elements of their trauma experience. However, it is possible this effect may be attributed more to attention rather than memory: when the individuals stop avoiding thoughts of their painful experiences and start focusing on them, it is natural that they will be able to visualize more than they did before. We view the VCD, first of all, as a tool that helps individuals focus on trauma memories effectively, without requiring too many adjustments to the regular therapy course a clinician may take.

Another important finding refers to the identified distress level during the visualization of the traumatic event, as measured by the VCD narrative graph. Between the two cases, we saw an effect of decreased distress associated with a trauma memory through the repeated visualization of an episode. However, the effect was not easily observable in the case of Celine. When remembering “new” details of the episodes, Celine’s distress would decrease dramatically, but when remembering more details of the same episode, her distress would increase before the desensitization was finally achieved. It is notable that the sudden decrease in distress was accompanied by Celine’s report that the remembered details were “unbelievable” and that she felt “distanced” from the memories, while the increase in distress was accompanied by her report of being able to accept experiences more as her own. Dianne’s case was more straightforward in this regard – she did not remember any major details that would come as a surprise to her, and her distress level decreased along with repeated
visualizations of the same episodes. Although it is hard to make any conclusions because of the small number of cases, and their non-homogeneity, we can hypothesize certain effects of the VCD based on what we observed, and leave it to future research to check the validity of our suggestion. We suggest that systematic exposure to the same memories leads to desensitization; however, when new memories emerge in the process, intense initial emotional reactions are expected. Sudden decrease or increase in distress may occur, depending on whether a person dissociates oneself from the experience, or maintains full awareness of the painful memories, respectively. Once the memories are accepted and processed, then a decrease in distress level will occur.

It is notable that, as intervention progressed and the participants became more proficient in putting their “new” memories on the graph, they reported that they were better able to cope when memories would suddenly emerge outside the sessions. This occurrence can be considered an effect of generalization across settings – a concept introduced by Stokes and Baer (1977), signifying a transference of the results of therapy to another environment without active implementation of the intervention in that environment.

Lastly, both Celine and Dianne expressed continuous positive evaluation of the procedure, and at every stage of the treatment reported that it was highly beneficial for them. Therefore, we did find a positive impact of VCD on different aspects of psychological functioning, including an impact on certain aspects of depression.

An important pattern was observed across the data of both participants. After the application of VCD, overall scores of depression increased. This can have two
potential explanations: psychological and methodological. From the psychological perspective, an initial increase of depression could give truth to the adage “it gets worse before it gets better.” Sudden exposure to trauma memories after a long history of avoidance may cause an activation of a negative affect system, and depression may become more intense until the memories become desensitized and integrated in the cognitive structure; from the methodological point of view, the initial increase in depression can be viewed as a continuation of baseline trend rather than an effect of the VCD. With both participants, depression was showing an increasing trend on baseline when the decision was made to stop this phase and move to the intervention. If it was anticipated that depression would increase after the start of the intervention, we would have prolonged the baseline until obtaining stability in the scores. This way, we would have been able to state that either the potential increase or decrease of the scores were due to the VCD.

This leads us to point out the limitations of our study. As a matter of intellectual honesty, first we have to discuss matters around our research question. As Skinner (1953) rightly notes, “scientists have simply found that being honest – with oneself as much as with others – is essential to progress. Experiments do not always come out as one expects, but the facts must stand and expectations fall. The subject matter, not the scientist, knows best… Scientists have also discovered the value of remaining without an answer until the satisfactory one can be found” (p. 13). The first limitation of the study was that the data did not allow us to answer a straightforward yes or a straightforward no to our research question – whether application of VCD results in the decrease in the level of depression in adult females who have experienced sexual
assault. While we did see a decreasing trend of depression on the intervention phase, it was also the case that initially the level of depression increased compared to the baseline. As a result, over the course of the available intervention sessions, we only saw the decrease back to the baseline level. We cannot speculate on what would happen if intervention was continued, and we cannot conclude that the intervention had an effect because it ended on the same level as the baseline. At the same time, as there was a decreasing trend, it would not be fair to say that VCD did not have a positive impact on depression. Therefore, we must accept the stance of “remaining without an answer” (Skinner, 1953, p. 13) until more research is conducted.

