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Finding Parenthood: Parental Identity through Assisted Reproductive Methods and the
Implications for Efficacy Based and Worth Based Self-Esteem

By

Ashley Steckler

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of
Masters of Arts

In

Sociology

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Mankato, Minnesota

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Finding Parenthood: Parental Identity through Assisted Reproductive Methods and the Implications for Efficacy Based and Worth Based Self-Esteem

Ashley Steckler

This thesis has been examined and approved by the following members of the student's committee.

Dr. Vicki Hunter, Advisor

Dr. Diane Graham, Committee Member

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This research is dedicated to every individual who pictures themselves as a parent, but does not yet have their child.

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ABSTRACT

Finding Parenthood: Parental Identity through Assisted Reproductive Methods and the Implications for Efficacy Based and Worth Based Self-Esteem

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This research examined the implications for efficacy based and worth based self-esteem among 266 infertile women who had utilized reproductive technologies within heterosexual partnerships in order to have genetic children and become parents. Drawing on a theory of self-esteem, within an identity theory framework, this research compared self-esteem between women who were currently utilizing assisted reproductive technologies to have children and women who had successfully used assisted reproductive technologies to have children and become parents. Self-esteem was measured by utilizing Cast and Burke's (2002) Worth-Based and Efficacy-Based Self-esteem Scale in order to test the following three hypotheses: 1) self-verification (successfully producing a genetic child) will be positively associated with efficacy based and worth based self-esteem; 2) continued self-verification (the number of years spent as a parent) will be positively associated with efficacy based and worth based self-esteem; and 3) continued lack of self-verification (the number of years assisted reproductive technologies was used unsuccessfully), the lower the woman's efficacy based and worth based self-esteem. Three cross tabulation analyses provided support for the first and third hypotheses, but did not show sufficient statistical significance to support the second hypothesis.

CHAPTER I: INTRODUCTION

Infertility can be detrimental to involuntarily childless individuals, in a society where more than 9 out of 10 adults desire and expect to have genetic children (Newport and Wilke 2013) and an estimated 91.3 percent of women are expected to give birth between the ages of 15 and 44 (National Survey of Family Growth 2013). When parenthood is a societal expectation, individuals who find themselves involuntarily childless due to infertility are often compelled to seek out alternative ways to have a child (Daly 1988; Thompson 2005). With advancing medical technologies, one way people are finding a way to parenthood is through reproductive technologies, which have allowed couples to have children, even when infertility does not allow natural conception. Although reproductive assistance is not the standard way of conception and parenthood, it has become a more accessible industry in recent years (Gonzalez 2000) and a growing number of couples are choosing reproductive technologies to assist in genetic reproduction (Center for Disease Control and Prevention 2004). Using reproductive assistance, individuals can use a donor to conceive a child genetically related to one parent or use other forms of assistance to conceive a child genetically related to both parents (i.e. in vitro fertilization and surrogacy). Although infertility still persists, reproductive technologies are increasingly allowing individuals who are infertile to have genetic children of their own and fulfill their desire to become parents.

This research will examine parental identity verification of women within heterosexual partnerships using assisted reproductive technologies to have children and the implications on efficacy based and worth based self-esteem. As a growing number of

parents facing infertility issues use reproductive technology to have children and establish their parental identity, it is important to research the implications on identity and self-esteem within this population as reproductive technologies have allowed individuals to fulfill their expectations of becoming genetic parents even after those previously held certainties were taken away by reproductive challenges and barriers.

In this research, infertile individuals are those who have tried to naturally conceive a child in a heterosexual relationship for at least one year without success before seeking assisted reproductive technologies to have a child or children. Assisted reproductive technologies in this research include all forms of in vitro fertilization (IVF), which is defined in this research and by the American Society of Reproductive Medicine (2015) as any assisted reproductive method involving combining an egg with sperm in a laboratory dish. Depending on the nature of the infertility, an individual may be able to have a child with their partner, yet not be a genetic parent of that child (e.g., when a sperm donor or egg donor is used). Nonetheless, it is recognized in this research that parenthood and parental identity are not restricted to genetic connection.

Identity theory, within the context of structural symbolic interactionism, will be used to provide a theoretical framework to examine parental identity in conjunction with Cast and Burke's (2002) theory of self-esteem. This research will examine self-esteem among women currently using or who have used assisted reproductive technologies to have children. Replicating the measures put forth by Cast and Burke to conceptualize self-esteem, this research seeks to better understand the implications of using

reproductive assistance on self esteem by comparing the associations between identity verification and efficacy based and worth based self-esteem for women who successfully had a child or children using reproductive assistance and those who were still trying to have a child, but had not yet succeeded. To do this, a survey was administered to approximately 8,000 members of a social media group site who were currently using or had successfully used reproductive technologies to have a child or children.

CHAPTER II: LITERATURE REVIEW

Infertility, Gender and the Expected Transition to Parenthood

According to the National Survey for Family Growth (2013), 13.5 percent of married childless women between the ages of 15 and 44 are infertile. Infertility was defined as occurring among heterosexual married couples who were not surgically sterile, had not used contraceptives within the previous 12 months and had not become pregnant. With high cultural expectations to have children, the anticipated transition to parenthood can be met with difficulty for those unable to conceive (Loftus 2009).

Daly (1988) observed three stages of infertility. Initially, couples often assume fertility will be available and they will easily be able to achieve genetic parenthood. Following this, couples realize infertility and accept genetic parenthood as problematic, they then identify with an alternative method of parenthood. Once infertility is realized, choices must be made between childlessness or parenthood through different means. Although Daly examined adoptive parenthood, the same observations assumedly accompany individuals who choose reproductive assistance as their alternative method to achieve parenthood, as both situations are generally alternatives to natural genetic reproduction. According to Daly, few people receive a diagnosis of absolute sterility and are therefore always hopeful of genetic parenthood.

Previous research on the implications of infertility on well-being has frequently focused on the impact of the stigmatization (Miall 1986; Greil et al. 1988), distress (Leiblum and Greenfield, 1997; Brkovich and Fisher, 1998; Burns and Covington, 2006;

Wischmann et al. 2001; Greil 1997) and coping (Jordan and Revenson 1999; Galhardo et al. 2011). According to Miall (1986), involuntary childlessness can be seen as a physical disability. Miall found women who are involuntarily childless feel more stigmatized than voluntarily childless women. The involuntarily childless women in Miall's study categorized infertility as negative, discreditable, and felt they had failed in some way.

Culturally, infertility is seen as a woman's issue, which is illustrated in research conducted comparing infertility in men and women (Greil et al. 1988; Throsby and Gill 2004). According to Greil et al., in comparative studies, women have seen infertility as a shattering role failure that interrupted normal life, whereas men have viewed infertility as disconcerting, but less than tragic. Women may be more critically affected by childlessness than men as there continues to be greater emphasis on the expectation of motherhood for the female role (Fox et al. 1982; Jordan and Revenson 1999; Sandelowski 1993). Gonzalez (2000) found infertile women experienced infertility as a transformative process in which they struggle to emotionally compensate for the stigma and powerlessness of being involuntarily childless. Additionally, women have been given more focus in scholarly research on infertility, which may be partly because women are more likely to take the lead in infertility treatments (Verbrugge 1985; Marsh and Ronner 1996; Sandelowski 1993; Greil 1991) and also due to cultural associations of reproduction and the focus of treatment on the female body (Throsby and Gill 2004). Throsby and Gill noted cultural norms regarding gender and reproduction, as well as the stigma around male infertility, which is often linked to impotence, often dissuades men from openly discussing infertility.

