Self-esteem of single pregnant women in a maternity group home program:

A secondary data analysis

by

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Table of Contents

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Abstract

This thesis explores the relationships between self-esteem and socio-economic factors and characteristics of maternity group home program participation. Self-esteem is used sometimes as the independent variable and sometimes as the dependant variable in this study. A sample of 268 women was used representing the data available in an administrative database on women admitted to the program for the period from May 1998 to February 2009, after removing cases with too much of the self-esteem measure missing. Methods of analysis included; paired samples t-tests, independent samples t-tests, analysis of variance, repeated measures analysis of variance, standard multiple regression, sequential multiple regression, and multinomial logistic regression. In analyses where discharge self-esteem was the dependant variable attempts were made to control for the influence of the following factors: self-esteem at intake, age, number of days at Villa Rosa, number of types of abuse experienced, attitudes of social support network, participation in the Post Natal House (a follow-up semi-independent living program that is a minimum of three months), length of time at most recent address, presence of a disability, education level, length of time since being in school, ethnicity, plan for current pregnancy, choice to breastfeed, previous children, presence of pressure to parent, presence of pressure to place for adoption or presence of pressure to terminate the pregnancy. Breastfeeding plan was also used as a dependant variable with intake self-esteem as the independent variable. Variables that were controlled included: age, number of types of abuse, attitudes of social support network, length of time at most recent address, ethnicity, living with a disability, education level, length of time since being in school, plan for current pregnancy, previous children, presence of pressure to parent, presence of pressure to place for adoption or presence of pressure to terminate the pregnancy. The main findings of the research included: 1) Ethnicity was not found to be significantly related to discharge self-esteem. 2) Self-esteem of residents was found to be significantly healthier at discharge from the program than at intake to the program. 3) Self-esteem was not found to be significantly different between women who participated in a post-natal semi-independent living component of the program and those who did not when controlling for variables listed above. When the control variable of length of time in the program was removed self-esteem was found to be significantly healthier for women who participated in the post-natal semi-independent living component of the program than those who did not. 4) A significant difference was not found between the discharge self-esteem of women who reported as living with a disability at intake, and women who did not. 5) Self-esteem at discharge was found to be healthier with an increased number of days spent at Villa Rosa. 6) Less healthy intake self-esteem was associated with plans not to breastfeed. 7) More supportive attitudes of social support network as measured at intake were shown to be linked to healthier self-esteem at discharge. 8) Experiences of abuse were not shown to be significantly related to discharge self-esteem. The tool used to measure self-esteem was developed through the social learning theory, therefore comments on findings as related to other theories are considered speculative. Support received from the significant findings was found for several self-esteem theories including; social learning theory, Carol Gilligan's theory of moral development, Susan Harter's developmental approach, Jamesian theory, terror management theory, humanistic theory, cognitive experiential self-theory and sociometric

theory. A lack of support was received from insignificant findings for; social learning theory, terror management theory, humanistic theory and cognitive experiential self-theory.

List of Tables

List of Figures

Chapter I: Introduction

Statement of General Research Problem

Which client demographic characteristics, social environmental factors and characteristics of a maternity group home program have an impact on the self-esteem of single pregnant women who reside in the Villa Rosa residential program?

This thesis involved a secondary analysis of data collected through questionnaires completed by women and staff in the Villa Rosa program and entered into an administrative database. This database has been made available for research purposes. This thesis used a multivariate approach to control for potentially influential factors other than the variable being examined. Currie and Zimmer (2002) conducted a study on Villa Rosa which is described in this proposal. Villa Rosa continued to collect information using the forms developed through that study. This study has extended the findings of the Currie and Zimmer study by providing a more in depth examination of the self-esteem of the Villa Rosa residents. The study has focused on discovering if specific variables are related to self-esteem. The study has also provided current data based on the residents who have been at Villa Rosa more recently. The study has examined more intently how self-esteem is related to factors such as abuse, ethnicity, and acceptance in the social network. The study also investigated how self-esteem may have affected breastfeeding choices. The relationship of living with a disability with self-esteem was also studied. In addition, the study has determined if there is a relationship between length of time spent at Villa Rosa and self-esteem at discharge while controlling for self-esteem at intake. The study has examined if self-esteem increases after residing at Villa Rosa, and if

participation in a post natal semi-independent living program called the Post Natal House (PNH) is correlated with any changes in self-esteem.

Villa Rosa is a residential program providing services to single pregnant women in Manitoba. It is a voluntary program; all participants choose to enter and to continue in the program. Women are encouraged, but not required, to enter with at least three months left in their pregnancy in order to be able to complete the programming. Any woman entering the program must not present a danger for other residents of the program. Women entering the program must be capable of living in a residence that is supported, but not supervised. Women choosing to enter Villa Rosa are committing to take part in the programming and to follow the policies and routines of Villa Rosa. The building is universally accessible. The program tends to attract younger adolescent women. Women will typically stay throughout their pregnancy and then convalesce for three to four weeks after the birth of their baby. The program includes women who are planning to parent, women who are planning to place their baby for adoption, place their baby with family, making an informal plan, and women who are taking part in decision making to determine what they wish to do. The program also works with women who may not be able to parent, and their baby will be placed under the care of Child and Family Services. The program provides food and shelter as well as a full day program and counselling to participants. The schedule includes school and programs from 9:00AM to 3:30PM or 4:00PM. Women stay for supper and take part in chores. Their evenings and weekends are their own time to plan. In July and August the program changes to a summer schedule which does not include school. Women attend a group meeting and one

program in the morning. Activities are available in the afternoons, evenings and weekends.

While staying at Villa Rosa, women take part in school and programs focused on pregnancy. The school program includes: mathematics, English, family studies, biology, home economics, physical education, and Aboriginal studies. Each woman undergoes an individual intake to the school to set up an individualized schedule. The program mainly offers high school classes, but has flexibility to work with women in junior high and women who are working on literacy. The school is offered through Winnipeg School Division and currently has three teachers and one part time educational assistant. The school offers a lifeskills credit composed of credit hours attained by attending the programs at Villa Rosa.

The programs the women access include prenatal classes, parenting and adoption classes and life skills classes. Parenting programs include classes focused on the first six weeks of caring for an infant, classes focused on the first year of parenting and breastfeeding programs. Early literacy classes are offered, including information on reading to a baby, songs and games and rhymes. Decision making classes are offered, which focus on decision making skills, the choice between parenting and adoption, information on adoption, healthy relationships, and goal setting. An adoption support program is also offered. Life skills classes are offered, including anger management, budgeting, nutrition, cooking, sewing, aquasize, smoking awareness, self-esteem, and body image. Throughout the year various speakers are offered from outside agencies to speak on a variety of topics. At varying points in time there are programs offered by

volunteers in the evenings which might include programs like knitting, massage and yoga.

Women have access to counselling with a social worker who helps them plan for the birth of their baby, as well as exploring other issues they wish to address. Villa Rosa also runs a post-natal semi-independent living skills program. Women who are choosing to parent can move from the prenatal residence to an apartment building next door. Women who enter this program would stay for a minimum of three months. The Post Natal House program offers individual money management, cooking, menu planning, grocery shopping, and time management support. Women in this program continue to attend the school program at Villa Rosa and continue to have support from their social worker. At Villa Rosa, a Parent Child Centre offers information and support on parenting and infants. The Parent Child Centre (PCC) provides child care during school and programs. The focus of the PCC is on attachment and mothers are able to leave classes to attend to their baby if their baby is hungry or upset.

After leaving Villa Rosa, women who are parenting can continue to receive support through a Follow-up Social Worker who can provide support until the baby reaches three years of age. The follow- up worker often provides information on parenting and child development. She is involved in problem solving and crisis management. She helps mothers to connect in their community with resources and work towards goals, such as school completion. Information provided on the services available at Villa Rosa is based on personal experience as a staff member of seven years and on agency literature, including the 2007 Annual Report (Villa Rosa, 2008) and pamphlets providing descriptions of the services (Villa Rosa, 2009).

Relevance to Theoretical Development

According to Manitoba Health, the adolescent pregnancy rate in Manitoba is 43.4 pregnancies per 1000 girls aged 15 - 19 years. In 2005/2006 there were 1,798 pregnancies among 15-19 year olds. (as cited in Sexuality Education Resource Centre, 2007, p.2).

Villa Rosa is a specialized setting which serves a specific population. Although the program was not developed based upon any specific self-esteem theory, it does have a mission statement and values that guide it. The mission of Villa Rosa is, "to provide educational, health and social services to young single women and their families during and after pregnancy, in the Province of Manitoba. Programs are offered in a safe, nurturing environment that encourages personal growth, and carried out in a fiscally responsible, culturally competent manner." (Villa Rosa, 2008, p.4) The value statement of Villa Rosa is, "We minister to the whole person respecting individual differences and cultural diversity based on principles of caring, integrity, mutual respect, dignity and trust." (Villa Rosa, 2008, p.4) In understanding that single women who become pregnant at a young age face challenges, it is important to study the various approaches put in place to address the challenges. If it is continuously discovered that there are positive benefits (such as an increase in self-esteem) to taking part in programs such as Villa Rosa, then the contribution to theoretical knowledge is that this approach is effective in addressing this challenge.

Many of the women in this study chose to parent. Self-esteem has been linked to adolescent parenting and child outcomes (Hubbs-Tait, Osofsky, Hann, & Culp, 1994; and Hubbs-Tait, Hurlbut, Culp, & Culp, 1995 as cited in Butler, Hurlbut, McDonald, Culp, &

Jambunathan, 1997). Low self-esteem in adolescent parents has been found to be linked to the advocacy of use of corporal punishment (Braun & Fuscaldo, 1988 as cited in Butler et al. 1997), and to abusive attitudes towards children (Braun & Fuscaldo, 1988; Hubbs-Tait et al., 1994 as cited in Butler et al. 1997). The social competence of children with their friends has been linked to their mother's self-esteem (Hubbs-Tait et al., 1994 as cited in Butler et al. 1997).

Therefore, studying self-esteem in adolescent pregnant women is valuable in enhancing parent-child outcomes.

This study has contributed to knowledge of self-esteem as it is related to ethnicity in this population. Using the Rosenberg Self-Esteem Scale, the study explored if there were significantly different levels of self-esteem between women who are Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis or Non-Aboriginal. There are studies from the United States which show differences in self-esteem related to race (Twenge & Crocker, 2000). Although race and ethnicity are not identical, they are similar concepts and this research may indicate how ethnicity will be related to self-esteem. This study was helpful in examining some ethnicities within Manitoba.

Knowledge of how experiences of abuse are related to self-esteem was gained. Women were asked if they have experienced neglect, physical abuse by a parent, by another, sexual abuse, emotional abuse and if they have experienced abuse during pregnancy. Using the Rosenberg Self-Esteem Scale this study examined if women who reported more experiences of abuse had lower self-esteem than women who reported less or no experiences of abuse.

Knowledge of how self-esteem is related to the choice to breastfeed was gained. Using the Rosenberg Self-Esteem Scale this study examined if women who chose to breastfeed had a higher level of self-esteem than women who did not choose to breastfeed. Given that the literature (Health Canada, 2004) clearly shows that breastfeeding has many health benefits for an infant, this information is relevant in studying how increasing maternal self-esteem can affect infant well-being.

This study examined different programming effects as related to self-esteem. This study examined if women in the Villa Rosa maternity group home experienced an increase in self-esteem between the time of their intake and the time of their discharge, also considering time spent in the program and participation in the post natal house program.

Several self-esteem theories are outlined in the literature review. Findings which would be expected based on each of the different theories are discussed. This study has provided support to the theories where findings are in line with the expectations (terror management theory, social learning theory, Jamesian theory, Susan Harter's developmental approach, Seymour Epstein's cognitive experiential self-theory, Carol Gilligan's theory of moral development, humanistic theory, and sociometric theory). It has shown how the theories relate specifically to single pregnant women in a maternity group home.

Relevance to Extension of Empirical Knowledge

In reviewing the literature available on maternity group homes one area that has been found to be lacking is research involving a large sample group. Six hundred and seventy-five women were admitted into the pre-natal program during the years being

studied. A sample size of 268 was achieved after removing those cases with too much missing data and one case with multivariate outliers. Further contributions addressed the issue that an empirical evaluation of this program had not yet been completed using data from beyond 1995. This thesis included data from the years 1998-2008.

This study incorporated a secondary data analysis strategy. It used a multivariate approach to control for factors other than the program or variables being examined that may affect self-esteem. It identified which groups of women benefitted more or less than others.

This study also contributed to the extension of empirical knowledge by providing a descriptive analysis of the population.

Relevance to Social Work Knowledge Base

1. Practice. Using data from a Knowledge Utilization Survey of 407 readers of the Social Work Journal, Cha, Kuo, and March (2006) sought to discover what type of knowledge social workers consider the most useful. The types of knowledge rated as the most useful included "(1) the character of particular social problems, (2) the effectiveness of practice strategies and (3) particular population groups." (Cha, Kuo, & March, 2006, p.114).

Through the literature review this study addressed the first need by presenting the current knowledge about the impacts of pregnancy on unmarried adolescents.

This study was not able to prove that the Villa Rosa program was directly responsible for any increase in self-esteem experienced by the residents while taking part in the program. However, if increases in self-esteem were experienced, then consideration can be given to maternity group homes as a likely effective practice.

This study provided a descriptive analysis of the population of Villa Rosa, thereby providing information about this population group of single pregnant women.

One of the hopes when undertaking a study on a program is that the feedback generated by the study will contribute towards enhancing the program's effectiveness. When working with clients having an understanding of how the factors in their lives may impact them can be beneficial in working more effectively. This study also provided information on who benefitted the most from the program based on client characteristics and social factors. It provided information towards understanding the most effective practices to employ when working with this population.

Women who entered Villa Rosa and completed the questionnaire were informed that it would be used to understand them better in order to work more respectfully with them and, in addition, would be used for research. Following through on the intended purpose of the data collection as presented to the participants is a good practice.

2. Policy. It is considered ethically important for any social services program to evaluate the services it provides. The expectations behind investments that are made by the community and the expectations of service providers and the women who take part in the program are that the program is beneficial. When considering the creation of and continued funding of maternity group homes, studies providing information on their effectiveness will be beneficial.

Intake policies may be influenced by information about who has the greatest chance for success based on socio-demographic information. The study has also provided information about changes that can be made to make the program more successful.

Summary of Introduction

In summary this study explores which client demographic characteristics, social environmental factors and characteristics of a maternity group home program have an impact on the self-esteem of single pregnant women who reside in the Villa Rosa residential program. It is a secondary analysis of data collected at the Villa Rosa program which uses a multivariate approach.

This study has contributed to theoretical development through examining if taking part in programs such as Villa Rosa is effective in addressing challenges of adolescent parenting. It has contributed to knowledge of self-esteem in this population as it is related to ethnicity, abuse, choice to breastfeed, and different programming effects. It has explored how several theories of self-esteem are related to the findings of the study and provided support to theories which are consistent with the findings.

This study has contributed to the extension of empirical knowledge through providing a multivariate analysis incorporating statistical controls with data collected over ten years on a large sample. It has also provided a descriptive analysis of the population.

This study has contributed to the social work knowledge base through the literature review, which presents an analytical summary of the current knowledge about the impacts of pregnancy on unmarried adolescents. It has provided a descriptive analysis of the population. It provided information towards understanding some potentially effective practices to employ when working with this population. The study has provided information about changes that can be made to make the program at Villa Rosa and similar organizations more successful.

The following chapter is the literature review. It will present what has been found in the literature on Villa Rosa, pregnancy in adolescence, self-esteem, maternity group homes and gaps which exist in current knowledge.

Chapter II: Literature Review

This literature review covers several areas. A previous study on Villa Rosa was conducted by Currie and Zimmer (2002). It is outlined below and its findingd are included. Literature on self-esteem is reviewed and includes: definitions, challenges in research, research findings, theories, the Rosenberg Self-Esteem Scale, self-esteem and maternity group homes, self-esteem and breastfeeding, and self-esteem and parenting. Literature on adolescent pregnancy is reviewed, including: research on adolescent pregnancy, self-esteem and adolescent pregnancy, long term outcomes for adolescents who parent, and factors placing adolescents at risk of becoming pregnant. Literature on maternity group homes is also reviewed.

Villa Rosa

For over twenty years data have been collected from participants of the program at Villa Rosa. A longitudinal study was produced regarding the data from 1985-1995 by Dr. Raymond Currie and Zachary Zimmer (2002). This study was guided by three hypotheses; "1. Women who reside at Villa Rosa will be better equipped to parent after leaving Villa than they were when they first arrived. This hypothesis relates to the perinatal residence, common to all residents of Villa Rosa. 2. Those women who go through the postnatal program will be better equipped to parent at the end of the program than they were at the beginning of the program. 3. Those who go through both programs will be better equipped to parent than those who go through only the perinatal program, given comparable initial levels of risk." (Currie & Zimmer, 2002, p. 7) The study concluded "yes" to each hypothesis.

1. Demographic information and plans. The study includes information on demographic characteristics of the residents. The mean age was 17.1 years. Five percent of residents had completed high school or above, while 46.5% of those from outside Winnipeg and 37.0% of those from within Winnipeg had a junior high education or less. Fifty-two percent of residents were from Winnipeg, while the remainders were from smaller communities or rural addresses. Sixty percent of residents were Aboriginal, including Métis.

Currie and Zimmer (2002) examined the plans that the women expressed at intake. Over the ten year period, 74.0% planned to parent, and in 1992-93, 85.0% planned to parent. Only two percent of the residents planned to place their child for adoption. The study examined how comfortable women who were pressured by others in their planning were with their plans. For women who were planning to parent, 75.0% of those who were not pressured responded that they felt comfortable "all of the time" with their plans and only 50.0% of those who experienced pressure responded that they felt comfortable "all of the time". For women who were planning to place for adoption, 60.0% of those who were not pressured responded that they felt comfortable "all of the time" with their plans and only 17.0% of those who experienced pressure responded that they felt comfortable "all of the time". The study also found that the demand for the post natal house program exceeded the capacity.

2. Determinants of risk. The study examined determinants of risk for adolescent mothers. Currie and Zimmer (2002) examined several areas of potential risk and reported on their definition of high risk in each area. They also provided a factor analysis to examine the pattern of association among the risk areas.

a. Self-esteem. Over thirty percent of residents arrived with a concerning level of self-esteem as measured by the Rosenberg Self-Esteem Scale (Currie & Zimmer, 2002). The Rosenberg Self-Esteem Scale has ten items with six response categories. The scale can be scored by different methods. Currie and Zimmer chose to use a Guttman Scale with a score which ranges from 0-6. Lower scores indicate higher self-esteem. Currie and Zimmer (2002) defined a concerning level of self-esteem as having a mean score of three or more. In examining the factors which related to the level of self-esteem of the residents, Currie and Zimmer (2002) found that those women who knew they wanted to parent and planned to enter the Post Natal House (PNH) had the highest self-esteem. At discharge from Villa Rosa self-esteem had improved, especially for those residents who had taken part in the PNH program. The percentage of residents with a concerning level of self-esteem went from 30% at intake to 24% at discharge.

There was not a significant difference at intake between the self-esteem of those who ended up in the community and those who ended up entering the PNH. After discharge, Currie and Zimmer again compared the self-esteem of these two groups. Those who had taken part in the PNH program were measured nine months after they left the PNH. The expected point of discharge at the time for women who entered the PNH was three months, and therefore this measurement time would be approximately one year after they left the prenatal residence. Those who did not take part in the PNH program were measured one year after they left the pre-natal program. The self-esteem scores of women who had taken part in the PNH program were significantly higher.

b. Bradburn Balance Affect Scale. The Bradburn Balance Affect scale (Bradburn, 1969, as cited in Currie & Zimmer, 2002) was used to measure the amount of

positive or negative feeling of happiness or satisfaction relating to one's present situation. (Currie & Zimmer, 2002). On this scale, a score of less than zero represents a prevalence of negative feelings. Currie and Zimmer consider this to be high risk. About 40% of residents entered Villa Rosa with mainly negative feelings, 38% with positive feelings, 16% scored zero and the remainder were not reported. The mean score was -0.33.