As already mentioned, another limitation of the study was ending the baseline phase before obtaining stability in the scores of BDI-II. Normally, it is an accepted practice to end the baseline on an increasing or stable trend when intervention is expected to have a decreasing effect. However, after consistently observing an increase in scores at the onset of the intervention phase, we realized it was important to interpret this increase, which we were unable to do with an unstable baseline. Moreover, the lack of the number of sessions during the intervention phase, and the number of participants altogether complicated our ability to interpret trends with any certainty. If we were able to conduct more VCD sessions, especially with Celine, it would have become clear if depression would continue to decrease further or stay at the same level as the baseline. Due to the small number of participants, replication was achieved only once, an insufficient number with which to make conclusions about the generalizability of the results. Despite the number of preparatory activities – creating flyers, reaching out to different settings that serve the population with trauma experiences, giving
presentations about the research, and negotiating with individual clinicians, only four individuals contacted the researcher, and of those only two individuals completed the study. Participating in research which requires facing one’s trauma memories is not an easy decision. Celine and Dianne had made a firm choice that getting better was worth the challenge of being exposed to painful memories, while Amanda and Betty were not ready for it at that moment. It is interesting that completers and non-completers differed in age – Amanda and Betty, who dropped out from the study, were in their 40s, while Celine and Dianne, who completed the study, were in their 30s. While it is hard to make any strong assumptions in this regard due to the lack of information, Erikson’s (1980) psychosocial stages of development may be a helpful guide for interpreting this outcome. Erikson states that individuals striving to resolve the conflict of intimacy may be more motivated to try to overcome the emotional residues of severely negative interpersonal experience, while those who have already passed this stage may not be so willing to face this challenge, either due to the lack of motivation, or because of having already tried multiple times before. The difficulty of finding and retaining participants, due to the sensitive and deeply personal nature of the study, could potentially affect other studies of this type. Not only was the interpretation limited by the lack of participants, but the choice of design was as well. We used a basic form of single-case experimentation, the A-B design, which provides some, but enough basis for establishing experimental control. The final limitation of the study was in the qualitative differences of the two participants’ presentations of their trauma experiences. While Celine was focused more on remembering “new” episodes of trauma and adding different events to the graph, Dianne maintained her graph
consistently with the same two episodes. Every case is unique, and flexibility is one of the characteristics of the usage of VCD; however, for research and generalizability purposes, more comparable cases would have provided a more direct replication of the results.

For future studies with enough participants and a more controlled timeline, it would be appropriate to use another form of single case experimentation, multiple-baseline design across individuals. Along with sharing the general characteristics of single-case design, the advantage of multiple-baseline design is that it does not require withdrawing the intervention and/or replicating the results to demonstrate strong experimental control, i.e. to provide evidence that a change in the data is attributed to an intervention (Cooper, Heron, and Heward, 2007). Instead, multiple-baseline design across individuals allows a comparison of baseline and intervention results within and between several participants. Furthermore, as Bailey and Burch (2002) stated, the fact that a certain intervention sequentially introduced is equally effective across different participants is indicative of the robustness of this intervention. Kazdin (2001) describes the procedure in the following way: the baseline data are collected from several individuals for the same measurement target across several sessions. When the data indicate stability of the results, an intervention starts with one of the individuals, while the others remain in the baseline phase. When a trend of a desired change is shown in the data of the individual in the intervention phase while baseline data of other individuals are still stable, then an intervention phase starts for another individual; procedure then continues the same way until all the individuals are engaged in the treatment phase. If the results of all participants consistently show that
the measured results remained stable during the baseline phase, and that they only started to show a desired change after the treatment was applied, it can be stated with confidence that the treatment is the cause of the improvement.