Further research is important in understanding paternal identity within reproductive assisted families as infertility still persists within these families. This research focuses on infertility within heterosexual partnerships due to the strong social implication of partnered men and women having children, as well as the unique social stigma which surrounds them when presumed fertility is not inevitable. For these purposes, this research does not include circumstantial childlessness or involuntary childlessness occurring within same sex partnerships.

With the growing number of individuals and couples seeking reproductive assistance in their attempts to overcome infertility, it will be important to focus not only on the stigmatization of infertility and adoption in light of infertility, but also on accomplishing genetic parenthood in spite of infertility, as the meanings associated with infertility are unavoidably social.

Reproductive Technology and “Assisted” Parenthood

There are many different forms of assisted reproductive technologies, which have and will almost certainly continue to expand so long as the law adjusts to the demand. IVF refers to any process by which an egg is fertilized with sperm outside a woman’s womb, which may include egg and sperm genetically belonging to both parents or not. Egg donation can also be used in conjunction with surrogacy or in vitro fertilization. Surrogacy involves a woman becoming pregnant, carrying and delivering a child for another person or couple. This may be accomplished using the intended mother’s egg or a donor’s egg. Sperm donation is commonly known as the gifting, or selling, of a man’s

sperm for the intention of a woman becoming pregnant through artificial insemination. This process is also known as donor insemination. Donor insemination has been practiced for over a century with the first reported case in 1884 (Golombok 2002). Donor insemination is often used when a couple cannot conceive a child due to the male's infertility, thus, sperm from a donor is used. Egg donation is defined in a number of different ways. A neutral understanding, provided by the International Council on Infertility Information Dissemination (INCIID) (2015) is "the act of donating eggs to someone else for use in attempting pregnancy through in vitro fertilization." Through utilization of assisted reproductive technologies, the birth and life of a child can involve separate individuals providing genetic material, gestational nurturance, and parenting (Ginsburg and Rapp 1995).

Prior research has indicated one of the primary motivating factors for seeking parenthood through assisted reproductive technologies (ART) is a genetic connection to the child (Miller et al. 2008; Thompson 2005). Individuals have expressed a desire to be genetically related to their child and therefore consider assisted reproductive technologies, such as IVF, to have a genetic child (Miller et al. 2008). However, access to ART is highly stratified and while individuals of every race and socio-economic class experience infertility, not everyone has equal access to reproduction (Ginsburg and Rapp 1995; Thompson 2005). For instance, poor and African American women are more likely to experience infertility than wealthier, white women, yet they are less likely to have access to services due to health care benefits and financial barriers (Cahn 2009). Additionally, according to the CDC's ART National Summary Report (2013), the median

age for IVF utilization is 35 years old. Furthermore, among 2,569 women, Mahalingaiah et al. (2011) found 77% of women utilizing IVF had attained a four year college education or greater. Consequently, it is recognized there is a propensity for the research to center on educated white women in their mid-30s, due to the current stratification of reproduction and barriers to ART access.

Identity Theory, Parental Identity, and Self-Esteem

Structural Symbolic Interactionism

Symbolic interactionism focuses on small-scale, everyday interactions in an attempt to understand how individuals experience and understand their social worlds, and how different people come to share common definitions of reality (Berger and Luckmann 1967). Symbolic interactionist theories of the family focus on the ways families create and re-create themselves within the context of shared definitions of family structures and family roles. Rather than seeing family roles as pre-existing, taken for granted structures, SI emphasizes the meanings and lived experience associated with those roles and how they are negotiated through interaction (McLennan et al. 2000).

Identity Theory and Self-Verification

Identities are formed around a set of meanings that represent the understandings and expectations that define a social role and/or position (Burke and Tully 1977; Stets and Burke 2000). In other words, identities are sub-components of the self which are actively constructed by individuals based on the meanings those individuals attach to

specific roles they play within society; for instance, a person who sees him or herself as a parent would carry out behaviors that he/she saw as being appropriate for a mother or father. People conceptualize these meanings according to how they see their positions in society, which become internalized as identities (Stryker 1980). It is in this way that identities, parts of the self constructed by individuals attempting to fulfill a particular role, are tied to the social structure of culturally shared conceptions regarding what it means to fulfill a particular role.

Individuals go through a process of verifying their identities based on their understanding of the role (e.g., parent). Self-verification occurs when meanings created within the situation and social structure line up with the meanings a person has attached to the identity (Cast and Burke 2002). More specifically, every identity is a control system with four components: identity standard, input, comparator, and output. The identity standard contains meanings (Burke 2007) derived from social experience about what constitutes an acceptable performance within the given identity. In this case, the identity standard would refer to the ideas and meanings individuals attach to the concept of a parent. Input, also referred to as environmental feedback or perceptions, refers to the meanings people attach to their own performance of the identity; they evaluate their performance based on the feedback they receive from others. That is, individuals attach meanings based on expectations they believe others have for them, and they evaluate the degree to which they meet those expectations based on the ways others respond to their performance. The verification of an individual's parental identity status becomes particularly important once the identity is activated (Cast 2004). Once an individual has

a child and the parental identity is activated, “previously held understandings of what it means to be a parent are internalized in the form of an identity” (p. 56). Individuals utilize feedback from others in their environment to develop a sense of the success of their performance. Using the process Burke refers to as the comparator, individuals compare their performance or input to their identity standard to determine the degree of discrepancy between the two. Individuals then identify any discrepancies and attempt to make adjustments to their ongoing performances of that identity to correct any discrepancies (output) (Burke 2007). This is the process of identity verification.

Identity verification is important in the process of establishing any identity (Burke 2007). People try to act in order to receive verification of their identities from others, which aligns perceived meanings with their identity standard and confirms their self-meanings (Stets and Burke 2005).

Self-Esteem

Self-esteem has been conceptualized as an individual’s general positive assessment of the self (Gecas 1982; Rosenberg 1990; Rosenberg et al. 1995). Two unique components have been identified, competence and worth (Gecas 1982; Gecas and Schwalbe 1983). Competency is efficacy based self-esteem, which refers to the degree to which an individual sees themselves as capable of performing actions effectively to manage situations (Gecas 1989). Worth (worth based self-esteem) refers to the degree to which an individual feels they are a person of value (Cast and Burke 2002). According to Cast and Burke (2002), self-verification plays a vital role in self-esteem and can be

considered a direct outcome of self-verification as verification produces feelings of competency and worth. It is also likely that group based identity, such as parental identity, affects self-esteem, as confirmation from others indicates approval of the self (Burke and Stets 1999). Research has shown worth based self-esteem is increased and reinforced by receiving self verifying feedback from others through social comparison, which causes a person to feel valued by others (Brown and Lohr 1987; Burke and Stets 1999). Efficacy based self-esteem is linked to individual reflection of behavior and observations of successful preservation of the identity standard (Bandura 1977; Burke and Stets 1999; Gecas and Schwalbe 1983). As a result, the following hypotheses guided this research:

Research Hypothesis 1: Self-verification will have a positive effect on efficacy based and worth based self-esteem.

Research Hypothesis 2: Continued self-verification will have a positive effect on efficacy based and worth based self-esteem.