Currie and Zimmer found that as they followed women from intake to discharge there was a large improvement in the scores. After discharge women experienced a decline. However, scores always remained above those taken at intake. At discharge from Villa Rosa, those with mainly negative feelings decreased from 40% to 14%.

c. Health Opinions Survey Scale. The Health Opinions Survey scale (MacMillan, 1957 as cited in Currie & Zimmer, 2002) was used to measure the existence of health problems that tend to accompany psychological disorders. A score of 30 or higher was considered by Currie and Zimmer to be high risk. Cautioning that the effects of being pregnant may have affected these results, Currie and Zimmer (2002) found that the mean score for Villa Rosa residents (26.9, standard deviation of 4.9) showed more symptoms of mental distress than that found for 15-19 year olds in the Canada Health Survey from 1978-79 (23.5). There was no significant improvement in these scores at discharge. However, within the group that took part in the PNH program the percentage of residents considered at risk declined from 32% at intake to 19% at nine months after discharge from the PNH.

d. Social Support Network. The study asked about the women's perceptions of their social support networks. Upon arrival at Villa Rosa residents were asked about how they thought significant people in their lives felt about their pregnancy and the birth of

their baby. Each person was rated on a scale of 1-7 with 1 being very accepting and 7 being very rejecting. In examining non-parental support networks, the study reported that sisters had a mean score of 1.8, current boyfriends, not the father of the baby, scored a mean of 2.0. Only half of the women had a mother who they felt was very or somewhat accepting, and only a quarter of the respondents had a father who they reported as such (fathers had a mean of 3.7).

Currie and Zimmer considered women to be at high risk if they did not have any supports who they thought were completely supportive (rating of 1). Twenty one percent of residents responded this way.

e. Abuse. Over two-thirds of the residents reported some form of abuse. Currie and Zimmer (2002) did not find a significant relationship between abuse and self-esteem. Only 31% of women who had been abused reported concerning levels of self-esteem. This is close to the finding for all residents of just over 30% having concerning levels of self-esteem. However, they did find that every PNH resident who had reported concerning self-esteem scores reported some abuse. Currie and Zimmer tested 50 relationships and found that abuse correlated with very few outcomes. One finding they reported was that abuse did correlate with the Health Opinion scores and somewhat with measures of social support. Over time with participation at Villa Rosa for women who reported abuse, self-esteem scores significantly improved as did health scores.

Currie and Zimmer considered high risk in this area to be the reporting of any type of abuse.

f. Risk factors. The study examined the number of risk factors experienced by the women, including measuring for: self-esteem, Bradburn Balance Affect Scale scores,

Health Opinion Scale scores, age when drinking alcohol was initiated, number of types of abuse reported, overall network rejection, and number of supportive network members. "One third of the respondents reported six areas of high risk and half of the populations reported five risks." (Currie & Zimmer, 2002, p.42). After taking part in the program there was significant improvement in scores on five of the six measures of risk. There was also a significant reduction in the percentage of women considered high risk on each of the measures. The Health Opinion Scale scores did not show improvement. Currie and Zimmer considered women who responded as high risk in four or more areas to be at high risk overall.

3. Residents' assessment of experience. The study examined the residents' assessment of their experience upon leaving Villa Rosa. The programs were most frequently reported as "very helpful". Eighty percent said that they were comfortable asking for help without embarrassment. In examining expectations of and actual experiences of the postnatal residence, it was found that in five of the areas that mothers were expecting to be "very helpful' the service actually exceeded their expectations. Eighty-eight percent of women who went through the prenatal residence would recommend it to others expecting a child, and 79% of those who attended the postnatal program would recommend it.

Pregnancy in Adolescence

1. Factors placing adolescents at risk of becoming pregnant. In reviewing the literature there is a large amount of information regarding the factors that place an adolescent at risk for pregnancy. It has been found that being raised in a single-parent household increases the probability that an adolescent will have an out-of wedlock birth,

even when controlling for income differences. (McLanahan & Sandefur, 1994 as cited in Corcoran, 2001) Canadian and international research finds that the risk of becoming pregnant for adolescent females raised in poverty is significantly increased. When controlling for known risk factors, such as growing up in a single-parent household and race, there is still found to be an independent effect from poverty alone. (Duncan et al. 1998: Haverman & Wolfe 1995 as sited in Corcoran 2001). Adolescents who have a partner who is older are also at greater risk for pregnancy (Kirby, Lepore & Ryan, 2005).

Haverman and Wolfe (1995) completed a study examining the empirical research on the links between children's attainments and investments in children. They provide a summary and critique of the principle findings for children's outcomes, including fertility choices focusing on non-marital births during the adolescent years. The criteria upon which they base the inclusion of studies in their review are divided into three parts. First, the quality of the study, based on their evaluation of the data and estimation methods used. Second, each study has an economic orientation reflected through social or parental choices, such as family income and poverty status. Third, they chose studies which relied on longitudinal (panel) micro-data. Findings by Haverman and Wolfe (1995) related to adolescent pregnancy concluded that poverty in childhood had an independent and negative effect on the likelihood of giving birth as an adolescent and of receiving social assistance. Of interest, they found that economic opportunities and incentives created by society and government did have a small impact in decreasing the probability of an adolescent non-marital birth. They found that growing up in a single-parent or step-parent family increased the chance of a non-marital birth. They did note that there is evidence that the changes in parental living arrangements associated are possibly more

significant than family structure. In analyzing neighbourhood effects they found that growing up in a neighbourhood with positive characteristics decreased the chances that an adolescent would experience a non-marital birth. A final contributing factor to increasing the probability of adolescent non-marital childbearing included belonging to a racial minority. A weakness of this study is that it does not specifically examine adolescent pregnancy, but instead studies adolescent non-marital births.

Ann Evans (Evans, 2005) completed a working paper in 2005 on psychosocial aspects of adolescent pregnancy resolution. One of the factors she studied was self-esteem. Her findings were that self-esteem was significantly related to age at conception in that women who became pregnant at 18 years or older scored higher than women who became pregnant at 17 years or younger. She did not find statistically significant differences based on factors of area of residence, with whom the participants were living, religion, or ethnicity.

2. Long term outcomes for adolescents who parent. Many factors are seen to contribute to the possibility of an adolescent pregnancy. Once an adolescent is pregnant there is dispute in the literature about what the consequences of the pregnancy may be. There is evidence in the literature of negative consequences for adolescents who parent compared to adolescents who did not become pregnant, such as: living below the poverty level, being unemployed and holding lower-paying jobs if employed (Furstenberg, Brooks-Gunn, & Morgan, 1987; Brooks-Gunn & Chase-Lansdale, 1995; McLaughlin, Pearce, Manninen, & Winges, 1988 as cited in Butler et al., 1997).

Other literature claims that the usually cited effects of adolescent pregnancy are, in fact, the effects of the factors which placed the adolescent at risk of becoming pregnant

in the first place. Hotz, Sanders and McElroy (1999) compared women who experienced a miscarriage to women who continued their pregnancy and parented their infant in areas of subsequent educational attainment, family structure, labor market outcomes, and financial self-sufficiency. Their assumption was that this would provide an ideal control group. They used data from the 1979 National Longitudinal Survey of Youth and developed Instrumental Variables (IV), estimators to study the consequences of not delaying childbirth. "Our major finding is that many of the negative consequences of not delaying childbearing until adulthood are much smaller than has been estimated in previous studies. While we do find adverse consequences of teenage childbearing immediately following a teen mother's first birth, these negative consequences appear short-lived. By the time a teen mother reaches her late twenties, she appears to have only slightly more children, is only slightly more likely to be a single mother, and has no lower levels of educational attainment than if she had delayed her childbearing to adulthood" (Hotz, Sanders, & McElroy, 1999, p.1).

The majority of the literature appears to show that adolescent parents do appear to be at risk. Several conclusions were found when the literature was examined to determine what factors mediate the possible effects of adolescent pregnancy. "…Early motherhood does not necessarily limit or jeopardize future options (Dubow & Luster 1990, Furstenberg 1991, Smithbattle 1994), as many women rise above their disadvantage. Longitudinal studies indicate that those adolescents who have strong support networks and complete their education fare better (Furstenberg et al. 1987, Dubow & Luster 1990, Horwitz et al. 1991)" (Hanna, 2001).

A study done using multiple regression to examine resilience factors in 181 African American adolescent mothers found that, "Maternal maturity, positive self-esteem and positive adolescent mother-grandmother relationships (characterized by autonomy and mutuality) were associated with better parenting outcomes." (Reiner Hess, Papas, & Black, 2002)

Parenting and school programs were found to be effective. "Existing studies provide evidence that intervention programs for pregnant adolescents can alleviate many of the problems associated with teenage pregnancy (Brindis & Jeremy, 1988; Center for Assessment and Policy, 2002a, 2002b; Jekel & Klerman, 1982; Furstenberg et al., 1987)" (Amin, Browne, Ahmed, & Sato, 2006, p. 174).

Self-Esteem

1. Definition of self-esteem. Mruk (2006) outlines the conflict regarding how self-esteem has been defined through the literature. He states that there has been criticism of the validity of self-esteem research based on inconsistent and insignificant findings. He believes the difficulties in researching self-esteem stem from how it is defined. There are three basic definitions widely used in research, but different from each other. Self-Esteem can be defined as being based on: (1) our feelings of worthiness, (2) our competence as related to aspirations and (3) as a product of both worthiness and competence. Mruk outlines the basic limitations of defining self-esteem through either only worthiness or competence.

In defining self-esteem through worthiness alone the risk is present in both research and in development of self-esteem that the focus will only be on helping a

person feel good about him or herself, without examining the behaviours that accompany the feelings. Thus, self-esteem could possibly be confused with egotism and narcissism.

Defining self-esteem through competence alone without including values can lead to measuring feelings of competence in socially undesirable areas. Although someone may be competent in stealing cars this would not necessarily reflect a general idea of what is expected in a person of high self-esteem.

Measuring both worthiness and competence allows the researcher to examine how a person feels about him or herself, including how he or she measures up to the values he or she has learned in society. It is coupled with examining how well he or she performs at these socially valued tasks in the area of competence. This is the definition that Mruk appears to support.

Mruk discussed several major paradoxes found in the literature on self-esteem. Self-esteem is studied as both a psychological and a sociological concept. As a psychological concept, it is seen as related to the individual and developed through an intrapsychic process. This is related to the concept of self-esteem as competence. When considering self-esteem in this light, efforts at increasing self-esteem are focused on change within the individual. When considering self-esteem as a sociological concept, it is seen as developed through interpsychic processes influenced by how people react to us. Raising self-esteem through this view would include change within the environment. This is tied to the view of self-esteem as worthiness.

There is also consideration in the literature about the view of self-esteem as a trait or a state. The concept of self-esteem as a trait is seen as particular to the individual and as stable over time and between situations. Literature refers to this as "global" self-

esteem. Self-esteem as a state is seen as fluctuating over time and between situations (Nezlek, 2006 as cited in Mruk, 2006). This is considered "domain specific" self-esteem. Self-esteem is seen by some (Coopersmith, 1967; Newman & Newman, 1987; Leary, 2004 as cited in Mruk, 2006) as a basic need that pushes us to maintain our current state and by others (Deci & Ryan, 1995; Kernis, 1995; Rogers, 1961; Ryan & Deci, 2003,2004 as cited in Mruk, 2006) as a motivational push to improve ourselves. A final paradox includes the conflicting views of self-esteem as both a product of our development (Trzesniewski, Robins, Roberts & Caspi, 2004 as cited in Mruk, 2006) or as a factor we can change (Mruk, 2006).

   2. Challenges in self-esteem research. There is some controversy in the literature about self-esteem research. Some researchers propose that self-esteem research should halt (Crocker & Nure, 2004 as cited in Mruk, 2006). There has been concern about the lack of consistency in findings among studies. Good research findings should replicate in different studies if the methods used are rigorous. Self-esteem has been studied for over a century and the findings have not proven to be consistent. Mruk (2006) put forth that this is a consequence of the confusion surrounding the definition of the term itself. He states that the definition used is crucial as it is the basis upon which the tools used for measurement are developed.   Should different researchers be using different definitions, but all under the term self-esteem, they may be measuring very different constructs. This explains why the findings are inconsistent. Mruk advocates for the use of the definition including both worthiness and competence in socially desirable areas. As outlined earlier, he indicated concern that in measuring worthiness alone

researchers risk measuring narcissism, and in measuring competence alone, researchers may measure competence in socially undesirable areas.

3. Self-esteem research findings. Mruk (2006) has summarized the major research findings from the literature on self-esteem. His book outlines the work done by several studies in several categories. The findings are as follows.

The literature on self-esteem and values was examined by Mruk. People with both high and low self-esteem were found to value similar things, but those with high self-esteem were more likely to risk failure in the pursuit of success, and, thus, be more willing to take chances. In examining social values, Mruk outlines that there is a stratification hypothesis which links self-esteem to general social groups, such as those based on socio-economic status and a subcultural hypothesis, which links self-esteem to primary social groups, such as neighbourhoods. It has been found that both hypotheses are valid. Social factors within a subcultural group do, however, have a greater influence than general societal values.

Gender and self-esteem were examined in 1979 by Epstein (1979 as cited in Mruk, 2006). Female self-esteem was linked to acceptance and male self-esteem was linked to success. Harter (1999 as cited in Mruk, 2006) noted that both genders drop in self-esteem during adolescence, especially females, in appearance related items. Females, in general, who ascribe to traditional femininity based on approval, had lower self-esteem.

Mruk cites studies and authors that link levels of self-esteem with several areas, as follows. Low self-esteem is linked with: dysthymic disorder, major depression, anxiety disorder, eating disorders, sexual dysfunction, pathological shame, suicide attempts,

personality disorders, unwillingness to take risks, a focus on one's own bad qualities, overgeneralization, and rejection of positive feedback.

High self-esteem is linked with positive factors, such as: the ability to function in times of stress and trauma, happiness, desirable personal and interpersonal characteristics, improved job performance and problem solving, especially with initiative and persistence, extraversion, autonomy, authenticity, prosocial behaviour, immunocompetence, improvements in educational attainment, pre-school and young children's soioemotional functioning, and decreased likelihood of mortality for older people. High self-esteem is linked with negative factors, such as: placing success over well-being, in-group favouritism, blaming others for problems in relationships, downward negative social comparisons, overvaluing self in relationships and one's own contributions to groups, defensiveness, narcissism, and bullying.

There have been studies which link self-esteem to life experiences and socio-demographic variables. The majority of findings from Currie and Zimmer (2002) are consistent with the literature review. Some of the additional studies are cited below.

a. Self-esteem and age. As discussed above, Diehl (1997) studied thirty-six 13-19 year old mothers from an alternate school for pregnant and parenting adolescents. Findings were that older mothers had higher self-esteem (Diehl, 1997).

McVeigh and Smith (2000), using a two-group comparative study, examined the self-esteem of 72 adolescent mothers and 173 adult mothers in Australia, using Rosenberg's Self-Esteem Scale, and they found a positive relationship between self-esteem and age.

b. Self-esteem and First-Nations Reserve residence. No literature was found on the self-esteem of pregnant adolescents living on a First Nations reserve. However, studies were found which compared self-esteem of children living in rural or urban communities. One thousand four hundred and sixty nine children from rural communities in an unnamed western state in the United States participated in a study which examined self-esteem. The findings were that rural children had higher feelings of general self-worth than the norm (Yang & Fetsch, 2007). An Australian study found that the self-esteem of rural and urban adolescents varied by age, with the self-esteem of Cairns (urban) adolescents being positively correlated with age and the self-esteem of Atherton (rural) adolescents being negatively correlated with age (Gordon & Caltabino, 1996).

c. Self-esteem and ethnicity. A Manitoba study of 320 street involved youth, 53% of whom were Aboriginal, found that Aboriginal youth had significantly lower self-esteem than non-Aboriginal youth (Beaudoin, 2004). Beyond this, there was very little found in the literature which studied self-esteem as relating to Aboriginal status. The majority of studies which examined ethnicity and self-esteem were from the United States. These studies did demonstrate that race and self-esteem were related. One study found that "Blacks scored higher than Whites on self-esteem measures (d = 0.19), but Whites scored higher than other racial minority groups, including Hispanics (d = -0.09), Asians (d = -0.30), and American Indians (d = -0.21)." (Twenge & Crocker, 2000)

One book expressed concern over the validity of instruments used to measure self-esteem for Aboriginal people. The idea of self-esteem is seen as community based in relation to Aboriginal people and individual based for Western culture. The concern

presented was whether the instruments measure what they are supposed to measure (Kenway & Willis, 1990).

d. Self-esteem and abuse. There is evidence in the literature regarding the relationship between abuse and self-esteem. A study done with 48 women (not specifically pregnant or single) who self-identified as being abused and 48 women who were not abused found that experiences of emotional/controlling abuse were significantly related to low self-esteem. (Aguilar & Nightingale, 1994).

e. Relationship with the father of the child. Pregnant adolescents who were in a relationship with the father of their child for a longer period of time were found to have higher self-esteem. (Smith & Grenyer, 1999)

f. Self-esteem and parental acceptance. An Australian study of pregnant adolescents found self-esteem and social support to be significantly associated. Those who reported having a supportive father had significantly higher self-esteem (Smith & Grenyer, 1999). Another study based on 103 African American adolescents in South Africa, age 11-19 years old (male and female, not specifically pregnant) examined adolescent self-esteem and maternal support and found perceived maternal support to be related to adolescent psychological well-being (Govender & Moodley, 2004).

Mruk (2006) examined research on how parental factors relate to self-esteem. Neiss, Stevenson and Sedilcides (2003, as cited in Mruk, 2006) reviewed literature and found genetics to account for 30% to 40% of the variance in self-esteem among siblings. They emphasized that when an individual's genetic make-up leads them to have characteristics currently valued by society, this will affect their self-esteem positively. Parent support was found by Gecas (1971, as cited in Mruk, 2006) to correlate with self-

esteem. Mother's support correlated with feeling a sense of worth and father's support with developing competence. Parental absence or indifference correlates with lower self-esteem levels in children (Clark & Barber, 1994; Coopersmith, 1967; Rosenberg, 1965, as cited in Mruk, 2006). This is especially found with male children (Miller, 1984, as cited in Mruk, 2006). Parental warmth (the acceptance of a child's strengths and limitations) was found to be crucial in the development of self-esteem (Bednar, Wells, & Peterson, 1989, as cited in Mruk, 2006). Kernis (2003, as cited in Mruk, 2006) found a lack of warmth to be detrimental and Kernis and Goldman (2003, as cited in Mruk, 2006) found that parents who are harsh, derogatory, call a child names, or use love withdrawal had a negative effect on self-esteem. Clear parental expectations, limits and consistency were found to correlate with positive self-esteem in children (Coopersmith, 1967, as cited in Mruk, 2006). An authoritarian approach was also found to lead to positive self-esteem (Coopersmith, 1967, as cited in Mruk, 2006). Coopersmith (1967, as cited in Mruk, 2006) also found that being the first-born child or an only child was associated with positive self-esteem. Parents who role-modeled healthy resolution of self-esteem and dealt with issues in a healthy way were found to affect their child's self-esteem through healthy role modeling (Bednar et al., 1989, as cited in Mruk, 2006).

   g. Family support and self-esteem. A study examining 94 adolescents in Louisiana from three high schools and one church group found that there was a positive correlation between perceived family support and self-esteem, using the Rosenberg Self-Esteem Scale. (James, 2001)

   h. Self-esteem and housing. Research indicates that homelessness can be related in a significant fashion to self-esteem. A study of 50 homeless adolescents using

multivariate analysis of variance found that adolescents who had been homeless longer had significantly lower self-esteem (Saade & Winkelman, 2002).

i. Pressure experienced regarding the plan for the pregnancy. Currie and Zimmer (2002) did not present information on the relationship between self-esteem and pressure experienced towards adoption, termination or parenting. They did analyze how pressure affected the comfort level that women had with their plans. What they found was that no matter what the pressure or the plans the women had, any pressure would result in less comfort with their decision.

j. Effects of self-esteem on pregnant adolescent women's decisions regarding adoption/parenting. Currie and Zimmer (2002) found that self-esteem at intake differed among women according to the plan they were making for their pregnancy. Women who were uncertain about what they would do had the lowest self-esteem. Women who were planning to place for adoption had the next lowest. Women who planned to parent and indicated if they would or would not enter the PNH had the next step up and women who planned to parent, planned to apply to enter the PNH and actually did enter the PNH had the highest self-esteem. Their conclusion was that a clear plan to parent and enter the PNH was related to high self-esteem. (Currie & Zimmer, 2002)

There was limited information found in the literature regarding how self-esteem in pregnancy correlated to decision making regarding adoption. One study surveyed 146 adolescent women who placed their child for adoption and 123 adolescent women who chose to parent to determine what the effects of these choices were on their lives. One area studied was self-esteem. Their findings were that, "on several measures of self-esteem, satisfaction with life, and satisfaction with the decision…there were few

differences between the two groups." (McLaughlin et al.,, 1988, p.320). This study's application to this population is limited as it was completed with women after they were no longer pregnant.

   k. Self-esteem and breastfeeding. Self-esteem and breastfeeding have been linked in several studies. In one study the sample consisted of 113 adolescent mothers between 24 and 52 weeks postpartum and a sub-sample of 68 mothers interviewed six weeks postpartum. They discovered that higher self-esteem was found to be experienced by those mothers who breastfed (Gaff-Smith, 2004).

