UNIVERSITY OF CALIFORNIA

Santa Barbara

Trauma-related Distress and Growth:
A study of Pregnant and Post-Partum Women in Residential Mental Health and Substance Use Treatment

A Dissertation submitted in partial satisfaction of the

requirements for the degree of Doctor of Philosophy

in Counseling, Clinical, and School Psychology

by

Ashley E. Sanford

Committee in charge:

Professor Merith Cosden, Chair

Professor Collie Conoley

Professor Maryam Kia-Keating

September 2016

The dissertation of Ashley E. Sanford is approved.

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Professor Collie Conoley

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Professor Maryam Kia-Keating

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Professor Merith Cosden, Committee Chair

September 2016

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A study of Pregnant and Post-Partum Women in Residential Mental Health and Substance Use Treatment

Vita of Ashley E. Sanford

August 2016
P.O. Box 300924
Houston, TX 77230
ashley.sanford@gmail.com
Prior name: Ashley Sessoms

EDUCATION

2016	**Postdoctoral Fellow (APA Accredited)** **Department of Veteran's Affairs** **Michael E. DeBakey VA Medical Center** Houston, TX
2015-2016	**Predoctoral Intern, Behavioral Medicine Track (APA Accredited)** **Department of Psychiatry** **University of Texas Health Science Center, San Antonio** San Antonio, TX
2014-2016	**Doctoral Candidate in Counseling, Clinical and School Psychology** **Clinical Emphasis (APA Accredited)** **University of California, Santa Barbara** Dissertation: Trauma-related distress and growth: A study of pregnant and post-partum women in residential mental health and substance use treatment Chair: Merith Cosden, Ph.D. Status: Defended December 11, 2015
2013	**Master of Arts in Counseling Psychology** Department of Counseling, Clinical and School Psychology (APA Accredited) University of California, Santa Barbara
2005	**Bachelor of Arts, Psychology, cum laude** American University, Washington, D.C.

HONORS

2016	Clinical Intern of the Year, UT Health Science Center, San Antonio
2015	Grad Slam Semi-finalist, Three-minute research presentation competition
2014	Dean's Fellowship
2014	Hosford Research Grant
2013	Founder and President, UCSB Counseling, Clinical and School Psychology (CCSP) Associated Students organization
2013	Ray Hosford Award for Excellence in Clinical Dedication
2004-2005	Dean's List, American University

CLINICAL INTERESTS

Posttraumatic Growth
Traumatic Stress
Consultation and Supervision
Cognitive Behavioral Therapies
Program Development and Evaluation

CLINICAL EXPERIENCE

August 2016-(August 2017)
Postdoctoral Psychology Fellow
Michael E. DeBakey VA Medical Center, Houston
40 Hours per week
Supervisor: Ellen Teng, PhD

- Use cognitive behavioral therapies in team treatment of posttraumatic stress disorder among veterans

July 2015-June 2016
Clinician, PROXIMA Program
University Hospital Southwest Clinic, San Antonio
8 Hours per week
Supervisor: Joseph Blader, PhD

- Assess for behavioral disorders including ADHD, ODD, PTSD, depression and anxiety in a behavioral health clinic embedded in a neighborhood family health clinic
- Conduct family and individual child treatment in collaboration with primary care physicians and psychiatrist

July 2015-June 2016
Clinician, Pediatric Trauma Clinic
University Hospital, **San Antonio**
4 Hours per week
Supervisor: Donna Roybal, MD

- Assessment and symptom monitoring for PTSD in pediatric trauma patients using the CPSS
- Conduct TF-CBT interventions
- Conduct mental status examination and Traumatic Brain Injury symptom assessment using the MMSE and MOCA
- Collaboration with medical students, residents, and staff

July 2015-June 2016
Clinician, Posttraumatic Stress Disorder treatment
STRONG STAR PTSD Research Consortium, San Antonio
12 Hours per week
Supervisor: John Moring, PhD

- Certification in progress for Cognitive Processing Therapy, supervised by Kirsten Dillon, PhD, Duke University
- Certification in progress to administer Clinical Assessment of PTSD Symptoms – DSM-5 (CAPS-5) assessment as an Independent Evaluator
- Certification in progress to administer Mini International Neuropsychiatric Interview, 7th Ed (MINI-7) as an Independent Evaluator

July 2015-June 2016
Clinician, Healthy Hearts Primary Care Clinic
Robert B. Green Hospital, University Health System, San Antonio
8 Hours per week
Supervisor: Jose Moreno, PhD

- Conduct short-term behavioral therapy with patients with co-ocurring diabetes or hypertension and mental health diagnoses in an integrated primary care setting
- Assess and monitor physical and psychological outcomes, coordinate medical services with primary care clinic staff
- Maintain typical caseload of 10 patients

July 2015-June 2016
Clinician, ADVANCE Clinic
Department of Psychiatry
University of Texas Health Science Center, San Antonio
2-4 Hours per week
Supervisors: Cindy McGeary, PhD, and Jeffrey Grimes, PhD

- Conduct short and long term psychotherapy with 1-2 ongoing clients using both Cognitive Behavioral and Psychodynamic approaches

July 2015-June 2016
Group facilitator, Transitional Care Clinic
2 Hours per week
Supervisor: David Roberts, Ph.D.

- Co-facilitate the clinic's weekly "Family Education and Support Group" for families of loved ones with psychosis and Dialectical Behavior Therapy group

July 2014- June 2015
Clinic Coordinator and Supervisor
Hosford Clinic
University of California, Santa Barbara
10 Hours per week
Supervisor: Heidi Zetzer, Ph.D.

- Coordinated day to day clinic procedures including delegating activities among three supervisors
- Supervised advanced clinicians' psychotherapy sessions live
- Led weekly practicum group of four first year practicum students
- Led weekly Case Assignment Team meetings of faculty and supervisors

Sept 2013-Aug 2014
Psychology Practicum Student
Child Abuse Listening and Mediation (CALM)
Santa Barbara, California
20 Hours per week
Supervisor: Jessica Adams, Ph.D.
- Conducted intake evaluations and assessments
- Provided individual and family psychotherapy integrating family systems and cognitive-behavioral approaches
- Co-led women's domestic violence psychoeducation group
- Co-led women's adult recovery from child sexual abuse process group
- Collaborated with clients' families, schools, and other service providers

July 2013-Mar 2014
Supervision Teaching Assistant
Hosford Clinic Advanced Practicum
University of California, Santa Barbara
5 Hours per week
Supervisor: Steve Smith, Ph.D.
- Provided feedback and supervision with junior psychotherapy clinicians
- Led general group process discussion and provided didactic on CBT

July 2012-June 2013
Advanced Practicum Student Clinician
Hosford Clinic
University of California, Santa Barbara
20 Hours per week
Supervisors: Steve Smith, Ph.D., and Merith Cosden, Ph.D.
- Conducted intake evaluations and assessments
- Provided individual psychotherapy
- Consulted with psychiatrist for medication management
- Engaged in weekly individual and group supervision with emphasis on Cognitive Behavioral Therapy and Family Systems approaches

Mar 2012- Sept 2014
Assessment Clinician
Psychology Assessment Center (PAC)
University of California, Santa Barbara
5 Hours per week
Supervisors: Erik Lande, Ph.D., and Jordan Witt, Ph.D.

- Conducted individual and family intake interviews
- Administered integrated assessment batteries including intellectual, acheivement, neurological and personality functioning
- Wrote up feedback reports for clients and provided in-person feedback

Aug 2011-Aug 2013
Assessment Specialist
Child Abuse Listening and Mediation (CALM)
Santa Barbara, California
8 Hours per week
Supervisor: Jessica Adams, Ph.D.

- Scored assessment batteries submitted by clinicians, including the Child Behavior Checklist, Parenting Stress Index, Eyberg Child Behavior Inventory, and Trauma Symptoms Index
- Wrote interpretation reports to accompany scored assessments providing feedback and giving recommendations for treatment

May – December 2006
Behavioral Aide
The Help Group, Stepping Stones Therapeutic Preschool
Sherman Oaks, CA
30 Hours per week

- Assisted with behavioral interventions with children 2.5-5 years old with emotion and behavior regulation challenges

RESEARCH EXPERIENCE

Sept 2013-June 2015
Graduate Student Researcher
FRESH (Families in Recovery Embracing Sobriety and Healing) Start grant, SAMHSA
University of California, Santa Barbara

- Coordinated collection of adult and child assessment data across two treatment sites and two time points
- Conducted survey and qualitative interviews of all participants
- Collaborated with advisor and treatment provider to write biannual administrative reports
- Oversaw database management and organization
- Oversaw work of undergraduate research assistants

Principal Investigator: Merith Cosden, Ph.D.

Department: Counseling, Clinical and School Psychology

Sept 2012-2013
Graduate Student Researcher
Children Affected by Methamphetamine grant, SAMHSA
University of California, Santa Barbara
- Oversaw database management and organization
- Conducted survey and qualitative interviews of all participants
- Oversaw work of undergraduate research assistants

Principal Investigator: Merith Cosden, Ph.D.
Department: Counseling, Clinical and School Psychology

Sept 2010-Sept 2011
Project Specialist
Partnership for Families Initiative Evaluation, First 5 Los Angeles
University of Southern California
- Coordinated collection of data across nine sites in LA County
- Collaborated with treatment providers and First 5 LA to ensure treatment fidelity
- Conducted follow-up interviews of participants up to two years post-treatment
- Supervised undergraduate research assistants

Principal Investigator: Devon Brooks, Ph.D.
Department: Social Work

Mar—July 2010
Quality Assurance Manager and Senior Data Manager
Providence Clinical Research, Burbank, CA
- Conducted ongoing audits of treatment administration for fidelity to protocol for up to eighteen different treatment protocols
- Ensured clinic compliance with federal regulations

Supervisor: Teresa Sligh, M.D.

Sept 2008—Feb 2010
Project Coordinator
Heads Up Alcohol Research Lab
Loyola Marymount University, Los Angeles, CA
- Coordinated data collection for project surveying 4,000 undergraduates across three time points
- Developed, coordinated and conducted group alcohol use interventions based on Choice Theory/Reality Therapy techniques
- Conducted group and individual alcohol use intervention sessions for undergraduates using Motivational Interviewing techniques

Advisor: Joseph LaBrie, Ph.D.
Department: Psychology

March 2008

Interviewer
NIDA Study of Early Science Education and Drug Use
Danya International, Los Angeles, CA

- Conducted individual research interviews of second grade students regarding their attitudes toward science education and drugs
  Supervisor: Karen Gavin-Evans, Ph.D.

Jan—Dec 2007
Research Assistant
Veteran's Affairs Hospital, Los Angeles, CA

- Administered tobacco use and symptoms assessments to inpatients smokers
- Drew blood, collected EKGs, and other physiological assessments of functioning
- Monitored participants for adverse events

Advisor: Richard Olmstead, M.D.
Department: Psychopharmacology

May—Sept 2006
Research Data Management Specialist
U.S. Oncology, Houston, TX

- Coordinated, entered, and cleaned chart data for five clinical trials of Gastrointestinal cancer treatments

Supervisor: Jennifer Davis

2004-2005
Student Research Assistant, Psychology
American University, Washington, DC

- Recruited, scheduled, and administered paper and pencil assessments to 46 participants
- Trained participants how to use surveys administered via palm-top computer and respond to ecological momentary assessments
- Uploaded and cleaned data acquired from palm-top computers

Advisor: Kathleen Gunthert, Ph.D.

PUBLICATIONS

Sanford, A. & McGeary, C. (in press). Posttraumatic Stress Disorder. In S. Ramamurthy (Eds), *Decision Making in Pain Management, Third Edition*. New York: Mosby.

Cosden, M., **Sanford, A.,** Koch, L., & Lepore, C. (in press). Vicarious trauma and vicarious post-traumatic growth among substance abuse treatment providers. Substance Abuse.

Sanford, A., Donahue, M., & Cosden, M. (2014). Consumer perceptions of trauma assessment and intervention in substance abuse treatment. *Journal*

of Substance Abuse Treatment, 47(3), 233-238. doi: 10.1016/j.jsat.2014.05.011

LaBrie, J. and **Sessoms, A**. (2012). Parents still matter: The role of attachment in alcohol-related consequences. *Journal of Child and Adolescent Substance Abuse, 21*(1), 91-104.

Hummer, J. F., LaBrie, J. W., Lac, A., **Sessoms, A**., & Cail, J. (2012). Estimates and influences of reflective opposite-sex norms on alcohol use among a high-risk sample of college students: Exploring Greek-affiliation and gender effects. *Addictive Behaviors, 37*(5), 596-604.

Smith, B., Kenney, S., **Sessoms, A. E**., & LaBrie, J. (2011). Assessing the efficacy of a choice theory-based alcohol harm reduction intervention on college students. *International Journal of Choice Theory and Reality Therapy, 30*(1), 52-60.

PRESENTATIONS

Sanford, A. & Cosden, M. (2016, August). Trauma-related Distress and Growth among Pregnant and Post-partum Women in Residential Treatment. Poster presented at the 124th annual convention of the American Psychological Association (APA), Denver, CO.

Sanford, A., Koch, L., Lepore, C., & Cosden, M. (2015, November). Vicarious Trauma and Vicarious Posttraumatic Growth among Substance Use Treatment Providers. Poster presented at the 31st annual convention of the International Society for Traumatic Stress Studies (ISTSS), New Orleans, LA.

Koch, L., **Sanford, A**. Lepore, C., & Cosden, M. (2014, May). Effects of Providing Trauma-Informed Substance Abuse Treatment: Secondary Trauma or Posttraumatic Growth? Poster presented at the 26th annual convention of the Association for Psychological Science (APS), San Francisco, CA.

Sanford, A. & Gottleib, N. (2014, February). Trauma-informed systems of care. Workshop presented at the Homelessness Action Summit, Santa Barbara, CA.

Sanford, A., Donahue, M., & Cosden, M. (2012, August). Consumer satisfaction with trauma-informed drug treatment. Poster presented at the 121st annual convention of the American Psychological Association (APA), Honolulu, HI.

Sessoms, A., Donahue, M., & Cosden, M. (2012, May). Consumer satisfaction with trauma-informed drug treatment. Poster presented at the 24th annual convention of the Association for Psychological Science (APS), Chicago, IL.

Sessoms, A., LaBrie, J. W., Kenney, S., Smith, B., Hummer, H. & Steiner, A., (2011, April). Efficacy of choice theory and motivational enhancement collegiate alcohol

interventions. Poster presented at the 91st annual convention of the Western Psychological Association (WPA), Los Angeles, CA.