In this research, *self-verification* applies whether or not individuals have confirmation of their parental identity by genetically producing a child. If an individual successfully used assisted reproductive technologies to have a child, they have self-verification. If an individual is using assisted reproductive technologies and has not yet had a child, they will be categorized as having a lack of self-verification.

Continued self-verification applies only to those in the study who have had a child through ART and refers to the number of years the individual has been a parent, which is indicated by the oldest child's age.

Lack of Identity Verification and Self-Esteem

While activation of identity verification increases feelings of efficacy based and worth based self-esteem, disruptions in the process have been shown to have negative consequences to self-esteem (Cast and Burke 2002). When an identity is not verified or a disturbance occurs in the process of identity verification, individuals begin to feel a loss of control, diminished efficacy based self-esteem (Stets and Burke 2005), and experience negative emotional reactions such as anxiety, depression and stress (Burke 1991, 1996). In addition, Cast and Burke (2002) found the longer the period of lack of verification, the lower the individual's efficacy based and worth based self-esteem. Therefore, the additional following hypothesis guided this research:

Research Hypothesis 3: Continued lack of self-verification will have a negative effect on efficacy based and worth based self-esteem.

Continued lack of self-verification applies only to those individuals in the study who have not yet had a child, and is indicated by assistance length in number of years they have been trying to have a child using assisted reproductive technologies.

While self-esteem continues to be a commonly researched concept within social psychology (Mruk 1995; Wells and Marwell 1976; Wylie 1979), examining self-esteem

within an identity theory framework (Cast and Burke 2002; Tallman et al. 1998) has received far less focus. Moreover, numerous studies have examined parental identity in both mothers and fathers using identity theories, focusing on reflected appraisals and spousal gender dynamics (Jaret et al. 2005; Maurer and Pleck 2001), identity standard hierarchy and agency (Tsushima and Burke 1999), and marital well-being (Cast 2004). Abbey et al. (1992) examined self-esteem in infertile couples with a focus on interpersonal conflict. A number of others have examined parental identity outside of identity theories (Daly 1988; Bergen et al. 2006; McBride et al. 2005). However, sociological research has not examined self-esteem in regards to verifying parental identity in infertile individuals through an analysis using a framework of identity theory.

This research examined self-esteem of women who were actively using IVF therapies to conceive children and therefore experienced a lack of self-verification, as well as those who successfully had a child or children using reproductive technologies and experienced self-verification. Comparisons were made between individuals who did not currently have children and were using reproductive technologies to have a child (lack of self-verification) and those who successfully had children using IVF treatments and therefore verified their parental identity (self-verification).

CHAPTER III: METHODOLOGY

Sample and Data Collection

The criteria for the sample included individuals in heterosexual partnerships who had been unable to naturally conceive a child after one year of planned conception or longer and were actively using IVF therapies to have children at the time of the research, along with individuals who had successfully had a child or children using reproductive technologies.

Participants were followers of a Facebook support page specifically for individuals who are going through infertility treatments or who have used successfully used IVF in the past to have children. The forms of reproductive assistance included in the criteria to screen were any infertility procedures involving in vitro fertilization as part of the medical solution. The sample was restricted to exclude individuals who were parents before infertility issues prevented them from having additional children. Individuals who did not meet the sampling criteria were eliminated by clarifying language in the survey request, which specifically stated the research was looking for participants who were in heterosexual partnerships and were currently using IVF or had used IVF in the past to have their first child.

The sample design was a non-probability purposive sample, as the survey request was posted directly to the Facebook group page. While the administrators monitor who is allowed to join the group, there may have been members who were friends of people using IVF, fertility specialists, individuals who were not currently in partnerships,

individuals in same sex partnerships, or individuals otherwise outside the sampling criteria. At the time of the survey, there were approximately 8,000 individuals following the group page.

A drawback to using this sampling method is that the sample was not a probability sample (Heckathorn 2002). The Facebook support group page was chosen as a source of respondents as it had a concentration of individuals meeting the sampling criteria. An attempt was made to reduce potential anonymity concerns regarding personal information being exposed by adding a confidentiality statement in the initial request, which included a direct link to an online Qualtrics survey, asking potential respondents to participate in the survey. This method of data collection was used to maximize anonymity when researching sensitive information and also because it was more cost effective than other available methods.

The survey request was posted to the Facebook group page requesting voluntary participation. The request post described the nature and importance of the research and provided a direct link to the survey. While it is unknown how many potential respondents saw the survey request posting on the Facebook page wall, a total of 272 respondents completed the survey (6 male and 266 female). Due to the inability to determine how many of the 8,000 members viewed the research request post coupled with the declining rate of return each day, a decision was made to close the survey with 272 respondents. The survey was open 20 days.

It was anticipated there may be a gender divide in respondents and that it may have been difficult to recruit men because women are more likely to take the lead in the infertility treatment process (Verbrugge 1985; Marsh and Ronner 1996; Sandelowski 1993; Greil 1991), men may be less critically affected than women by involuntary childlessness (Fox et al. 1982; Jordan and Revenson 1999; Sandelowski 1993), and the cultural norms and stigma surrounding male infertility may dissuade men from openly discussing infertility (Throsby and Gill 2004). Considering prior research, the recruitment post specifically asked individuals to also invite their partner to take the survey, in order to potentially obtain more male respondents. Based on a brief review, which consisted of a visual review of the names and profile photos of the first 200 members randomly generated in the group list of the Facebook page, the assumption was made that the majority of the group was made up of women. After the survey closed and it was determined that two percent of respondents were men, a comprehensive review of the support group demographics was done by reviewing the names and profile pictures of 2,000 members in the group, which were randomly generated by Facebook in the group list. It was determined men also made up approximately two percent of the 2,000 members reviewed. However potentially similar, this did not provide enough male respondents to statistically compare against female respondents and, therefore, men were eliminated from the research. As a result, the study compared only women in the two different stages of finding parenthood, including: individuals who were receiving IVF treatments (lack of self-verification) at the time of the research, as well as those who had successfully had children using IVF treatments and have therefore verified their parental

identity (self-verification). Individuals who had conceived, but had not had their first child were considered to have a lack of self-verification as they were still under the care of reproductive specialists and their parental identity had not yet been verified.

Measurement

Quantitative data was collected through the utilization of an online survey consisting of pre-coded, fixed-choice questions used to measure the research variables. The survey measured the following variables: *self-verification*, *continued self-verification*, *continued lack of self-verification*, efficacy based self-esteem, worth based self-esteem, gender, infertility factor (of self, partner, or both), age, education, and ethnicity.

Self-Verification Measures

Self-Verification

The independent variable of *self-verification*, tested in hypothesis 1, was measured in survey question 19, by asking respondents if they had a child or children through the use of reproductive assistance. Self-verification, coded as 2, was indicated by individuals who reported having successfully had children using reproductive technologies. Lack of self-verification, coded as 1, was indicated by individuals who report having not yet had children. A total of 98 (37%) female respondents had self-verification and a total of 168 (63%) respondents had a lack of self-verification.