   A study of 159 mothers found that duration of breastfeeding was linked to self-esteem, with higher self-esteem being experienced by mothers who were still breastfeeding at infant age of six months (Papinczak & Turner, 2000).

   l. Self-esteem and infant health. Self-esteem has been demonstrated to be linked to infant health. (McGrath & Meyer, 1992). In studies of infants and mothers, researchers found that it was the mother's perception of the baby's health, as well as the objective health status, which was related to the mother's self-esteem. (Shea & Tronick, 1988, as cited in McGrath & Meyer, 1992).

   m. Previous children. Smith and Grenyer conducted a study in an Australian public hospital antenatal clinic of 122 pregnant adolescents. Using the Rosenberg Self-Esteem Scale and the Support Behaviours Inventory they found that having previous children was one of several factors that related to lower self-esteem (Smith & Grenyer, 1999). Causality is unclear because it is not certain if self-esteem level was causal to having previous children.

n. Self-esteem and mental health. Self-esteem and its relationship to mental health was explored in a study of 162 women (Farrow & Blissett, 2007). During pregnancy they completed measures focused on unhealthy core beliefs, psychopathological symptoms and self-esteem.   Nineteen percent of the variance in maternal self-esteem during pregnancy was explained by unhealthy core beliefs and psychopathological symptoms (Farrow & Blissett, 2007). Once again, causality is unclear as it is not certain if self-esteem was causal to mental health symptoms, the reverse, or if effects occur in both directions.

o. Self-esteem and education. Several studies have been found in the literature which demonstrate that self-esteem is linked to academic success. A review of 128 studies which examined the relationship between a person's overall average marks and self-esteem found that the average correlation is weak at 0.34; but does reveal the relationship between global self-esteem and academic success (Hattie, 1992, as cited in Alves-Martins, Amaral, Gouveia-Pereira, Pedro, & Peixotol, 2002). A study examining the impact of self-efficacy and self-esteem on academic performance found that perceptions of academic success were significantly linked to high self-esteem (Lane, Lane & Kyprianou, 2004).   Another study, which used the Coopersmith Self-Esteem Inventory with 180 fifth and sixth grade students, found that among female students; academic success and self-esteem were significantly correlated (Primavera, Primavera & Simon, 1974). A study of 71 male and 69 female students in the seventh grade found that self-esteem levels increased very significantly with increased academic achievement (Robison-Awana, Kehle & Jenson, 1986). It is uncertain if self-esteem was causal to

higher educational attainment, if higher educational attainment is causal to higher levels of self-esteem, or whether effects go in both directions.

In summary self-esteem is correlated with several factors. Factors correlated with high self-esteem include: higher educational achievement, having a clear plan for the pregnancy, breastfeeding, positive infant health, higher age when parenting, having parental support, higher perception of familial support, and a longer relationship with the father of the child. Factors correlated with lower self-esteem included Aboriginal ethnicity, experience of abuse, longer periods of homelessness, having mental health symptoms and having previous children.

p. Self-esteem and parenting. "High levels of maternal self-esteem yield more positive parent-child interaction, as well as improved child outcomes. In fact, self-esteem has been identified as a major predictor of parental competence, mastery, and high-quality maternal interaction (Dubow & Luster, 1990; Mercer & Ferketich, 1990; Stewart, 1995)" (Diehl, 1997). If research shows that parenting skills are related to self-esteem then it will be important to study the self-esteem of the women at Villa Rosa. Understanding what factors influence self-esteem would then be a step towards understanding how to support competent parenting.

q. Role of self-esteem in adolescent pregnancy and parenting. According to Erikson's psychosocial theory, the adolescent's main developmental task is that of role identity. Self-esteem is enhanced in this stage as self-concept is stabilized. After completing the stage of role identity the next stage is intimacy formation where the adolescent retains her identity while sharing herself with another person. After intimacy

formation the following stage is generativity, which includes a readiness to parent (Erikson, 1963 as cited in Butler et al., 1997).

Positive self-esteem is seen to be obtained from completing the role identity stage and achieving a mature autonomous sense of psychosocial identity. Low self-esteem would be considered an indication that the role identity stage is not completed, interfering with the ability to proceed to parenting readiness in the generativity stage. Butler et. al (1997) argued that, based on Erikson's theory, parenting readiness and success would thus be related to self-esteem.

The conflict of roles brought on by adolescent pregnancy and parenting robs the adolescent of time to complete the role identity stage before being thrust into the demands of the generativity stage. The conflicting demands are seen to be detrimental to the adolescent's self-esteem. This position is supported through research which shows that multiple changes correlate with low self-esteem (Simmons, Blyth, VanCleave, & Bush, 1979, as cited in Butler et al, 1997).

Feminist critiques exist regarding traditional theories such as Erikson's development theory used above (Zerbe Enns, 2004; Coady & Lehman, 2007). Criticism includes that traditional theories focus more on male experiences of development of independence through separation. Empirical research focusing on the experiences of white middle-class men equates mental health with the development of autonomy and individualism (Zerbe Enns, 2004). Traditional research ignores female experiences of development of independence through relationships and attachment with other people. The concern is ignoring the importance of emotional connections in development (Coady & Lehman, 2007).

Another critique is that the theory is influenced by the time period in which it was developed. The stages of the lifecycles of women are seen to be defined through completion through marriage and child rearing. Critics propose that this is more reflective of the stereotypes, repression and gender biases of the times than of women's development. (Berzoff, Melano Flanagan, & Hertz, 2002).

A study from the United States examined the psychological impact of pregnancy on self-esteem of adolescents. The retrospective study worked with 61 African American women who had been pregnant when they were 14 to 18 years old and single. The study used a self-esteem scale developed by the authors and a modified Rosenberg Self-Esteem Scale combined with open-ended questions. The study found that, "self-esteem may decrease during and immediately after the adolescent pregnancy, but increases between the birth of the child and adulthood." (Despenza-Myers, & Shorter-Gooden, 2005) This study appears to lend support to the idea that parenting before completing the role identity stage is detrimental to self-esteem.

Butler et al. (1997) conducted a small study of 24 young first time mothers, age 21 or under at the birth of their child, taking part in a parenting program. Using a one-tailed significance level of .05, they tested the correlations between self-esteem and indicators of parenting knowledge. Their findings were that at a child's age of three months the mother's self-esteem was significantly positively correlated with appropriate differentiation of parental and children's roles, empathy and appropriate expectations of children's developmental level. At a child's age of six months, the mother's self-esteem was significantly negatively correlated with the use of corporal punishment and differentiation of parental and children's roles was stronger.

The small study done in 2004 by Schwartz, Mcroy, Downs and Chris (2004) found that those women who were found to have lower levels of self-esteem were observed to be less responsive to their children's needs.

In a slightly larger study of thirty-six 13 to19 year old mothers from an alternative school for pregnant and parenting adolescents, Diehl (1997) analyzed the relationship between self-esteem and infant interactions. Scale data collected for a six month period were used. "Higher self-esteem was significantly positively related to maternal response to infant distress." (Diehl, 1997). Diehl found that 41% of the participants had low self-esteem as measured with the Hudson Index of Self-Esteem, and those with the lowest self-esteem scores were also found to have the lowest Parent Contingency scores, which measures the parent's response to the infant's behaviour (Diehl, 1997).

In summary, the findings on the role of self-esteem in adolescent pregnancy and parenting suggest that pregnant adolescents are at risk of experiencing lower levels of self-esteem and that lower levels of self-esteem correlate with lower parenting skills and problematic behaviours.

4. Theories of self-esteem. Mruk (2006) has outlined in his book both traditional theoretical approaches to self-esteem and contemporary empirically based approaches. The traditional approaches are as follows.

Social Learning Theory focuses on feelings of worthiness, empirical measurement and enhancement through altering the social environment. Morris Rosenberg (Rosenberg, 1965 as cited in Mruk, 2006) was influential in the 1960's (Mruk, 2006). The Rosenberg Self-Esteem Scale is the scale that was used in this study. He said that people have positive and negative attitudes towards all things and his idea of self-esteem

was based on positive or negative attitude towards the self. Self-esteem was seen to be a sum of all the areas on which a person evaluated him or herself. Self-esteem is developed through how well a person perceives him or herself to measure up to social values learned through socialization, thus being a sociological concept. As a person approaches her or his ideal, her or his self-esteem is higher. Stanley Coopersmith (Coopersmith, 1967 as cited in Mruk, 2006) also focused on a theory of self-esteem based on worthiness and social learning. His work was focused on how self-esteem could be enhanced. He believed that a person evaluated herself or himself based on four key areas: competence, significance, power, and virtue. He proposed that structured therapeutic settings would lead to more effectively raising self-esteem than unstructured therapy. The rationale for this belief was based on findings that children with higher self-esteem often came from families with clear boundaries and expectations. He also advocated that modeling dealing competently with difficult life factors, such as stress and anxiety, would promote higher self-esteem. A limitation of the social learning theory includes weak research results in statistical strength of findings which has led to criticism of research involving self-esteem (Mruk, 2006).

In applying the social learning theory to the residents of Villa Rosa, the expectation is that those residents experiencing acceptance from their social supports regarding their pregnancy and the birth of their child would experience higher self-esteem. In looking at social values that a young pregnant woman may be faced with, there is still, at times, judgment that pregnancy at a young age is immoral. Therefore, age will likely be correlated with self-esteem. Society values educational achievement. This will likely also be correlated with self-esteem. This theory would appear to support the

concept of a program, such as Villa Rosa, where there are opportunities to develop positive social supports, education, structure, and many opportunities to learn about parenting. The program provides opportunities for some women to move towards their ideal self if education and parenting skills are included in this image.

The Jamesian theory (James, 1890 as cited in Mruk, 2006) believes that we are born to possible social roles and our self-esteem develops from how well we perceive ourselves to have succeeded in the roles on which we place the greatest value. Self-esteem is seen as a ratio of success over aspiration and affected by both how highly successful a person is and by how high her or his aspirations were. This theory is based on competence. In looking at the residents of Villa Rosa this theory would likely assume that areas where competence can be demonstrated, such as educational achievement and completion of programs, will be strongly related to self-esteem.

The humanistic theory was put forward by Abraham Maslow (1954 as cited in Mruk, 2006) and Carl Rogers (1961 as cited in Mruk, 2006). It views self-esteem as a basic human need affecting behaviour and development. Self-esteem is seen to emerge naturally during development through receiving unconditional and positive regard. In Maslow's hierarchy, self-esteem is seen as required on the path to self-actualization. Braden (1983 as cited in Mruk, 2006) takes this definition one step further to state that low self-esteem will lead people to seek validation through unhealthy avenues. Braden puts forward that self-esteem is a basic need that is enhanced through reason, choice and responsibility.

This theory would appear to support the hypothesis that women who have experienced abuse will have lower self-esteem. If unconditional and positive regard is

required in the natural development of self-esteem, then women who have experienced abuse will have had the opposite in this regard. Those women whose supports are rejecting of their pregnancy and the birth of their child may also not be experiencing unconditional and positive regard, and would likely have lower self-esteem. Women who have struggled with living with a disability may have lower abilities with regard to reasoning skills which are a basic component of enhancing self-esteem. Therefore they would likely have lower self-esteem under this theory.

Contemporary theories of self-esteem are outlined as follows.

Seymour Epstein's (Epstein, 1980 as cited in Mruk, 2006) cognitive experiential self-theory states that people organize their experiences into personal theories of reality. The theory is based on organization, information, representation, and the process of development. People make connections between information they receive to put order into their world, and these connections are the basis of their personal view of the world and their place in it. (Epstein, 1980 as cited in Mruk, 2006) Self-esteem is seen as a basic need. A paradox is part of his theory. The paradox states that people will resist change in their theory of the world for fear of loss of stability that accompanies this change. At the same time, self-esteem will motivate expansion and change in this theory because gaining a greater understanding of the world is a positive self-esteem experience. Epstein's theory also outlined a hierarchy of self-esteem in which our basic self-esteem is followed by an intermediate level which reflects self-esteem relative to specific domains. Examples of these domains would be lovability, competence and moral approval. This, in turn, is followed by self-esteem in relation to situational daily experience. In 1995 Epstein added the concepts of implicit and explicit self-esteem where people have both

self-esteem that can be reported on verbally (explicit) and based on verbal abstract beliefs, and self-esteem that is inferred (implicit) based on emotional experiences (Epstein, 1995 as cited in Mruk, 2006).

In looking at this theory's intermediate hierarchical level of self-esteem, the self-esteem of the women at Villa Rosa may be tied to a combination of factors in this study, possibly including the acceptance by social supports of their pregnancy and birth of their child (lovability and moral approval), grade level and last involvement in school (competence), experiences of abuse (lovability) and expectations to continue the relationship with the father of the child (lovability).

Susan Harter's (Harter, 1999 as cited in Mruk, 2006) developmental approach combines behavioural competence with social approval in a two-factor approach. Self-esteem is seen as a sum of the two at any one time. The domains in which an individual values competence are seen to change over time in relation to a person's stage of development. Harter's theory is focused strongly on developmental stages applying to self-esteem. She has tracked the development and path of self-esteem throughout the lifecycle. Her theory emphasizes the impact of social approval at each stage in connection to competence and cognitive maturation. She developed instruments that accounted for stage of life, specific domains and measured global self-esteem, as well. Harter has said that adolescents experience relational self-worth. This is experienced when they begin to perceive their worth differently in different relational contexts.

As Harter includes both global and domain specific self-esteem, it would follow that in this theory the self-esteem of the residents at Vila Rosa will be influenced by both the input of others and experience of competence in different domains. The self-esteem

of adolescents is seen to be especially focused on interpersonal relationships. Therefore, in this study, self-esteem would be related to approval by the women's social supports in relation to their pregnancy and the birth of their child. Domain specific areas, which may represent experiences of competence, could include educational achievement and breastfeeding.

Terror management theory is an existentialist view that is based on the work of Ernst Becker (Pyszczynski, 2004; Greenberg et al. 1995 as cited in Mruk, 2006). Self-esteem is seen as the anxiety-buffer that protects us from our conscious understanding of the fact that everyone eventually dies in interaction with the biological desire to live. Individuals manage their terror of death through beliefs that hold information about alternate forms of immortality, such as a socially meaningful life (symbolic immortality) or actual immortality through religious beliefs (Solomon, 2006, as cited in Mruk, 2006). Living a socially meaningful life means abiding by shared systems of behaviour and accepted morals. This will differ by both culture and the individual's interpretation of her or his culture (Pyszczynski, 2006 as cited in Mruk, 2006). Terror Management Theory defines self-esteem as "the result of one's having faith in the culturally prescribed worldview and seeing oneself as living up to its standards." (Salzman, 2001, p.176). Therefore the approval of others within our culture will likely affect our assessment of how successful we believe ourselves to be. If self-esteem is developed through our assessment of our success in leading life according to these standards, then approval of pregnancy/birth of the child will relate to self-esteem.

Within Terror Management Theory also exists the theory that the anxiety buffer of indigenous cultures has been traumatically disrupted through contact with Europeans.

The theory is that the assault on culture coming from this contact has led to a loss of the type of culturally integrated behaviours which would support high self-esteem (Brave Heart & DeBruyn, 1998 as cited in Salzman, 2001). Therefore, Terror Management Theory would support the idea that Aboriginal ethnicity would relate to lower self-esteem.

Sociometric theory is an evolutionary approach which assumes that in our evolution lies a fundamental need to belong (Heatherton & Wylnd, 2003 as cited in Mruk, 2006). The ability of human beings to work in groups is seen as being one of our greatest survival skills, important to both the individual and to the species. Being cut off from a group could mean danger for early humans. The importance of social acceptance and related behaviours are seen to have developed to lessen the chances of being cut off from the group. This theory of self-esteem is based on an internal mechanism called a sociometer, which monitors our environment and alerts us when we are behaving in a way that endangers our acceptance by the group. The alert is given as a drop in self-esteem (negative feeling about self) resulting in a behaviour change to avoid rejection. It also monitors positive feedback from behaviours which promote our inclusion in the group and alerts us through positive feelings and a rise in self-esteem. In sociometric theory the meter is seen to be in a resting state when there is a lack of exterior input. The resting state can differ for each individual. Those with a higher resting state are seen as having higher self-esteem and taking more risks because their meter has a further distance to swing downward before reaching a socially dangerous position. Those with lower self-esteem have their meter set at a lower resting state and will take fewer risks because there is not much downward room before entering the danger zone.

Sociometric theory is highly based on social input. Therefore, it would support the idea that abuse and approval of pregnancy/birth of child will relate to self-esteem.

Specific to women's experiences Carol Gilligan (Lee, 2006) developed a theory of moral development that highlights the differences in male and female experiences. Her research is seen to have strongly influenced knowledge and theories regarding women's self-esteem (Lee, 2006). Her theory is built on another theorist, Kohlberg (Lee, 2006). Her theory is that women are the main caregivers for children. Female children are comfortable with their close relationships with their mother as they are the same sex, and this leads them to develop independence and maturity through close relationships. Male children are not comfortable with their close relationship with the opposite sex role model, and to develop their own identity as masculine they must develop independence through autonomy and separation. Thus, males develop through separation and females develop through relationship building. The theory recognizes that both are socially valuable and both paths lead to maturity (Gould, 1988). Female moral development is seen in three stages. In the first stage, women are focused exclusively on their own survival, and moral considerations are made when their own needs are at risk. In the second stage, they are focused primarily on the needs of others. This stage is similar to the traditional social role of women, self-sacrificing, concerned about hurting others and unwilling to make judgments independently. The final stage of female moral development is seen when a woman discards the negative aspects of the female role and embraces the positive aspects. Women are seen to obtain an understanding that being responsive to self and others can be connected instead of being in opposition (Lee, 2006).

Lee (2006) provides a review of the psychological literature on women's self-esteem. "After questioning why studies of women have repeatedly shown disturbing patterns, such as lack of self-esteem, an inability to feel powerful or in control of one's life, a vulnerability to depression, a tendency to see oneself as less talented, less able than one really is (Sanford & Donovan, 1984 as cited in Lee, 2006), women's self-esteem researchers conclude that women—those who are socialized to develop feminine characteristics—are imagined to have low self-esteem in a patriarchal society that values masculinity." (p.340, Lee, 2006)

Historically it was thought women needed to be feminine and men to be masculine to have good mental health (Long, 1986 as cited in Lee, 2006). Masculinity and femininity are not seen as mutually exclusive anymore and research has been done on self-esteem according to strength of masculine, feminine, androgynous and undifferentiated traits in men and women (Bem, 1974; Spence & Helmreich, 1978; Long, 1986 as cited in Lee, 2006). Masculine and androgynous traits have been found to have the highest relationship with high self-esteem (Willemsen, 1978 as cited in Lee, 2006). The cultural norms of many cultures push women towards feminine traits and men towards masculine traits. Thus, it is seen that women are actually conditioned to develop poor self-esteem. They are conditioned to embrace different criteria for self-evaluation and consequentially have different opportunities for self-enhancement. Men are encouraged to develop traits of rationality, independence and competitiveness. Women are encouraged to develop attachment to other people, to be soft and compromising. In a society where the masculine characteristics of competition and individualism are valued those who develop these characteristics will have positive self-esteem. (Lee, 2006)

According to these findings women who are achievement oriented will have higher self-esteem, and within this study this may be supported if findings show women with greater educational attainment have higher self-esteem.