Specifically for the future studies of the effectiveness of VCD, a multiple-baseline design can be used to establish an experimental control across a minimum of 4 participants. On the figure 35 we show the hypothetical results of this experiment, using only one dependent variable for simplicity.
Figure 35: Multiple-Baseline Design Graph with the Hypothetical Data
As long as the VCD procedure requires multiple sessions to show its effect, it would be reasonable to divide the four participants into two groups, moving the first two participants to the intervention phase as soon as possible, while continuing the baseline for the last two participants until the depression score starts to decrease in the first two participants. This way the demands of replication and the comparison between participants can be achieved. To maximally prevent discomfort during a prolonged baseline phase, the last two participants could be assessed only every other week.

Also for the future studies, we recommend considering prolonging the baseline phase until the stability of scores is reached. This way any change in level and trend occurring after the start of intervention can be more confidently attributed to VCD. Prolonging the intervention, on the other hand, will exhaust the benefits of VCD, and would not leave a question as to what would have happened with more VCD sessions.

During the current study, participants inquired about the possible use of VCD at home. Therefore, for the future studies, it is advisable to plan and assess for the generalization of the use of VCD in other settings, as well as to evaluate the outcome of its use without the help from a researcher / therapist. This can be accomplished the following way: after participants show a decrease in their distress level regarding the trauma memories, they could be given the VCD graphs for use at home or other settings relevant to them. This would enable a deliberate planning and assessment of the generalization of treatment effects using a combination of two methods described by Stokes and Osnes (2016) as “incorporating salient self-mediated physical stimuli” (p. 728), where the physical stimuli will be the VCD graph, and “incorporating salient
self-mediated verbal and covert stimuli”, where the stimuli will be participant’s self-instruction for using VCD. Incorporating VCD graphs in the setting(s) outside of treatment will serve as a reminder for participants to perform VCD on their own in order to cope with their trauma memories. The outcomes of the use of the procedure can be demonstrated by having participants indicate their distress level before and after visualization. It is also important to determine whether the effects of the VCD are maintained several months after completing the intervention, which can be achieved by adding a follow-up component to the study.

For future evaluation of the effects of the VCD, it is recommended to add alternate measures of depression and analyze their items individually. This type of data will not only improve the knowledge of the effects of the VCD, but may help better see the pathways in which sexual trauma leads to depression; it will also be beneficial to focus on the dimensions of depression and anxiety that stood out in the outcomes of the current study, e.g. self-criticalness and being terrified, and measure these dimensions in alternate ways, in order to establish a solid case of their role as mediators between sexual trauma and depression/anxiety.

Based on the observations made during the experiment and the final outcomes of the study, we can make a few recommendations for the clinical practice of treating trauma and depression. First of all, we would strongly encourage clinicians to implement VCD as one of their techniques for psychotherapy. This recommendation is mostly based on the unstructured observations of the research sessions made by the clinician-researcher, and her realization stemming from the comparison between the research
sessions, and her regular therapy practice without the VCD: it is far more likely to remain consistent in helping an individual to unfold a trauma experience and process it appropriately, when there is an agreed procedure that needs to be implemented repeatedly, rather than when a therapist relies on the flow of a session and for it to go to the appropriate direction. Trauma experience is a painful memory for a client and the natural tendency is to avoid thinking and talking about it. Having an empathetic stance, a therapist may often align with the avoidance tendency of the client, and allow the topic of trauma to slip from the therapy focus. VCD is a good reminder for both client and therapist to maintain focus, which may increase the efficiency of the therapy sessions.

As the outcomes of the current research showed, the application of VCD may increase person’s level of depression initially. Therefore, clinicians should be aware that VCD may not be appropriate to use for a short-term therapy if they are seeking to have a positive effect on depression with people who experienced childhood sexual trauma. Although the technique maybe useful immediately following trauma for quick and effective interviewing/intervention purposes, treating the symptoms of depression connected to a past trauma experience will require longer-term therapy. On a related note, observing the initial increase of depression after application of VCD makes us wonder whether the avoidance of traumatic memories, in the first place, stems from an individual’s fear of developing depression – the risk that, she could have learned from her past experiences, is high when trauma memories are activated. Exploring and validating these fears, as well as explaining the mechanism of desensitization after the initial elevated distress is crucial before starting the VCD intervention.
Another topic that needs to be discussed with the individuals before starting the treatment is VCD’s potential to facilitate memory recovery. Although this may be a desired effect for some individuals, recollecting unpleasant and painful details of additional trauma will most likely cause heightened distress or dissociation, for which clients need to be prepared. The possibility of emergence of false memories should be extensively elaborated on as well, in order to help individuals maintain cognitive control and prevent filling in the gaps.