Continued Self-Verification

The additional independent variable of *continued self-verification* was included only in hypothesis 2 among the subgroup of female respondents who had reported having a child using IVF and therefore had self-verification. *Continued self-verification* was measured in survey question 21 by asking participants the age of their oldest child, in

years, to the nearest whole number. Hypothesis 2 suggests the longer an individual experiences *continued self-verification*, that is, the longer they are a parent, the higher the individual's self-esteem. Cast (2004) used this measurement as her control variable for age in her research regarding well-being and parental identity. In Cast's research, she used 4 age categories (under 3 years, 4-6 years, 7-9 years, and 10 years or older). Initially, this research used the same age categories as implemented by Cast. However, once data collection was completed, it was determined there were not enough respondents in the self-verification subgroup (N= 98) to support the Pearson Chi Square statistical test assumption that 80% of expected values of at least 5 (Bluman 2007; Norris et al. 2012). Therefore, categories were combined as 1 for 3 years or younger and 2 for 4 years or older. Among the 98 respondents in the self-verification subgroup, 81% (79) had an oldest child who was three years old or younger and 19% (19) had a child four years of age or older.

Continued Lack of Self-Verification

The third independent variable of *continued lack of self-verification*, included only in hypothesis 3, was measured within the subgroup of individuals who were using IVF, but had not yet genetically produced a child and therefore had a lack of self-verification. This variable was measured in survey question 22 by asking participants how long, in years, to the nearest whole number, they had used reproductive technologies to have a child without success. Hypothesis 3, which suggests the longer an individual experiences *continued lack of self-verification*, that is, the longer they utilize assisted reproductive technology without having a child, the lower the individual's efficacy based

and worth based self-esteem. Survey question 22 asked individuals if they had been using reproductive assistance for 1-3 years, 4-6 years, 7-9 years, or more than 10 years. These measurements were chosen as Ramezanzadeh et al. (2004) found that depression and anxiety, outcomes of low self-esteem and components of measuring well-being (Caste and Burke 2002), are significantly different for individuals who experienced infertility across these ranges of years (Ramezanzadeh et al. 2004). However, as with the child's age for the self-verification subgroup, assistance length was condensed in order to keep the statistically expected variables at values of 5 or above. The variables were coded as 1 for 1-3 years and 2 for 4 or more years. Among the 168 respondents in the lack of self-verification subgroup, 136 (81%) had been using reproductive assistance for 1 to 3 years, whereas 32 (19%) of individuals had been using reproductive assistance for 4 or more years.

Self-Esteem Measures

The two dependent variables, efficacy based self-esteem and worth based self-esteem, were measured using 14 questions, each on a 5-point Likert scale. Cast and Burke's (2002) Worth-Based and Efficacy-Based Self-Esteem Scale was used, which was constructed by using established items from Gecas and Schwalbe's (1983) Self-Esteem Scale, Rosenburg's (1979) Self-Esteem Scale, and Pearlin's (1981) Mastery Scale. Cast and Burke (2002) created a new scale to measure worth based and efficacy based self-esteem by analyzing the validity of each question and creating standardized response categories for both worth based and efficacy based self-esteem. Efficacy based self-

esteem was measured by using seven items, survey questions 5-11. Worth based self-esteem was measured using seven items from the scale, questions 12-18. Measuring both dependent variables by using an established scale provided greater reliability and validity (Cast and Burke 2002). The 14 items used to measure efficacy based and worth based self-esteem directly tested all of the research hypotheses.

Likert scales from each self-esteem scale had response categories of “strongly agree”, “agree”, “disagree”, and “strongly disagree”. All efficacy based and worth based self-esteem items were directionally aligned. Once all the items were aligned, they were averaged to create one score for each scale, with higher scores indicating high levels of self-esteem for both efficacy based and worth based self-esteem. Scores were combined in order to get one score for survey questions measuring efficacy based self-esteem and another combined number for questions measuring worth based self-esteem. Respondents with averages between 1 and 2.49 were coded as having low self-esteem on each scale, whereas respondents who had an average score of 2.5 to 4 were categorized as having high self-esteem. Averaged scores were then coded as 1 for low self-esteem or 2 for high self-esteem for each scale, resulting in two scores for each respondent, one score for efficacy based self-esteem and one score for worth based self-esteem. Items were condensed in this way after considering the sample size and statistical output of seven efficacy based self-esteem items and seven worth based self-esteem items. It was concluded, with seven outputs for each dependent variable, the sample size of 266 was not large enough to maintain the statistical validity of, Pearson Chi Square, the statistical test used (Norris et al. 2012).

Descriptive Measures

Several demographics were included in the survey (age, education, ethnicity, and infertility factor), which were initially proposed to be control variables in the research. However, the sample size of 266 was not large enough to accurately, statistically support including the control variables in the analysis (Norris et al. 2012). Therefore, the demographic questions were used as descriptive measures.

Age was included in this research as ART usage is stratified by age. According to the CDC's ART National Summary Report for 2013, based on 190,773 cycles among women using reproductive technologies, 66% were 30-39, 12% were under 30, and 23% were 40 years of age or older, with 35 being the median age (Centers for Disease Control and Prevention 2015). Age was measured in survey question 2, using the same categories for age as the ART National Summary Report. The distribution of age within this survey was similar to the age distribution in the ART National Summary Report with 11% (29) respondents being 40 years of age or older, 64% (171) between the ages of 30 and 39, and 25% (66) under 30 years old.

Education was also included as research has shown a clear stratification difference in the educational attainment of individuals using IVF technologies. Mahalingaiah et al. (2011) found that among 2,569 women going through their first cycle of IVF treatment, 77% of the women in the study had attained a four year college degree or higher level of education, whereas 23% had some college education or less. The educational attainment among female respondents in this study included 68% (182)

having completed a four year college degree or more and 32% (84) having some college or less.

Ethnicity was included as studies have shown IVF patients are stratified by ethnicity. USC Fertility (2010) reviewed ethnicity among 1,135 women using IVF and found Caucasians accounted for 91.5% of patients, while African Americans, Asian, and Hispanics accounting for 4%, 3%, and 1.5%, respectively. Ethnicity was measured in survey question 4, on a nominal scale, using the same categories utilized by USC Fertility. In this research, 84.5% (225) of respondents were White/Caucasian, 4% (11) were Black/African American, 2.6% (7) were Asian/Pacific Islander, 5.6% (15) were Hispanic/Latino, and 3% (8) identified as Other.

The infertility-factor, referring to the source of the infertility (self, partner, or both), was included as a control variable because this research examined women within infertile partnerships, where the cause of the infertility within the partnership may not be due to both partners, but may genetically be caused by only one individual within the partnership. It was measured in survey question 20 and asked respondents whether the difficulty for the couple to have a child had to do with the genetic infertility of the survey participant, their partner, or both partners. This control variable was included as several studies have examined the impact of infertility on well-being within infertile couples and have concluded that while both partners are effected, there are differences in well-being based on the genetic cause of the infertility within the partnership (Becker and Nachtigall 1994; Greil 1991; Litt et al. 1992; Morrow et al. 1995; Mikulincer et al. 1998; Nachtigall

et al. 1992). That is, when infertility is due to the individual and not their partner, there is a greater negative effect than if the individual was not the cause of the infertility. Therefore, as a measure of the genetic cause (female-factor or male-factor) of the infertility within the couple, individuals were asked whether they, their partner, or both partners were directly receiving infertility treatments. Of the 266 female respondents, 154 (57%) indicated the infertility factor was them, 4 (1%) indicated it was their partner, and 108 (41%) indicated it was both.

In summary, the descriptive variables within this research were not included as control variables within the analysis because they would have made the values too small to be statistically valid (Norris et al. 2012). However, they did indicate some notable similarities when compared to the distributions of similar variables in other research.