5. Research on Rosenberg's Self-Esteem Scale. The tool which has been used for measurement of self-esteem in this study is Rosenberg's Self-Esteem Scale. It is the most widely used scale in self-esteem research (Mruk, 2006). In reviewing the literature on the scale it will be important to cover both the strengths reported about the scale and the potential limitations put forward by researchers.

Relevance to other theories. The Rosenberg Self-Esteem Scale was developed through the social learning theory. The scale will measure self-esteem in a way which reflects its theoretical roots, therefore comments on findings as related to other theories are considered speculative. Those theories which do not base self-esteem on the impact of the environment are not fairly tested by this tool.

Findings based on data collected through the Rosenberg Self-Esteem Scale will be more relevant to theories which do include the impact of the environment on self-esteem. This includes social learning theory, humanistic theory, Carol Gilligan's theory of moral development, sociometric theory and Susan Harter's developmental approach, and to a lesser degree cognitive experiential self-theory.

Scoring methods. The scale is scored differently in different studies. Usually it is scored either as a Likert scale on a scale from 10-40 or 0-30 or as a Guttman scale using a range of 0-6. This study used the Likert scoring method with a range of 10-40. There are also some studies which have translated the scale into different languages (Haj-Yahia, Musleh, & Haj-Yahia, 2002; Martín-Albo, Núñez, Navarro, & Grijalvo, 2007; Santos,

Casillas, & Robbins, 2004) or modified it by increasing the number of response categories (Carlson, Uppal, & Prosser, 2000; Clements, Ogle, & Sabourin, 2005).

The scale is composed of ten statements, five are positive such as "I feel that I have a number of good qualities" and five negatively worded items such as "At times, I think I am no good at all" with four response categories rated from 1 "strongly agree" to 4 "strongly disagree". The Likert scoring system reverses the five positively worded items, adds the scores from the ten items and returns a self-esteem score between 10 and 40 with higher scores representing healthier self-esteem.

Scoring of the Guttman scale is described by the Mental Health Statistics Improvement Task Force (1996). "The first item included questions 1 through 3 and received a positive score if two or three of its questions were answered positively. Questions 4 and 5 and questions 9 and 10 were aggregated into two other items that were scored positively, if both questions in the item had positive answers. Questions 6 through 8 counted individually formed the final three items. For the negatively worded RSE questions, responses that expressed disagreement and, hence, were consistent with high self-esteem, were considered positive or endorsed." (Mental Health Statistics Improvement Program Task Force, 1996) On the Guttman scored scale lower scores represent healthier self-esteem.

Both the Likert and Guttman scoring methods have been widely used. When reviewing the current literature, several stated that the Likert scored scale is the most frequently used version. (Gray-Little, Williams, & Hancock, 1997; Santos, Casillas, & Robbins, 2004; Yanico & Gen Chih Lu, 2000)

Examples of research which has used the Likert scoring method includes; Bachner, Karus, & Raveis, 2009; Brown, Cai, Oakes, & Deng, 2009; Cecil & Matson, 2006; Seacat & Mickelson, 2009; Yanico & Gen Chih Lu, 2000 "Bryne, 1983; Bryne & Shavelson, 1987; Crandall, 1973; Ellis & Taylor, 1983; Friedel, Hanson, Hummel & Schaffer, 1979; Hensley & Roberts, 1976; Hunt & Hardt, 1969; Kahle, 1976; Kaplan, 1970; Kaplan & Fokorny, 1969, 1971; Lee, 1972; Miller, 1973, Reynolds, et al., 1980, Reynolds, In Press; Weiss, 1977; Weiss & Knight, 1980." (Wallace, 1988).

Examples of research which has used the Guttman scoring method includes; Currie and Zimmer, 2002; Rosenberg, 1965; Szymanski & Kashubeck-West, 2008; "Fisher, 1972; Lee, 1972; Lieberman, Yalom & Miles, 1972; Marsland & Perry, 1972; Miller, 1973; Stang, 1972; Tessler & Schwartz, 1972; Williams & Stockman, 1973." (Wallace, 1988).

Wallace (1998) discussed the Guttman and Likert methods of scoring the Rosenberg Self-Esteem Scale. She found both scoring methods to have acceptable reliability and validity, overall her recommendation was to use the ten to forty point Likert scale. Likert scoring is well regarded whereas concerns exist with Guttman scoring (Nunnally, 1967 as cited in Wallace, 1988). The Likert method gives results with a wider range allowing for increased differentiation among respondents. It also will enable more precision with psychometric estimates of self-esteem. The Likert method is, in addition, easier to score.

Unidimensional or multidimensional. As outlined previously, Rosenberg's (1965 as cited in Mruk, 2006) definition of self-esteem is based on worthiness. Mruk's (2006) concerns regarding using worthiness alone were outlined previously. Mruk advocates for

the use of a two-factor or "multidimensional" approach. Many scales are unidimensional as they are based on measuring self-esteem as related to worthiness alone or competence alone. However, Rosenberg's scale has been studied and conflict has risen regarding whether the scale is unidimensional or multidimensional. Some studies have shown the scale to be multidimensional (Gecas, 1971; Tafarodi & Swann Jr., 1995 as cited in Mruk, 2006). Tafarodi and Swann Jr. (1995, as cited in Mruk, 2006), using factor analysis, found that items worded positively had high loadings on one factor and items worded negatively had high loadings on another. Studies that find two factors generally find one factor to be related to self-confidence and the second to be related to self-depreciation (Gray-Little, Williams, & Hancock, 1997).

In 1979, Rosenberg (Mental Health Statistics Improvement Program Task Force, 1996) found two factors in the scale and the factors' patterns of correlates to several variables were close to identical. Goldsmith (1989 as cited in Mental Health Statistics Improvement Program Task Force, 1996) found the scale to have two factors, and found that the scale was not factorially invariant across populations. Kaplan and Pokorny (1969, as cited in Mental Health Statistics Improvement Program Task Force, 1996) found the Likert scored scale to have two factors. In the first factor they found a significant association (p< .001) between the Rosenberg Self-Esteem Scale and psychophysiological indicators of anxiety, depressive affect, and utilization of psychiatric and other medical resources. They did not find factor two to be related. Shahani, et al. (1990, as cited in Mental Health Statistics Improvement Program Task Force, 1996) found r_s with work related attitudes obtained for the first factor to be in the opposite direction and larger than for the second factor.

Hagborg (1993, as cited in Mental Health Statistics Improvement Program Task Force, 1996) found almost identical patterns of correlates with the Physical Appearance Scale and the Rosenberg Self-Esteem Scale total score and both its factors (r_s of .55, .58 and .43) and with the Scholastic Competence scale (r_s of .48, .41 and .47).

Gray-Little, Williams, & Hancock (1997) studied the scale using item response theory; factor analysis identified a single factor and they concluded that the scale is unidimensional.

Goldsmith (1986 as cited in Mental Health Statistics Improvement Program Task Force, 1996) found that the age and characteristics of the respondents affect the factor structure. Analysis of students in university found the scale to be unidimensional and studies of adults found it to be multidimensional, based mainly on negatively worded versus positively worded questions. Some studies have specifically shown the Guttman scored scale to be unidimensional (Rosenberg, 1965; Silbert & Tippett, 1965; Crandal, 1973; as cited in Mental Health Statistics Improvement Program Task Force, 1996). The Likert scored scale specifically has also been found to be unidimensional (McCarthy & Hoge, 1982 as cited in Mental Health Statistics Improvement Program Task Force, 1996). Wallace cites several researchers who have used the scale as a unidimensional tool (Fisher, 1972; Lee, 1972; Lieberman, Yalom & Miles, 1972; Marsland & Perry, 1972; Miller, 1973; Stang, 1972, Tessler & Schwarts, 1972; Williams & Stockman, 1973 as cited in Wallace, 1988).

Wallace's conclusion after reviewing the available literature mirrored that of Hensley and Roberts (1976 as cited in Wallace, 1988). Their view was that the scale was

unidimensional, measuring a single variable, but with an underlying response set. This was also the conclusion reached by Carmines and Zeller (1979 as cited in Wylie, 1989).

Scale development. Wallace cited concerns that Rosenberg did not provide information about how the scale was developed or give information on the pool of items from which the ten scale items were taken (Crandall, 1973 as cited in Wallace, 1988).

Reliability and validity of the scale. Several studies have examined the reliability and validity of different versions of the scale.

Shahani, Dipboye and Phillips (1990, as cited in Mental Health Statistics Improvement Program Task Force, 1996) found alpha to be .80 for the total Rosenberg Self-Esteem Scale. McCarthy and Hoge (1982 as cited in Mental Health Statistics Improvement Program Task Force, 1996) found an alpha of .74, and one year later alpha was found to be .77 (N=1,852). Other studies have also found internal consistency and temporal stability after a 4-week interval (Rosenberg, 1989; Santos & Maia, 2003; Vallieres & Vallerand, 1990 as cited in Martín-Albo et al., 2007). Wallace's review of the literature for the Guttman scored scale found studies showed reliability coefficients of reproducibility from .91 to .93 and scalability from .71 to .73 (Kahle, 1976; Nocks & Bradley, 1969; Rosenberg, 1965; Wylie, 1974 as cited in Wallace, 1988). Silbert and Tippett (1965 as cited in Mental Health Statistics Improvement Program Task Force, 1996) found a two week test-retest coefficient of .86 for the Guttman scored scale, (where N=28).

Convergent validity was examined by Crandal (1973 as cited in Mental Health Statistics Improvement Program Task Force, 1996) and Pearson's r was found to be .60 with Coopersmith's Self-Esteem Inventory. Both Rosenberg and Coopersmith based their

theories of self-esteem on worthiness and social learning. Therefore the Pearson's r value would be expected to be strong, a value of .60 shows a marked degree of correlation. Silber and Tippett (1965 as cited in Mental Health Statistics Improvement Program Task Force, 1996) examined convergent validity on the Guttman scored scale and found a Pearson's r of .67 with Kelly Repertory Test (Kelly, 1955 as cited in Mental Health Statistics Improvement Program Task Force, 1996); a Pearson's r of .83 with Health Self Image Questionnaire (Heath, 1965 as cited in Mental Health Statistics Improvement Program Task Force, 1996); and a Pearson's r of .56 with interviewers' ratings of self-esteem. According to Wylie (1974) these Pearson's r score findings are sufficiently high, as she states, "These convergent validities are among the highest we have observed in cross-instrument correlations." (Wylie, 1974, p. 185).

Construct validity has also been studied. Rosenberg (1965 as cited in Mental Health Statistics Improvement Program Task Force, 1996) found a significant association (p<.05) between the Guttman scored scale and self-reports and nurses' and peers' depression ratings, psychophysiological indicators of anxiety, peer group reputation and other relevant constructs. Wallace's review of the literature found, "Construct validity coefficients with other self-report scales ranged from .21 to .83 and criterion validity coefficients with other variables ranged from -.38 to .83 (Crandall, 1973; Friedel, et al., 1979; Nocks & Bradley, 1969; Silbert & Tippett; 1965; Yamamota & Wiersma, 1967)" (Wallace, 1988).

Translated versions of the scale have been found to have high reliability. Martín-Albo, Núñez, Navarro, and Grijalvo, (2007) found, in a study of 420 students from the Universidad de Las Palmas de Gran in Spain, that a version of the scale translated into

Spanish had good temporal reliability using a test-retest correlation over a four week period. Santos, Casillas, and Robbins (2004) found a Portuguese version to have a test-retest reliability of .90 over two weeks, and an internal consistency coefficient alpha of .84. An Arabic version of the scale reported Cronbach's alpha to be .89 among Arab adolescents.

Studies showing reliability and validity specific to the ten to forty point Likert scored Rosenberg Self-Esteem Scale. Wallace summarizes the literature regarding reliability and validity of the ten to forty point Likert scale. Reliability coefficients ranged from .61 to .87 and validity coefficients ranged from -.42 to .75 (Wallace, 1988). Table 1, copied from her report, summarizes her findings when reviewing studies specific to the ten to forty point Likert scale.

Recent studies have continued to find the ten to forty point Likert scored scale reliable. Seacat & Mickelson (2009) found an internal reliability of .86 in a sample of overweight women. Bachner, Karus, & Raveis (2009) found Cronbach's alpha to be .84 among a sample of adult daughter caregivers to older parents with cancer. Brown et al. (2009) found reliabilities of .89 in a sample of Americans and .77 in a sample of Chinese people (their scale was scored from 0-30).

In conclusion, concerns exist regarding the possible two factor nature of the scale. Different methods are used to score the scale, the Likert method is recommended in the literature. The scale is widely used and many findings exist showing that the scale is reliable and valid.

Table 1

"Summary of Research Reports using the Forty (40) Point Likert Scoring System for the Rosenberg Self-Esteem Scale." Table from

Wallace (1988)

| Source | Type Sample | N | Statistics | | Reliability | | Validity | |
			Mean	SD	Type	Coefficient	Coefficient	RSE with
Byrne & Shavelson (1987)	High School	832			True Source	.74(Male) .87(Female)		
Byrne (1983)	High School	929			Test/ Retest	.61	.60 .37 .37	Coopersmith SE Coopersmith SE (Academic Subscale) Brookover SC Ability
Crandall (1973)							.60	Coopersmith SE
Ellis & Taylor (1983)	College	86					-.20 to .54	Task Specific SE
Friedel et al. (1979)	College	198	31.15	4.2	Split Half	.74	.21	SCII Part VII
Hensley & Roberts (1976)	College	479						Factor Analysis

Table 1 continued

Source	Type Sample	N	Statistics		Reliability		Validity	
			Mean	SD	Type	Coefficient	Coefficient	RSE with
Hunt & Hardt (1969)	High School	<u>1966</u> 211 (Black) 90 (White) <u>1968</u> 211 (Black) 90 (White)	28.73 28.02 30.27 29.53					
Kahle (1976)	College	442 (Total) 194 (Male) 248 (Female)	31.70 32.40 31.10	4.0 4.1 3.9	Odd/Even	.80	.60 .75	Self-Depreciation Inventory Feelings of Inadequacy
Kaplan & Pokorny (1969)	Adults	500						Factor Analysis
Lee (1972)	Adults	53 (Male)	Range (20-39)					Difference High/low SE and negativeise
Miller (1973)	College	171 (Male)	26.25	3.45			-.14 to .49	Women's Liberation Questionnaire
Reynolds (1988)	College	589	31.46	4.8	Alpha	.83	-.21 .10 .04 -.05	Academic SC Social Desirability Rotter IE GPA
Reynolds et al. (1980)	College	427			Alpha	.82	.45 -.01	Academic SC GPA
Weiss & Knight (1980)	College	41 (Male)	32.33	3.61	Alpha	.76	-.42 to .41	Task Specific

Table 1 continued

Source	Type Sample	N	Statistics Mean	SD	Reliability Type	Coefficient	Coefficient	Validity RSE with
Weiss (1977)	Adult	141	33.31	3.48	Alpha	.75		Significant SE r differences between high/low SE on success, competence, reward power.

Maternity Group Homes

Maternity group homes are residential programs which serve pregnant or parenting women. They can include a variety of services, including counselling, school, parenting and life skills classes, adoption services, and job training. The populations served can vary, often limited by age, family structure, prenatal or postnatal services and focusing on adoption, parenting or both (Hulsey, 2004).

Several studies on maternity group homes exist in the literature. Hulsey (2004) completed a summary in 2004 of the research to that date in the United States. She concluded that studies focus on four main areas: (1) Studies describing the characteristics of maternity group homes. (2) Studies without a basis for comparison that present data on outcomes based on anecdotal evidence. (3) Studies that attempt to incorporate a comparison group through comparisons with similar populations or using different points in time for the same person. (4) Studies that are concerned with the implementation of maternity group homes. (Hulsey, 2004) She highlights several concerns regarding the existing research. There does not appear to be a study which has included a control group to examine the effects of participation in a maternity group home program. The studies which do include some type of comparison used general adolescent populations or compared the same individual over time. Concerns raised regarding this approach include the fact that the general population does not face the same challenges that adolescent mothers do, and that it is not always possible to be certain that the changes observed over time in the same individual are caused by participation in the program. Hulsey also expressed concern regarding questionable research methodologies and over studies which do not report on their methodologies. The existing data are, however,

useful in part. They provide descriptive statistics on who uses maternity group homes, their experiences in homes and after leaving homes. She has developed a chart summarizing the studies, their data sources and methodology, and characteristics and outcomes. It is presented as Table 2 (Hulsey, 2004).

Table 2

"Studies of Maternity Group Homes" Table from Hulsey (2004)

Studies	Data Sources and Methodology	Characteristics and Outcomes
Collins, Mary Elizabeth, Terry S. Lane, and Joyce West Stevens. "Teen Living Programs for Young Mothers Receiving Welfare: An Analysis of Implementation and Issues in Service Delivery." *Families in Society: The Journal of Contemporary Human Services*, vol. 84, no. 1, 2003, pp. 31-38. Collins, Mary Elizabeth, Cristi Lemon, and Elizabeth Street. "A Consumer Review of Teen Living Programs: Teen Parents' Satisfaction with Program Components and Services." *Families in Society*, vol. 81, no. 3, 2000, pp. 284-293. Collins, Mary Elizabeth, Joyce West Stevens, and Terry S. Lane. "Teenage Parents and Welfare Reform: Findings from a Survey of Teenagers Affected by Living Requirements." *Social Work*, vol. 45, no. 4, July 2000, pp. 327-338.	Site visits to 21 TLP sites in 1998 and surveys of 72 current and 127 past residents (about one year, on average, after leaving the home); 69 percent response rate; outcomes of TLP residents compared to program expectations and to external data on "similar populations"	Describes Massachusetts' Teen Living Program (TLP) and its residents; presents outcomes on health, TANF receipt, education/training, employment, repeat pregnancy, housing/homelessness, abuse, and various dimensions of participant satisfaction
Cooper, Edith Fairman. *Second Chance Homes: Federal Funding, Programs, and Services.* Washington, DC: Congressional Research Service Report for Congress. September 29, 2003.	Based on other literature	Discusses selected results of other studies on maternity group homes

Table 2 continued

Studies	Data Sources and Methodology	Characteristics and Outcomes
The Economist. "Another Home, Another Chance." *Economist*, vol. 336, no. 7931, September 9, 1995, pp. 32-33.	Based on other literature	Presents select results from a few maternity group homes (Homes for the Homeless' American Family Inns, Crittenton House, St. Ann's, and Bridgewater)
Fischer, Robert L. "Toward Self-Sufficiency: Evaluating a Transitional Housing Program for Homeless Families." *Policy Studies Journal*, vol. 28, no. 2, 2000.	Administrative data on 98 families, and surveys of participants and staff; 58% response rate for exit interviews, 55% for followup; outcomes compared to external data on similar populations, to different cohorts, and to the same individuals at different points in time	Describes the Family Development Center in Georgia and its residents; presents outcomes on employment, education/training, earnings, housing, receipt of public assistance, and repeat pregnancy
Georgia Campaign for Adolescent Pregnancy Prevention. http://www.gcapp.org/programs_secondchance.html Accessed January 2004.	Program documents	Presents outcomes at exit from Georgia's network on education, employment, and immunizations
Koniak-Griffin, Deborah. "Psychosocial and clinical variables in pregnant adolescents: A Survey of maternity home residents." *Journal of Adolescent Health Care*, vol. 10, no. 1, January 1989, pp. 23-29.	Surveys of 90 pregnant teen residents of two maternity homes in Los Angeles to measure self esteem, social support, and attachment to unborn child; compared sample to results of other studies of different populations	Presents outcomes during residence on self-esteem, social support, and attachment to unborn child
Reich, Kathy, and Lisa M. Kelly. *A Place to Call Home: Second Chance Homes in Georgia.* Washington, DC: Social Policy Action Network, March 2000.	Interviews with maternity group home practitioners	Describes seven networks and six privately-run maternity group homes