Lastly, we recommend using VCD in a flexible way. Different individuals have different backgrounds, experiences, and ways to cope. When it comes to such painful experiences as sexual traumas, it is important to sometimes follow the lead of the client and be responsive to his emerging needs as the process unfolds. Therefore, while it is important to remain consistent in the usage of VCD and follow its procedures, it is also appropriate to take time to figure out how to match the technique to the unique experience of the client, to make decisions to stop the procedure midway or prolong it, or to engage in conversation on other important topics based on client feedback. Also, we believe that VCD can be incorporated into various treatment methodologies and therapeutic styles; therefore, a flexibility will be required for adjusting the technique to the clinician’s individual style and approach.

In summary, the outcomes of the research indicate that VCD is an effective intervention for helping individuals process their painful experiences, and improve their psychological functioning in several dimensions. We encourage clinicians to incorporate VCD in their intervention repertoire; however, we see the need of more
research in order to have robust evidence about the effectiveness of VCD in helping women with sexual trauma histories and depression.
Appendix B

The JMU Department of Graduate Psychology and Baird Center Announce:

An opportunity to participate in a study and receive free psychological support.

Research Title: Assisting Women with Sexual Trauma Histories Using the Visual Communication Desensitization (VCD)

If you are at least 18-year-old, female, and you have been affected by a sexual trauma, you may benefit from an innovative interview/therapeutic tool called VCD. The VCD has been researched and successfully used in therapeutic practice. Further assessment will demonstrate its value to clients and document its scientific validity.

By participating in the research you will help us contribute to improving therapeutic procedures for trauma survivors, and you will receive psychological support from our therapists.

If you are interested in possible participation and want to find out more, please contact Nino Chkhaidze via email chkhainx@jmu.edu or call the Baird Center on (540) 568-7931. We will respond to your email/voicemail shortly.

The study is approved by the JMU Institutional Review Board, #16-0578.
Appendix C

Consent to Participate in Research

Title: Assisting Women with Sexual Trauma Histories using the Visual Communication Desensitization (VCD)

Principal Investigators: Nino Chkhaidze MS chkhainx@dukes.jmu.edu
Trevor F Stokes PhD stokestf@jmu.edu
JaneMary Castelfranc-Allen PhD caste2jm@jmu.edu

Purpose
You are being asked to participate in a research study conducted by Nino Chkhaidze and Dr Trevor Stokes. The purpose of this study is to assist women with distressing memories. Nino Chkhaidze will first assess (privately and individually) women and help them to reduce their emotional trauma. Dr Trevor Stokes will provide supervision and advice during the assessment and intervention.

Specifically, the aims of this study are to evaluate the extent to which the trauma-reduction assessment and therapy procedures in this study help you to

a) Communicate your own accounts of personal distressful events
b) Improve your emotional well-being

Procedures
If you decide to participate in this research study, you will be given the opportunity to ask questions about the study and then be asked to sign this written consent form.

During the study you will meet with a doctoral level clinical psychology student, Nino Chkhaidze. The meetings will be at the clinic of the Baird Center at JMU. The meetings will consist of a clinical interview, completion of several brief questionnaires, application of a new visually-based procedure called the “VCD”, and possibly a Cognitive-Behavioral Treatment, which aims to address symptoms of trauma and depression.
The VCD has been specifically developed by Dr Castelfranc-Allen to help people who have experienced deep distress or traumatic events. It has been used by her and her colleagues in New Zealand (her home country) and in the country of Georgia. The procedure will require from you to draw a line on a line graph while thinking of your traumatic experience, and take the line upward or downward, according to the level of distress you feel during this process.