CHAPTER IV: ANALYSIS & RESULTS

Cross Tabulations Analysis

A cross tabulations, descriptive statistical analysis was used to test the existence and strength of potential associations between research variables (Bluman 2007; Norris et al. 2012). Cross tabulations was chosen as it is a frequently used and reliable method of analysis to examine the relationship between multiple categorical variables (Greasley 2008). Pearson Chi Square was the statistical test used to analyze possible associations between variables and the phi coefficient was the statistical measure of association used to determine the strength of significant Chi square results.

Pearson Chi-square is an inferential statistic used to test the existence of associations between independent and dependent variables (Chambliss 2003). This test was used to determine whether or not the frequency distributions of each table fit a specific pattern, as hypothesized within the research (Bluman 2007). With a sample size of 266 respondents, the sample size exceeded the Pearson Chi Square assumption of being greater than 100 and a pre-analysis assumption was made of 80% or more of expected frequencies having values of 5 or greater (Chambliss 2003).

Phi contingency coefficient was also used, which is a measure of association using the Pearson Chi Square statistic (David and Sutton 2011). Phi was used as all variables are dichotomous, with each having only two categories (David and Sutton 2011) and each table was binary, having two groups (Norris et al. 2012). This test was used to estimate the strength of a significant Pearson Chi Square association between variables in order to determine if existing associations were weak, moderate, or strong

(Chambliss 2003, David and Sutton 2011; Norris et al. 2012). According to Bryman and Cramer (2011), phi values of 0.39 and below have weak associations, whereas values of 0.40 to 0.69 are considered to be moderate and 0.70 and higher are considered to be strong associations.

Due to the non-probability, relatively small sample and low expected values upon adding in the multiple control variables of age, education, ethnicity, and infertility factor, a decision was made to not include control variables in the statistical analysis. This decision was made as the statistical reliability of Pearson Chi Square lessens with expected values less than 5 (Bluman 2007; Norris et al. 2012). Consequently, when control variables were added to the statistical analysis along with the independent and dependent variables, the majority of cells had expected values less than 5. Therefore, the decision was made to run the analysis without the additional control variables, as they would make the statistical findings less valid. The analysis of the sub-group of *continued self-verification* (N= 98) also had potential limitations on the statistical reliability of the resulting p value due to not being able to meet the assumption of 5 or more in at least 20% of expected frequencies. This is discussed at further length in the table analyses of the *continued self-verification* sub-group.

Due to the nature of the variables, with the independent variables of *continued self-verification* and *continued lack of verification* as constants within each subgroup of respondents, three separate analyses were run using cross tabulations. Separate analyses were run in order to test the dependent variables of efficacy based and worth based self-esteem with the independent variables of *self-verification*, *continued self-verification*, and

a *continued lack of self-verification* in order to determine whether or not there was a dependent association between variables.

In the first hypothesis, cross tabulations was used to examine potential associations between the independent variable of *self-verification* and the dependent variables of efficacy based self-esteem and worth based self-esteem. In the second hypothesis, within the subgroup of respondents who were experiencing *continued self-verification*, cross tabulations was used to examine potential associations between the independent variable of *continued self-verification* and the dependent variables of efficacy based self-esteem and worth based self-esteem. Finally, in the third hypotheses, within the subgroup of respondents who were experiencing a *continued lack of self-verification*, a cross tabulations analysis was used to examine potential associations between the independent variable of *continued lack of self-verification* and the dependent variables of efficacy based self-esteem and worth based self-esteem.

Hypotheses

For each hypothesis, the independent variable was entered into the rows and the two dependent variables were entered into the columns. Pearson Chi Square and the phi coefficient were selected before running each test. For H1, the data from all 266 respondents was used, whereas only the data from the self-verification subgroup (N= 98) was used when testing H2 and only the data from the lack of self-verification subgroup (N= 168) was used when testing H3.

Hypothesis 1

Null Hypothesis 1₀: Self-verification does not have an association with efficacy based and worth based self-esteem.

Alternative Hypothesis 1₁: Self-verification has a positive association with efficacy based and worth based self-esteem.

Cross tabulations were run for H1 by inputting data from all 266 respondents and crossing the independent variable of *self-verification* with the dependent variables of efficacy based and worth based self-esteem to determine if there was an association between these variables. Of the 266 respondents, 98 had self-verification and were currently parents, whereas 168 were not parents and were experiencing a lack of verification. The output provided Table 1 and 2, below.

Table 1: Self-Verification (N= 266) and Efficacy Based Self-Esteem

			Efficacy Based Self-Esteem Outcome		Total
			Low [1]	High [2]	
Parental Identity Verification	Lack of self-verification [Coded: 1]	Count	50	118	168
		%	30%	70%	100%
	Self-verification [Coded: 2]	Count	7	91	98
		%	7%	93%	100%
Total		Count	57	209	266
		%	21%	79%	100%

χ^2 (1df) = 18.808 (p < 0.001)

Phi= .266

Table 1 illustrates results from the cross tabulation of *self-verification* and efficacy based self-esteem. This cross tabulation tested for an association between *self-verification* and efficacy based self-esteem. Prior to averaging each efficacy based scale measurement, measures of central tendency were determined for each *self-verification* category. The mean score of efficacy based self-esteem for those with self-verification was 3.14 with the range of scores being from 2.29 to 4, whereas the mean score for individuals with a lack of verification was 2.77 with a range from 1.43 to 3.86.

A p-value of <0.001 , at the significance level of 0.01, suggests the probability of the association being due to chance is less than 1% (Chambliss 2003). Therefore, the decision was made to reject the null hypothesis and conclude there is a dependent association between the independent variable *self-verification* and the dependent variable efficacy based self-esteem. A phi value of .266 indicates the strength of the association between the independent variable and dependent variable, although statistically significant, is only slight in strength (Bryman and Cramer 2011).

These results indicate that while self-verification has a positive and dependent association with efficacy based self-esteem, the strength of the relationship is weak. While the results of the Pearson Chi Square test support the alternative hypothesis that women who experienced self-verification were more likely to fall within the high efficacy based self-esteem category than women who experienced a lack of self-verification, the phi coefficient suggests the specific pattern of frequency distribution was slight in strength. From this statistical test and measurement of association, it can be

determined that while the pattern suggested in the alternative hypothesis was present, it was not strong (Bryman and Cramer 2011).

Table 2: Self-Verification (N=266) and Worth Based Self-Esteem

			Worth Based Self-Esteem Outcome		Total
			Low [1]	High [2]	
Parental Identity Verification	Lack of self-verification [Coded: 1]	Count %	41 24%	127 76%	168 100%
	Self-verification [Coded: 2]	Count %	6 6%	92 94%	98 100%
Total		Count %	47 18%	219 82%	266 100%

χ^2 (1df) = 14.221 (p < 0.001)

Phi= .231

Table 2 shows results from the cross tabulation of *self-verification* and worth based self-esteem. This cross tabulation tested for a dependent association between *self-verification* and worth based self-esteem. As with the efficacy based scale, measures of central tendency were determined for each self-verification category within the worth based scale, prior to averaging individual measures from the scale. The mean score for self-verified respondents was 3.26 with the range of scores being from 2.14 to 4, whereas the mean score for individuals with a lack of self-verification was 2.92 with a range from 1.14 to 4.

At the significance level of 0.01, the p-value of <0.001 provides enough support to reject the null hypothesis and conclude there is a dependent association between *self-verification* and worth based self-esteem. This result supports the alternative hypothesis

that when an infertile woman has a child and experiences self-verification of their parental identity, it also has a positive effect on their worth based self-esteem. A phi value of .231 estimates that the association between *self-verification* and worth based self-esteem is slight. Compared to the previous result, the phi value for worth based self-esteem is slightly weaker in strength than the association between *self-verification* and efficacy based self-esteem.