Table 2 continued

Studies	Data Sources and Methodology	Characteristics and Outcomes
Reich, Kathleen. *Improving Outcomes for Mother and Child: A Review of the Massachusetts Teen Living Program.* Cambridge, MA: Harvard University, John F. Kennedy School of Government, April 1996.	Program records and a survey of 14 other maternity group homes in other states	Describes Massachusetts' TLP (and its residents) and 14 other maternity group homes; mentions selected outcomes from individual programs
Saint Elizabeth's Regional Maternity Center. http://www.stelizabeths1.org/ Accessed January 2004.	Program documents; resident characteristics at intake compared to later	Presents outcomes of Saint Elizabeth's home residents at intake and after program on welfare receipt and education
Saunders, Edward. "Residential Program Serves Pregnant Teens and Young Mothers in Iowa." *Children Today*, vol. 19, no. 1, 1990, pp. 8-13.	Not discussed	Describes the Adolescent Pregnancy Program of Central Iowa and its residents; presents anecdotal outcomes of two participants
Sawyer, Christie. *Teen Living Program Network: FY '99 Monitoring Report.* Prepared for the Massachusetts Department of Social Services and the Massachusetts Department of Transitional Assistance, 2000.	Program intake and exit data and annual survey data on 149 TLP residents; compares characteristics of individuals at two different points in time	Describes Massachusetts' TLP and its residents; presents outcomes on skill levels, education/training, employment, income, and father involvement
Social Policy Action Network. *Second Chance Homes National Directory.* Washington, DC: SPAN, November 2001.	Survey of maternity group homes	Describes 95 maternity group homes around the country; mentions several outcomes in introduction, but no discussion
Social Policy Action Network. *Seeking Supervision: Second Chance Homes and the TANF Minor Teen Parent Living Arrangement Rule.* Washington, DC: SPAN, 1999.	Review of literature on living arrangements for minor parents and discussions with providers	Describes three state networks (Massachusetts, New Mexico, and Rhode Island) and. more briefly, nine local maternity group homes; reports some outcomes from homes' own reports and some from literature review

Table 2 continued

Studies	Data Sources and Methodology	Characteristics and Outcomes
Sylvester, Kate, and Kathy Reich. *Second Chance Homes: Advice for States.* Washington, DC: SPAN, September 1999.	Based on conversations with staff at those homes	Presents selected outcomes from a few maternity group homes (including Massachusetts and New Mexico networks, Bridgeway, Las Cruces Teen Parent Residence, and Seton Home) on repeat pregnancies, education, stronger life skills, and health
Sylvester, Kathleen. *Second-Chance Homes: Breaking the Cycle of Teen Pregnancy.* Washington, DC: Progressive Policy Institute, June 1995.	Interviews with maternity group home practitioners	Describes 14 different maternity group homes around the country (in appendix); presents various "self-reported, anecdotal, and short-term" outcomes reported on nine maternity group homes
U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Second Chance Homes: Providing Services for Teenage Parents and Their Children.* Washington, DC: ASPE, October 2000.	Based on other studies	Notes outcomes reported by other studies of maternity group homes on education, employment, welfare dependency, repeat pregnancies, health, child abuse and neglect
Wood, Robert G., and John Burghardt. *Implementing Welfare Reform Requirements for Teenage Parents: Lessons for Experiences in Four States.* Princeton, NJ: Mathematica Policy Research, Inc., October 31, 1997.	Site visits	Describes Massachusetts' TLP

The findings of the existing maternity group home research include the following. There appear to be consistent data considering the social backgrounds of maternity home residents. Hulsey (2004) states that "Many have histories of welfare receipt, domestic violence, child abuse, educational interruptions, and housing instability." Up to 76% of residents reported family reliance on social assistance. Many residents are children of adolescent mothers. Thirteen to fifteen percent of residents reported abuse by a boyfriend. Forty-three percent of residents had contact with the department of social services and 37% to 67% of residents dropped out of school. Many were homeless or precariously housed. The majority of the pregnancies were unplanned. Most residents presented with considerable resiliency, adequate social supports, and adequate parenting and lifeskills. They presented with similar clinical and psychological characteristics as other populations of pregnant adolescents, lower self-esteem than older mothers and a positive attachment to the developing fetus (Hulsey, 2004).

Hulsey also summarized the information regarding experiences of women during residence at maternity group homes. There was a high variation in the length of stay. Averages ranged from 67 days to two years (standard deviations not provided). Studies showed that satisfaction with program results is high in relation to helpfulness with childcare, educational components, specific classes, emotional support, and having basic needs met. Those factors rated unhelpful were rules and conflict with staff or residents.

Many of the maternity group homes promoted health and connection to health care. In a study of two homes in California it was found that the residents were healthy (Koniak, 1989 as cited in Hulsey, 2004). Other studies reported outcomes related to the health of the infants, including: healthy birth weights (Sylvester & Reich, 1999 as cited in

Hulsey, 2004); high levels of immunization (G-CAPP, 2004 as cited in Hulsey, 2004); and higher proportions of infants with asthma (Reich, 1996 as cited in Hulsey, 2004). Some studies found low occurrence of repeat pregnancies while residents were still residing in a maternity group home; from less than one percent to five percent (Hulsey, 2004). One study found that the percentage of children's fathers who were involved increased from intake to discharge. There was also a general increase in financial support (Sawyer, 2000 as cited in Hulsey, 2004).

Some studies provided information regarding participants and how they fared after leaving the maternity group home. Forty-five to sixty-five percent of participants pursued education (Fischer, 2000; Collins, Stevens, & Lane, 2000 as cited in Hulsey, 2004). Twenty-five to sixty-five percent of participants became employed (mainly in low waged jobs without benefits) with an average job tenure of 76 days to nine months (*Economist,* 1995; Collins et al., 2000; G-CAPP, 2004; Fischer, 2000; Sylvester, 1995 as cited in Hulsey, 2004). Between seven and fifty percent of women received some form of child support (Fischer, 2000; Collins et al., 2000; Sawyer, 2000 as cited in Hulsey, 2004). Ten to twenty-eight percent had subsequent pregnancies within one year (Collins et al., 2000; Fischer, 2000; Sylvester, 1995 as cited in Hulsey, 2004). One study of the Massachusetts' Teen Living Program network found that 96% of women were health insured, 82% had taken themselves to see a doctor and 87% had taken their child to see a doctor (Collins et al., 2000 as cited in Hulsey, 2004).

Self-esteem of maternity home residents and effects of maternity homes on self-esteem. There is limited literature available for examining the self-esteem of maternity home residents. The study completed at Villa Rosa found that over thirty percent of Villa

Rosa residents arrived with a concerning level of self-esteem (Currie & Zimmer, 2002).

A study by Deborah Koniak-Griffin (1989) of ninety adolescents from two maternity homes in Los Angeles found the self-esteem of maternity home residents to be similar to that of pregnant adolescents not in maternity homes (as reported in other studies). The study was conducted through self-report questionnaires and scales.

An additional study was completed by Schwartz, McRoy, Downs and Chris in 2004. This small study involved adolescent mothers in a transitional living facility and found that "over a third of the adolescent participants in the transitional living program had low self-esteem according to the Hudson scale..." (Schwartz et al., 2004). This study had a very small number of participants (25) and only seventeen completed the self-esteem scale.

Rationale for This Study

Self-esteem is important to study when examining maternity home populations.

Empirically there is evidence in the literature of negative consequences for adolescents who become pregnant and parent compared to adolescents who did not become pregnant. Examples are living below the poverty level and being unemployed or holding lower-paying jobs (Furstenberg, Brooks-Gunn, & Morgan, 1987; Brooks-Gunn & Chase-Lansdale, 1995; McLaughlin, Pearce, Manninen, & Winges, 1988 as cited in Butler et al., 1997). Lower self-esteem has been shown to be related to pregnancy in adolescence (Despenza-Myers, & Shorter-Gooden, 2005). In studies of parenting and self-esteem lower self-esteem has been linked to the use of corporal punishment and abusive attitudes towards children (Braun & Fuscaldo, 1988 as cited in Butler et al., 1997). Social competence of children with their friends has been linked to their mothers'

self-esteem (Hubbs-Tait et al., 1994 as cited in Butler et al. 1997). Higher self-esteem has been shown to be related to the decision to breastfeed (Gaff-Smith, 2004). For adolescent parents, specifically, there is evidence in the literature that higher self-esteem is related to better parent/child outcomes, including increased parental competence, mastery, and higher-quality maternal interaction. (Dubow & Luster, 1990; Mercer & Ferketich, 1990; Stewart, 1995; as cited in Diehl, 1997).

Mruk (2006) summarized the many positive factors linked with high self-esteem, such as: the ability to function in times of stress and trauma, happiness, desirable personal and interpersonal characteristics, improved job performance and problem solving, especially with initiative and persistence, extraversion, autonomy, authenticity, prosocial behaviour, immunocompetence, improvements in educational attainment, pre-school and young children's soioemotional functioning, and decreased likelihood of mortality for older people.

According to many of the theories reviewed there are aspects of maternity group homes which should improve self-esteem. Maternity group homes provide food and shelter. According to the humanistic theory, Maslow's hierarchy requires basic needs to be met before complex needs can be enhanced (Maslow, 1954 as cited in Mruk, 2006). At Villa Rosa there is the opportunity for educational advancement and participation in programs which enhance parenting and lifeskills. These are opportunities to increase feelings of competence and success. Several theories would see this as increasing self-esteem, including: the Jamesian theory (James, 1890 as cited in Mruk, 2006), Susan Harter's developmental approach (Harter, 1999 as cited in Mruk, 2006), Carol Gilligan's theory of moral development (lee, 2006) and Seymour Epstein's cognitive experiential

self-theory (Epstein, 1980 as cited in Mruk, 2006). Villa Rosa provides an environment in which pregnancy is accepted and provides access to a group of peers in similar circumstances. This can create opportunities to have feelings of group acceptance and belonging, and increase social supports. The social learning theory (Rosenberg, 1965 as cited in Mruk, 2006) proposes that self-esteem can be enhanced through altering the social environment. Sociometric theory (Heatherton & Wylnd, 2003 as cited in Mruk, 2006), Jamesian theory (James, 1890 as cited in Mruk, 2006) and terror management theory (Mruk, 2006) propose that perception of success in social roles will be evaluated, in part, based on the feedback of others. Cognitive experiential self-theory (Epstein, 1980 as cited in Mruk, 2006) proposes that greater experiences of lovability leads to greater self-esteem. Susan Harter's developmental approach (Harter, 1999 as cited in Mruk, 2006) proposes that self-esteem of adolescents is strongly focused on interpersonal relationships.

The theories and the empirical evidence show that studying what is related to or enhances self-esteem in adolescent pregnant women is valuable for enhancing parent-child outcomes. Mruk's (2006) summary of positive factors associated with self-esteem would indicate that this would also enhance the outcomes for the women themselves. Looking at the services that are provided to pregnant or parenting adolescent parents, such as maternity group homes, to determine if they are associated with an improvement in self-esteem is one way of exploring what enhances self-esteem for adolescent pregnant women.

Identification of Gaps

Gaps in the research on maternity group homes include the lack of a study which has a control group. There have been several studies regarding maternity group homes, but none has had the ability to provide a control group. This does reflect the appropriate choices to not withhold services based on the need for a control group for studies. Random assignment to a control group or group which receives service would be difficult. For example, programs usually have a process by which they prioritize which women on a waiting list receive service. Should the possibility of a control group arise due to higher demand for services than available capacity, random assignment may not be appropriate for deciding who receives service.

Longitudinal studies that have been conducted over a lengthy period of time are rare as are studies which include a large sample size. The Villa Rosa study was able to contribute to improving these gaps. Very little research was found on the relationship of self-esteem to Canadian Aboriginal status.

Summary of the Literature Review

This study focused on the self-esteem of women taking part in the program at Villa Rosa. Villa Rosa is a residential program providing services to single pregnant women. The program provides counselling, food and shelter, school, and programs including prenatal classes, parenting and adoption classes, and life skills classes. There is also a postnatal semi-independent living program after women have their baby if they are planning to parent.

A study completed on Villa Rosa concluded that; 1. Women who reside at Villa Rosa will be better equipped to parent after leaving the perinatal program than they were

when they first arrived. 2. Those women who go through the postnatal program will be better equipped to parent at the end of the program than they were at the beginning of the program. 3. Those who go through both programs will be better equipped to parent than those who go through only the perinatal program (Currie & Zimmer, 2002)

Self-esteem is correlated with several factors. Factors correlated with high self-esteem include: higher educational achievement, having a clear plan for the pregnancy, breastfeeding, positive infant health, higher age when parenting, having parental support, higher perception of familial support, and a longer relationship with the father of the child. Factors correlated with lower self-esteem included Aboriginal ethnicity, experience of abuse, longer periods of homelessness, having mental health symptoms and having previous children.

The findings on the role of self-esteem in adolescent pregnancy and parenting suggest that pregnant adolescents are at risk of experiencing lower levels of self-esteem and that lower levels of self-esteem correlate with lower parenting skills and problematic behaviours.

Several theories of self-esteem were reviewed. In social learning theory self-esteem is seen as feelings of worthiness, which can be enhanced through altering the social environment. In the Jamesian theory self-esteem is seen as a ratio of success over aspiration and affected by both how highly successful a person is and by how high her or his aspirations were. In the humanistic theory self-esteem is a basic human need affecting behaviour and development. Self-esteem is seen to emerge naturally during development through receiving unconditional and positive regard. Cognitive experiential self-theory believes people make connections between information they receive to put order into

their world, and these connections are the basis of their personal view of the world and their place in it. In Susan Harter's developmental approach self-esteem is seen as a sum of behavioural competence and social approval. The domains in which an individual values competence are seen to change over time in relation to stage of development. In terror management theory self-esteem is seen as the anxiety-buffer that protects us from our conscious understanding of the fact that everyone eventually dies in interaction with the biological desire to live. Sociometric theory is an evolutionary approach which assumes that in our evolution lies a fundamental need to belong, and that an internal mechanism called a sociometer monitors our environment and alerts us when we are behaving in a way that endangers our acceptance by the group through a drop in our feeling of self-esteem. (Mruk, 2006) In Carol Gilligan's theory of moral development that highlights the differences in male and female experiences, males develop through separation and females develop through relationship building. (Lee, 2006)

Literature on the Rosenberg Self-Esteem Scale was reviewed, and it was found that concerns exist regarding the possible two factor nature of the scale. Different methods are used to score the scale, and the Likert method is recommended in the literature. The scale is widely used and many findings exist showing that the scale is reliable and valid. The scale was developed through the social learning theory, therefore comments on findings as related to other theories are considered speculative.

Existing studies on maternity group homes were reviewed. It was found that studies involving a control group were lacking, as well as studies conducted using a large control group and spanning a long time period.

The following chapter will present the methods used to conduct this research study. The eight research questions and hypotheses will be presented. The sampling and recruitment methods, measurement methods and data collection methods will be explained. Issues relating to validity of this study will be reviewed.

Chapter III: Methods

Research Questions and Hypotheses

Being a staff member at Villa Rosa and working directly with many of the women who completed the questionnaires has led to my motivation for choosing this research as a thesis topic. Being a staff member also created some biases, including a belief that Villa Rosa is a successful program that provides an important service to single pregnant women. My assumptions entering this research were that the findings would show the pre-natal program and the PNH program had a positive impact on the self-esteem of the women who participate. I also assumed that women who stayed at Villa Rosa for a greater length of time had greater increases in their self-esteem. My assumptions included that higher self-esteem would be related to a choice to breastfeed and having more social supports. My assumptions were also that lower self-esteem would be related to having a history of abuse and living with a disability.

A descriptive analysis provided information about the life experiences and socio-demographic composition of the population at Villa Rosa. Variables presented mirrored those included in Currie and Zimmer's study (2002) including; age, education, address of origin, ethnicity and history of abuse.

Control variables were chosen based on the findings presented in the literature review and the limitations of what data were available. All analyses controlled for: age, education level, last involvement in school, address of origin, ethnicity, history of abuse, report of living with a disability, plan for current pregnancy, pressure experienced regarding the plan for the pregnancy, length of time at most recent residence, number of

previous children, the acceptance of the support network, participation in the PNH program, length of time at Villa Rosa and self-esteem at intake.

The hypotheses to be tested include:

1) Are there significantly different levels of self-esteem at discharge among women who are Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis or Non-Aboriginal? (Controlling for factors discussed above. For this analysis ethnicity will be considered the independent variable rather than a control variable.)

μ_1 is the level of self-esteem of women who reported as Non-Aboriginal

μ_2 is the level of self-esteem of women who reported as Aboriginal, Ojibway

μ_3 is the level of self-esteem of women who reported as Aboriginal, Cree/Swampy Cree

μ_4 is the level of self-esteem of women who reported as Aboriginal, other

μ_5 is the level of self-esteem of women who reported as Métis

$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

$H_1: \mu_1 > \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

2) Does self-esteem increase from intake to discharge in the Villa Rosa program? (Controlling for factors discussed above. For this analysis self-esteem at intake will be considered the independent variable rather than a control variable.)

μ_1 is the level of self-esteem at intake and μ_2 is the level of self-esteem at discharge.

$H_0: \mu_1 = \mu_2$ The level of self-esteem is equal before and after taking part in the Villa Rosa program.

$H_1: \mu_1 < \mu_2$ The level of self-esteem increased after taking part in the Villa Rosa program.

3) Do women who take part in the Post Natal House (PNH) program have greater self-esteem at discharge than women who do not take part in the Villa Rosa Post Natal House program? (Controlling for factors discussed above. For this analysis PNH participation will be considered the independent variable rather than a control variable.)

μ_1 is self-esteem at discharge for women who do not take part in the Post-Natal House program.

μ_2 is self-esteem at discharge for women who take part in the Post-Natal House program.

$H_0: \mu_1 = \mu_2$ Self-esteem at discharge is equal for women who take part in the Villa Rosa Post Natal House program and for women who do not take part in the Villa Rosa Post Natal House program.

$H_1: \mu_1 < \mu_2$ Self-esteem at discharge is greater for women who take part in the Villa Rosa Post Natal House program than it is for women who do not take part in the Villa Rosa Post Natal House program.

4) Do women who report as living with a disability at intake have lower levels of self-esteem at discharge than women who did not report as living with a disability at intake? (Controlling for factors discussed above. For this analysis living with a disability will be considered the independent variable rather than a control variable.)

μ_1 is the level of self-esteem at discharge of women who reported living with a disability at intake and μ_2 is the level of self-esteem at discharge of women who did not report living with a disability at intake.

H_0: $\mu_1 = \mu_2$ Women who reported living with a disability at intake will not have significantly different levels of self-esteem at discharge than women who did not report living with a disability at intake.

H_1: $\mu_1 < \mu_2$ Women who reported living with a disability at intake will have a lower level of self-esteem at discharge than women who did not report living with a disability at intake.

5) Does self-esteem at discharge increase as length of residence increases? (Controlling for factors discussed above. For this analysis length of time at Villa Rosa will be considered the independent variable rather than a control variable.)

μ is the level of self-esteem at discharge

H_0:   Length of time that women reside at Villa Rosa will not affect their self-esteem levels at discharge.

H_1: Self-esteem at discharge will increase as length of time at Villa Rosa increases.

6) Do women who plan to breastfeed (measured after birth when the baby is admitted to Villa Rosa) have a higher level of self-esteem at intake than women who do not plan to breastfeed? (Controlling for most factors discussed above but not controlling for discharge self-esteem, number of days at Villa Rosa and PNH participation.   For this analysis self-esteem at intake will be considered the

independent variable rather than a control variable and plan to breastfeed will be considered the dependant variable rather than a control variable.)

μ_1 is the level of self-esteem at intake of women who plan not to breastfeed and μ_2 is the level of self-esteem of women who plan to breastfeed.

$H_0: \mu_1 = \mu_2$ Women who plan to breastfeed will not have a higher level of self-esteem at intake than women who do not plan to breastfeed.

$H_1: \mu_1 < \mu_2$ Women who plan to breastfeed will have a higher level of self-esteem at intake than women who do not plan to breastfeed.

7) Is discharge self-esteem related to social support at intake? (Controlling for factors discussed above. For this analysis social support will be considered the independent variable rather than a control variable.)

H_0: As the level of social support increases self-esteem at discharge will not increase.

H_1: As the level of social support increases, self-esteem at discharge will increase.

8) Is discharge self-esteem related to types of abuse experienced as reported at intake? (Controlling for factors discussed above. For this analysis abuse will be considered the independent variable rather than a control variable.)

H_0: As the number of types of abuse reported increases self-esteem at discharge will not increase.

H_1: As the number of types of abuse reported increases, self-esteem at discharge will increase.