We invite you to participate in this study about these procedures. Your participation is very valuable and you will be given the opportunity to provide us with feedback on your experience after your last session. You also will have the right to receive information on the results of the study after its completion if you want.

**Time Required**

The initial meeting and assessments, as well as the emotional support/therapy sessions will take 1-1.5 hours each. In total we will meet for a minimum of 7 and maximum of 20 sessions, which will be approximately 10-30 hours of your time during a period of 2 to 4 months. Also, you will have a choice to participate in additional therapy sessions if needed. These sessions will be provided at no cost.

**Risks**

You may find it initially distressing to think about and communicate your memories of the distressful life event(s) that you have experienced. Every effort will be made to reduce this distress through the VCD processes. If you are in need of further support after you have finished the VCD procedures, additional sessions using Cognitive-Behavioral Therapy will be provided.

**Benefits**

Potential benefits for your taking part in this study include

a) The opportunity to find new effective ways to communicate distressing experiences

b) The opportunity to learn new techniques to help you cope with disturbing memories

**Confidentiality**

We reassure you that any personal information that you provide will be gathered confidentially. All information will be coded to make sure that you or anyone else cannot be identified personally. In addition, the coded information will be stored in a secure location without names attached and accessible only to Nino Chkhaidze, Dr. Stokes and Dr. Castelfran-Allen until the data have been analyzed. After that the data shall be shredded.

The aim of this study is to improve help for traumatized people around the world. The general aggregated results of this research will be added to earlier research conducted by Dr Castelfranc-Allen and presented at academic conferences, at meetings or trainings on trauma, and published in academic journals. The de-identified results will be used by Nino Chkhaidze in her doctoral dissertation.
Participation & Withdrawal
Your participation is entirely voluntary. You are free to choose not to participate. If you do choose to participate, then you can withdraw at any time. If you decide to withdraw from the research, we will provide further therapy assistance apart from the research if you wish, or we can make referrals to other providers.

Questions about the Study
If you have questions or concerns during the time of your participation in this study, or after its completion or you want to receive a copy of the final results of this study, please contact:

Nino Chkhaidze
Alvin Baird Center
James Madison University
Telephone: (540) 568-7931
chkhainx@dukes.jmu.edu

Dr Trevor Stokes
Baird Center
James Madison University
Telephone: (540) 7931
stokestf@jmu.edu

Questions about Your Rights as a Research Participant

Dr. David Cockley
Chair, Institutional Review Board
James Madison University
(540) 568-2834
cocklede@jmu.edu

Giving of Consent
I have read this consent form. I understand what is being requested of me in this study. I freely consent to participate. I have been given satisfactory answers to my questions. Nino Chkhaidze provided me with a copy of this form. I certify that I am at least 18 years of age.

☐ I give consent for me to be interviewed/receive voluntary therapy during this study

___________________________________________  _____________ Date

Name of Adult Participant (Printed)

___________________________________________  _____________ Date

Name of Witness (Signed)
Appendix D

Date: _____________

Life Information Survey

I. BACKGROUND INFORMATION

Name: ______________________    Date of birth: ______________    Age: ______

Phone number: _____________________    Email: ____________________________

Race/Ethnicity: _____________________    Educational level: _____________________

Occupation: _____________________________    if employed, please briefly describe the work you do:

_______________________________________________________________________________

Marital Status: _______________________________    If in relationship, what are your partner’s name, age, and occupation?

_______________________________________________________________________________

Do you have any disabilities? ______    If yes, please specify: __________________________

_______________________________________________________________________________

Are you currently taking any medications? ______    If yes, please specify the name of each medication, the dosage, and what it is for:

_______________________________________________________________________________

_______________________________________________________________________________

_______________________________________________________________________________
Please provide contact information of a trusted friend or family member in case of emergency:

________________________________________________________________________

________________________________________________________________________

In your own words, please describe how things are going in your life. Identify any problems that concern you.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

II. FAMILY HISTORY

Father/Stepfather's name: ________________________________

Is he living or deceased? ___________ If deceased, how old were you at the time of his death? ______ Cause of death? ________________________________