Similar to the results for efficacy based self-esteem, the results of the Pearson Chi Square statistical test and phi coefficient measurement of association suggests worth based self-esteem has a dependent, although weak, association with self-verification. More specifically, as suggested in the alternative hypothesis, women who experienced self-verification were more likely to fall within the high category on the worth based self-esteem scale over women who experienced a lack of self-verification. However, the pattern is slight in strength (Bryman and Cramer 2011).

Hypothesis 2

Null H₂₀: Continued self-verification is not associated with efficacy based and worth based self-esteem.

Alternative H₂₁: Continued self-verification has a positive association with efficacy based and worth based self-esteem.

A separate cross tabulations analysis was run for H2 based on data from only the self-verification subgroup of 98 respondents and crossing the independent variable of

continued self-verification, as measured by age of child, with the dependent variables, efficacy based and worth based self-esteem, to determine whether or not self-esteem was dependent on the child's age of respondents who had children. The results of this cross tabulation are provided Table 3 and 4, below.

Table 3: Continued Self-Verification Group (N= 98): Age of Child and Efficacy Based Self-Esteem

			Efficacy Based Self-Esteem Outcome		Total
			Low [1]	High [2]	
Child Age	3 Years or Younger	Count	6	73	79
	[Coded: 1]	%	8%	92%	100%
	4 Years or Older	Count	0	19	19
	[Coded: 2]	%	0%	100%	100%
Total		Count	6	92	98
		%	6%	94%	100%

$$\chi^2 (1df) = 1.537 (p = 0.215)$$

Table 3 shows results from the cross tabulation of *continued self-verification* and efficacy based self-esteem. This cross tabulation tested for an association between the independent variable *continued self-verification* and the dependent variable efficacy based self-esteem. The resulting p-value of 0.215 does not provide enough support to reject the null hypothesis, as it does not meet a significance level of 0.01 or 0.05 and is therefore non-significant. The p-value of 0.215 suggests that the observed values are too close to the expected values and that any variation in the observed value distribution could be due to chance (Bluman 2007). Thus, the second alternative hypothesis that the longer a woman experiences *continued self-verification*, which is, the older her child, the higher her efficacy based self-esteem was not statistically supported. That is, within the

female members of the Facebook support page, it is concluded that the child's age is not significantly associated with efficacy based self-esteem. While it is notable that none of the women within the sub-group of *continued self-verification* who had children 4 years of age or older had efficacy based self-esteem results which fell within the low category for efficacy based self esteem, the expected frequency of the cross tabulation was one. That is, if the distribution of the table was by chance, the expected value for women with children 4 years of age or older, within the sub-group of *continued self-verification*, would be one, one more than the observed frequency of zero. So, while it is notable that there was an observed frequency of zero, the difference between the expected and the observed frequency is not large enough to be statistically significant. As illustrated by the p-value of 0.215, the frequency distribution of table 3 did not fit the specific pattern as hypothesized in alternative hypothesis 2. Due to the expected value of one, consequently, this table did not meet the Pearson Chi Square assumption of at least 80% of the values being 5 or greater, which could have affected the reliability of the p value (Bluman 2007; Norris et al. 2012).

Table 4: Continued Self-Verification Group (N= 98): Age of Child and Worth Based Self-Esteem

			Worth Based Self-Esteem Outcome		Total
			Low [1]	High [2]	
Child Age	3 Years or Younger	Count	5	74	79
	[Coded: 1]	%	6%	94%	100%
	4 Years or Older	Count	0	19	19
	[Coded: 2]	%	0%	100%	100%
Total		Count	5	93	98
		%	5%	95%	100%

$$\chi^2 (1df) = 1.267 (p = 0.260)$$

Table 4 shows results from the cross tabulation of *continued self-verification* and worth based self-esteem. This cross tabulation tested for a dependent association between *continued self-verification* and worth based self-esteem. Similarly to child's age and efficacy based self esteem, the resulting p-value of 0.260 does not provide enough support to reject the null hypothesis, as it does not meet a significance level of 0.01 or 0.05 and is non-significant. The p-value of 0.260 suggests the variation could be due to chance (Bluman 2007). Thus, the second alternative hypothesis that there is a positive, dependent association between the longer a woman experiences *continued self-verification* and worth based self-esteem was not statistically supported. Therefore, it is concluded that the child's age is not significantly associated with worth based self-esteem. Additionally, resembling the results shown in the efficacy based self-esteem table, none of the women within the sub-group of *continued self-verification* who had children 4 years of age or older had worth based self-esteem results which fell within the low category for efficacy based self-esteem, the expected frequency of the cross

tabulation was one. Again, while the observed frequency of zero is notable within the table, it does not support the specific frequency distribution pattern of alternative hypothesis 2, as illustrated by the p value of 0.260. As noted previously, the expected frequencies within this table did not meet the Pearson Chi Square assumption of at least 80% of the values being 5 or greater. Seventy-five percent of the expected frequencies in the cross tabulation for the sub-group of *continued self-verification* and worth based self-esteem were lower than five, which may have affected the reliability of the p value (Bluman 2007; Norris et al. 2012).

Hypothesis 3

Null H3₀: Continued lack of self-verification is not associated with worth based and efficacy based self-esteem.

Alternative H3₁: Continued lack of self-verification is negatively associated with efficacy based and worth based self-esteem.

A third cross tabulations analysis was run for H3 based on data from only the lack of self-verification subgroup of 168 respondents and crossing the independent variable of *continued lack of self-verification*, as measured by assistance length, with the dependent variables of efficacy based and worth based self-esteem to determine whether or not self-esteem was dependent on the assistance length of respondents who did not have children and were still utilizing assisted reproductive technologies at the time of the survey. The results of this cross tabulation are provided Table 5 and 6, below.

Table 5: Continued Lack of Self-Verification Group (N= 168): Assistance Length and Efficacy Based Self-Esteem

			Efficacy Based Self-Esteem Outcome		Total
			Low [1]	High [2]	
Assistance Length	1-3 Years	Count	18	118	136
	[Coded: 1]	%	13%	87%	100%
	4 or More Years	Count	32	0	32
	[Coded: 2]	%	100%	0%	100%
Total		Count	50	118	168
		%	30%	70%	100%

χ^2 (1df) = 93.289 (p < 0.001)

Phi = .745

Table 5 illustrates results from the cross tabulation of *continued lack of self-verification* and efficacy based self-esteem. With a p-value of <0.001, an association is indicated, meeting a significance level of 0.01. There is, therefore, enough evidence to reject the null hypothesis and determine there is a dependent association between the independent variable of *continued lack of self-verification* and the dependent variable efficacy based self-esteem. This supports the third alternative hypothesis that the longer an infertile woman utilizes assisted reproductive technology without success, the lower the woman's efficacy based self-esteem. A phi value of .745 suggests the independent variable of continued lack of self-verification, as measured by assistance length, and dependent variable of efficacy based self-esteem are strongly associated (Bryman and Cramer 2011). It is notable that none of the 32 women within the sub-group of *continued lack of self-verification* who had been using assisted reproductive technologies to try to have a genetic child for 4 years or more, without success, had efficacy based self-esteem results which fell into the high category on the scale. This is notable because the expected

frequency was 22. As illustrated by the p value of <0.001 and phi value of 0.745, the frequency distribution of table 5 did fit the specific pattern as hypothesized in alternative hypothesis 3 and with a strong, statistically significant association.