Sample Definition and Recruitment

The information that this thesis was based upon is data that has been collected from a census of all residents from Villa Rosa from May 1998 to February 2009. Approximately six hundred and seventy-five women were admitted to Villa Rosa's prenatal program during this time period. Only the portion of the database relevant to this thesis was obtained. Forty-six of the 75 questions on the portion of the intake questionnaire filled out by the woman herself were collected. Of the 675 women admitted during this time, 668 women (99%) completed some portion of the 46 questions. Forty-seven of the 114 questions on the portion of the discharge questionnaire filled out by the woman herself were collected. Only 290 women (43%) completed some portion of the 47 discharge questions.

Self-esteem was calculated at intake and discharge using a ten item scale at both time periods. Cases were excluded which were missing more than three of the ten values required on either discharge self-esteem or intake self-esteem. After elimination of cases missing for self-esteem there were 269 cases. One additional case was eliminated due to a multivariate outlier. The final sample size was 268.

Measurement

Self-esteem was measured using Rosenberg's Self-Esteem Scale. The scale was used as a Likert scale. It was measured at both intake and at discharge. As discussed previously, the scale is composed of ten statements; five are positive such as "I feel that I have a number of good qualities" and five are negatively worded items such as "At times, I think I am no good at all" with four response categories rated from 1 "strongly agree" to 4 "strongly disagree". The Likert scoring system reverses the five positively worded

items, adds the scores from the ten items and returns a self-esteem score between 10 and 40 with higher scores representing healthier self-esteem. This study reversed the five negatively worded items instead, resulting in a score between 10 and 40, where lower scores represented healthier self-esteem.

Social support information was collected using a scale rating the perceived attitude of several possible social support persons (mother/guardian; father/guardian; father of your baby; boyfriend-not the father of your baby; closest brother; closest sister; closest girlfriend; closest other person) towards the resident's pregnancy and the birth of her child. Ratings are from 1 (very accepting) to 7 (very rejecting), and include choices for "doesn't know", "I don't know how he/she feels", and "not applicable". It was measured according to the sum of strong supports a resident reported in her life - those rated as "1" (very accepting) or "2" (the second highest rating for being accepting). This is loosely based on the overall network rejection cut off for high risk determined by Currie and Zimmer (2002). This sum was converted to a proportion based on the number of strong supports divided by the number of people the woman was able to evaluate. (I.e. The number of people included, but not rated as, "doesn't know", "I don't know how he/she feels", and "not applicable".) It is a continuous variable. It was measured at intake. A dummy variable was created to identify which cases had missing responses.

Age was measured in years. It was measured at intake.

Education level was measured on a mainly ordinal scale by grade. Women were asked what grade they finished before coming to Villa Rosa. Possible answers included; special program; elementary or less; grade 7; grade 8; grade 9; grade 10; grade 11; grade 12; schooling beyond high school. It was transformed into dummy variables with the

comparison category being grade twelve. A dummy variable was created for missing responses. It was measured at intake.

The last involvement in school was measured with an ordinal scale. Women were asked when they were last in school with the following choices; just before coming to Villa Rosa, one to six months ago and more than six months ago. Each choice was transformed into two dummy variables with yes coded as "1" and no coded as "0". The comparison category was more than six months ago. A dummy variable was created for missing responses. It was measured at intake.

Ethnicity was measured nominally with the following options; Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis, Non-Aboriginal. It was transformed into four dummy variables with the comparison category being Non-Aboriginal. A dummy variable was created for missing responses. It was measured at intake.

History of abuse was measured ordinally as the number of categories of abuse to which a woman answered "yes", that she had experienced, (neglected as a child, physical by parent, physical by other than parent, emotional, sexual, during pregnancy). A dummy variable was created to show which cases had missing responses. It was measured at intake.

Living with a disability was measured nominally as "yes" or "no" in response to the question "Do you have any special needs or disabilities?". It was transformed into a dummy variable with yes coded as "1" and no coded as "0". A dummy variable was created for missing responses. It was measured at intake.

Plan for current pregnancy was measured nominally with the following options; parent, adoption, uncertain. It was transformed into dummy variables with the comparison category being uncertain. A dummy variable was created for missing responses. It was measured at intake.

Pressure experienced regarding the plan for the pregnancy was measured nominally as "yes" or "no" to the following categories; to parent, to place for adoption, to terminate the pregnancy. Dummy variables were created for each category to show responses of "yes" and responses that were missing. Responses of "no" were used as the comparison category. It was measured at intake.

Length of time at most recent residence before entering Villa Rosa was measured ordinally with the following options; 2 days or less, 2 days to 1 month, 1 month to 12 months, 13 to 60 months and more than 5 years. It was transformed into four dummy variables with the comparison category being more than 5 years. A dummy variable was created for missing responses. It was measured at intake.

Length of time at Villa Rosa was measured by days. It was derived by comparing the intake and discharge dates. It was measured at discharge.

Previous children was measured by asking "number of other children" and providing a blank space for the woman to enter the number of children she had prior to the current pregnancy. It was measured at intake.

If a woman had taken part in the PNH program was nominally measured as yes or no depending on which program the woman was being discharged from. It was transformed into dummy variables with yes coded as "1" and no coded as "0". It was measured at discharge.

If a baby had health concerns was measured when the baby was admitted to Villa Rosa. Three questions with yes/no answers were asked, including: Has the baby had any health problems since birth? For example, have you taken your baby to emergency or seen a doctor on an emergency basis?; Has your baby been in Special Care Nursery/ Neo-Natal Intensive Care Unit?; Any other health or developmental problems of the baby since birth? It was measured at convalescence. It was not used due to too many missing responses.

Breastfeeding was measured at convalescence (infant admission). The words "Breast Feeding" were followed by three tick boxes with the options "yes", "no" and "N/A". It was transformed into dummy variables with "no" as the comparison category. A dummy variable was created for missing responses.

Data Collection

The information used for this study was already collected through Villa Rosa as a routine part of the services. Questionnaire had been developed for several time periods; intake to the program, discharge, convalescence (return from the hospital after giving birth) and some point after discharge (for women participating in the follow-up program). Portions of the data collected were completed by social work staff as part of agency record keeping. Women were requested to complete other portions of the data. Participation was voluntary. Participants were advised that identifying information is confidential between the participant and Villa Rosa. They were told that the data is used for research, program improvement and to learn more about them. The intake questionnaires were completed in the presence of a social worker available to clarify the questions. The convalescence questionnaire was completed by a social worker based on

information provided by the woman. A social worker was available to help clarify the discharge questionnaires, but the questionnaires could be taken and completed independently. If women did not complete the discharge questionnaire the social worker filled out the first page as part of agency record keeping. Women participating in the follow-up program were asked to complete the survey by the follow-up social worker. The forms could be completed independently and the follow-up social worker was available to answer any questions. Should the participant have difficulty in literacy the survey could be completed verbally. After completion, a Villa Rosa staff member entered the information into the SPSS computer program from all forms.

Validity

    1. Internal validity. There are several potential threats to internal validity. Maturation can be an important factor when considering the changes in social supports and self-esteem. For those who enter Villa Rosa soon after discovering they are pregnant, the passage of time will certainly have an effect on the ability of family and friends to be supportive. It will also affect how the young women feel about themselves. The large sample size will help in countering this as many of the women who enter Villa Rosa will have had several months of awareness of their pregnancy, and thus the newness of the pregnancy itself will not be such a big effect. One additional maturation concern is the fact that PNH participants' discharge self-esteem is measured at discharge from the PNH, after several months of parenting. Women who do not take part in the PNH program have their discharge self-esteem measured at discharge from the prenatal residence. For women who parent this would usually only be three to four weeks postnatal.

The effects of history may be seen in the results of the study as the data have been collected over ten years. Social supports have changed over the ten year period. In July, 2001 low-income (under $32,000) pregnant women in Manitoba became eligible to receive the Healthy Baby Manitoba Prenatal Benefit. The purpose of the benefit is to provide money prenatally for nutritional needs during pregnancy starting in the second trimester. The benefits are based on income, are on a sliding scale and are a maximum of $81.41/month. Four thousand five hundred and two women received the benefit in 2006/07. Healthy Baby Community Support programs began providing milk coupons in April 2002 to women who attended for up to four liters a week (Healthy Child Manitoba, 2006). Agencies such as Employment and Income Assistance and Child and Family Services can have significant impacts on the well-being of the young women at Villa Rosa, and thus have unexpected effects on the data. Once again, the large sample size hopefully accounted for any impacts from history.

Areas examined in this study may be vulnerable to the threat of statistical regression to the mean, and it may be a consideration in who is referred to the program. Given that the program provides shelter and food, women may be referred because of difficult life circumstances. Considering these more extreme circumstances, the threat is that over time and coming out of crisis there would be a natural change in life areas measured for the study, which may in error be attributed to the program. The hope was that this was addressed by the large sample size and the fact that many women entered the program from safe home situations.

Testing should not have a large effect on the results. The questionnaires are not identical as only certain scales are repeated. They are only given a possible total of three

times: once at intake, once at discharge and again, possibly, if a woman is part of the follow-up program. Considering that most residents stay several months, the time between should mitigate the effects of completing the same scale. The scales are not discussed as a routine part of program teachings and no right or wrong answers are indicated. The Rosenberg Self-Esteem Scale has encouraging evidence of temporal reliability, which can be seen to address concerns regarding testing (Rosenberg, 1989; Santos & Maia, 2003; Vallieres & Vallerand, 1990 as cited in Martín-Albo et al., 2007).

The questionnaires used before and after are different, leading to possible concerns in regard to instrumentation. The scales which are compared for before and after are themselves identical. There are some differences in ordering. In the intake questionnaire the self-esteem scale precedes the attitudes of social support network measure and this is opposite in the discharge questionnaire. Questions prior to the scales are different in each questionnaire, which may impact responses, depending on how the questions asked prior to completing the measures impacted the individual.

Experimental mortality is an important consideration. The questionnaire is voluntary, and therefore there will be some women who choose to leave areas blank. There will also be some data missing from women who moved out unexpectedly and did not complete the voluntary portions of the discharge questionnaire. Staff would then complete only the known answers on the first page for agency record keeping. This concern was evaluated by comparing cases with missing data and without missing data.

The phenomenon of overlap of treatment will certainly occur with many of the women participating in the program. Many of the women at Villa Rosa lead complicated

lives with several agencies providing several services. The large sample size hopefully decreased this possible threat.

Not having an available control group makes it difficult to determine what would have happened had the program not been provided. This type of control may have been useful in attributing any changes to program participation. However, the goals of the program are to provide services when needed, and not to perform an experiment. Therefore no woman wishing to access the program could ethically be denied services for purposes of establishing a control group.

2. Construct validity. Researcher expectancies are a variable that should be examined. The intake and questionnaires are completed in the presence of a social worker, the convalescence questionnaire is completed by a social worker based on answers given by the woman, and the discharge questionnaire is at times completed with a social worker. The threat is that the women will be attempting to answer the way she believes the social worker wishes her to answer. The use of reliable and proven measures and the large sample size should help to minimize this concern. This should also help with concerns regarding hypothesis guessing and evaluation apprehension.

Reliance upon self-reported data is one limitation. Some of the women struggle with cognitive delays or low literacy levels and may misunderstand questions presented. This may be especially relevant to the validity of data obtained regarding living with a disability as a respondent's disability may be what limits her ability to accurately fill out the questionnaire. The availability of a staff member while women are completing the survey can certainly diminish the amount of influence this has, but will not negate it.

Staff familiar with the respondents briefly review the information for inconsistencies by reading the forms over once they are completed.

As this is a secondary analysis, some of the other measures are used based on matching research questions to the closest approximation of a measure for a variable of interest that can be found. The scales that were used to measure social support and types of abuse are unique to this study and have not been tested for validity.

Ethnicity is limited to the categories presented on the questionnaire, therefore not appropriately operationalized. Breastfeeding is measured immediately when baby comes home from the hospital and will not reflect if this is sustained, creating concern that this measure may not be sufficient to reflect the construct of breastfeeding. This will remain a construct validity concern to be aware of as these are areas where opportunity for ideal measurement is limited. The belief that construct validity is present is strengthened through the literature showing high validity of the Rosenberg Self Esteem Scale (Rosenberg, 1965; Silber & Tippett, 1965; as cited in Mental Health Statistics Improvement Program Task Force, 1996).

3. External validity. If the results of this study were to be considered for populations beyond Villa Rosa, the following challenges to generalizing would exist.

Villa Rosa is a unique setting where many of the needs of the residents are addressed under one roof. This includes meeting basic needs of shelter and food. The residents themselves are a unique group of voluntary clients who are currently pregnant. Pregnancy can be seen as an opportunity for many healthy changes to occur. Changing the group or the setting may change the results. It was helpful that this study examined

differences in self-esteem using cultural and socio-demographic data to determine if these effects exist.

Although the Rosenberg Self Esteem Scale has been tested for validity, reactive effects are still a concern. Generalizability of the findings from this study will be disrupted unless programs have similar administrative procedures. The same concern exists with regard to the testing X intervention threat. Generalizability is limited in programs without a similar pre-test.

Practitioner effects should not be a concern as the program is delivered by multiple staff members.

Any concerns from the interaction between history and the intervention should be mediated through the effects of the ten year time frame.

Selection bias was a concern. The cases eliminated based on missing data were compared with those kept, and some significant differences were found.

4. Statistical conclusion validity. The reliability of measures for self-esteem is addressed through the use of an established measure in the Rosenberg Self Esteem Scale. It has been proven to have high reliability (Rosenberg, 1965; Silber & Tippett, 1965; as cited in Mental Health Statistics Improvement Program Task Force, 1996).

The threat of reliability of intervention implementation is relevant as the study covers data from a ten year period. Through this time there have certainly been changes to program content, the programs offered and the staff. The overall concept of offering programs in a safe and nurturing environment has remained constant.

The concern of random irrelevancies in the intervention setting is, hopefully, addressed through the large sample size of 268 from a long time period. For example,

extensive renovations done to the building would certainly have an effect on the satisfaction of the participants during that time period. This would be balanced through the data from alternate periods where there were no renovations.

The large sample size that was used lowers the risk of type 2 error, therefore enhancing statistical conclusion validity.

Summary of Methods

This study presented eight research questions relating to self-esteem of maternity group home residents in relation to; ethnicity, program participation, PNH program participation, living with a disability, length of stay in the program, breastfeeding, social supports and experiences of abuse.

A sample of six hundred and seventy-five cases was present at the start of the data screening, representing the women who were admitted to Villa Rosa's prenatal program during the time period studied. A decision was made to exclude the cases in which more than three of the ten required values were missing to calculate either discharge self-esteem or intake self-esteem. This reduced the sample to 269. When screening for multivariate outliers a decision was made to remove one case reducing the sample size to the final sample of 268 women. Data were collected through intake, convalescence and discharge questionnaires primarily filled out voluntarily by women participating in the program.

Several concerns in regards to validity are an unavoidable part of conducting this type of study. The use of a large sample size, statistical controls and collection of data over a ten year period are hoped to help in enhancing validity of this study.

The following chapter reviews the findings of the research. It will review the screening of the data, provide a description of the characteristics of the sample used, and explain the data analysis used and the results specific to each research question.

Chapter IV: Findings

This section will present the findings of this research. It will review the steps taken to screen and prepare the data for the statistical tests used to address the research questions. It will provide a description of the characteristics of the sample used. It will provide a section explaining the data analysis used and the results specific to each research question. The alpha level used for inferential test findings was .05. Before receiving the database an alpha level of .001 was considered when the database was expected to provide 600 to 800 cases. As the sample size was reduced to 268 the alpha level was changed to .05.

Screening the Data

Six hundred and seventy-five cases were present at the start of the data screening, representing the women who were admitted to Villa Rosa's prenatal program during the time period studied.

1. Inspect univariate descriptive statistics for accuracy of input.

a. Out-of range values. In order to better ensure the accuracy of the data file with a large data set SPSS FREQUENCIES was used to examine univariate descriptive statistics. The frequencies of each variable were found. With continuous variables all values were examined to see if they were within range and discrete variables were checked for out of range cases.

Some input issues were noted at this time, including the following;

A value of "999" on an intake self-esteem scale item, which was not consistent with any category, was changed to "99" missing.

User defined missing values from "Do you have any Special Needs or Disabilities?" were found not to be included in the values defined as missing values by SPSS. They were entered to act as missing values.

A questionnaire category of "Not Applicable" was defined as missing in SPSS in two questions ("Breastfeeding" And "Have you experienced any abuse while you were pregnant?"). These categories were removed from the missing category as the feedback was not missing. In these cases the "Not Applicable" category was meant to indicate that the question was not appropriate for the respondent.

This year the agency modified its input of "How would you describe your Nationality?" to include a value of "Aboriginal – other" based on responses to the other category. As this was not consistent with past years' input methods this new category was collapsed with the "other" category to maintain consistency.

On the intake self-esteem variables of "All in all I am inclined to feel that I am a failure" and "On the whole, I am satisfied with myself" out of range values of 5 were found. These values were used to represent answers of between 2 and 3, and they were therefore changed to 2.5.

On the discharge self-esteem variable of "I am able to do things as well as most other people" the user input missing value of 99 was found not to be included in the values defined as missing values. It was changed to act as a missing value.

The scale of intake attitudes of social support network was found to have values and value labels inconsistent with the original data collection form as follows:

In "How does your father feel about your pregnancy" a value of three was labeled as "neither accepting nor rejecting". The value label was reassigned to values of 4 to

maintain consistency. It was not possible to check the paper copies for verification as they had been destroyed.

In "How does your closest sister feel about your pregnancy" an out of range value of 8 was entered and labeled as "neither accepting nor rejecting". Values of 8 were recoded as 4 and the label was reassigned to values of 4. It was not possible to check the paper copies for verification as they had been destroyed.

An out of range value of "22" was recoded to "2" as an assumed input error in "Has the baby been in Special Care Nursery/Neo-Natal Intensive Care Unit?" It was not possible to check the paper copy for verification as it had been destroyed.

An out of range value of 1,341 days spent in the program at Villa Rosa was checked by the agency with the paper copy of the questionnaire and changed to 24 days.

b. Plausible means and standard deviations. SPSS frequencies were used to determine the means and standard deviations for scale variables. All seemed within a plausible range.

c. Univariate outliers. The data were checked for univariate outliers. An outlier of 41 years was observed in the age variable. The paper copy of the questionnaire was checked by agency staff and the age was found to be correct at 41 years. Possible outliers of 8 and 9 were observed in number of previous children, but the paper copies of this information had been destroyed and were therefore not available to check.

2. Missing data.

a. Evaluating missing data.

i. Missing self-esteem data. SPSS FREQUENCIES was used to examine the number of missing cases from the ten variables used to calculate self-esteem values at

intake and the ten variables used to calculate self-esteem at discharge. A large number of cases were missing from each. Multiple imputation was used to replace values from cases missing three or fewer values needed to calculated self-esteem at discharge and/or missing three or fewer values needed to calculated self-esteem at intake. A decision was made to exclude the cases in which more than three of the ten required values were missing to calculate either discharge self-esteem or intake self-esteem. All cases were divided into two groups, those that would be eliminated and those that would be kept based on this criterion. All variables to be used in the analysis were used to compare the two groups to determine how representative the sample remained. Nominal variables were compared using chi-squared analysis (Table 2), ordinal variables were compared using Mann Whitney U Tests (Table 3) and interval variables were compared using independent samples t-tests (Table 4).