Father's/Stepfather's age (now or at the time of death): ______

Father/Stepfather's occupation: ________________________________

Describe what your father/stepfather is/was like as a person and your relationship with him:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Mother/Stepmother’s name: _______________________________________________________

Is she living or deceased? ________________ If deceased, how old were you at the time of her death? ______ What was the cause of death? ________________________________________

Mother’s/Stepmother’s age (now or at the time of death): ______

Mother/Stepmother’s occupation: ____________________________________________________

Describe what your mother/mother is/was like as a person and your relationship with her:
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

How would you describe your parents’ relationship?
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

Do you have any brothers and sisters? ________ If yes, please provide names, ages, and briefly describe your relationship with them: ________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
Describe how your parents disciplined you when you were growing up (If they are still disciplining you now, describe how).

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Were there a lot of fights in your family growing up?

______________________________________________________________________________

______________________________________________________________________________

How was emotion expressed in your family? Was your family open in talking about difficult issues or not?

______________________________________________________________________________

______________________________________________________________________________

Does any member of your family suffer from any kind of mental or behavioral disorder, including problems with drugs or alcohol?

______________________________________________________________________________

______________________________________________________________________________

Did your parents have a lot of money or was your family on a tight budget?

______________________________________________________________________________

______________________________________________________________________________

III. PERSONAL HISTORY

Where were you born and grow up? ________________________________________________

______________________________________________________________________________
Were there any complications or problems with your birth or early development? 
______________________________________________________________________________

Briefly describe what your childhood was like. Please note if it was mostly happy or was not.
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

What was it like for you to go through puberty and adolescence? Was it a good time (or not) for you?
______________________________________________________________________________
______________________________________________________________________________

How would you describe yourself as a person?
______________________________________________________________________________
______________________________________________________________________________

When are the times when you feel the most competent? The most incompetent?
______________________________________________________________________________
______________________________________________________________________________

Do you tend to be critical of yourself? Are there times when you are more critical than others?
______________________________________________________________________________
______________________________________________________________________________

What would you describe to be your greatest strengths?
______________________________________________________________________________
______________________________________________________________________________
Do other people know the "real" you?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

How do you cope with difficult problems? Do you try to approach it directly or are you more likely to wait and hope it goes away?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Do you think of yourself as someone who is effective in dealing with stress? As someone who is resilient?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Are there emotions that make you feel particularly uncomfortable? (e.g. do you have trouble being angry or sad or vulnerable?)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Are you a religious person? If so, what religion do you follow and how important is religion (or spirituality) in your life?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Was (or is) anyone in your family (including you) physically, sexually, or emotionally abused?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
IV. RELATIONSHIP HISTORY

Are you having conflicts with important people in your life? _____ If so, please describe:

______________________________________________________________________________
______________________________________________________________________________

If someone upsets you, are you able to talk with them about it?

______________________________________________________________________________

Who is the person you trust the most?

______________________________________________________________________________
______________________________________________________________________________

Do you tend to feel secure in your relationships with other people or not?

______________________________________________________________________________
______________________________________________________________________________

Is it easy for you to get close to people? Are you able to share intimate details of what you think?

______________________________________________________________________________
______________________________________________________________________________

Do you worry a lot if someone doesn't like you? Do you work hard to please others?

______________________________________________________________________________
______________________________________________________________________________

Please describe your dating history.

______________________________________________________________________________
______________________________________________________________________________
Are you currently involved in an emotionally intimate relationship? If yes, please describe how that relationship is going for you. If no, do you wish you were in such relationship?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Have you ever been involved in a sexually intimate relationship? Are there any relevant details you wish to provide regarding your sexual life?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Have you had questions about your sexual orientation or gender identity? If so, please describe.
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

V. PERSONAL SAFETY

Have you ever thought of harming or killing yourself? If yes, what thoughts did you have? When was the last time you had these thoughts? When was the most intense period of suicidal thinking you have had?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Have you ever made a suicide attempt or been particularly reckless because you were thinking of dying? If so, how many?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
Have you felt suicidal recently? If so, please describe.
______________________________________________________________________________
______________________________________________________________________________