Table 6: Continued Lack of Self-Verification Group (N= 168): Assistance Length and Worth Based Self-Esteem

			Worth Based Self-Esteem Outcome		Total
			Low [1]	High [2]	
Assistance Length	1-3 Years	Count	9	127	136
	[Coded: 1]	%	7%	93%	100%
	4 or More Years	Count	32	0	32
	[Coded: 2]	%	100%	0%	100%
Total		Count	41	127	168
		%	24%	76%	100%

χ^2 (1df) = 122.445 (p <0.001)

Phi= .854

Table 6 provides results from the cross tabulation of *continued lack of self-verification* and worth based self-esteem. At a significance level of 0.01, the resulting p-value of <0.001, indicates there is a statistically significant, dependent association between the variables and therefore, the null hypothesis can be rejected. This also supports the third alternative hypothesis suggesting that the longer an infertile woman utilizes assisted reproductive technology without success, the lower the woman's worth based self-esteem. A phi value of .854 suggests there is a strong association between the independent variables of continued lack of self-verification, as measured by assistance length, and dependent variable of worth based self-esteem (Bryman and Cramer 2011). None of the 32 women within the sub-group of *continued lack of self-verification* who

had been using assisted reproductive technologies to try to have a genetic child for 4 years or more, without success, had worth based self-esteem results which fell into the high category on the scale, which is notable because the expected frequency was 24. As illustrated by the p value of <0.001 and phi value of 0.745, the frequency distribution of table 5 did fit the specific pattern as hypothesized in alternative hypothesis 3 and with a strong, statistically significant association.

CHAPTER V: DISCUSSION & CONCLUSION

The purpose of this research was to examine parental identity verification of women within heterosexual partnerships who were using or have used assisted reproductive technologies to have their first genetic child or children and the implications of self-verification, continued self-verification and continued lack of self-verification on efficacy based and worth based self-esteem. Analyses conducted with survey data from 266 female respondents provided partial support for the three hypotheses derived from prior research on identity theory, reproductive technologies and a theory of self-esteem, using Caste and Burke's Worth Based and Efficacy Based Self-esteem Scale (2002).

Caste and Burke (2002), in their research on self-esteem and identity, limited their research to non-stigmatized identities and did not examine the effects self-verification or a lack of self-verification had on stigmatized identities. This research was able to expand on Caste and Burke's previous research by examining the affects of self-verification and a lack of self-verification have on self-esteem within individuals who were experiencing the stigmatized identity of infertility (Galhardo et al. 2011; Gonzalez 2000; Loftus 2009; Miall 1985, 1986). In this research regarding a stigmatized identity, mixed support of the three research hypotheses was found.

Summary of Main Findings

While the strength of the association in hypothesis one was weak for both efficacy based and worth based self-esteem, the statistical significance of the association between the variables can be determined to provide some level of support for prior research

suggesting *self-verification* of an identity is positively associated with self-esteem (Cast and Burke 2002). That is, the findings suggest some support for *self-verification* having a positive effect on the degree to which an individual sees themselves as capable (Gecas 1989) and the degree to which they view themselves as a person of value (Cast and Burke 2002).

Analyses of hypothesis two did not provide statistical significance to reject the null hypothesis. Therefore, the alternative hypothesis that the length of parental identity verification has a positive effect on efficacy based and worth based self-esteem was not statistically supported. It is possible that the lack of support of the hypothesis could be partially based on additional factors, such as the potential for women who had children and therefore who were experiencing *continued self-verification* (N=98), to also have been currently going through subsequent and potentially failed IVF treatment at the time of the survey and therefore were experiencing a disturbance in their parental identity (Cast and Burke 2002). That is, it may have been possible that an individual in the self-verification sub-group was also currently going through IVF treatments to have another child and, though speculative at this point, this could have affected the association between the variables of continued self-verification (age of child) and self-esteem. Although it is speculative, it is possible that controlling for the child's age, while also measuring assistance length for subsequent use of assisted reproductive technology, could have provided additional insight regarding the relationship between disturbances in identity verification and negative consequences to self-esteem (Stets and Burke 2005), within the sub-group of respondents who had experiences self-verification. That is, it may

be possible for an infertile woman, who has been able to have children, yet remains infertile and cannot have children without assisted reproductive technologies, to experience the negative consequences of a disruption in parental identity if they unsuccessfully utilize reproductive technologies to have additional children. On the contrary, it is also possible for individuals experiencing infertility, a stigmatized identity (Galhardo et al. 2011; Gonzalez 2000; Loftus 2009; Miall 1985, 1986), the length of continued self-verification does not significantly impact self-esteem. Therefore, the findings within this research on infertility and the association between continued self-verification and self-esteem did not support previous literature (Cast and Burke 2002) suggesting the length of verification has a positive effect on self-esteem.

Consistent with previous literature, results from testing the third hypothesis provides support of the claim by Cast and Burke (2002) that when disruptions in the process of identity verification occur, there is a negative effect on self-esteem. More specifically, the findings provide support for Cast and Burke's (2002) claim that the longer the period of lack of verification, the lower the individual's efficacy based and worth based self-esteem. The findings of hypothesis three for efficacy based self-esteem were also consistent with previous research from Stets and Burke (2005), which showed diminished efficacy based self-esteem in individuals who experienced a lack of verification.

The overall findings of this research have pointed to the potential for self-verification of a stigmatized identity to work differently in regards to self-esteem than

within a non-stigmatized identity. This difference can be suggested from the results of continued lack of self-verification being strong and significant, while the results for the continued self-verification were non-significant. There is a potential that many other factors, which may contribute to the affects of parental identity on self-esteem, outweigh any continued implications of infertility on self-esteem once reproductive technologies are successful. That is, it may be possible that once a person who has experienced infertility is able to successfully verify their parental identity, the existence of infertility no longer has a measurable effect on their self-esteem as a parent. While prior research (Cast and Burke 2002) has shown continued self-verification has a positive effect on self-esteem, perhaps the stigma of infertility changes the relationship of identity verification and self-esteem. In other words, it's possible that within infertile women who are no longer actively experiencing the stigmatized identity, the length of time they experience self-verification does not significantly affect self-esteem. The results of hypothesis one and three suggest the possibility that experiencing continued lack of self-verification for a stigmatized identity has a greater affect on self-esteem than experiencing a lack of self-verification for the same length of time for a non-stigmatized identity.

This research has expanded on prior literature regarding identity verification and self-esteem (Cast and Burke 2002; Stets and Burke 2005) by examining these associations within a stigmatized identity. Through this examination, the findings within this research have also brought forward additional considerations regarding the affects of self-verification and a lack of self-verification on self-esteem.