LaBrie, J. W., & **Sessoms, A**. (2010, August). Parental attachment in risky drinking among college students. Poster presented at the 118th annual convention of the American Psychological Association (APA), San Diego, CA.

LaBrie, J. W., Lac, A., Rohrbach, J., & **Sessoms, A**. (2010, August). Ethnic-specific normative influences differ among Hispanic and Caucasian college students. Poster presented at the 118th annual convention of the American Psychological Association (APA), San Diego, CA.

Hummer, J. F., LaBrie, J. W., **Sessoms, A. E.,** Lac, A., & Mirza, T. (2010, June). The role of reflective opposite-sex norms in predicting alcohol use among college students: Exploring Greek and gender effects. Poster presented at the 33rd annual meeting of Research Society on Alcoholism (RSA), San Antonio, TX.

Grills, C., Anderson, M., **Sessoms, A.,** & Beasley, M. (2009, June). Current research at Loyola Marymount University. Presented at the International Choice Theory and Reality Therapy Conference, University of Edinburgh, Scotland.

TRAININGS CONDUCTED

Gauthier, J., **Sanford, A.,** & Lepore, C. (November, 2013). Addiction Severity Index training. Presented to SAMHSA grant treatment providers, Buellton, CA.

Sanford, A. & Gottleib, N. (October, 2013). Trauma-informed systems of care: Research and evaluation. Presented to mental health and substance abuse treatment providers, Santa Barbara, CA.

Sanford, A. (July, 2013). Trauma-informed systems of care: Research and evaluation. Presented to mental health and substance abuse treatment providers in the Good Samaritan care collaborative, Santa Maria, CA.

TEACHING EXPERIENCE

Instructor, Thinking and Writing at the College Level, Summer 2014, Summer Discovery program for high school students, University of California, Santa Barbara Extension

Teaching Assistant, Introduction to Applied Psychology (CNCSP 101), Fall 2013, Department of Counseling, Clinical and School Psychology, University of California, Santa Barbara. Professor: Tania Israel, Ph.D.

Teaching Assistant, College Student Peer Helping and Leadership (CNCSP 115), Summer 2013, Department of Counseling, Clinical and School Psychology, University of California, Santa Barbara. Professor Tania Israel, Ph.D.

Teaching Assistant, Introduction to Psychology (Psych 1), Fall 2013, Department of Psychology and Brain Sciences, University of California, Santa Barbara. Professor: Alan Fridlund, Ph.D.

PROFESSIONAL TRAINING

2016	Cognitive Processing Therapy, Supervised by Kirsten Dillon, PhD, Duke University
2016	Clinician Administered PTSD Scale – DSM 5 administration
2013	Addiction Severity Index administration
2012	Psychological First Aid, Santa Barbara Response Network
2010	Grant writing workshop, USC Center for Research Advancement
2010	Applied Suicide Intervention Skills Training (ASIST)
2009-2011	Volunteer Counselor, Didi Hirsch Suicide Prevention Center Crisis Hotline
2009	Choice Theory, Basic training
2008	Motivational Interviewing training
2008	Pro-Act Training, Professional Assault Crisis Training and Certification

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Personally, I am forever indebted to my family and friends for their love and support through successes and challenges—to my mother and grandmothers that showed me how to be both loving and strong, to my friends for being more supportive and generous than I could ever deserve. Finally, I thank my father and God in whose arms my dad now rests. Even after ALS took his ability to speak, he still made sure I knew how proud of me he was and how much he loved me every chance he could get.

ABSTRACT

Trauma-related Distress and Growth:

A study of Pregnant and Post-partum Women in Residential Mental Health and Substance Use Treatment

by

Ashley E. Sanford

Positive outcomes associated with traumatic stress have been gaining attention over the past 20 years. Posttraumatic growth (PTG) is one such outcome, characterized by changes resulting from struggling with trauma that leave an individual or community with improved wisdom, strengths, or skills in certain areas that they would not have gained without struggling with trauma. The current study looked at PTG among women in residential treatment for substance use and mental health concerns. All women were also pregnant or had a child under one year of age. Pregnant and new mothers are a particularly high-risk group for negative outcomes related to substance use. This was the first study to assess PTG among women who use substances. Participants were 104 women in a six-month residential treatment in central California from 2012-2015. Services included substance use recovery interventions, trauma interventions, parenting education, and individual and group counseling. Ninety-eight percent reported at least minimal PTG; the mean growth score was the equivalent of between a moderate and great degree of growth. Results demonstrated no relationship between trauma symptoms or change in substance use severity and PTG scores. However, consumer satisfaction was related to PTG, with greater satisfaction being related to higher levels of PTG.

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CHAPTER ONE

Introduction

Background and Rationale for Study

Interest in psychological trauma has grown exponentially as researchers learn more about the prevalence, range, and effects of trauma. Felitti and colleagues' Adverse Childhood Experiences study (ACEs; 1998) expanded knowledge about childhood trauma with research showing that among a sample of the general population seeking primary care services childhood trauma is more common and more influential than previously thought. The study brought increased attention to trauma prevention and how to buffer against its long term effects. The ACEs study found that 64% of respondents experienced at least one kind of potentially traumatic event in childhood (Anda et al., 2006). Additionally, among the ACE study's findings was the increased prevalence of drug use among those who have experienced trauma, a two to four-fold increase in risk for each additional childhood trauma experienced and accounting for at least half of drug use (Dube et al., 2003). Anda and colleagues (2006) also found increased risk of mental health disturbance with each additional childhood trauma experienced. This suggested that trauma was significantly influential in the development of substance use and mental health disorders (Dube et al., 2003; Kendall-Tackett, 2002).

The Women with Co-occurring Disorders and Violence Study (WCDVS; Cocozza et al., 2005) subsequently researched what would happen when service providers integrate trauma-related mental health treatment with substance abuse counseling. Results revealed that women who received more integrated, trauma-informed

treatment demonstrated greater decreases in mental health severity and alcohol and drug use severity (Cocozza et al., 2005).

Women with Post-Traumatic Stress Disorder (PTSD) have reported higher rates of substance use disorders than those without PTSD (Helzer, Robins, & McEvoy, 1987; Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Further, the rate of co-occurrence among women is about two times as high as that reported by men (Brown, Recupero, & Stout, 1995; Najavits, Weiss, & Shaw, 1997). Thus, there was evidence of a population at high risk that would be helped by integrated, trauma-informed mental health and substance abuse interventions.

One of the resulting empirically supported, integrated interventions, Seeking Safety, demonstrated initial effectiveness for improving mental health, substance use, and trauma symptoms up to three months post-treatment (Najavits, Weiss, Shaw, and Muenz, 1998). In subsequent studies evaluating replicated implementation, Seeking Safety has continued to show effectiveness and been extended to additional populations (Gatz et al., 2007; Morrissey et al., 2005; Najavits & Hien, 2013; Substance Abuse and Mental Health Services Administration (SAMHSA), 2015). Therefore, there is sufficient evidence that treating trauma in an integrated fashion alongside treatment for mental health and substance use disorders not only addresses a substantial need among women in particular but is also more effective at improving outcomes.

Pregnant and post-partum women. There is no good time to abuse drugs or to suffer from mental health or trauma-related distress, and research indicates pregnancy and early motherhood is a particularly high-risk time for women (Creanga et al., 2012). This is due to direct effects of substance use as well as highly correlated factors for the

mother and the child. Pregnant women compared to non-pregnant women in residential treatment are more likely to be homeless (Grella, 1999), presenting increased vulnerability and instability for the woman as well as her baby. Pregnant women who use substances are more likely to be of a lower socioeconomic status, to be single mothers, and to start neonatal care later in the pregnancy than are pregnant mothers who do not use substances (Wouldes et al., 2013). These mothers are also twice as likely to have a psychiatric disorder (Wouldes et al., 2013). In a sample of over 412 mothers, 42% of mother who used substance while pregnant met criteria for depressions compared to 24% of those who did not use substances while pregnant (Smith et al., 2012). Further, maternal depression has been associated with insecure attachment in the child (Martins & Gaffan, 2000).

Infants exposed to methamphetamine are more likely to require neonatal intensive care unit treatment at birth, have smaller head circumferences, and are less likely to breast feed than are non-exposed infants (Shah et al., 2012). At one month of age, children of mothers who use substances display higher levels of stress and reactivity (Lester et al., 2009) than do other children. At four months old, such children demonstrate a more difficult temperament, and at three years and seven years of age demonstrate more behavioral problems than children of mothers who did not use substances while pregnant (Lester et al., 2009).

Beeghly and Tronick (1994) found that in substance exposed mother-child dyads the mother's ability to read the child's communication is impaired. Suchman, McMahon, Slad, and Luthar (2005) observed that the quality of the mothers' early family environment, individual psychological adjustment, and social environment affected

parenting outcomes and were inversely correlated with level of risk of substance use. Still, Grella, Joshi, and Hser (2000) found that substance use treatment programs that worked specifically with pregnant and new moms offered more services related to the women's needs and demonstrated better substance use outcomes.

Posttraumatic growth. While there may be numerous negative symptoms and outcomes associated with trauma, positive outcomes emerge as well. Posttraumatic Growth (PTG), defined as experiencing personal development or learning as a direct result from coping with or processing the experience of trauma (Calhoun & Tedeschi, 2013). Literature on the experience of PTG has blossomed in the past two decades, illuminating the types of trauma and conditions that can lead to PTG. Still, research has almost exclusively looked at direct pathways from trauma to PTG, such as trauma leading to adaptive coping leading to PTG (Park, Aldwin, Fenster, & Snyder, 2008; Prati & Pietrantoni, 2009). Research has yet to explore what happens when people self-medicate with substances in response to trauma. Are there still possibilities to learn and grow from processing trauma when they initiate recovery?

Purpose

The current study seeks to explore the experience of trauma-related distress and growth among pregnant women in residential substance use and mental health treatment. PTG has been examined primarily as a direct result of constructive cognitive or behavioral coping with traumatic distress. Research is lacking, however, on how PTG might present in people who have also coped with trauma using substances. Further, limited research has addressed the interaction between distress and growth in pregnant and new mothers. The current study seeks to address this gap in the literature, adding to

the knowledge base on trauma-related distress and growth among new moms in recovery for substance use and mental health disorders.

Research Questions and Hypotheses

Four questions emerge from the current state of the literature. Research on posttraumatic growth has discussed correlations between trauma-related distress and growth, with the recent literature revealing a curvilinear relationship (Kleim & Ehlers, 2009; Zebrack et al., 2015; Shakespeare-Finch & Lurie-Beck, 2014; Solomon & Dekel, 2007), with increasing levels of growth being related to increases in distress, but only up to a point, after which growth decreases. This suggests that extremely elevated levels of traumatic distress progressively preclude growth. Therefore, the first question relates to how growth and distress are related in a substance use treatment population:

1. Is distress related to growth among women in residential, trauma-sensitive treatment for substance use and mental health disorders?

Hypothesis: In the current population, distress will be directly predictive of PTG. Those participants with higher scores on the Trauma Symptom Inventory-2 (TSI; Briere, 2011) at program intake are expected to have higher scores on the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). Though research has generally shown a curvilinear relationship between distress and growth, the current population are not expected to have trauma symptoms at a level high enough to suppress growth; therefore, a positive linear relationship is hypothesized.

2. The next question addresses substance use and PTG. It is currently unclear whether there is a relationship between change in substance use and PTG and, if so, what is the relationship. The only study to date looking at substance use and PTG looked at

teenage girls who had experienced stressful life events (Arpawong et al., 2015), finding no relationship between substance use and PTG. While substance use severity may indicate emotional distress, and, therefore, may be related to PTG, using substances may also cloud one's ability to approach and process traumatic experiences effectively. Based on the nature of the current residential treatment program, with drug testing, in-house supervision, and high intensity of group and individual therapy, it is expected that participants will have had a chance to begin processing their experiences. Therefore, it is hypothesized that change in substance use will directly relate to PTG.

2. What is the relationship between change in substance use and posttraumatic growth?

Hypothesis: Higher change scores between intake and discharge substance abuse severity is anticipated to predict higher levels of posttraumatic growth. Specifically, change in Addiction Severity Index (ASI; McLellan et al., 1992) drug severity scores is anticipated to predict higher scores on the PTGI.

If there is a relationship between change in substance use severity and PTG, as well as between trauma severity and PTG, mediation in the relationship between traumatic distress and PTG by change in substance use severity will also be explored; this will help to determine if participants who are more successful at achieving sobriety are also more able to engage in processing of traumatic material in a way they could not when they were using substances.

Third, while there is literature on predictors of treatment completion among pregnant mothers (Knight, Logan, & Simpson, 2001), the influence of PTG has not been included thus far. Research is lacking on the impact of posttraumatic growth on outcomes

of residential treatment, whether it affects graduating successfully or terminating treatment before completing successfully.

3. Does growth relate to program outcome?

Hypothesis: Growth is expected to predict program outcome. Higher scores on the PTGI are expected to relate to a greater likelihood of successful program graduation rather than unsuccessful termination.

Finally, program satisfaction has been found to be generally predictive of program outcome (Carlson & Gabriel, 2001; Marsh, Angell, Andrews, & Curry, 2012), and program satisfaction is in itself a positive outcome and a stand-alone measure of quality of care (SAMHSA, 2014), but whether PTG may influence satisfaction has yet to be assessed. Therefore, the current study seeks to address whether there is a relationship, and if so, what kind of relationship exists between PTG and program satisfaction.

4. Does PTG relate to program satisfaction, and if so, how?

Hypothesis: Program satisfaction is expected to relate to PTG. It is hypothesized that higher scores on the Consumer Perception of Care (CPC; Clark et al., 2008) scale will relate to higher scores on the PTGI.

CHAPTER TWO

Literature Review

Trauma-Related Distress

No trauma is the same; nor is the same trauma experienced the same way by any two people. What is it about trauma that makes an experience so difficult to recover from that it can leave a lasting impact? Trauma by definition is a sudden event involving threat to life or exposure to death that leaves people feeling threatened and distressed (American Psychiatric Association (APA), 2013). Traumatic distress occurs when someone experiences avoidance, intrusion, negative changes in thought and mood, and changes in arousal or reactivity and has not yet recovered one month after the event (APA, 2013).