Table 3

Chi-squared Analysis Comparing Nominal Variables for Cases to be Eliminated or Kept

Based on Missing Self-esteem Values

Variable	Valid N	df	χ^2	p
How would you describe your nationality?	651	4	7.78	.100
What grade did you finish before coming to Villa Rosa?	638	8	13.58	.093
Do you have any special needs or disabilities?	480	1	0.00	.988
Were you ever neglected as a child?	569	1	0.44	.505
Have you ever been physically abused by a parent?	570	1	2.76	.096
Have you ever been physically abused by someone other than a parent?	568	1	0.58	.448
Have you ever been emotionally abused?	568	1	0.39	.533
Have you ever been sexually abused?	556	1	0.75	.387
Have you experienced any abuse while you were pregnant?	553	2	1.70	.428
How does your mother feel about your pregnancy?	570	9	18.75*	.027
How does your father feel about your pregnancy?	567	9	14.22	.115
How does the father of your baby feel about your pregnancy?	566	9	11.11	.268
How does your boyfriend (not father of baby) feel about your pregnancy?	528	9	7.72	.563
How does your closest brother feel about your pregnancy?	567	9	15.65	.075

Table 3 continued

Variable	Valid N	df	χ^2	p
How does your closest sister feel about your pregnancy?	558	9	8.00	.534
How does your closest girlfriend feel about your pregnancy?	557	8	13.22	.104
How does an "other" support feel about your pregnancy?	481	9	15.17	.086
Plan for current pregnancy	638	2	0.80	.671
At any time have you felt pressured to place for adoption?	544	1	0.71	.398
At any time have you felt pressured to parent?	544	1	0.60	.437
At any time have you felt pressured to terminate this pregnancy?	539	1	2.38	.123
Breastfeeding	567	2	31.36***	.000
Has the baby had any health problems since birth?	287	1	0.34	.562
Has the baby been in Special Care Nursery/Neo-Natal Intensive Care Unit?	287	1	0.04	.847
Any other health or developmental problems of the baby since birth?	279	1	2.80	.094
Was there participation in the PNH?	682	1	12.84***	.000

*p<.05. ***p<.001

Table 4

Mann Whitney U Tests Comparing Ordinal Variables for Cases to be Eliminated or Kept

Based on Missing Self-esteem Values

Variable	*Valid N*	*U*	*p*
How long have you lived at this address?	630	45993.50	.314
When were you last in school?	576	40618.00	.735

Table 5

Independent Samples T-test Comparing Interval and Ratio Variables for Cases to be Eliminated or Kept Based on Missing Self-esteem Values. Means and Standard Deviations of Cases Kept and Cases Eliminated.

Variable	MD	*df*	*T*	*p*	Cases kept			Cases eliminated		
					N	M	SD	N	M	SD
Age	0.39	498.39	1.22	.223	269	19.06	4.34	411	18.67	3.60
Number of previous children	0.01	612	0.14	.888	256	0.61	1.29	358	0.59	1.22
Length of time in Villa Rosa program	70.31	487.21	6.03***	.000	266	184.20	158.60	405	113.89	129.69

Note. MD = Mean Difference. ****p<.001.*

Chi-square analysis (see Table 3) shows a significant difference when comparing cases missing the self-esteem variable with those not missing the self-esteem variable for the following questions; How does your mother feel about your pregnancy?; Breastfeeding?; Was there participation in the PNH? For these three variables Tables 6, 7 and 8 show the percentage by response categories for those cases missing the self-esteem variable with those not missing the self-esteem variable. The missing group appears to have a higher percentage of accepting mothers, and a lower percentage of women who do not know how their mother feels. The missing group has a lower percentage of women planning to breastfeed and a higher percentage of women who responded as not applicable. The missing group also has a lower percentage of women who participated in the PNH.

Analysis of ordinal variables using the Mann Whitney U test found no significant differences between the two groups (see Table 4). Analysis through independent samples t-tests shows a significant difference when comparing cases missing the self-esteem variable with those not missing the self-esteem variable for the length of time spent in the program at Villa Rosa (see Table 5).

The findings show that the missing data are not random for each variable. This will be considered a threat to external validity. This is a weakness in using secondary data.

Table 6

Crosstabulation for; 'Self-Esteem Missing Three or More Values at Either Intake or Discharge' and 'How Does Your Mother Feel About Your Pregnancy?'

| | How does your mother feel about your pregnancy? | | | | | | | | | | |
	Very accepting	2	3	neither accepting, nor rejecting	5	6	Very rejecting	Doesn't know she is pregnant	Don't know	Not applicable	Total
Self-esteem present	34.57%	13.75%	10.41%	11.90%	2.97%	2.60%	4.09%	1.49%	9.67%	8.55%	100.00%
Self-esteem missing	46.51%	11.96%	9.97%	10.96%	1.00%	0.66%	2.33%	3.32%	5.32%	7.97%	100.00%
Total	40.88%	12.81%	10.18%	11.40%	1.93%	1.58%	3.16%	2.46%	7.37%	8.25%	100.00%

Table 7

Crosstabulation for; 'Self-Esteem Missing Three or More Values at Either Intake or Discharge' and 'Breastfeeding?'

| | Breastfeeding? | | | |
	Yes	No	Not applicable	Total
Self-esteem present	48.32%	16.81%	34.87%	100.00%
Self-esteem missing	30.09%	11.25%	58.66%	100.00%
Total	37.74%	13.58%	48.68%	100.00%

Table 8

Crosstabulation for; 'Self-Esteem Missing Three or More Values at Either Intake or Discharge' and 'Was There Participation in the PNH?'

| | Was there participation in the PNH? | | |
	Yes	No	Total
Self-esteem present	21.19%	78.81%	100.00%
Self-esteem missing	11.14%	88.86%	100.00%
Total	15.10%	84.90%	100.00%

ii. Missing independent variables, dependant variables and control variables. SPSS.FREQUENCIES was used to count the number of cases missing in each variable after eliminating cases based on missing self-esteem values as described above. A dummy variable was then created to distinguish between cases that had no variables missing and those that had some variables missing. All variables to be used in the analysis were used to compare the two groups to determine if the missing values were missing at random or not. Nominal variables were compared using chi-squared analysis, ordinal variables were compared using Mann Whitney U Test and interval variables were compared using independent samples t-tests.

Table 9

Chi-squared Analysis Comparing Nominal Variables for Cases Missing Data and Cases

Not Missing Data

| | Valid | | | |
Variable	N	df	χ^2	p
How would you describe your nationality?	257	4	0.92	.921
What grade did you finish before coming to Villa Rosa?	268	8	11.72	.164
Do you have any special needs or disabilities?	223	1	3.39	.066
Were you ever neglected as a child?	267	1	0.94	.332
Have you ever been physically abused by a parent?	265	1	0.08	.781
Have you ever been physically abused by someone other than a parent?	266	1	0.02	.888
Have you ever been emotionally abused?	267	1	1.36	.244
Have you ever been sexually abused?	260	1	0.12	.725
Have you experienced any abuse while you were pregnant?	259	2	0.80	.670
How does your mother feel about your pregnancy?	269	9	22.91**	.006
How does your father feel about your pregnancy?	266	9	9.61	.383
How does the father of your baby feel about your pregnancy?	268	8	5.62	.689
How does your boyfriend (not father of baby) feel about your pregnancy?	253	8	7.22	.513
How does your closest brother feel about your pregnancy?	268	8	2.20	.974

Table 9 continued

Variable	Valid N	df	χ²	p
How does your closest sister feel about your pregnancy?	265	9	5.26	.811
How does your closest girlfriend feel about your pregnancy?	262	7	5.17	.639
How does an "other" support feel about your pregnancy?	219	9	7.98	.536
Plan for current pregnancy	264	2	1.64	.441
At any time have you felt pressured to place for adoption?	257	1	2.91	.088
At any time have you felt pressured to parent?	257	1	0.82	.365
At any time have you felt pressured to terminate this pregnancy?	254	1	0.48	.489
Breastfeeding	238	2	50.03***	.000
Has the baby had any health problems since birth?	164	1	0.00	.995
Has the baby been in Special Care Nursery/Neo-Natal Intensive Care Unit?	163	1	0.00	.987
Any other health or developmental problems of the baby since birth?	160	1	1.23	.268
Was there participation in the PNH?	269	1	11.86**	.001

**p<.01, p<.001

Table 10

Mann Whitney U Test Comparing Ordinal Variables for Cases Missing Data and Cases

Not Missing Data

	Valid		
Variable	*N*	*U*	*p*
How long have you lived at this address?	261	7040.00	.856
When were you last in school?	266	7179.00	.768

Table 11

Independent Samples T-test Comparing Interval and Ratio Variables for Cases Missing Data and Cases Not Missing Data, Means and

Standard Deviations

Variable	MD	*df*	*t*	*p*	N	Present M	SD	N	Missing M	SD
Age	0.37	193.73	0.72	.529	78	18.79	3.41	191	19.16	4.67
Previous children	0.03	254.00	0.16	.872	78	0.59	1.11	178	0.62	1.37
Length of time in the Villa Rosa program	-78.96	131.33	-3.63 ***	.000	78	240.00	166.36	188	161.04	149.71
Intake self-esteem variables										
I feel that I am a person of worth	0.08	255.00	0.95	.346	75	1.67	0.53	182	1.74	0.60
I feel that I have a number of good qualities	-0.04	266.00	-0.58	.560	78	1.77	0.51	190	1.73	0.56
All in all, I am inclined to feel that I am a failure	-0.08	260.00	-0.87	.385	77	3.08	0.70	185	3.00	0.64

Table 11 continued

Variable	MD	*df*	*t*	*p*	Present			Missing		
					N	M	SD	N	M	SD
I am able to do things as well as most other people	-0.09	267.00	-1.21	.228	78	1.88	0.58	191	1.79	0.58
I feel I do not have much to be proud of	0.05	266.00	0.49	.623	77	2.96	0.79	191	3.01	0.73
I take a positive attitude toward myself	-0.06	266.00	-0.78	.436	78	1.94	0.61	190	1.87	0.59
On the whole, I am satisfied with myself	-0.05	263.00	-0.52	.602	75	2.01	0.67	190	1.97	0.62
I wish I could have more respect for myself	0.07	260.00	0.63	.531	77	2.40	0.75	185	2.47	0.81
I certainly feel useless at times	0.02	264.00	0.17	.866	78	2.49	0.86	188	2.51	0.77
At times, I think I am no good at all	-0.01	266.00	-0.12	.903	78	2.78	0.82	190	2.77	0.84
Discharge self-esteem variables										
I feel that I am a person of worth	0.12	259.00	1.53	.128	76	1.50	0.53	185	1.62	0.61

Table 11 continued

Variable	MD	df	t	p	Present			Missing		
					N	M	SD	N	M	SD
I feel that I have a number of good qualities	0.01	267.00	0.13	.901	78	1.49	0.60	191	1.50	0.61
All in all, I am inclined to feel that I am a failure	-0.26	254.00	-2.75 **	.006	76	3.41	0.61	180	3.13	0.77
I am able to do things as well as most other people	0.02	266.00	0.27	.785	78	1.58	0.61	190	1.60	0.63
I feel I do not have much to be proud of	-0.20	266.00	-1.97	.050	78	3.49	0.64	190	3.29	0.79
I take a positive attitude toward myself	0.10	267.00	1.25	.211	78	1.56	0.55	191	1.66	0.58
On the whole, I am satisfied with myself	0.08	266.00	0.98	.326	77	1.57	0.64	191	1.65	0.62
I wish I could have more respect for myself	-0.18	265.00	-1.50	.135	76	2.87	0.85	191	2.69	0.88
I certainly feel useless at times	-0.15	180.56	-1.43	.155	77	2.90	0.70	191	2.75	0.91
At times, I think I am no good at all	-0.32	266.00	-2.82 **	.005	77	3.27	0.74	191	2.95	0.88

Note. MD = Mean Difference. **p<.01. ***p<.001.

Chi-square analysis (see Table 9) shows a significant difference when comparing cases missing values in any variable with those not missing values in any variable for the following questions; How does your mother feel about your pregnancy?; Breastfeeding?; Was there participation in the PNH? For these three variables Tables 12, 13 and 14 show the percentage by response categories for those cases missing any values with those not missing any values. The missing group appears to have a higher percentage of very accepting mothers, but a much lower percentage of women who rated their mothers as '2', the next most accepting value. The missing group has a lower percentage of women planning to breastfeed and a much higher percentage of women who responded as not applicable. The missing group also has a lower percentage of women who participated in the PNH.

Analysis of ordinal variables using the Mann Whitney U test found no significant differences between the two groups (see Table 10). Analysis through independent samples t-tests shows a significant difference between the two groups for; Length of time spent in the program at Villa Rosa; and on the discharge self-esteem scale for All in all, I am inclined to feel that I am a failure and; At times, I think I am no good at all (see Table 11).

Table 12

Crosstabulation for; 'Cases Missing Data and Cases Not Missing Data' and 'How Does Your Mother Feel About Your Pregnancy?'

| | How does your mother feel about your pregnancy? | | | | | | | | | | |
	Very accepting	2	3	neither accepting, nor rejecting	5	6	Very rejecting	Doesn't know she is pregnant	Don't know	Not applicable	Total
All values present	19.70%	25.76%	13.64%	12.12%	7.58%	3.03%	1.52%	3.03%	6.06%	7.58%	100.00%
Some values missing	39.41%	9.85%	9.36%	11.82%	1.48%	2.46%	4.93%	0.99%	10.84%	8.87%	100.00%
Total	34.57%	13.75%	10.41%	11.90%	2.97%	2.60%	4.09%	1.49%	9.67%	8.55%	100.00%

Table 13

*Crosstabulation for; 'Cases Missing Data and Cases Not Missing Data' and
'Breastfeeding?'*

| | Breastfeeding? | | | |
	Yes	No	Not applicable	Total
All values present	74.24%	21.21%	4.55%	100.00%
Some values missing	38.37%	15.12%	46.51%	100.00%
Total	48.32%	16.81%	34.87%	100.00%

Table 14

Crosstabulation for; 'Cases Missing Data and Cases Not Missing Data' and 'Was There Participation in the PNH?'

	Was there participation in the PNH?		
	Yes	No	Total
All values present	36.36%	63.64%	100.00%
Some values missing	16.26%	83.74%	100.00%
Total	21.19%	78.81%	100.00%

iii. Missing Values Analysis through SPSS. SPSS MVA was performed to examine the missing values as suggested by Tabachnick and Fidell (2007). The separate variance t-tests did not show significance relationships between missingness on any pairs of continuous variables. The EM option was chosen to determine if the data were missing completely at random (MCAR) or not. The univariate statistics table showed missing values on all variables except; age; one intake self-esteem variable – I am able to do things as well as most other people; two discharge self-esteem variables – I feel that I have a number of good qualities and I take a positive attitude toward myself; How does your mother feel about your pregnancy?; and PNH participation.

The results for Little's MCAR (missing completely at random) test returned a non-significant result of $p=.525$ so MCAR can be inferred. The overall pattern of missing values does not depart from randomness. However some of the individual variables did depart from randomness. Therefore these data can be said to have some data not randomly missing within a pattern of overall data that are randomly missing.

b. Addressing missing values. Table 15 shows the number and percentage of cases missing for each variable.

i. Abuse and social support variables. A dummy variable was created to demonstrate if data were missing on any of the six abuse categories. The cases not missing any abuse values were combined into a new scale variable to show how many categories of abuse a woman reported experiencing. A mean value was obtained from these cases and used to replace the cases in this new variable which were missing a value on any category. The new variable and the variable showing missing in any category were used in further analysis.

For attitudes of social support network a similar process was used. A dummy variable was created to show if data were missing on any of the eight support categories. The cases not missing any support values were combined into a new scale variable showing number of supports rated as "1" (very accepting) or"2" (the second highest accepting rating). Some of the categories such as "brother" were not applicable in every woman's life. A prorating strategy was used where this new sum was divided by the number of support persons the woman rated, excluding those rated as "not applicable", "doesn't know" and "I don't know how he/she feels". A mean value was obtained from these cases and used to replace the cases in this new variable which were missing a value on any category. The new variable and the variable showing missing in any category were used in further analysis.

When a sample mean is used to replace missing data the concern is that this reduces the variability of the sample on this variable. The correlation between these variables and other variable will be reduced. Type 1 error is increased because, although the sample size will remain the same, the standard error or these variables will be underestimated, the small standard errors will result in small p-values. (De Vaus, 2002). By creating a variable demonstrating missing data it remains possible to evaluate in each research question if women who did not answer are significantly different from those who did answer.

ii. Nominal and ordinal variables (excluding abuse and social support). A decision was made to treat missing data as a new dummy variable for ordinal and nominal variables. Dummy variables were created for each nominal and ordinal variable to show missing data. By creating dummy variables demonstrating missing data it

remains possible to evaluate in each research question if women who did not answer are significantly different from those who did answer.

The variables that were to be used to measure baby's health were found to be missing on an unacceptable number of cases. "Has your baby had any health problems since birth" was missing 105 of 269 answers (39%). "Has the baby been in Special Care Nursery/Neo-Natal Intensive Care Unit?" was missing 106 of 269 answers (39%). "Any other health or developmental problems of your baby since birth" was missing 109 of 269 answers (41%). They were removed from further analyses. These were control variables and not independent variables, and therefore it remained possible to proceed with the proposed research questions. The implication of not having sufficient responses for these variables is that the research questions will not be able to control for the effects of baby's health.

iii. Interval data. Multiple imputation was used to replace values for scale variables. It is considered the method to deal with missing data that is the most rigorous (Tabachnick & Fidell, 2007). Five separate datasets were created where the missing interval entries were imputed (filled in) with estimates using an imputation process with a random component. Each dataset contained a different set of replacement values because of the random component. When multiple imputation analysis is performed on the individual datasets, each set of parameter estimates are different because of the differences in the datasets. The results are then pooled and the variation in the parameter estimates is calculated. This method avoids the risk of type 1 error which occurs from single imputation where the standard errors and corresponding p-values are too small and the loss of cases experienced with deletion of cases missing values. (Grace-Martin, 2008-

2009) It is also the appropriate choice for this data where the overall pattern of missing data is random, but some individual data is not. It does not require the data to be missing completely at random (Tabachnick & Fidell, 2007)

Some values on the intake and discharge self-esteem scale items required inversion. The Rosenberg Self-Esteem Scale contains five statements which reflect positive self-esteem and five statements which reflect negative self-esteem. A response of strongly agree results in a score of "1". Agree is scored as "2", disagree is scored as "3" and strongly disagree is scored as "4". Positive statements were left so that agreement resulted in a lower score, and negative statements were inverted so that disagreeing resulted in a corresponding lower score. The eventual compilation of the scores from all statements resulted in lower scores reflecting healthier self-esteem.

When attempting to run the multiple imputation command an error was received. The number of parameters was too high so conditions were set to only use other data for predicting new values (ie. not calculating unnecessary new values). Dummy variables were created for ordinal and nominal data as outlined in the measurement section of this thesis. Maximum and Minimum values were set for scale data, including minimum values of zero for; number of days at Villa Rosa, previous children and length of time in Villa Rosa program. All self-esteem scale variables were given a minimum value of one and a maximum value of four.

Table 15

Number and Percentage of Cases Missing for Each Variable.(N=269)

	Missing	
Variable	Count	Percent
How long have you lived there?	8	3.0
When were you last in school?	3	1.1
Age	0	0.0
Length of time in the Villa Rosa program	3	1.1
How would you describe your nationality?	12	4.5
Do you have any special needs or disabilities?	46	17.1
What grade did you finish before coming to Villa Rosa?	1	0.4
Number of other children?	13	4.8
Were you ever neglected as a child?	2	0.7
Have you ever been physically abused by a parent?	4	1.5
Have you ever been physically abused by someone other than a parent?	3	1.1
Have you ever been emotionally abused?	2	0.7
Have you ever been sexually abused?	9	3.3
Have you experienced any abuse while you were pregnant?	10	3.7
How does your mother feel about your pregnancy?	0	0.0
How does your father feel about your pregnancy?	3	1.1
How does the father of your baby feel about your pregnancy?	1	0.4

Table 15 continued

Variable	Missing	
	Count	Percent
How does your boyfriend (not father of baby) feel about your pregnancy?	16	5.9
How does your closest brother feel about your pregnancy?	1	0.4
How does your closest sister feel about your pregnancy?	4	1.5
How does your closest girlfriend feel about your pregnancy?	7	2.6
How does an "other" support feel about your pregnancy?	50	18.6
Plan for current pregnancy	5	1.9
At any time have you felt pressured to place for adoption?	12	4.5
At any time have you felt pressured to parent?	12	4.5
At any time have you felt pressured to terminate this pregnancy?	15	5.6
Breastfeeding	31	11.5
Has the baby had any health problems since birth?	105	39.0
Has the baby been in Special Care Nursery/Neo-Natal Intensive Care Unit?	106	39.4
Any other health or developmental problems of the baby since birth?	109	40.5
Was there participation in the PNH?	0	0.0
Intake self-esteem variables		
I feel that I am a person of worth	12	4.5
I feel that I have a number of good qualities	1	0.4

Table 15 continued

Variable	Missing	
	Count	Percent
All in all, I am inclined to feel that I am a failure	7	2.6
I am able to do things as well as most other people	0	0.0
I feel I do not have much to be proud of	1	0.4
I take a positive attitude toward myself	1	0.4
On the whole, I am satisfied with myself	4	1.5
I wish I could have more respect for myself	7	2.6
I certainly feel useless at times	3	1.1
At times, I think I am no good at all	1	0.4
Discharge self-esteem variables		
I feel that I am a person of worth	8	3.0
I feel that I have a number of good qualities	0	0.0
All in all, I am inclined to feel that I am a failure	13	4.8
I am able to do things as well as most other people	1	0.4
I feel I do not have much to be proud of	1	0.4
I take a positive attitude toward myself	0	0.0
On the whole, I am satisfied with myself	1	0.4
I wish I could have more respect for myself	2	0.7
I certainly feel useless at times	1	0.4
At times, I think I am no good at all	1	0.4

3. Check pairwise plots for non-normality, non-linearity and heteroscedasticity.

a. Bivariate scatterplots and residual plots. The self-esteem variables were combined into two new scale variables, one for intake self-esteem and one for discharge self-esteem. All scale data were examined for linearity and heteroscedasticity using bivariate scatterplots. Linearity is an assumption of a straight line relationship between all possible pairs of continuous variables. Bivariate scatterplots show the relationship visually, and they should be oval if the variables are both linear. Heteroscedasticity is a violation of homoscedasticity which is an assumption that the variability in scores for each continuous variable will be the same at all values of the other continuous variables. Bivariate scatterplots provide a visual check, and they should be oval if the relationship between the two variables is homoscedastic (Tabachnick & Fidell, 2007). Residual plots of predicted values against standardized residuals were also used to screen for non-linearity, heteroscedasticity and non-normality.