Limitations

This research recognizes statistically supported associations do not establish correlation or causation (Chambliss 2003). Recognizing this, causal conclusions have not been claimed for the associations examined and supported in alternative hypotheses one and two. With this in mind, several limitations of the study must be mentioned. Other potential variables could be associated with self-esteem within infertile women to a possibly statistically significant degree. These potential measures could have been included within the study as additional variables, had resources been great enough to support a larger, randomized sample. The study did not specifically measure where women were in their process of infertility and subsequently having a child. The study did ask whether or not a woman had successfully had a child using IVF or was currently using IVF. However, within the sample of women who experience *continued lack of self-verification*, additional questions were not asked, such as, whether they were in the first part of their first cycle of IVF, currently on hormonal treatments or other regimens, whether they had just received a negative or positive pregnancy test results, how many prior failed attempts of IVF had been experienced during the time period they had used reproductive assistance, or the magnitude of personal financial strain. Within respondents who had children resulting from IVF treatment, additional questions could have been included, such as how many children they successfully had or whether they were also going through subsequent IVF treatment to have additional children at the time of the survey.

Suggestions for Further Research

Further research should also utilize a random, potentially larger sample, as both would more likely allow inclusion of additional control variables such as age, education, ethnicity, and infertility factor as it would more likely meet the Pearson Chi Square assumption that no more than 20% of frequencies have an expected value of less than five (Chambliss 2003). Additional measurements could also be examined and include intervals of how long it took to genetically have each child, when assisted reproductive technologies are successful.

Further research should also include both women and men as each gender has unique experiences with parental identity and infertility (Greil 1988; Jaoul et al. 2014; Jordan and Revenson 1999; Nachtigall et al. 1992; Throsby and Gill 2004;). Additional research should also include infertile individuals within same sex partnerships, as although there are unique social implications surrounding parental identity within heterosexual partnerships when presumed fertility is not inevitable, involuntary childlessness due to infertility still occurs within same sex partnerships and includes its own challenges (Bergen et al. 2006).

Further research should consider utilizing broader sampling criteria to include individuals who have had genetic children and did not experience infertility in their path to parenthood, in order to make comparisons within all three groups. Additional research should consider examining the influence of feedback received from the individual's partner (Maurer and Pleck 2001; Cast and Burke 2002; Cast 2004; Jaret et al. 2005) and

whether or not the infertility factor is the individual, their partner, or both (Becker and Nachtigall 1994; Greil 1991; Litt et al. 1992; Morrow et al. 1995; Mikulincer et al. 1998; Nachtigall et al. 1992).

Finally, it would also be more explanatory to include additional qualitative measures, such as structured interviews, in additional research regarding parental identity and infertility as it would potentially provide descriptive links between respondent narrative and statistical results.

Broadening and refining further research in these ways would provide a more detailed examination into the implications of the culturally expected transition to parenthood on parental identity and self-esteem when an individual experiences involuntarily childlessness due to infertility. As assisted reproductive technologies advance and allow individuals another chance at accomplishing genetic parenthood despite the existence of infertility, it will continue to be important to research the implications this has on an individual's self-esteem and parental identity.

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APPENDIX A: CONSENT FORM

You are requested to participate in research conducted by Ashley Steckler and supervised by Dr. Vicki Hunter on views regarding parental identity and the use of reproductive technologies. This survey should take about 4-7 minutes to complete. The goal of this survey is to understand the implications to self-esteem among individuals who have utilized reproductive technologies in order to have children. If you have any questions about the research, please contact Ashley Steckler at ashley_steckler@hotmail.com or Dr. Hunter at vicki.hunter@mnsu.edu.

Participation is voluntary. You have the option not to respond to any of the questions. You may stop taking the survey at any time by closing your web browser. Participation or nonparticipation will not impact your relationship with Minnesota State University, Mankato. If you have questions about the treatment of human participants and Minnesota State University, Mankato, contact the IRB Administrator, Dr. Barry Ries, at 507-389-1242 or barry.ries@mnsu.edu.

Responses will be anonymous. However, whenever one works with online technology there is always the risk of compromising privacy, confidentiality, and/or anonymity. If you would like more information about the specific privacy and anonymity risks posed by online surveys, please contact the Minnesota State University, Mankato Information and Technology Services Help Desk (507-389-6654) and ask to speak to the Information Security Manager.

The risks of participating are no more than are experienced in daily life. You may experience some degree of emotional distress from responding to questions regarding reproductive challenges or difficult emotions you have experienced. Keep in mind that you can discontinue the survey at any time if the questions make you uncomfortable.

There are no direct benefits for participating. If you are interested in receiving a copy of the final thesis project, you can email your request to ashley.steckler@mnsu.edu, and one will be provided to you when the project is completed. Society might benefit from the findings of this project through the increased understanding of the connections between reproductive technologies as self-esteem.

Clicking on the “Next” button below and submitting the completed survey will indicate your informed consent to participate and indicate your assurance that you are at least 18 years of age.

Please print a copy of this page for your future reference.

APPENDIX B: SURVEY QUESTIONNAIRE

This section asks a few questions about demographics.

1. With which gender do you identify?
 1. Male
 2. Female

2. Which category below includes your current age?
 1. Under 30
 2. 30-39
 3. Over 40

3. What is the highest level of education you have completed?
 1. Some high school
 2. High school diploma or equivalent (e.g., GED)
 3. Some college
 4. Bachelor degree
 5. Graduate/post-graduate work

4. How would you classify yourself?
 1. White/Caucasian
 2. Black/African American
 3. Asian/Pacific Islander
 4. Hispanic/Latino
 5. Other:_____

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

5. There is really no way I can solve some of the problems I have. [EB]

Strongly Agree / Agree / Disagree / Strongly Disagree

6. Sometimes I feel that I'm being pushed around in life. [EB]

Strongly Agree / Agree / Disagree / Strongly Disagree

7. I have little control over the things that happen to me. [EB]

Strongly Agree / Agree / Disagree / Strongly Disagree

8. I often feel helpless in dealing with the problems in life. [EB]
Strongly Agree / Agree / Disagree / Strongly Disagree
9. All in all, I am inclined to feel that I am a failure. [EB]
Strongly Agree / Agree / Disagree / Strongly Disagree
10. I am able to do things as well as most other people. [EB]
Strongly Agree / Agree / Disagree / Strongly Disagree
11. I certainly feel useless at times. [EB]
Strongly Agree / Agree / Disagree / Strongly Disagree
12. I feel I am a person of worth, at least on an equal basis with others. [WB]
Strongly Agree / Agree / Disagree / Strongly Disagree
13. I feel that I have a number of good qualities. [WB]
Strongly Agree / Agree / Disagree / Strongly Disagree
14. I feel I do not have much to be proud of. [WB]
Strongly Agree / Agree / Disagree / Strongly Disagree
15. I take a positive attitude toward myself. [WB]
Strongly Agree / Agree / Disagree / Strongly Disagree
16. On the whole, I am satisfied with myself. [WB]
Strongly Agree / Agree / Disagree / Strongly Disagree
17. I wish I could have more respect for myself. [WB]
Strongly Agree / Agree / Disagree / Strongly Disagree
18. At times, I think I am no good at all. [WB]
Strongly Agree / Agree / Disagree / Strongly Disagree

This section asks a few questions about your experience with reproductive technologies.

19. Have you ever had a child or children resulting from IVF reproductive technologies?

1. Yes
2. No

20. Have you, your partner, or both directly received infertility treatments?

1. Self
2. Partner
3. Both

(If Yes)

21. What is the age (to the nearest whole number) of your oldest child conceived using IVF?

(If No)

22. How long (to the nearest whole number) have you used reproductive technologies to have a child?

1. 1-3 years
2. 4-5 years
3. 7-9 years
4. 10 years or longer

Thank you for your time and participation in this research. If you have any questions about the research or would like to read the thesis upon its completion, please contact Ashley Steckler at ashley_steckler@hotmail.com.