Cognitive theorists have conceptualized the process of experiencing distress resulting from a traumatic event in terms of perceiving a threat to one's schematic framework and fundamental assumptions (Thompson & Janigian, 1988). Therefore, cognitive theorists add to the definition of traumatic stress experiencing a threat to one's previous way of thinking and or way of approaching themselves, others, or the world. The trauma provides evidence of a world operating in a way that is contradictory to one's fundamental assumptions or schema. For example, an individual may assume bad things happen to people who deserve it because he or she has done bad things, but when he/she views his/herself as a good person and is a random victim of a violent crime, this assumption no longer fits. Such incongruence can cause "stuckness" that prevents an individual from experiencing natural recovery from trauma (Resick & Schnicke, 1992).

Janoff-Bulman uses the phrase "shattered assumptions" to illustrate the sudden impact and severity with which trauma exposes people to experiences outside what they would otherwise anticipate (1992). The pieces of the old schema and the new experience lack coherence or ability to form a complete picture that can be predictive of future events in the way that pre-trauma schema could.

This shattering can cause a variety of symptoms including but not limited to intrusive thoughts, anxiety, depression, anger, guilt, trouble sleeping, and sensitivity or reactivity to trauma reminders (APA, 2013; Hagenaars, Fisch, & van Minnen, 2011). The APA's Fifth edition of the Diagnostic and Statistical Manual (2013) considers clusters of such symptoms to rise to the level of disorder when they persist for more than one month and interfere with functioning in daily life.

Trauma-Related Growth

Positive outcomes of coping with traumatic events have been acknowledged for decades and have been a part world cultures for centuries. Religion and literature are replete with themes of overcoming adversity and rising above suffering to new heights of strength (Joseph, 2011). These proliferate in works dating back to ancient Greece, in classic stories of heroes battling to overcome suffering thereby gaining strength and wisdom they would not have otherwise acquired. These themes are prevalent in religious texts as well, with heroes rising above struggling and suffering to create a better world or higher meaning for themselves and others. Modern history has documented these themes as well. Notably in the 20th century, Victor Frankl described the benefit he derived from his experience as a prisoner of the Holocaust in *Man's Search for Meaning* (Frankl, 1984). Despite being imprisoned for three years in Nazi death camps and losing his

parents, brother, and pregnant wife, Frankl observed through his experience and experiences of others how cultivating personal life meaning that incorporates the experience of the trauma can help a person build strength to endure physical and psychological suffering and thrive in a world in which bad things happen. The thesis of his work culminated in Logotherapy, a therapy explicitly designed to help people find meaning in their coping with struggle. These themes are also central to the biography of African anti-apartheid revolutionary, former South African president Nelson Mandela, who suffered at the hands of his oppressors to bring change and growth to his nation. He states regarding his struggle:

> But the decades of oppression and brutality had another, unintended, effect, and that was that it produced the Oliver Tambos, the Walter Sisulus, the Chief Luthulis, the Yusuf Dadoos, and Bram Fishers, the Robert Sobukwes [anti-apartheid activists] of our time—men of such extraordinary courage, wisdom and generosity that their like may never be known again. Perhaps it requires such depths of oppression to create such heights of character. (Mandela, 2008).

While it is a prevalent theme, the concept can be difficult to track through history, as it has been known by different names across time and contexts. Even within academia, which only began researching posttraumatic growth in earnest in the early 1990's, it can be difficult to follow the trajectory of research on such outcomes due to differences in what it is labeled, how it is defined, and how it is assessed. Through its short history in psychological science, researchers have called it: "drawing strength from adversity" (McCrae, 1984), "construing benefits," (Tennen, Affleck, Urrows, Higgins, & Mendola, 1992) or "benefit-finding" (Afflect & Tennen, 1996; Tomich & Helgeson, 2004). It also has been associated with the general categories of "positive psychological changes" (Yalom & Lieberman, 1991) and "perceived benefits" (Calhoun & Tedeschi, 1991). Lines of research also investigate similar but distinctly different topics that are not always

clearly differentiated, such as “thriving” (O’Leary & Ickovics, 1995), and “stress-related growth” (Park, Cohen, & Murch, 1996), which do not necessarily follow from traumatic events.

While still not well defined, early research used primarily qualitative methods to describe the concept. There appeared to have been an initial bubble of interest in the quantitative study of posttraumatic growth in the early 1990’s subsequent to the introduction of the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), the first quantitative measure of PTG. Around the same time there was also a call for more focus on positive psychology by APA president Martin Seligman (Seligman & Csikszentmihalyi, 2000). This intersected with increased attention to and study of traumatic events and experiences (Healy, 2011). Trauma studies reached a turning point following the terrorist attacks of 2001, with more people becoming collectively aware of and exposed to traumatic stress. Therefore, over the past decade, more collective attention has been focused on positive outcomes of traumatic stress than ever before.

Posttraumatic growth defined. The term posttraumatic growth refers to a very specific phenomenon, though the concept is frequently conflated with related ideas such as resilience. Calhoun and Tedeschi (2013) define it as “growth that arises from the struggle with tragedy” (pg. 6). This is a perhaps an over-simplification of earlier definitions. Tedeschi, Park, and Calhoun (1998) described it as a process and outcome of not only recovering from trauma but also experiencing further development or growth, including development of more “humane” social behaviors and social organization. Conceptually PTG is rising above one’s pre-trauma level of psychological or social functioning to a level of greater strength or wisdom, not possible or comprehensible prior

to the trauma. It may also be arriving at a constructively and more positive revised existential or spiritual sense of meaning due to struggle with trauma. O'Leary and Ickovics (1995) illustrate PTG's improvement in functioning following a traumatic event, differentiating it's trajectory from that of impairment and recovery (Figure 1).

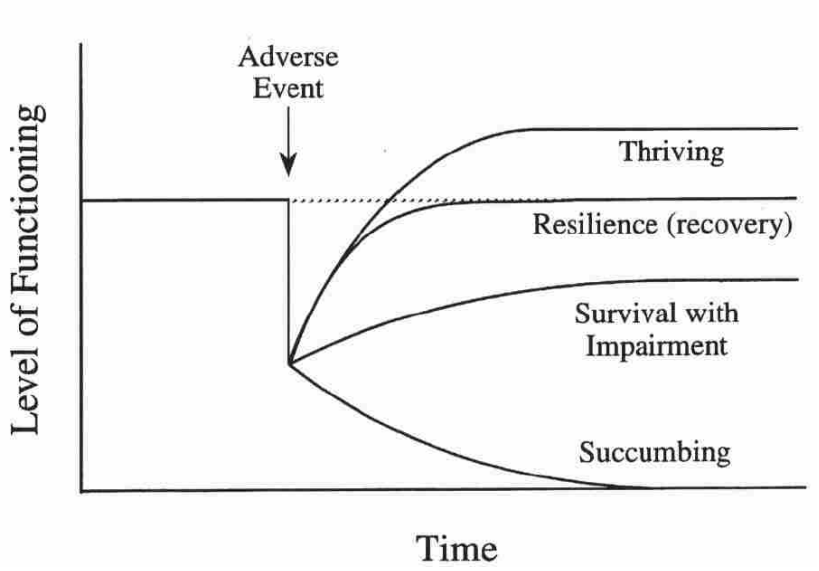

Figure 1: O'Leary & Ickovics (1995) Trajectories of functioning following trauma, including resilience and thriving or posttraumatic growth.

While resilience is also a salutogenic outcome of trauma, understanding the difference between resilience and PTG helps clarify exactly what makes PTG unique. Resilience has been generally defined as "a dynamic process encompassing positive adaptation within the concept of significant adversity," (Luthar, Cicchetti, & Becker, 2000). By this definition, PTG would be considered a specific kind of resilience experienced after trauma. Others have defined the concept of resilience as "the ability to maintain relatively stable mental functioning throughout the course of events" (Bonanno, 2004), suggesting that resilience implies a lack of distress or psychological disruption following adversity (Ballenger-Browning & Johnson, 2010).

PTG, however, specifically involves the experience of suffering from trauma and results from one's coping with an experience that has changed her or his worldview. It is not experiencing the hardship, stress or trauma that makes a person grow, but it is the coping and struggle with a personal encounter with suffering that engenders positive outcomes. This can happen either through a change unintentionally when core beliefs are challenge by trauma or through deliberate rumination (Taku & Oshio, 2015), though the exact process is unclear.

Prevalence. Rates of posttraumatic growth following a potentially traumatic event have ranged widely in the literature. A study of PTG prevalence following the 2008 Sichuan, China earthquake demonstrated a rate of 51%, slightly lower than the rate of those experiencing PTSD symptoms (56%; Xu & Liau, 2011). Existing reviews of the literature (Helgeson, Reynolds, & Tomich, 2006; Linley & Joseph, 2004) suggest that 30-70% of trauma survivors report at least one form of benefit from coping with a traumatic event.

Measurement of PTG

Qualitative measurement. Early research of trauma-related growth involved qualitative research, such as Finkel's interviews of college students and adults in which he described "growth potentiating" events as being negative as well as positive (Finkel, 1974; Finkel, 1975). Later, interviews became more direct, asking whether individuals experienced benefits, gains or advantages from a negative life event. Interviews were conducted with mothers of newborns with serious illness (Affleck, Tennen, & Gershman, 1985), heart attack survivors (Affleck, Tennen, Croog, & Levine, 1987), female sexual abuse survivors (McMillen, Zuravin, & Rideout, 1995) and adults who had a partner or

child die in a car accident (Lehman et al., 1993). Responses generally fell into categories specific to the kind of trauma experienced and general areas of growth. Lehman and colleagues (1993), in researching those who lost a child or partner in a car accident, identified three general areas unrelated to the target trauma: change in self-perception, change in relationships, and change in life orientation. This was an early step in characterizing areas that make up PTG.

Quantitative measurement. Based on such qualitative research, Tedeschi and Calhoun (1996) started with Lehman and colleagues' three identified categories of general change in designing the Posttraumatic Growth Inventory (PTGI). It was initially written with 34 items, but principle component analysis reduced the number of salient items to 21 and pointed to five different categories: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. While overall the PTGI showed adequate internal (.90) and test-retest reliability (.71), the Personal Strength and Appreciation of Life subscales did not meet criteria for adequate test-retest reliability across a two-month period (Tedeschi & Calhoun, 1996).

Types of growth. During the period of coping with trauma, growth can manifest in a number of areas. While factor analysis of the PTGI suggested a five-factor model as previously discussed, the current review will focus on the three areas of change consistently discussed in qualitative literature: perception of self, philosophy of life, and relationships with others (Joseph, 2011; Lehman et al., 1993; Tedeschi & Calhoun, 1996). This is based on of weak test-retest reliability of the Personal Strength and Appreciation of Life subscales and the consistency of the findings of the three areas of change across qualitative research.

Perception of self. Qualitative and quantitative research has revealed a pattern of people reporting perceptions of improved self-efficacy, self-reliance, coping competency and personal strength (Aldwin, Levenson, & Spiro, 1994; Cieslak et al., 2009; Cryder, Kilmer, Tedeschi & Calhoun, 2006; Vázquez, Cervellón, Pérez-Sales, Vidales, & Gaborit, 2005). Positive acceptance of personal vulnerability are also included in this category. The PTGI includes assessment of self-reliance, ability to handle difficulties, acceptance of the way things work out, and discovery of personal strength with items with as "I'm stronger than I thought I could be" (Tedeschi & Calhoun, 1996).

Philosophy of life. Trauma survivors may also report growth in existential awareness. Often this includes a shift in priorities and appreciation of life, such as that found among Malaysian cancer patients (Schroevers & Teo, 2008). The PTGI domains of New Possibility (i.e. "I developed a new path for my life" and "I'm more likely to change things that need changing") and Appreciation of Life (i.e. change in "my priorities about what is important in life" and "appreciating each day") could be considered within this category. Changes in philosophy also include depth exploration of existential issues, expansion of intellectual or emotional wisdom, or spirituality (Tedeschi, Park, & Calhoun, 1998; Linley, 2003). Jennings, Aldwin, Levenson, Spiro, and Mroczek (2006) found moderate levels of combat exposure and positive action coping were related to higher levels of wisdom, but further research is necessary to connect wisdom and exploration of existential issues to posttraumatic growth processes or outcomes.

Spirituality and PTG. Spiritual matters can be highly intertwined with the experience of traumatic events. It can provide a path for constructive coping with trauma, providing a context in which to understand one's suffering (Fallout, 1997). Spiritual

growth may involve seeking a greater or different connection with something transcendent because of closely encountering issues of life and death. In a review of eleven qualitative and quantitative studies on PTG and spirituality, Shaw, Joseph and Linley (2005) found that while some research found correlations between PTG and spirituality, some did not. They found that when trauma was correlated with PTG, there was evidence of the trauma deepening individuals' spirituality. Based on their review, Shaw and colleagues concluded the following spiritual characteristics are positively associated with PTG: positive religious coping, religious openness, readiness to face existential questions, religious participation, and intrinsic religiousness.

Conversely, traumatic experiences can also lead to disillusionment with religion; this has been conceptualized to occur through appraisal of the trauma as either sacred loss, defined a loss of something created by God, or desecration, defined as a violation of one's understanding of their relationship with God or a violation of a sacred covenant (Mahoney, Krumrei, & Pargament, 2008). Such appraisals can be complex and can be related to different patterns of growth and distress. Within a community sample of adults reflecting on the most negative experience of their lives, perceptions of sacred loss were associated with depression and fewer intrusive thoughts than those reporting desecration, while perceptions of desecration were associated with anger, more intrusive thoughts and lower rates of growth than those reporting sacred loss (Pargament, Magyar, Benore, & Mahoney, 2005).

Relationships with others. Through coping with a traumatic event, people have reported gaining a new appreciation for the people in their life or forming new connections with the people in their life (Affleck, Allen, Tennen, McGrade, & Ratzan,

1985; Weiss, 2004), even following coping with child abuse (Woodward & Joseph, 2003). As people readjust priorities in light of the experience of stress, they may learn to value relationships more highly and to understand differently how to engage in their relationships, having gained for empathy for human vulnerability (Joseph, 2011; Tedeschi, Park & Calhoun, 1998), though this has not yet been supported empirically. Research in this area is limited. The only study identified addressing changes in closeness with others demonstrated significant differences in relationship growth across type of trauma, with 62% of tornado survivors, 51% of those exposed to a mass shooting, and 11% of plane crash survivors reporting increased closeness (McMillan, Smith, & Fisher, 1997).