VI. MENTAL AND MEDICAL HEALTH BACKGROUND

Have you ever been diagnosed with a mental condition or disorder? If so, please describe.
______________________________________________________________________________
______________________________________________________________________________

Have you ever been hospitalized for a mental condition? If so, please describe.
______________________________________________________________________________

Have you ever received psychological therapy or counseling? If so, what was / is that for and did you find it to be helpful or not?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Have you ever been diagnosed with a medical condition or disorder? If so, please describe.
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
Have you ever experienced any physical or psychological trauma? If so, please describe.

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

VII. EXPECTATIONS

What helped you make a decision to participate in the research?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

What are your expectations towards participating in the research?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
Appendix E

Information on Narrative Graphs

We are interested in the similarity or consistency of narratives provided by the client across each of the sessions.

The narrative domains that are important for us to record are:

a) **Person(s)**  P1, P2 etc
b) **Action(s)**  A
c) **Client’s role**  W or PW
d) **Place(s)**  PL
e) **Item(s)**  I
f) **Timeline**  T

Please provide a very brief descriptor for each domain, for each session

*Example:*

Person 1  e.g., ‘husband’ or ‘man’ + identifying descriptor such as ‘balding man’ or ‘man with a tattoo’ - or the first name of the person

Person 2  e.g., ‘woman with blonde hair’ or ‘fat angry woman’ – or the first name of the person

Action(s)  e.g., hitting, punching, kissing, raping etc + the recipient of the action

Client’s role  a) Witness (seen or heard something done to others) <W>

b) Participant Witness (something done to them) <PW>

Place(s)  e.g., at home, in the street, in a shed, on a bed, in the mountains, name of village or town

Item(s)  e.g., clothing, car(s), instruments such as a knife or weapon,

Timeline  e.g., at night, at dawn, over several days, unknown
### Information on Narrative Graphs

<table>
<thead>
<tr>
<th></th>
<th>Action(s)</th>
<th>Client’s role (W, PW)</th>
<th>Place</th>
<th>Item(s)</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person2</td>
<td></td>
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<tr>
<td>Person3</td>
<td></td>
<td></td>
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</tbody>
</table>
Appendix F

Monitoring & Support Feedback Form

Please find the time to answer the following questions. Your feedback is extremely valuable to us and will help refine the VCD to be more useful for future end-users across different countries, such as those who have experienced trauma, those who evaluate their needs, and those professionals who try to help.

Thank you from the VCD research team.

1. How easy / difficult was the VCD to understand or use? Circle a number.

   0=very difficult       10=very easy
   0       1       2       3       4       5       6       7       8       9       10

2. The support that you got for using the VCD was

   □ Good because
   ________________________________________________________________
   ________________________________________________________________

   □ Not good enough because
   ________________________________________________________________
   ________________________________________________________________

3. How much the VCD procedure(s) met your expectations for a therapy? Circle a number.

   0=not at all       10=extremely well
   0       1       2       3       4       5       6       7       8       9       10
4. How much does the VCD procedure(s) help people to communicate their emotional distress or trauma? Circle a number.

0=not at all  10=extremely well

0 1 2 3 4 5 6 7 8 9 10

5. How much does the VCD help to reduce emotional distress or trauma? Circle a number.

0=not helpful at all  10=extremely helpful

0 1 2 3 4 5 6 7 8 9 10

6. In what extend the effect VCD had for you matches the outcomes you had been hoping for? Circle a number.

0=not at all  10=extremely well

0 1 2 3 4 5 6 7 8 9 10

7. Check (√) any or all of the following parts of the VCD that you think are most helpful

☐ Didn’t take up too much time
☐ The graph
☐ Repeating descriptions of the distressful event(s)
☐ Breathing and relaxation procedures
☐ Recognizing triggers to symptoms
☐ Learning how to change distressful thoughts and images
☐ Something else (please describe)
8. What was the most unclear or difficult part(s) of the VCD for you and why?
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

9. What was best about your experience in this research study?
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
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