Conclusion

While trauma-related stress is prevalent, trauma-related growth or PTG is not only possible but also prevalent with estimates between 30-70% (Helgeson, Reynolds, & Tomich, 2006; Linley & Joseph, 2004). PTG has been found to occur in response to coping with a range of traumatic experiences including, but not limited to, natural disasters (Xu & Liau, 2011), child abuse (Woodward & Joseph, 2003), military combat (Jennings, Aldwin, Levenson, Spiro, & Mroczek, 2006), death of a child or partner (Lehman et al.,1993), and cancer (Schroevers & Teo, 2008). Research has primarily looked at direct relationships between traumatic distress and growth and only minimally looked at the effect of substance use on traumatic stress and growth (Arpawong et al., 2015). The current research sought to explore the PTG's relationship to both traumatic stress and substance use in a high-risk population: pregnant and new mothers in residential mental health and substance use treatment.

CHAPTER THREE

Method

Participants and Setting

Participants for the study were 104 female participants in either the Families Embracing Sobriety and Healing Start (FRESH Start) program (87% of sample participants) and the Children Affected by Methamphetamine (CAM) program (13% of sample participants); both were administered by Good Samaritan Services in Lompoc and Santa Maria, California, between 2012 and 2015, and were funded by SAMHSA grant mechanisms. Both were six-month residential treatment programs involving intensive individual and family services for substance use and mental health issues. Both programs encouraged involvement of fathers and other family or parenting partners.

Treatment was voluntary, though some women were referred to treatment through a drug court, having been given the choice of either treatment or time in jail, and some reported entering treatment based on a recommendation by Child Welfare Services (CWS). Others were referred from other agencies or self-referred. Overall, 72% self-reported that they chose to treatment offered by drug court or CWS and 28% reported being there through independent motivation. This self-report data was collected during the Consumer Survey (Time 2) based on participants' open-ended responses to "Why did you choose to participate in the program here?" Those who explicitly stated that they were referred by the drug court of CWS were coded as such. Some participants may have not revealed whether they came through the drug court or CWS in the interview, but in those cases women instead described personal motivation for wanting to get treatment

that was personally motivating apart from any recommendation; therefore, any woman not describing a pathway through the drug court of CWS were considered self-referred.

Inclusion criteria for participation in the six-month FRESH Start program included being a woman with either a child under the age of 1 year or pregnant and having a need for residential substance use treatment. All women were residential in-patients for at least the beginning of their treatment. If women moved out of the residential facility due to successful progress, they continued treatment as an outpatient. Exclusion criteria included unwillingness to participate in residential treatment and not being pregnant or having a child under one year of age. Women who were pregnant at intake but miscarried during treatment were given the option to remain in treatment, and their data were not excluded. Participation in data collection was required as a part of clinical treatment. The consumer survey assessment was voluntary as it was not used for clinical purposes.

Clinical program staff conducted assessment at intake (Time 1) and discharge (Time 3); the consumer survey was conducted by a member of the evaluation team two to three months into treatment (Time 2; Figure 2). This time frame was selected to capture satisfaction after having been exposed to a significant portion of treatment but early enough to get the perspectives of those who would drop out of treatment prior to completion. Participating mothers were given monetary compensation for their time in the form of a $5 gift card for voluntary participation in the consumer survey portion of data collection.

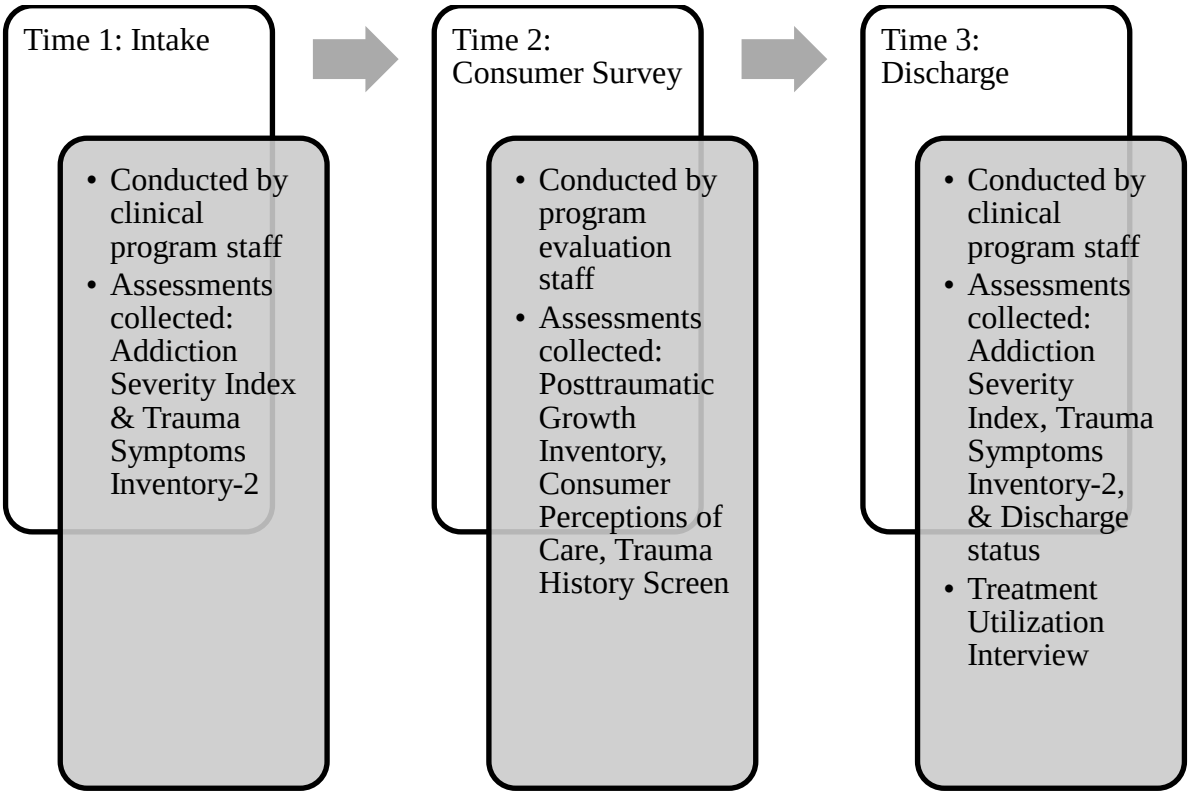

Figure 2: Project timeline

All participants were English-speaking and gave consent to participate. Participants ranged in age from 18 to 43 and averaged 26.6 years old. The sample was primarily composed of individuals self-reporting as being of European descent (48%) or Hispanic/Latina descent (38%). Those describing themselves as being of African American, Native American, and Asian or Asian-American ethnicity were also represented (6%, 6%, and 3%, respectively).

The FRESH Start program aimed to recruit 150 women and their children across three years of data collection. Data collection for the current project was cut off at the end of December 2014. The current study needed a sample of at least 76 women with complete data to reflect the target population with 95% confidence.

While data were obtained from 104 women, not all women completed each required measure at each time point. As a result, sub-samples were used for each research question including all complete and available data. Research question one involved participants who completed the TSI-2 at intake (Time 1) and the PTGI as part of the consumer survey at Time 2. Of the total sample's 104 participants, 101 completed the TSI-2 at intake; of those, 95 also completed the PTGI. The total sample used for research question one was 92, the number of participants who completed both the TSI-2 at intake but also the PTGI.

Research question two involved PTGI Total scores and ASI Drug Use Severity scores at intake and discharge. Eighty-one participants completed the ASI at intake; of these, 77 also completed the ASI at discharge. All 77 of these participants had also completed the PTGI at Time 2; therefore, the sample size used for research question two was 77.

Research question three involved participant discharge status, a dichotomous variable defining whether they completed treatment successfully or whether they were terminated from treatment due to violations of program rules or leaving the program on their own prior to successful completion. At the time data collection was stopped for analyses, 95 participants had been discharged from treatment; of those, 86 had also completed the PTGI. As a result, the sample size for research question three was 86.

Research question four required use of the Consumer Perceptions of Care (CPC) scale and the PTGI, both given during the consumer survey at Time 2. Due to individual missing item responses, 78 participants had complete CPC data. All of these participants

also had complete PTGI data. The sample used for analyses of research question four was 78.

Instrumentation

Addiction Severity Index, 5th Edition (ASI; McLellan et al., 1992). The ASI, an interview assessment of substance use and functioning, was administered at intake and discharge by staff at the Good Samaritan Services residential facilities. For the current study, the drug severity scores were used to assess intensity of need for substance abuse treatment. The ASI also collects demographic information and information on clients' medical, legal, family, employment and psychiatric status. Validity for the drug severity scores, a clinician assigned score, has been mixed (Carey, Cocco, & Correia, 1997; Makela, 2004; McLellan et al., 1992). However, given the rigor of training of program staff administering the ASI in the current sample with all staff being trained annually, the ASI is expected to perform adequately here as a valid measure of drug use severity at intake and discharge.

Trauma Symptoms Inventory – 2 (TSI-2; Briere, 2011). The TSI-2 is a 136-item multiple-choice assessment of the frequency of the experience of trauma symptoms experienced over the past six months. Mothers completed the measure verbally in response to items asked by clinical staff at Good Samaritan Services shortly after intake (Time 1) and at discharge (Time 3). The scale's results are comprised of four factors: Self-Disturbance, Posttraumatic Stress, Externalization, and Somatization, as well as 12 clinical scales such as Anxious Arousal and Intrusive Experiences. Cronbach's coefficient alpha found internal consistencies for the 12 clinical scales to range from .74

through .94 (Briere, 2011). The current study focuses the four factors, composed of the 12 clinical scales.

Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). The 21-item PTGI was used to assess PTG. Project evaluation staff, not residential program staff, collected the PTGI as the final assessment in the Consumer Survey interview done 2-3 months into treatment (Time 2). Mothers were asked to first to think of the most traumatic or life-altering event or period in their life and reflect upon how they have may have changed in response to coping with or processing the event. Each participant was then asked to identify which category from a list of 13 categories of possible trauma most closely described her experience (see Appendix A for the list of categories) and how long ago it occurred (either "less than six months ago." "six months to one year ago," "one to two years ago," "two to five years ago," or "more than five years ago"). The evaluation staff member then verbally went through each PTGI item, asking the respondent to indicate what is true for her on a scale from "I have not experienced this change" (0) to "I have experienced this change to a great degree" (5). Literature reviewed on the PTGI does not identify a cut-off point for what score reliably reflects the concept of "growth." Therefore, growth in the current study was described in relation to the interval descriptors from zero to five.

Items scores yield a total score and five sub-scores, as previously described: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. Evaluation of the original measure demonstrated good convergent and divergent validity and adequate reliability of total and subscale scores; cores have been shown to differentiate among those who have and have not experienced trauma

(Tedeschi & Calhoun, 1996) and as well as accurately capture depth of processing posttraumatic change compared to a written account (Sears, Stanton, & Danoff-Burg, 2003). Validity has been supported in diverse populations including college students, breast cancer survivors, and female victims of assault (Brunet, McDonough, Hadd, Crocker, & Sabiston, 2010; Decek, Ein-Dor & Solomon, 2012; Grubaugh & Resick, 2007; Tedeschi & Calhoun, 1996), with Cronbach's alpha for total and subscale scores ranging from .67-.94 in these studies.

Consumer Perceptions of Care (CPC; Clark et al., 2008). A member of the evaluation team measured client satisfaction with services at Time 2, 2-3 months into treatment using the CPC. The Total score as well as four subscale scores were calculated: Services Integration, Choice in Services, Cultural Sensitivity and Trauma-informed Assessment. The CPC has been validated for assessing consumer satisfaction with trauma-informed services in a population of women in voluntary residential treatment for co-occurring disorders in its original form (Clark et al., 2008) and in a form modified for mandatory treatment (Sanford, Donahue & Cosden, 2014).

Trauma History Screen (THS; Carlson et al., 2011). The THS is a measures experiences of 14 different types of potentially traumatic events. The full THS asks respondents whether or not they have experienced each other the 14 potentially traumatic events, and if so, how many times endorsed events were experienced. For each item endorsed the measure also asks for a brief description and asks six multiple choice questions to get more information on the emotional impact of the event. For the purposes of the current research, only the "yes" or "no" responses were collected and were collected verbally by evaluation staff at the Time 2 Consumer Survey.

Procedures

Participants for the current sample were drawn from the population of women and children participating in the FRESH Start and CAM programs at Good Samaritan Services' Lompoc and Santa Maria residential facilities. The Institutional Review Board of the University of California, Santa Barbara, approved the current study.

The FRESH Start and CAM programs, both funded by the Substance Abuse and Mental Health Service Administration (SAMHSA), were designed to help mothers gain sobriety while helping them improve individual and child functioning. FRESH Start was unique in that it exclusively targeted pregnant mothers and mothers of children under one year of age. Both programs allowed mothers to bring their children with them, preventing them from having to be separated from their children and allowing them to learn and practice positive parenting skills.

During their time in treatment, women received an array of intensive mental health, substance abuse, trauma and parenting interventions. Seeking Safety (Najavits, 2002) was delivered in a group format to address substance abuse and trauma in an integrated fashion. The Nurturing Parenting curriculum (Bavolek, 2005) was used to teach and enhance parenting skills. The Nurturing Parenting curriculum has been shown to be effective at reducing the risk for child maltreatment by improving attitudes toward parenting (Cowen, 2001; Maher, Marcynyszyn, Corwin & Hodnett, 2011). The Matrix (Obert, et al., 2000; Rawson et al., 2004), a cognitive-behavioral substance abuse intervention, was used to promote sobriety and recovery. Twelve-step programs were available and encouraged. Individual counseling targeted mental health, trauma, and substance abuse issues. Counseling was also available to children.

CHAPTER FOUR

Results

Preliminary Analyses

Descriptive statistics for all measures are listed in Table 1. Cronbach's alpha was calculated for each measure to determine whether the measures used in the current study were reliable within the sample assessed. As shown in Table 2, all but two subscales, the Culture and Trauma Informed Assessment subscales of the CPC, were of adequate reliability. These two subscales were excluded from subsequent analysis.

Of the 95 participants who completed the PTGI and THS, 97% reported experiencing at least one potentially traumatic event on the THS. The total number of potentially traumatic events ranged from zero to 11, and the mean number endorsed was 6.24 (*SD = 2.72*). The frequency of endorsement of each THS item is reported in Table 3.

Participants were asked to select one experience from a list of 13 potentially traumatic events that most closely characterized the most traumatic or life-altering event or period in her life. Loss of a loved one was most frequently endorsed (37.9%, see Table 4). Participants also reported how long ago this event occurred, with more than half indicating that it occurred 2 years ago or more (Table 5).

Of the 95 participants who completed the PTGI, 93 (98%) reported some kind of growth in response to their crisis. The mean PTGI total score was 74.24 (*SD* = 23.23, range 0-105), which indicates between a moderate and a great degree of growth. Over three-fourths (76.80%) report the equivalent of a moderate degree of growth or higher. The five subscale scores ranged from a mean of 3.24 (*SD* = 1.27) for Relating to Other to 3.96 (*SD* = 1.03) for Appreciation of Life, on a six-point scale from zero, indicating no

change to five, indicating a very great degree of change as a result of coping with the crisis reported.

Table 1
Means, medians, standard deviations and range for the ASI, CPC, PTGI, and TSI

Instrument	*N*	Mean	Median	SD	Range
ASI Drug severity score, Intake	90	7.30	8	1.77	0-9
ASI Drug severity score, Discharge	86	4.91	5	2.91	0-9
CPC Total mean	78	3.28	3.27	.34	2.65-4
CPC Service Integration mean	94	3.33	3.33	.45	2.33-4
CPC Culture mean	94	3.12	3.00	.76	1-4
CPC Trauma mean	94	3.04	3.00	.59	1-4
PTGI Total	95	74.24	76	23.23	0-105
PTGI Relating to Others	93	3.24	3.29	1.27	0-5
PTGI New Possibilities	94	3.71	3.90	1.11	0-5
PTGI Personal Strength	93	3.85	4.00	1.10	0-5
PTGI Spiritual Change	94	3.32	4.00	1.64	0-5
PTGI Appreciation of Life	94	3.96	4.00	1.04	0-5
Trauma History Screen Total	95	6.24	7.00	2.72	0-11
TSI Self subscale, Intake	101	55.28	55	10.04	36-77
TSI Trauma subscale, Intake	101	58.04	59	10.74	36-82
TSI Externalization subscale, Intake	101	57.67	56	12.81	39-100
TSI Somatization subscale, Intake	101	47.46	45	11.72	32-87

Table 2

Cronbach's Alpha Reliability

Scale	Subscale	Cronbach's Alpha
CPC Total		.89
	Service Integration	.89
	Culture	.00[a]
	Trauma-Informed Assessment	.63[a]
PTGI Total		.95
	Relating to Others	.91
	New Possibilities	.84
	Spiritual Change	.89
	Appreciation of Life	.71
TSI-2		
	Self Summary Scale	.93
	Trauma Summary Scale	.96
	Externalization Summary Scale	.95
	Somatization Summary Scale	.78

CPC = Consumer Perceptions of Care, PTGI = Posttraumatic Growth Inventory, and TSI-2 = Trauma Symptoms Inventory-2

[a] These scales were excluded from analysis due to low reliability in the current sample.

Table 3
Endorsement of items on the THS (N = 95)

THS Item	N	%
A really bad car, boat, train, or airplane accident	27	28
A really bad accident at work or home	13	14
A hurricane, flood, earthquake, tornado, or fire	10	10
Hit or kicked hard enough to injure – as a child	26	27
Hit or kicked hard enough to injure – as an adult	58	61
Forced or made to have sexual contact – as a child	43	46
Forced or made to have sexual contact – as an adult	38	40
Attacked with a gun, knife, or weapon	41	43
During military service, seeing something horrible or being badly scared	0	0
Sudden death of close family or friends	69	73
Seeing someone die suddenly or get badly hurt or killed	49	52
Some other sudden event that made you feel very scare, helpless, or horrified	74	78
Sudden move or loss of home and possessions	74	78
Suddenly abandoned by spouse, partner, parent, or family	71	75

Table 4

Endorsement of most traumatic or life-altering event or period (N = 92)

Item	N	%
Loss of a loved one	36	39
Chronic or acute illness	1	1
Violent or abusive crime	14	15
Accident or injury	6	7
Disaster	2	2
Job loss	1	1
Financial hardship	4	4
Career or location change/move	2	2
Change in family responsibility	4	4
Divorce	4	4
Retirement	0	0
Combat	0	0
Other	18	20

Table 5
Time since most traumatic or life-altering event or period (N = 94)

Time choice	N	%
Less than six months	16	17
Six months to one year	14	15
One to two years	11	12
Two to five years	22	23
More than five years	31	33

Research Question 1

The first question asked about the nature of the relationship between intake trauma symptoms and PTG. Based on the existing literature, the related hypothesis predicted that baseline trauma symptoms, as measured by TSI Summary scores at intake, would be directly related to PTG scores as reported on the PTGI at Time 2, such that the greater trauma-related distress at Time 1, the greater the PTG reported at Time 2.

Trauma symptoms were present in the current sample at intake (Table 6), ranging from 8.9-28.7% of the participants endorsing clinical-level symptoms on each of the four summary scales (Self-disturbance, Posttraumatic Stress, Externalization, and Somatization), with the largest area of clinical symptomology reported on the Externalization summary scale.

Table 6

Clinical Functioning indicated on the Trauma Symptoms Inventory-2 at Intake (N = 101)

TSI Summary Scale	Non-Clinical		Problematic		Clinical	
	N	%	*N*	%	*N*	%
Self-disturbance	63	62.4	19	18.8	19	18.8
Posttraumatic Stress	53	52.5	22	21.8	26	25.7
Externalization	66	65.3	6	5.8	29	28.7
Somatization	84	83.2	8	7.9	9	8.9

Within the sample assessed for research question one, PTG scores were similar to scores reported by all PTG respondents, ranging from 0-105 with an average score of 74.00 (*SD* = 23.41), indicating an average amount of growth between a moderate and a great degree of growth.

Correlation analysis indicated that no statistically significant relationship between the four TSI-2 summary scales at intake and Total PTGI scores (Table 7). Additionally, there were no statistically significant correlations between intake TSI-2 summary scale scores and PTGI subscale scores and no statistically significant correlation between THS Total and PTGI Total.

Table 7
Correlations between PTGI and TSI-2 Intake Summary subscales (N = 92)

Instrument	PTGI Total	TSI Self	TSI Trauma	TSI Externalization	TSI Somatization
PTGI Total		-.10	-.06	-.10	-.06
TSI Self			.85**	.83**	.63**
TSI Trauma				.84**	.69**
TSI Externalization					.61**
TSI Somatization					

** $p < 0.01$ ***$p < .001$

The distributions of scores for both measures were then assessed for normality to determine whether the regressions necessary for parametric analysis would be appropriate. Total and subscale scores of the PTGI were all negatively skewed due to the bulk of responses representing high levels of growth. The PTGI Religion subscale was the only PTGI scale within the acceptable range (Kim, 2013) to be considered normally distributed ($z > \pm 3.29$). TSI summary scale T-scores at intake and discharge were all positively skewed, indicating a buildup of low scores, with only the intake Externalization and discharge Posttraumatic Stress summary scale scores within the range for normality suggested by Kim (2013). Logarithmic and *z* transformations were conducted on PTGI and TSI scores. Neither, however, resulted in the data being transformed to a normally distributed range, nor did it result in any changes to the significance of results. Non-parametric tests were considered, but there are none currently available that test curvilinear relationships. Therefore, non-transformed data were used for analyses.

Curvilinear relationships between TSI summary scales and Total PTGI scores were tested but none were found to be statistically significant (see Tables 8-11). Thus, this hypothesis was not supported.

Table 8
Hierarchical Regression Analysis Predicting Posttraumatic Growth on the Posttraumatic Growth Inventory (PTGI) by TSI-2 Trauma scale (N = 92)

Variables	B	SE	β	*t*
Step 1				
TSI Trauma (linear)	-.13	.24	-.06	-.54
Step 2				
TSI Trauma (linear)	-1.49	2.33	-.66	-.64
TSI Trauma (quadratic)	.01	.02	.61	.59

Note. TSI Trauma is the Trauma Symptom Inventory-2 Trauma Summary Scale T-scores
*$p < .05$ **$p < .01$

Table 9
Hierarchical Regression Analysis Predicting Posttraumatic Growth on the Posttraumatic Growth Inventory (PTGI) by TSI-2 Self scale (N = 92)

Variables	B	SE	*β*	*t*
Step 1				
TSI Self (linear)	-.24	.25	-.10	-.98
Step 2				
TSI Self (linear)	-1.74	2.56	-.74	-.68
TSI Self (quadratic)	.01	.02	.64	.59

Note. TSI Trauma is the Trauma Symptom Inventory-2 Self Summary Scale T-scores
*$p < .05$ **$p < .01$

Table 10
Hierarchical Regression Analysis Predicting Posttraumatic Growth on the Posttraumatic Growth Inventory (PTGI) by the TSI-2 Externalization scale (N = 92)

Variables	B	SE	*β*	*t*
Step 1				
TSI Externalization (linear)	-.19	-.19	-.10	-.99
Step 2				
TSI Externalization (linear)	-.29	1.53	-.16	-.19
TSI Externalization (quadratic)	.00	.01	.06	.95

Note. TSI Trauma is the Trauma Symptom Inventory-2 Externalization Summary Scale T-scores
*$p < .05$ **$p < .01$

Table 11
Hierarchical Regression Analysis Predicting Posttraumatic Growth on the Posttraumatic Growth Inventory (PTGI) by the TSI-2 Somatization scale (N = 92)

Variables	B	SE	β	*t*
Step 1				
TSI Somatization (linear)	-.13	.22	-.06	-.60
Step 2				
TSI Somatization (linear)	-.43	1.64	-.21	-.26
TSI Somatization (quadratic)	.00	.02	.15	.19

Note. TSI Trauma is the Trauma Symptom Inventory-2 Somatization Summary Scale T-scores
*$p < .05$ **$p < .01$

Research Question 2

Next, the relationship between ASI drug use severity and PTG was explored. Participants' scores analyzed demonstrated intake drug use severity score ranging from 0, "no problem," to 9, "extreme problem," the full range of possible scores. The mean severity score at intake was 7.41 (*SD* = 1.60, *N* = 81). At discharge, ASI severity scores spanned 0-9, and averaged 4.83 (*SD* = 2.88, *N* = 77). This represents a large, significant decrease in drug severity from intake to discharge, $t(76) = 7.64$, $p < .001$, Cohen's $d = 1.11$.

The second hypothesis specifically examined the relationship between changes in drug use severity, measured by Reliable Change Index (RC) scores from intake to discharge on ASI Drug severity scores, and PTG, as measured by the PTGI. Change measured only by the difference in composite scores from intake to discharge is subject to measurement error and may not represent a reliable indicator of actual change. To account for this, a reliable change index (RC) was used. While there are multiple

formulas for calculating RC, the formula originally put forth by Jacobson, Follette, and Revenstorf (1986) amended by Christensen and Mendoza (1986) and clarified by Jacobson and Traux (1991) was selected (see also Ferguson, Robinson, & Splaine, 2002):

$$RC = \frac{(x_1 - x_2)}{\sqrt{2(S_E)^2}}$$

$$S_E = s_1\sqrt{1 - r_{xx}}$$

such that x_1 = individual intake ASI composite score, x_2 = individual discharge ASI composite score, s_1 = standard deviation of ASI composite scores at intake, and r_{xx} = test-retest reliability of ASI composite scores. The RC standardizes scores such that scores of $\pm$1.96 are considered reliable indicators of change beyond what might be observed due to measurement error.

Of the 77 participants with intake and discharge ASI Drug Severity scores and who completed the PTGI, 1 (1.3%) demonstrated reliable negative change, indicating an increase in drug use across the intervention period; 38 (49.4%) demonstrated no reliable change, and 38 (49.4%) demonstrated reliable positive change, indicating a decrease in drug use across the intervention period. PTGI Total scores were compared for participants with no reliable change (M = 72.71, SD = 21.51) and participants with reliable positive change (M = 73.53, SD = 27.37), using an independent samples T-test. The results were non-significant, $t(74) = .14$, $p = .89$, suggesting that PTGI scores were not dependent on whether participants decreased their drug use.

Higher Drug Severity RC scores were anticipated to be related to higher levels of posttraumatic growth. This hypothesis was not supported; correlations between ASI Drug

Severity RC scores and PTGI Total scores were non-significant, $r = .08$, $p = .50$, suggesting that in the current sample there was not a linear relationship between change in drug severity and PTG. Correlations between ASI Drug Severity RC scores and PTGI subscales were also non-significant (Table 12).

Table 12
Correlations between ASI Drug Severity Score Reliable Change Index values and PTGI Total and subscales (N = 76)

Instrument	
PTGI Total	.02
PTGI Relating to Others	.05
PTGI New Possibilities	.10
PTGI Personal Strength	-.01
PTGI Religion	.04
PTGI Appreciation of Life	.01

Analyses were conducted to test whether there might be a curvilinear relationship between PTGI scores and ASI Drug Severity RC scores. The distribution of ASI Drug RC scores was assessed for normality to determine whether the regressions necessary for parametric analysis would be appropriate. ASI Drug Severity RC scores were normally distributed ($z = -1.68$), within the range acceptable to approximate a normal distribution (Kim, 2013). The curvilinear relationship with change in drug severity predicting PTG Total was tested but found to be non-significant, $\beta = .03$, $t(74) = .10$, $p = .92$ (Table 13).

Table 13
Hierarchical Regression Analysis Predicting Posttraumatic Growth on the Posttraumatic Growth Inventory (PTGI) (N = 76)

Variables	B	SE	*β*	*t*
Step 1				
ASI Drug Composite RC (linear)	.22	3.39	.02	.19
Step 2				
ASI Drug Composite RC (linear)	.18	1.16	.02	.16
ASI Drug Composite RC (quadratic)	.08	.21	.04	.37

Note. ASI Drug Composite RC is the reliable change value calculated to describe change Intake to Discharge on the Addiction Severity Index's Drug domain
*$p < .05$ **$p < .01$

Analyses had been proposed to test whether the relationship between trauma symptoms and PTG would be mediated by change in drug severity. As the relationship between TSI scores and PTGI scores was not significant and the relationship between ASI Drug Severity RC scores and PTGI scores was not significant, this hypothesis could not be tested.

Research Question 3

The third hypothesis predicted that higher posttraumatic growth, as measured by the PTGI, would be related to a greater likelihood of successful program graduation rather than unsuccessful termination from the program. Of the 95 participants who had been discharged from treatment, 85 (89.5%) graduated successfully, with 10 (10.5%) discharged prior to treatment completion. This did not allow enough power to result in a meaningful statistical analysis; therefore, Hypothesis 3 could not be addressed in the current sample. However, utilization of different services provided while participants

were in treatment was collected at discharge. Since treatment engagement could not be analyzed based on program completion, treatment utilization was assessed.

To explore effects of treatment engagement on PTG, responses of participants who completed the consumer survey and discharge interview were analyzed (N = 66). Participants were asked in the treatment utilization interview how many times they engaged in each of 54 different kinds of possible services (a range of case management, education, and counseling services) during the six months of treatment. Of the 54 possible services, 43 were endorsed by participants. Total number of times engaging with services ranged from 166-832 (M = 611, SD = 191). There was not a significant correlation between service utilization and PTGI Total score (r = .09, p = .49).

Research Question 4

Finally, the fourth question asked whether PTG would be related to consumer satisfaction with services. To assess this, PTGI Total scores were compared to Consumer Perceptions of Care (CPC) Total mean scores and CPC Service Integration subscale mean scores. The remaining Culture and Trauma-Informed Assessment subscales fell below the cutoff of .70 for reliable construct measurement (Table 2) and were not included in analyses.

CPC Total mean scores demonstrated small but significant correlations with PTGI Total and PTGI Relating to Others scores (Table 14). That is, those who were had generally high levels of satisfaction with services also reported high level of Total PTG and high levels of PTG specifically with regard to their relationships. CPC Service Integration mean scores were related to all but the PTGI Appreciation of Life subscale, with two of these subscales representing moderate sized effects. The Service Integration

subscale captures to what extent clients perceive services to be "integrated, trauma-informed, holistic, safe, and client centered" (Clark et al., 2008). Therefore, higher levels of satisfaction with staff and program sensitivity was related to higher levels of trauma-related growth.

Table 14
Correlations between mean CPC Total and Service Integration scores and PTGI Total and subscales (N = 76)

Instrument	CPC Total Mean	CPC Service Integration Mean
PTGI Total	.24*	.33**
PTGI Relating to Others	.25*	.36***
PTGI New Possibilities	.19	.26*
PTGI Personal Strength	.19	.26*
PTGI Religion	.21	.27**
PTGI Appreciation of Life	.15	.18

*$p < .05$ **$p < .01$ ***$p < .001$

Post hoc analyses

The current sample was predominately composed of Latina and Caucasian participants. Literature on trauma and posttraumatic growth has suggested some differences based on ethnicity, with Hispanic or Latina individuals reporting higher PTG than Caucasian individuals (Arpawong, Oland, Milam, Ruccione, & Meeske, 2013; Milam, 2006; Smith, Dalen, Bernard, & Baumgartner, 2008). One reason for this difference has been attributed to increased religiosity among Hispanic and Latina cultures and individuals, which has in turn been related to higher levels of PTG (Smith, Dalen,

Bernard, & Baumgartner, 2008). It may also be the case that closer family networks, more characteristic of Latina families than Caucasian families, may provide interpersonal resources that support development of PTG (Tedeschi & Calhoun, 2004).

Post-hoc independent samples t-tests were conducted to compare differences in trauma history and symptoms and posttraumatic growth between the two ethnic groups. Results demonstrated no difference between Latina and Caucasian participants on trauma history and symptoms. Total PTGI scores were also not significantly different between groups.

One PTGI subscale did demonstrate differences between Latina and Caucasian participants: Appreciation of Life, with higher levels among Caucasian participants (M = 4.19, SD = 0.75) than Latina participants (M = 3.77, SD = 1.13; t = 2.02, p =.049). This does not indicate that one ethnic group has greater appreciation of life but only that Caucasians reported slightly more change in this area.

Psychiatric Co-morbidity. The current sample was in treatment for mental health concerns as well as co-occurring substance use issues. While depression and anxiety are captured on the TSI-2, there may be other psychiatric co-morbidities influencing PTG for which the TSI-2 does not adequately account. ASI Psychiatric composite scores measure the intensity of trauma symptoms based on self-report ratings of psychiatric symptoms (anxiety, depression, hallucinations, cognitive problems, violence/rage, suicidal ideation, suicide attempts) and use of psychiatric medications in the past month. Post-hoc analyses found psychiatric composite scores at program discharge were inversely related to two of the four PTGI subscales: Spiritual Change (r = -.25, p = .029) and Appreciation of Life (r = -.30, p = .008). This indicates that in this

sample when psychiatric problems were higher Spiritual Change and Appreciation of Life were lower.

Trauma Characteristics. Given that just over half of participants reported their index trauma occurring two or more years ago, the variable was dichotomized to represent this for comparison with PTG Total scores. Independent samples T-tests demonstrated no difference between the groups; traumas that happened more than two years ago were no more or less likely to be related to PTG.

Loss of a loved one was listed in the categories of potentially traumatic or stressful events, which may theoretically distinct in that they may involve grief processes as well. When PTG levels of those reporting such loss as their primary trauma to those who endorsed another type in independent T-tests, no significant difference was found.

CHAPTER FIVE

Discussion

The current study explored factors related to Posttraumatic Growth (PTG) among pregnant and new mothers in residential treatment for substance use and mental health disorders. Results demonstrated that ninety-eight percent reported growth, and over three-fourths of participants self-reported an average of a moderate degree of growth or higher.

This is the first study known to the author to demonstrate PTG in a sample of women for whom the experience of traumatic growth was complicated by substance use. The level of growth reported in this population is on par with or higher than studies of PTG in samples not reporting substance use (Helgeson, Reynolds, & Tomich, 2006; Linley & Joseph, 2004). This suggests that, at least within the current sample, despite using substances prior to or after a trauma, women were able to experience positive psychosocial growth as a result of coping with a trauma.

This finding contributes to the literature on trauma-informed care for substance use. Trauma-informed care involves attending to the whole person in her recovery from trauma and minimizing risk for re-traumatization. Awareness and assessment of PTG fits within this framework, expanding our understanding of the post-trauma experience in this population. These data suggest that minimizing psychological distress and eliminating substance use might not be the only positive outcomes of treatment-- PTG may also be a part of a woman's recovery from trauma and substance use.

While previous studies have looked at both consumer satisfaction and PTGI scores (i.e. Scott, Halford & Ward, 2004), this is the first to look at the relationship

between the two variables. Additional research is necessary to answer this question and further explore how PTG may influence trauma-informed treatment.

PTG was unrelated to trauma-related distress at intake or discharge and unrelated to change in trauma-related distress in this study. While previous research has shown trauma-related distress and growth to be linearly (Butler et al., 2005; Cadell, Regehr, & Hemsworth, 2003) or nonlinearly related (Shakespeare-Finch & Lurie-Beck, 2014), neither connection was not found in the current sample. One reason for this may be the skew of both the TSI and PTGI scores, limiting variance necessary to detect a relationship. Second, the trauma-related distress may not be the distress motivating PTG in this sample. As they are currently in residential treatment for substance use and mental health concerns, problems related to drug use or psychiatric issues might instead be associated with PTG changes. Had women entered a residential trauma treatment program primarily, perhaps the variance in TSI-2 scores about have been wider. Third, women may have experienced previous traumatic distress or previous posttraumatic growth that impacted the trajectory of the current study, particularly since about half of women reported their index trauma for responding to the PTGI occurred two or more years ago and may not be the trauma related to current trauma symptoms.

There were no meaningful differences in PTG among those who did and did not experience improvement in drug problems. This is consistent with Arpawong and colleagues' (2015) study of adolescents' experience of stressful life events, substance use and PTG. The authors found no relationship between hard drug use and PTG and that PTG did not moderate the relationship between number of stressful life events and

substance use, though it was impactful in protecting against substance use after single stressful life events.

The relationship of PTG to program graduation was not explored in the current study due to the small number of participants. Future studies would need to explore a larger sample or administer the PTGI earlier in the course of treatment in order to catch more participants prior to program exit. Treatment utilization findings among those who completed treatment indicated no correlation between PTG and number of services utilized; possible explanations include that quality not quantity may predict PTG or that floor effects limited detection of a relationship as all completers in the treatment utilization analysis successfully graduated from a six month treatment program.

While the overall non-significance of difference by ethnicity may be an artifact of the data or of the current sample, it may also represent cultural similarities in the experience of trauma and in growth from trauma. For example, the level of acculturation among Latinas or Caucasians in this sample may be different from previously studied samples. Future research might explore family, social and religious values in addition to trauma and growth to better elucidate similarities and differences.

With regard to the observed difference on the PTG Appreciation of Life subscale, it may be the case that Latina mothers had higher appreciation of life at intake and therefore might not have reported experiencing as much change in this area. Another explanation may be related to cultural differences in primary orientation toward the selves or others. Items that comprise the Appreciation of Life scale are more highly individualistic, such as “I appreciate the value of my own life,” which may be more highly endorsed in more individualistic than traditionally collectivist cultures, such as

Latina culture. It may be a statistically significant difference but not a meaningfully significant difference, given the lack of overall significance by ethnicity.

Post-hoc analyses also found inverse relationships between psychiatric severity and the PTGI subscales Spiritual Change and Appreciation of Life. It may be the case that these areas of change were not as malleable when mental health issues persist. Having persistent depression, anxiety or suicidal thoughts is almost necessarily counter to having increased appreciation of life. Similarly, growth in spirituality may be difficult for those still searching for reasons to live and pathways for moving forward.

Limitations

Constraints of the current study include sample, instrument, and methodological characteristics. The sample assessed possessed particular characteristics that might restrict the generalizability of findings. In example, residential treatment centers were located in two small towns in central California, with clients coming from the same general catchment area. Within the California culture, mental health treatment may be less stigmatizing than in other parts of the country, as California ranks in the top half of the country for mental health services (National Association for Mental Illness, 2009). As a result, the participants may have had fewer barriers to engaging in treatment than individuals in cultures that have greater levels of stigma around mental health issues.

Further, the findings regarding ethnicity does not imply generalizability to other groups also described as Latina or Hispanic. Such a descriptor oversimplifies the diversity of those to which it refers. Intragroup cultural and acculturation differences may influence clients' engagement with treatment, experience of trauma and trauma symptoms, and factors related to PTG. Therefore, though results did not suggest a

difference between ethnic groups in the current sample, it cannot be assumed that the experiences of growth are the same across all who identify as either Latina, Hispanic or Caucasian.

The current sample was also unique in that it exclusively assessed women who are either pregnant or are mothers to children under one year of age. While this criterion controlled for effects of this period of motherhood, the experience of having a child is not uniform but rather is experienced differently by each mother, effects which were not able to be accounted for in the current study. For example, women experience differences in emotional and physical distress related to pre- and post-partum effects, and in this population, it might also include differences in motivation for treatment or in reports of growth and appreciation of life. Further research is necessary to determine whether the current findings would replicate among women in residential, trauma-sensitive mental health and substance use treatment but who are not pregnant and do not have a child under one year of age.

Similarly, the number of children the mother already has given birth to and is or is not still in custody of may impact reports of distress and growth. While the number of children was collected, custody situations changed regularly throughout the course of treatment, and therefore, the effect of older children could not be reliably described or tracked. Future research could clarify what impact a woman's overall parenting experience might have on her experience of treatment, distress, and growth.

The instrumentation used to assess PTG comes with its own limitations. The PTGI is one of the most common measure of PTG currently (Calhoun & Tedeschi, 2013), and its test-retest reliability, internal validity, and discriminant validity (Tedeschi &

Calhoun, 1996) have been demonstrated to be adequate (Calhoun & Tedeschi, 2013). However, completing the PTGI requires a multi-step cognitive process that requires accuracy of retrospective recall and assignment of cause; still, qualitative research has supported the validity of the assessment (Shakespeare-Finch, Martinek, Tedeschi, & Calhoun, 2013). Given that the current sample presented with potential for recent changes in parenting, mental health concerns and substance use, selecting their responses may have been more complex than in research looking at PTG in response to a single experience of trauma or in a general population sample. It is possible that a semi-structured interview for PTG would allow for improved measurement and construct validity in the same way the Clinical Assessment of PTSD Symptoms (CAPS-5; Weathers, Blake & Schnurr) measures PTSD.

Implications

The findings have implications for future research on PTG as well as for clinical treatment of those recovering from trauma and substance use. Results add a new population to that which we know can experience PTG: pregnant or new mothers in substance use and mental health treatment. While research outcomes in this population typically focus on reduction of negative symptoms, the current findings present an additional area of exploration.

Because of the complexity of the current sample engaged in substance use, mental health and parenting challenges, it is likely that a standardized interview rather than the current likert-scale self-report measure would be helpful to reduce the cognitive load placed on respondents and ensure accurate reporting of positive experiences of growth.

The method used for the current study did not ask when PTG happened or what facilitated the reported experience of PTG. The latter question was added toward the end of data collection but did not accrue enough responses to be formally analyzed to determine what, if any, components of treatment may have influenced PTG.

The current study design did not allow for analysis of PTG as an independent variable which may have in turn affected distress over time. Ickovics, Meade, Kershaw, Milan, Lewis and Ethier (2006) found that among female adolescents PTG related to short and long-term reductions in distress, after controlling for initial level of distress. Further research addressing outcomes of PTG is necessary to better understand how it interacts with distress over time.

Clinically, the current results provide another avenue of hope for change. While trauma and addiction recovery may not be complete by three months into treatment (Simpson, 1981), respondents are still able to point to ways they have grown even within the continued struggle to reduce substance abuse and mental health problems. Acknowledging and capitalizing on this during treatment could increase client self-efficacy, promoting motivation for continued pursuit of recovery. Further, having grown from trauma may lead to greater resilience in the face of subsequent trauma; thus, PTG may reduce re-traumatization.

Conclusion

The present study is the first to explore PTG among women whose experience of trauma recovery was complicated by substance use. Of those sampled, 98% reported at least minimal levels of PTG, with three-fourths of the sample reporting an average of at least a moderate degree of growth or higher. This demonstrates prevalence rates equal to

that of other samples previously assessed who were not in treatment for substance use (Arpawong, Richeimer, Weinstein, Elghamrawy, & Milam, 2013; Xu & Laio, 2011). No relationship was found between either intake trauma symptoms or change in addiction severity and PTG, suggesting that regardless of how severe or how minimal distress is, all clients have a chance of experiencing PTG. Client ratings of program satisfaction positively correlated with reported level of PTG. The reason for this correlation is unclear but has potential for enhancing trauma-informed care. Many questions remain, including the causes of PTG in this population, how we might more precisely measure PTG, and what effect PTG may have over time. Still, in a population with significant challenges to overcome, the current findings provide evidence of positive outcomes of coping with trauma.

References

Affleck, G., Allen, D. A., Tennen, H., McGrade, B. J., & Ratzan, S. (1985). Causal and control cognitions in parents' coping with chronically ill children. *Journal of Social and Clinical Psychology, 3*(3), 367-377.

Affleck, G. & Tennen, H. (1996). Construing benefits from adversity: Adaptational significance and dispositional underpinnings. *Journal of Personality, 64*(4), 899-922. doi: 10.1111/j.1467-6494.1996.tb00948.x

Affleck, G., Tennen, H., Croog, S., & Levine, S. (1987). Causal attribution, perceived benefits, and morbidity after heart attack: An 8-year study. *Journal of Consulting and Clinical Psychology, 55*, 29–35.

Affleck, G., Tennen, H., & Gershman, K. (1985). Cognitive adaptations to high-risk infants: The search for mastery, meaning, and protection from future harm. *American Journal of Mental Deficiency, 89*(6), 653-656.

Aldwin, C. M., Levenson, M. R., & Spiro, A., III. (1994). Vulnerability and resilience to combat exposure: Can stress have lifelong effects? *Psychology and Aging, 9*, 34–44.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C. H., Perry, B. D., Dube, S. R. & Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European archives of psychiatry and clinical neuroscience, 256*(3), 174-186. doi: 10.1007/s00406-005-0624-4

Arpawong, T. E., Sussman, S., Milam, J. E., Unger, J. B., Land, H., Sun, P., & Rohrbach, L. A. (2015). Post-traumatic growth, stressful life events, and relationships with substance use behaviors among alternative high school students: A prospective study. *Psychology & Health*, *30*(4), 475-494. doi: 10.1080/08870446.2014.979171

Arpawong, T. E., Oland, A., Milam, J. E., Ruccione, K., & Meeske, K. A. (2013). Post-traumatic growth among an ethnically diverse sample of adolescent and young adult cancer survivors. *Psycho-Oncology*, *22*(10), 2235-2244. doi: 10.1002/pon.3286

Arpawong, T. E., Richeimer, S. H., Weinstein, F., Elghamrawy, A., & Milam, J. E. (2013). Posttraumatic growth, quality of life, and treatment symptoms among cancer chemotherapy outpatients. *Health Psychology*, *32*(4), 397. doi: 10.1037/a0028223

Ballenger-Browning, K. & Johnson, D. C. (2010, June). Key Facts on Resilience. Naval Center for Combat and Operational Stress Control. Available at: http://www.med.navy.mil/sites/nmcsd/nccosc/healthProfessionalsV2/reports/Documents/resilienceTWPFormatted2.pdf

Bavolek, Stephen J. 2005. "The Nurturing Parenting Program." Published only on Nurturing Parenting website: http://www.nurturingparenting.com/research_validation/index.php

Beeghly, M., & Tronick, E. Z. (1994). Effects of prenatal exposure to cocaine in early infancy: Toxic effects on the process of mutual regulation. *Infant Mental Health*

Journal, 15(2), 158-175. doi: 10.1002/1097-0355(199422)15:2<158: AID-IMHJ2280150207>3.0.CO; 2-7

Bonanno, G. A. (2004). Loss, trauma, and human resilience: have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59*(1), 20-28.

Breland, K. & Breland, M. (1961). The misbehavior of organisms. *American Psychologist, 16*, 681-684.

Brickman, P., & Campbell, D. (1971). Hedonic relativism and planning the good society. In M. H. Apley (Ed.), *Adaptation-level theory: A symposium* (pp. 287–302). New York: Academic Press.

Briere, J. (2011). *Trauma Symptoms Inventory – 2 professional manual*. Lutz, FL: Psychological Assessment Resources, Inc.

Brown, P. J., Recupero, P. R., & Stout, R. (1995). PTSD substance abuse comorbidity and treatment utilization. *Addictive Behaviors, 20*(2), 251-254. doi: 10.1016/0306-4603(94)00060-3

Brunet, J., McDonough, M. H., Hadd, V., Crocker, P. R., & Sabiston, C. M. (2010). The Posttraumatic Growth Inventory: An examination of the factor structure and invariance among breast cancer survivors. *Psycho-Oncology, 19*(8), 830-838. doi: 10.1002/pon.1640

Butler, L. D., Blasey, C. M., Garlan, R. W., McCaslin, S. E., Azarow, J., Chen, X. A.et al. (2005). Posttraumatic growth following the terrorist attacks of September 11, 2001: Cognitive, coping, and trauma symptom predictors in an internet

convenience sample. *Traumatology, 11*, 247–267. doi: 10.1177/153476560501100405

Cadell, S., Regehr, C., & Hemsworth, D. (2003). Factors contributing to posttraumatic growth: A proposed structural equation model. *American Journal of Orthopsychiatry, 73*(3), 279-287. doi: 10.1037/0002-9432.73.3.279

Calhoun, L. & Tedeschi, R. G. (1991). Perceiving benefits in traumatic events: Some issues for practicing psychologists. *The Journal of Training and Practice in Professional Psychology, 5*, 45-52.

Calhoun, L. & Tedeschi, R. G. (2013). *Posttraumatic growth in clinical practice*. New York: Routledge.

Carey, K. B., Cocco, K. M., & Correia, C. J. (1997). Reliability and validity of the Addiction Severity Index among outpatients with severe mental illness. *Psychological Assessment, 9*(4), 422.

Carlson, M. J. & Gabriel, R. M. (2001). Patient satisfaction, use of services, and one-year outcomes in publicly funded substance abuse treatment. *Psychiatric Services, 52*(9), 1230-1236. doi: 10.1176/appi.ps.52.9.1230

Carlson, E. B., Smith, S. R., Palmieri, P. A., Dalenberg, C., Ruzek, J. I., Kimerling, R., Burling, T. A., & Spain, D. A. (2011). Development and validation of a brief self-report measure of trauma exposure: The Trauma History Screen. *Psychological Assessment, 23*(2), 463. doi: 10.1037/a0022294

Christensen, L., & Mendoza, J. L. (1986). A method of assessing change in a single subject: An alteration of the RC index. *Behavior Therapy, 17*(3), 305-308.

Cieslak, R., Benight, C., Schmidt, N., Luszczynska, A., Curtin, E., Clark, R. A., & Kissinger, P. (2009). Predicting posttraumatic growth among Hurricane Katrina survivors living with HIV: The role of self-efficacy, social support, and PTSD symptoms. *Anxiety, Stress, & Coping, 22*(4), 449-463. doi: 10.1080/10615800802403815

Clark, C., Young, M. S., Jackson, E., Graeber, C., Mazelis, R., Kammerer, N., & Huntington, N. (2008). Consumer perceptions of integrated trauma-informed services among women with co-occurring disorders. *The Journal of behavioral Health Services & Research, 35*(1), 71-90.

Cocozza, J. J., Jackson, E. W., Hennigan, K., Morrissey, J. P., Reed, B. G., Fallot, R., & Banks, S. (2005). Outcomes for women with co-occurring disorders and trauma: Program-level effects. *Journal of Substance Abuse Treatment, 28*(2), 109-119. doi: 10.1016/j.jsat.2004.08.009

Cowen, P. S. (2001). Effectiveness of parent education intervention for at-risk families. *Journal for Specialists in Pediatric Nursing, 6*(2), 73-82. doi: 10.1111/j.1744-6155.2001.tb00124.x

Creanga, A. A., Sabel, J. C., Ko, J. Y., Wasserman, C. R., Shapiro-Mendoza, C. K., Taylor, P., Barfield, W., Cawthon, L., & Paulozzi, L. J. (2012). Maternal drug use and its effect on neonates: a population-based study in Washington State. *Obstetrics & Gynecology, 119*(5), 924-933. doi: 1097/AOG.0b013e31824ea276

Cryder, C. H., Kilmer, R. P., Tedeschi, R. G., & Calhoun, L. G. (2006). An exploratory study of posttraumatic growth in children following a natural disaster. *American Journal of Orthopsychiatry, 76*(1), 65-69. doi: 10.1037/0002-9432.76.1.65

Dekel, S., Ein-Dor, T., & Solomon, Z. (2012). Posttraumatic growth and posttraumatic distress: A longitudinal study. *Psychological Trauma: Theory, Research, Practice, and Policy, 4*(1), 94. doi: 10.1037/a0021865

Dube, S. R., Felitti, V. J., Dong, M., Chapman, D. P., Giles, W. H., & Anda, R. F. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: The Adverse childhood experiences study. *Pediatrics, 111*(3), 564-572. doi: 10.1542/peds.111.3.564

Fallot, R. D. (1997). Spirituality in trauma recovery. In *Sexual abuse in the lives of women diagnosed with serious mental illness*, M. Harris, & C. Landis (Eds). Amsterdam, Netherlands: Harwood Academic Publishers, pp. 337–355.

Felitti, M. D., Vincent, J., Anda, M. D., Robert, F., Nordenberg, M. D., Williamson, M. S., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine, 14*(4), 245-258. doi: 10.1016/S0749-3797(98)00017-8

Ferguson, R. J., Robinson, A. B., & Splaine, M. (2002). Use of the Reliable Change Index to evaluate clinical significance in SF-36 outcomes. *Quality of Life Research, 11*, 509-516.

Finkel, N. J. (1974). Stress and traumas: An attempt at categorization. *American Journal of Community Psychology, 2*, 265-273.

Finkel, N. J. (1975). Strens, traumas and trauma resolution. *American Journal of Community Psychology, 3*, 173-178.

Frankl, V. E. (1984). *Man's search for meaning: An introduction to logotherapy*. New York: Simon & Schuster.

Gatz, M., Brown, V., Hennigan, K., Rechberger, E., O'Keefe, M., Rose T., Bjelejac, P. (2007). Effectiveness of an integrated trauma-informed approach to treating women with co-occurring disorders and histories of trauma: The Los Angeles site experience. *Journal of Community Psychology, 35*, 863-878. doi: 10.1002/jcop.20186

Grella, C. E. (1999). Women in residential drug treatment: Differences by program type and pregnancy. *Journal of Health Care for the Poor and Underserved, 10*(2), 216-229. doi: 10.1353/hpu.2010.0174

Grella, C. E., Joshi, V., & Hser, Y. I. (2000). Program variation in treatment outcomes among women in residential drug treatment. *Evaluation Review, 24*(4), 364-383. doi: 10.1177/0193841X0002400402

Grubaugh, A. L., & Resick, P. A. (2007). Posttraumatic growth in treatment-seeking female assault victims. *Psychiatric Quarterly, 78*(2), 145-155.

Hagenaars, M. A., Fisch, I., & van Minnen, A. (2011). The effect of trauma onset and frequency on PTSD-associated symptoms. *Journal of Affective Disorders, 132*(1), 192-199. doi: 10.1016/j.jad.2011.02.017

Healy, M. (2011, September). 9/11 attacks lead to more study of post-traumatic stress disorder. Los Angeles Times. Available at: http://articles.latimes.com/2011/sep/05/health/la-he-911-ptsd-20110905

Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). A meta- analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology, 74*, 797–816. doi: 10.1037/0022-006X.74.5.797

Helzer, J. E., Robins, L. N., & McEvoy, L. (1987). Posttraumatic stress disorder in the general population. *New England Journal of Medicine, 317*, 1630-1634.

Ickovics, J. R., Meade, C. S., Kershaw, T. S., Milan, S., Lewis, J. B., & Ethier, K. A. (2006). Urban teens: Trauma, posttraumatic growth, and emotional distress among female adolescents. *Journal of Consulting and Clinical Psychology, 74(*5), 841. doi: 10.1037/0022-006X.74.5.841

Jacobson, N. S., Follette, W. C., & Revenstorf, D. (1986). Toward a standard definition of clinically significant change. *Behavior Therapy*, *17*(3), 308-311.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: a statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, *59*(1), 12. doi: 10.1037/0022-006X.59.1.12

Janoff-Bulman, R. (1992*). Shattered assumptions: Towards a new psychology of trauma*. New York: Free Press.

Jennings, P. A., Aldwin, C. M., Levenson, M. R., Spiro, A., & Mroczek, D. K. (2006). Combat Exposure, Perceived Benefits of Military Service, and Wisdom in Later Life Findings From the Normative Aging Study. *Research on Aging, 28*(1), 115-134. doi: 10.1177/0164027505281549

Joseph, S. (2011). *What doesn't kill us: The new psychology of posttraumatic growth*. UK: Basic Books.

Kendall-Tackett, K. (2002). The health effects of childhood abuse: Four pathways by which abuse can influence health. *Child Abuse and Neglect, 26*(6-7), 715-729. doi: 10.1016/S0145-2134(02)00343-5

Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the national comorbidity survey. *Archives of General Psychiatry, 52,* 1048-1060. doi: 10.1001/archpsyc.1995.03950240066012.

Kilpatrick, D. G., Acierno, R., Resnick, H. S., Saunders, B. E., & Best, C. L. (1997). A 2-year longitudinal analysis of the relationships between violent assault and substance use in women. *Journal of Consulting and Clinical Psychology, 65*(5), 834. doi: 10.1037/0022-006X.65.5.834

Kim, H. Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics, 38*(1), 52–54. doi:10.5395/rde.2013.38.1.52

Kleim, B. & Ehlers, A. (2009). Evidence for a curvilinear relationship between posttraumatic growth and posttrauma depression and PTSD in assault survivors. *Journal of Traumatic Stress, 22*(1), 45-52. doi: 10.1002/jts.20378

Knight, D. K., Logan, S. M., & Simpson, D. D. (2001). Predictors of program completion for women in residential substance abuse treatment. *The American Journal of Drug and Alcohol Abuse, 27*(1), 1-18. doi: 10.1081/ADA-100103116

Lehman, D. R., Davis, C. G., Delongis, A., Wortman, C. B., Bluck, S., Mandel, D. R., & Ellard, J. H. (1993). Positive and negative life changes following bereavement

and their relations to adjustment. *Journal of Social and Clinical Psychology, 12*(1), 90-112. doi: 10.1521/jscp.1993.12.1.90

Lester, B. M., Bagner, D. M., Liu, J., LaGasse, L. L., Seifer, R., Bauer, C. R., ... & Das, A. (2009). Infant neurobehavioral dysregulation: behavior problems in children with prenatal substance exposure. *Pediatrics*, *124*(5), 1355-1362.

Linley, P. A. (2003). Positive adaptation to trauma: Wisdom as both process and outcome. *Journal of Traumatic Stress, 16*(6), 601-610. doi: http://dx.doi.org/10.1023/B:JOTS.0000004086.64509.09

Linley, P. A. & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of Traumatic Stress, 17,* 11–21. doi: 10.1023/B:JOTS.0000014671.27856.7e

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The concept of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543-562. doi: 10.1111/1467-8624.00164

Maher, E. J., Marcynyszyn, L. A., Corwin, T. W., & Hodnett, R. (2011). Dosage matters: The relationship between participation in the Nurturing Parenting Program for infants, toddlers, and preschoolers and subsequent child maltreatment. *Children and Youth Services Review, 33*(8), 1426-1434. doi: 10.1016/j.childyouth.2011.04.014

Mahoney, A., Krumrei, E. J., & Pargament, K. I. (2008). Broken vows: Divorce as a spiritual trauma and its implications for growth and decline. In S. Joseph & P. A. Linley (Eds.), *Trauma, Recovery, and Growth: Positive Psychological Perspectives on Posttraumatic Stress* (p. 105-124). Hoboken, NJ: Wiley.

Mäkelä, K. (2004). Studies of the reliability and validity of the Addiction Severity Index. *Addiction, 99*(4), 398-410.

Mandela, N. (2008). *Long walk to freedom: The Autobiography of Nelson Mandela.* New York: Little, Brown and Company

Marsh, J. C., Angell, B., Andrews, C. M., & Curry, A. (2012). Client-provider relationship and treatment outcome: A systematic review of substance abuse, child welfare, and mental health services research. *Journal of the Society for Social Work and Research, 3*(4), 233-267. doi: 10.5243/jsswr.2012.15

Martins, C., & Gaffan, E. A. (2000). Effects of early maternal depression on patterns of infant–mother attachment: A meta-analytic investigation. *Journal of Child Psychology and Psychiatry, 41*(6), 737-746. doi: 2048/10.1111/1469-7610.00661

McCrae, R. R. (1984). Situational determinants of coping responses: Loss, threat, and challenge. *Journal of Personality and Social Psychology, 46*(4), 919.

McLellan, A. T., Kushner, H., Metzger, D., Peters, R., Smith, I., Grissom, G., Pettinati, H., & Argeriou, M. (1992). The fifth edition of the Addiction Severity Index. *Journal of Substance Abuse Treatment, 9*(3), 199-213.

McMillen, J. C., Smith, E. M., & Fisher, R. H. (1997). Perceived benefit and mental health after three types of disaster. *Journal of Consulting and Clinical Psychology, 65*, 733-739.

McMillen, J. C., Zuravin, S., & Rideout, G. (1995). Perceived benefit from child sexual abuse. *Journal of Consulting and Clinical Psychology, 63*(6), 1037-1043. doi:10.1037/0022-006X.63.6.1037

Milam, J. (2006). Posttraumatic growth and HIV disease progression. Journal of consulting and clinical psychology, 74(5), 817.

Morrissey, J. P., Ellis, A. R., Gatz, M., Amaro, H., Reed, B. G., Savage, A., ... & Banks, S. (2005). Outcomes for women with co-occurring disorders and trauma: Program and person-level effects. Journal of substance abuse treatment, 28(2), 121-133. doi: 10.1016/j.jsat.2004.08.012

Najavits, L. M. (2002). *Seeking Safety: A Treatment Manual for PTSD And Substance Abuse.* New York: Guilford Press.

Najavits, L. M., Weiss, R. D., & Shaw, S. R. (1997). The link between substance abuse and posttraumatic stress disorder in women: A research review. *The American Journal on Addictions, 6*, 273-283.

Najavits, L. M., Weiss, R. D., Shaw, S. R., & Muenz, L. R. (1998). "Seeking safety": Outcome of a new cognitive‐behavioral psychotherapy for women with posttraumatic stress disorder and substance dependence. *Journal of Traumatic Stress, 11*(3), 437-456. doi: 10.1023/A:1024496427434

Najavits, L. M. & Hien, D. (2013). Helping vulnerable populations: A Comprehensive review of the treatment outcome literature on substance use disorder and PTSD. *Journal of Clinical Psychology: In Session, 69*(5), 433-479. doi: 10.1002/jclp.21980

National Association for Mental Illness (2009). Grading the states, 2009. Retrieved from: http://www2.nami.org/Content/NavigationMenu/Grading_the_States_2009/Findings/NAMI_GTS09_Findings.pdf

Obert, J. L., McCann, M. J., Marinelli-Casey, P., Weiner, A., Minsky, S., Brethen, P., & Rawson, R. (2000). The Matrix Model of outpatient stimulant abuse treatment: History and description. *Journal of Psychoactive Drugs, 32*(2), 157-164. doi: 10.1080/02791072.2000.10400224

O'Leary, V. E. & Ickovics, J. R. (1995). Resilience and response to challenge: An opportunity for a paradigm shift in women's health. *Women's Health: Research in Gender, Behaviour, and Policy, 1*, 121-142.

Pargament, K. I., Magyar, G. M., Benore, E., & Mahoney, A. (2005). Sacrilege: A study of sacred loss and desecration and their implications for health and well‐being in a community sample. *Journal for the Scientific Study of Religion, 44*(1), 59-78.

Park, C. L., Aldwin, C. M., Fenster, J. R., & Snyder, L. B. (2008). Pathways to posttraumatic growth versus posttraumatic stress: Coping and emotional reactions following the September 11, 2001, Terrorist Attacks. *American Journal of Orthopsychiatry, 78*, 300-312. doi: 10.1037/a0014054

Park, C. L., Cohen, L., & Murch, R. (1996). Assessment and prediction of stress-related growth. *Journal of Personality, 64*, 71-105. doi: 10.1111/j.1467-6494.1996.tb00815.x

Prati, G. & Pietrantoni, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A meta-analysis. *Journal of Loss and Trauma: International Perspectives on Stress and Coping, 14*(5), 364-388. doi: 10.1080/15325020902724271

Rawson, R. A., P. Marinelli-Casey, M.D. Anglin, A. Dickow, Y. Frazier, C. Gallagher, G. P. Galloway, J. Herrell, A. Huber, M. J. McCann, J. Obert, S. Pennell, C.

Reiber, D. Vandersloot, J. Zweben, and The Methamphetamine Treatment Project Corporate Authors. (2004). A Multi-Site Comparison of Psychosocial Approaches for the Treatment of Methamphetamine Dependence. *Addiction, 99,* 708-717. doi: 10.1111/j.1360-0443.2004.00707.x

Resick, P. A., & Schnicke, M. K. (1992). Cognitive processing therapy for sexual assault victims. *Journal of Consulting and Clinical Psychology, 60*(5), 748.

SAMHSA (2014). Co-Occurring Disorders: National Outcome Measures. Retrieved from http://www.samhsa.gov/co-occurring/topics/data/nom.aspx

SAMHSA (2015). National Registry of Evidence-Based Programs and Practices: Seeking Safety. Available from: http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=376

Sanford, A., Donahue, M., & Cosden, M. (2014). Consumer perceptions of trauma assessment and intervention in substance abuse treatment. *Journal of Substance Abuse Treatment, 47*(3), 233-238. doi: 10.1016/j.jsat.2014.05.011

Schroevers, M. J., & Teo, I. (2008). The report of posttraumatic growth in Malaysian cancer patients: Relationships with psychological distress and coping strategies. *Psycho‐Oncology, 17*(12), 1239-1246. doi: 10.1002/pon.1366

Scott, J. L., Halford, W. K., & Ward, B. G. (2004). United we stand? The effects of a couple-coping intervention on adjustment to early stage breast or gynecological cancer. *Journal of Consulting and Clinical Psychology, 72*(6), 1122. doi: 10.1037/0022-006X.72.6.1122

Sears, S. R., Stanton, A. L., & Danoff-Burg, S. (2003). The yellow brick road and the emerald city: benefit finding, positive reappraisal coping and posttraumatic

growth in women with early-stage breast cancer. *Health Psychology, 22*(5), 487. doi: 10.1037/0278-6133.22.5.487

Seligman, M. E. P. & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1), 5-14. doi: http://dx.doi.org/10.1037/0003-066X.55.1.5

Shah, R., Diaz, S. D., Arria, A., LaGasse, L. L., Derauf, C., Newman, E., ... & Lester, B. M. (2012). Prenatal methamphetamine exposure and short-term maternal and infant medical outcomes. *American Journal of Perinatology, 29*(5), 391.

Shakespeare-Finch, J. & Lurie-Beck, J. (2014). A meta-analytic clarification of the relationship between posttraumatic growth and symptoms of posttraumatic stress disorder. *Journal of Anxiety Disorders, 28*(2), 223-229. doi: 10.1016/j.janxdis.2013.10.005

Shakespeare-Finch, J., Martinek, E., Tedeschi, R. G., & Calhoun, L. G. (2013). A qualitative approach to assessing the validity of the posttraumatic growth inventory. *Journal of Loss and Trauma, 18(*6), 572-591.

Shaw, A., Joseph, S., & Linley, P. A. (2005). Religion, spirituality, and posttraumatic growth: A systematic review. *Mental Health, Religion & Culture, 8*(1), 1-11.

Simpson, D. D. (1981). Treatment for drug abuse: Follow-up outcomes and length of time spent. *Archives of General Psychiatry, 38*(8), 875-880.

Smith, B. W., Dalen, J., Bernard, J. F., & Baumgartner, K. B. (2008). Posttraumatic growth in non-Hispanic White and Hispanic women with cervical cancer. *Journal of Psychosocial Oncology, 26*(4), 91-109. doi: 10.1080/07347330802359768

Smith, L. M., Paz, M. S., LaGasse, L. L., Derauf, C., Newman, E., Shah, R., ... & Lester, B. M. (2012). Maternal depression and prenatal exposure to methamphetamine: neurodevelopmental findings from the infant development, environment, and lifestyle (ideal) study. *Depression and Anxiety, 29*(6), 515-522. doi: 10.1002/da.21956

Solomon, Z., & Dekel, R. (2007). Posttraumatic stress disorder and posttraumatic growth among Israeli ex‐POWs. *Journal of Traumatic Stress, 20*(3), 303-312. doi: 10.1002/jts.20216

Suchman, N. E., McMahon, T. J., Slade, A., & Luthar, S. S. (2005). How early bonding, depression, illicit drug use, and perceived support work together to influence drug-dependent mothers' caregiving. *American Journal of Orthopsychiatry, 75*(3), 431-445. doi: 10.1037/0002-9432.75.3.431

Taku, K., & Oshio, A. (2015). An item-level analysis of the Posttraumatic Growth Inventory: Relationships with an examination of core beliefs and deliberate rumination. *Personality and Individual Differences, 86*, 156-160.

Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*(3), 455-471.

Tedeschi, R. G., & Calhoun, L. G. (2004). " Posttraumatic growth: Conceptual foundations and empirical evidence." *Psychological inquiry, 15*(1), 1-18. doi: 10.1207/s15327965pli1501_01

Tedeschi, R. G., Park, C. L. & Calhoun, L. G. (Eds.) (1998). Posttraumatic Growth: Positive changes in the aftermath of Crisis. Mahwah, NJ: Lawrence Erlbaum Associates.

Tennen, H., Affleck, G., Urrows, S., Higgins, P., & Mendola, R. (1992). Perceiving control, construing benefits, and daily processes in rheumatoid arthritis. *Canadian Journal of Behavioral Science, 24*, 186-203. doi: 10.1037/h0078709

Thompson, S. C. and Janigian, A. S. (1988). Life schemes: A framework for understanding the search for meaning. *Journal of Social and Clinical Psychology*, 7, 260–280. doi: 10.1521/jscp.1988.7.2-3.260

Tomich, P. L., & Helgeson, V. S. (2004). Is finding something good in the bad always good? Benefit finding among women with breast cancer. *Health Psychology, 23,* 16–23. doi: 0.1037/0278-6133.23.1.16

Vázquez, C., Cervellón, P., Pérez-Sales, P., Vidales, D., & Gaborit, M. (2005). Positive emotions in earthquake survivors in El Salvador (2001). *Journal of Anxiety Disorders, 19*(3), 313-328.

Waterman, A. S. (2007). On the importance of distinguishing hedonia and eudaimonia when contemplating the hedonic treadmill. *The American Psychologist, 62*(6), 612-613. doi: 10.1037/0003-066X62.6.612

Weathers, F. W., Blake, D. D., & Schnurr, P. P. (2015). *Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)*. US Department of Veterans Affairs. PTSD: National Center for PTSD. Interview available from the National Center for PTSD at www.ptsd.va.gov.

Weiss, T. (2004). Correlates of posttraumatic growth in husbands of breast cancer survivors. *Psycho‐Oncology, 13*(4), 260-268. doi: 10.1002/pon.735

Woodward, C. & Joseph, S. (2003). Positive change processes and post‐traumatic growth in people who have experienced childhood abuse: Understanding vehicles of change. *Psychology and Psychotherapy: Theory, Research and Practice, 76*(3), 267-283. doi: 10.1348/147608303322362497

Wouldes, T. A., LaGasse, L. L., Derauf, C., Newman, E., Shah, R., Smith, L. M., ... & Lester, B. M. (2013). Co-morbidity of substance use disorder and psychopathology in women who use methamphetamine during pregnancy in the US and New Zealand. *Drug and Alcohol Dependence, 127*(1), 101-107.

Yalom, I. D. & Lieberman, M. A. (1991). Bereavement and heightened existential awareness. *Psychiatry, 54*, 334-345.

Xu, J. & Liau, Q. (2011). Prevalence and predictors of posttraumatic growth among adult survivors one year following 2008 Sichuan earthquake. *Journal of Affective Disorders, 133*(1), 274-280. doi: 10.1016/j.jad.2011.03.034

Zebrack, B., Kwak, M., Salsman, J., Cousino, M., Embry, L., Block, R., Hayes-Lattin, B., & Cole., S. (2015). The relationship between posttraumatic stress and posttraumatic growth among adolescent and young adult cancer patients. *Psycho-oncology, 24*(2), 162-168. doi: 10.1002/pon.3585