Table 16 displays the results of the bivariate scatterplots. There was no evidence of curvilinear relationships or heteroscedasticity between any combinations of continuous variables. Table 17 shows the results from the residual plots of predicted values against standardized residuals. There was no evidence of non-normality or non-linearity. There was a possible indication of heteroscedasticity for age, previous children and number of days at Villa Rosa. A decision was made not to perform transformations until skewness and kurtosis could be checked and guide the choice of transformation. In addition, although heteroscedasticity weakens analysis it does not invalidate it, and is not considered fatal to the analysis (Tabachnick & Fidell, 2007).

Table 16

Bivariate Scatterplots Results to Screen for Linearity and Heteroscedasticity

Variables	Is there evidence of a curvilinear relationship or heteroscedasticity?
Discharge SE and intake SE	No. A possible outlier is evident.
Discharge SE and age	No. A possible outlier is evident.
Discharge SE and previous children	No. A possible outlier is evident.
Discharge SE and number of days at Villa Rosa	No. A possible outlier is evident.
Discharge SE and number of abuse types reported	No. A possible outlier is evident.
Discharge SE and attitudes of social support network	No. A possible outlier is evident.
Intake SE and age	No. A possible outlier is evident.
Intake SE and previous children	No.
Intake SE and number of days at Villa Rosa	No. A possible outlier is evident.
Intake SE and number of abuse types reported	No. A possible outlier is evident.
Intake SE and attitudes of social support network	No. A possible outlier is evident.
Age and previous children	No. Possible outliers are evident.
Age and number of days at Villa Rosa	No. A possible outlier is evident.
Age and number of abuse types reported	No. A possible outlier is evident.
Age and attitudes of social support network	No. A possible outlier is evident.
Previous children and number of days at Villa Rosa	No. Possible outliers are evident.
Previous children and number of abuse types reported	No. Possible outliers are evident.

Table 16 continued

Variables	Is there evidence of a curvilinear relationship or heteroscedasticity?
Previous children and attitudes of social support network	No. Possible outliers are evident.
Number of days at Villa Rosa and number of abuse types reported	No.
Number of Days at Villa Rosa and attitudes of social support network	No.
Number of abuse types reported and attitudes of social support network	No.

Note. Results are the same for original data and all five imputations. SE = Self-esteem.

Table 17

Results of Residual Plots of Predicted Values Against Standardized Residuals used to Screen for Non-linearity, Heteroscedasticity and Non-normality

Variable	Any evidence of non-linearity, heteroscedasticity and non-normality?
Discharge self-esteem	No. A possible outlier is evident.
Intake self-esteem	No. A possible outlier is evident.
Age	No evidence of non-normality or non-linearity. At higher values of the predicted value there is a slight indication of heteroscedasticity.
Previous children	No evidence of non-normality or non-linearity. Increased scatter at higher values of the predicted value indicating heteroscedasticity.
Number of days at Villa Rosa	No evidence of non-normality or non-linearity. Possible slight heteroscedasticity
Number of abuse types reported	No.
Attitudes of social support network	No.

Note. Results are the same for original data and all five imputations.

4. Identifying and dealing with non-normal variables and univariate outliers.

a. Normality.

i. Checking for normality. Interval data were examined for normality by calculating skewness and kurtosis values using SPSS FREQUENCIES. The skewness and kurtosis values were converted into z-values using the formulas as follows;

Skewness z-value = (Skewness – 0)/ Standard Error of Skewness (Tabachnick and Fidell, 2007, p.79)

Kurtosis z-value = (Kurtosis – 0)/ Standard Error of Kurtosis (Tabachnick & Fidell, 2007, p.80)

Using a probability table to check the z-values it was found that values over 1.96 were significant at a p=.05 level. Using SPSS FREQUENCIES frequency histograms were made for scale data to visually check for normality. Normal probability plots and detrended normal probability plots were then made to further check for normality.

Tables 18 through 24 show the results from these checks for normality. Intake self-esteem and number of types of abuse appeared normal in all but the kurtosis z-values. Tabachnick & Fidell (2007) state that if kurtosis is not normal it can underestimate the variance of a variable; however, with large sample sizes the underestimation of variance from positive kurtosis disappears. (Positive kurtosis disappears at sample sizes of one hundred, and negative kurtosis at sample sizes of two hundred.) Intake self-esteem and number of types of abuse were concluded to be normally distributed. Results of tests on all other variables showed departures from normality implicating that transformations should be attempted.

Table 18

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Discharge Self-esteem

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	3.153	3.293	Fairly normal	Yes	No
Imputation 1	3.341	3.450	Positive skew	Yes	No
Imputation 2	3.433	3.662	Positive skew	Yes	No
Imputation 3	3.469	3.620	Positive skew	Yes	No
Imputation 4	3.533	3.773	Positive skew	Yes	No
Imputation 5	3.496	3.712	Positive skew	Yes	No

Table 19

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Intake Self-esteem

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	0.523	3.982	Fairly normal	Yes	Yes
Imputation 1	0.202	3.572	Fairly normal	Yes	Yes
Imputation 2	0.216	3.638	Fairly normal	Yes	Yes
Imputation 3	0.119	3.642	Fairly normal	Yes	Yes
Imputation 4	0.177	3.435	Fairly normal	Yes	Yes
Imputation 5	0.106	3.713	Fairly normal	Yes	Yes

Table 20

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Age

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	11.728	13.086	Positive skew, Leptokurtic	No	No
Imputation 1	11.728	13.086	Positive skew, Leptokurtic	No	No
Imputation 2	11.728	13.086	Positive skew, Leptokurtic	No	No
Imputation 3	11.728	13.086	Positive skew, Leptokurtic	No	No
Imputation 4	11.728	13.086	Positive skew, Leptokurtic	No	No
Imputation 5	11.728	13.086	Positive skew, Leptokurtic	No	No

Table 21

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Number of

Previous Children

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	20.343	40.975	Positive skew, Leptokurtic	No	No
Imputation 1	20.590	42.251	Positive skew, Leptokurtic	No	No
Imputation 2	20.824	42.808	Positive skew, Leptokurtic	No	No
Imputation 3	19.995	39.215	Positive skew, Leptokurtic	No	No
Imputation 4	20.522	41.566	Positive skew, Leptokurtic	No	No
Imputation 5	19.853	38.770	Positive skew, Leptokurtic	No	No

Table 22

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Number of Days at

Villa Rosa

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	8.445	3.232	Positive skew, Leptokurtic	No	No
Imputation 1	8.552	3.257	Positive skew, Leptokurtic	No	No
Imputation 2	8.346	3.041	Positive skew, Leptokurtic	No	No
Imputation 3	8.492	3.264	Positive skew, Leptokurtic	No	No
Imputation 4	8.384	3.016	Positive skew, Leptokurtic	No	No
Imputation 5	8.707	3.692	Positive skew, Leptokurtic	No	No

Table 23

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Number of Types

of Abuse

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 1	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 2	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 3	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 4	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 5	0.336	-3.145	Platykurtic	Yes	Yes

Table 24

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Attitudes of Social Support Network

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	0.056	-0.772	Leptokurtic	No	No
Imputation 1	0.056	-0.772	Leptokurtic	No	No
Imputation 2	0.056	-0.772	Leptokurtic	No	No
Imputation 3	0.056	-0.772	Leptokurtic	No	No
Imputation 4	0.056	-0.772	Leptokurtic	No	No
Imputation 5	0.056	-0.772	Leptokurtic	No	No

ii. Transforming variables. Transformations were performed on variables that were significantly skewed, including; self-esteem at discharge, age, previous children, and number of days at Villa Rosa. An attempted square root transformation did not improved self-esteem at discharge, as it resulted in a change from moderate positive skewness to moderate negative skewness. The other variable transformations did show improvement as shown in Table 25. Age was inverted, number of previous children was inverted and number of days at Villa Rosa was logged. Even after transformations the z-values remained significantly skewed. Tabachnick and Fidell (2007) state that in large samples the presence of a significant level of skewness is not as important as the size of the skewness and shape of the distribution. When slight, even if the skewness z-value is significant, the distribution will not deviate enough from normality to harm the analysis. The transformations for age and number of days were seen as successfully decreasing skewness. The implication of the slight skewness in discharge self-esteem, age and number of days was concluded to be not harmful to the analysis. The variable of previous children was still seen as having a concerning level of skewness. The implication of the larger skewness was the need for eventual transformation into a categoric variable (if concerning skewness still remained after dealing with univariate outliers).

As discussed earlier, those variables not mesokurtic were not considered to be a threat to analysis at such a large sample size.

Table 25

Results from Initial Variable Transformations

Variable	Skewness z-Values	Kurtosis z-Values
Age (inverted)		
Original data	-3.720	-0.240
Imputation 1	-3.720	-0.240
Imputation 2	-3.720	-0.240
Imputation 3	-3.720	-0.240
Imputation 4	-3.720	-0.240
Imputation 5	-3.720	-0.240
Previous children (inverted)		
Original data	-7.686	-1.295
Imputation 1	-6.779	-2.463
Imputation 2	-7.195	-1.995
Imputation 3	-6.942	-2.287
Imputation 4	-7.198	-2.020
Imputation 5	-6.986	-2.275
Number of days (log)		
Original data	-3.561	0.549
Imputation 1	-3.520	0.539
Imputation 2	-3.665	0.579
Imputation 3	-3.553	0.566
Imputation 4	-3.553	0.489
Imputation 5	-3.553	0.433

b. Univariate outliers.

i. Checking for univariate outliers. The data were checked for univariate outliers. "Univariate outliers are cases with an extreme value on one variable" (Tabachnick & Fidell, 2007, p. 73). They are concerning because they have a disproportionate influence on the data. SPSS EXPLORE was used to provide boxplots statistics for extremity. Transformation of univariate outliers was chosen to reduce their impact by pulling them closer to the other data, improving normality of the distributions and allowing retention of the case. After examining the data, univariate outliers were dealt with on each imputation as follows: Discharge Self-Esteem – an outlier of 39 was transformed to 32 (one above the next highest value of 31). Intake Self-Esteem – two high outliers of 40 (an extreme outlier) and 34 were both transformed to 30 (one above the next highest value of 29). Five low intake self-esteem outliers were transformed from 10 to 11 (the next lowest value). Attitudes of Social Supports – three low outliers were transformed from 0 to 0.13 (one below the next lowest value of 0.14). Age (inverted) – one low outlier of 0.02 was transformed to 0.03 (this is the same as the next lowest value). Number of days at Villa Rosa (log) – five low outliers (0.78, 0.83 and three values of 0.95) were transformed to 0.99 (one below the next lowest value of 1.00).

ii. Check results of transformations. After dealing with univariate outliers the results of the transformations were once again screened, and results are shown in Table 26 to Table 34. SPSS EXPLORE was used to screen for outliers using boxplots. Only discharge self-esteem continued to show outliers.

Discharge self-esteem was seen as normal. The Z scores of the remaining outliers were examined and found to be below 3.29, considered the cut off for potential outliers by Tabachnick and Fidell (2007).

Intake self-esteem was seen as normal. After dealing with the univariate outliers the shape of the distribution appeared normal. One of the imputations showed a z-value of 1.999 for skewness, slightly over 1.96. The advice of Tabachnick and Fidell (2007) which suggested prioritizing the probability plot observations in determining normality over any significant z-values was followed.

Age was seen as closer to normal, but not normal. Dealing with the outliers reduced the skewness. However, age continued to have a negative skew. This may have increased the risk of type two error.

Previous children was still significantly skewed. Based on the large size of the skew it was transformed into a categoric variable with three values; missing; has previous children; no previous children. This variable was then transformed into dummy variables with the value of no previous children acting as the comparison category.

Number of days at Villa Rosa was seen as closer to normal, but not normal. Dealing with the outliers reduced the skewness. However, number of days at Villa Rosa continued to have a negative skew. This may have increased the risk of type two error.

Number of types of abuse was seen as platykurtic. The sample size remained over 200, and therefore deviations from normality based on kurtosis, as discussed previously, were not seen as harming the analysis. (Tabachnick & Fidell, 2007)

Attitudes of social support network showed deviations from normality in the normal probability plot and detrended probability plot. However, the residual plot of

predicted values against standardized residuals did not show evidence of non-linearity, heteroscedasticity or non-normality and none of the bivariate scatterplots showed evidence of nonlinearity or heteroscedasticity. It was found to be leptokurtic. The sample size remained over 200, therefore deviations from normality based on kurtosis, as discussed previously, were not seen as harming the analysis. (Tabachnick & Fidell, 2007) In addition the skewness test was found to be insignificant. No transformations were performed.

Table 26

Bivariate Scatterplot to Screen Pairwise Plots for Nonlinearity and Heteroscedasticity

Variables	Is there evidence of a curvilinear relationship or heteroscedasticity?
Discharge self-esteem and intake self-esteem	No
Discharge self-esteem and age	No
Discharge self-esteem and previous children	No
Discharge self-esteem and number of days at Villa Rosa	No
Discharge self-esteem and number of abuse types reported	No
Discharge self-esteem and attitudes of social support network	No
Intake self-esteem and age	No
Intake self-esteem and previous children	No
Intake self-esteem and number of days at Villa Rosa	No
Intake self-esteem and number of abuse types reported	No
Intake self-esteem and attitudes of social support network	No
Age and previous children	No
Age and number of days at Villa Rosa	No
Age and number of abuse types reported	No
Age and attitudes of social support network	No
Previous children and number of days at Villa Rosa	No
Previous children and number of abuse types reported	No
Previous children and attitudes of social support network	No

Table 26 continued

Variables	Is there evidence of a curvilinear relationship or heteroscedasticity?
Number of days at Villa Rosa and number of abuse types reported	No
Number of days at Villa Rosa and attitudes of social support network	No
Number of abuse types reported and attitudes of social support network	No

Note. Results are the same for original data and all five imputations.

Table 27

Results of Residual Plots of Predicted Values Against Standardized Residuals used to Screen for Non-linearity, Heteroscedasticity and Non-normality

Variable	Is there any evidence of non-linearity, heteroscedasticity and non-normality?
Discharge self-esteem	No
Intake self-esteem	No
Age	No
Previous children	Yes
Number of days at Villa Rosa	No
Number of abuse types reported	No
Number of attitudes of social support network	No

Note. Results are the same for original data and all five imputations.

Table 28

After Outlier Transformation: Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal

Probability Plots for Discharge Self-esteem

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	1.616	-0.511	Yes	Yes	Yes
Imputation 1	1.787	-0.506	Yes	Yes	Yes
Imputation 2	1.854	-0.386	Yes	Yes	Yes
Imputation 3	1.897	-0.421	Yes	Yes	Yes
Imputation 4	1.945	-0.324	Yes	Yes	Yes
Imputation 5	1.914	-0.363	Yes	Yes	Yes

Table 29

After Outlier Transformations: Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal

Probability Plots for Intake Self-esteem

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	-1.691	-0.848	Yes	Yes	Yes
Imputation 1	-1.874	-0.946	Yes	Yes	Yes
Imputation 2	-1.864	-0.865	Yes	Yes	Yes
Imputation 3	-1.999	-0.961	Yes	Yes	Yes
Imputation 4	-1.890	-1.040	Yes	Yes	Yes
Imputation 5	-1.997	-0.825	Yes	Yes	Yes

Table 30

After Variable and Outlier Transformation: Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended

Normal Probability Plots for Age (Inverted)

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	-3.501	-0.608	Slight negative skew	Yes	No, Improvement
Imputation 1	-3.501	-0.608	Slight negative skew	Yes	No, Improvement
Imputation 2	-3.501	-0.608	Slight negative skew	Yes	No, Improvement
Imputation 3	-3.501	-0.608	Slight negative skew	Yes	No, Improvement
Imputation 4	-3.501	-0.608	Slight negative skew	Yes	No, Improvement
Imputation 5	-3.501	-0.608	Slight negative skew	Yes	No, Improvement

Table 31

After Variable Transformation: Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal

Probability Plots for Number of Previous Children (Inverted)

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	-7.686	-1.295	Leptokurtic, Negative skew	No	No
Imputation 1	-6.779	-2.463	Leptokurtic, Negative skew	No	No
Imputation 2	-7.195	-1.995	Leptokurtic, Negative skew	No	No
Imputation 3	-6.942	-2.287	Leptokurtic, Negative skew	No	No
Imputation 4	-7.198	-2.020	Leptokurtic, Negative skew	No	No
Imputation 5	-6.986	-2.275	Leptokurtic, Negative skew	No	No

Table 32

After Variable and Outlier Transformations: Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended

Normal Probability Plots for Number of Days at Villa Rosa (Log)

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	-3.117	-0.162	Slight negative skew	Yes	Yes
Imputation 1	-3.076	-0.171	Slight negative skew	Yes	Yes
Imputation 2	-3.222	-0.139	Slight negative skew	Yes	Yes
Imputation 3	-3.106	-0.151	Slight negative skew	Yes	Yes
Imputation 4	-3.110	-0.221	Slight negative skew	Yes	Yes
Imputation 5	-3.127	-0.241	Slight negative skew	Yes	Yes

Table 33

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Number of Types

of Abuse (No Transformations Were Performed)

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 1	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 2	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 3	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 4	0.336	-3.145	Platykurtic	Yes	Yes
Imputation 5	0.336	-3.145	Platykurtic	Yes	Yes

Table 34

After Outlier Transformations: Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Attitudes of Social Support Network

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?
Original data	0.657	-1.361	Leptokurtic	No	No
Imputation 1	0.657	-1.361	Leptokurtic	No	No
Imputation 2	0.657	-1.361	Leptokurtic	No	No
Imputation 3	0.657	-1.361	Leptokurtic	No	No
Imputation 4	0.657	-1.361	Leptokurtic	No	No
Imputation 5	0.657	-1.361	Leptokurtic	No	No

5. Identifying and Dealing with Multivariate Outliers. Mahalanobis distance values were found through SPSS REGRESSION to screen continuous variables for multivariate outliers. Only one case was found to have multivariate outliers. SPSS REGRESSION was then used to find the variables on which the case was deviant. This included; age, intake self-esteem, discharge self-esteem and number of reported abuse types. This case was deleted from the dataset to eliminate its influence on the dataset, reducing the sample number to 268.

6. Evaluating variables for multicollinearity and singularity.

a. Singularity. SPSS REGRESSION was run to evaluate for singularity. Tabachnick and Fidell (2007) state that most computer programs will abort the run of the main analysis if singularity exists. The computer ran the analysis so singularity was shown not to exist.

b. Multicollinearity. Multicollinearity was screened through SPSS STATISTICS COLLIN. The default tolerance level used by SPSS is 0.0001. No multicollinearity was evident in the collinearity diagnostics table output. Although the last root had a condition index approaching or over 30, no dimension had more than one variance proportion greater than .50. No tolerance level was below 0.01.

Multicollinearity and singularity were screened continuously in each analysis and were dealt with when necessary.

7. Creation of and screening of comparison self-esteem variables. To allow for the final sample to be compared with the data from the study done by Currie and Zimmer two new variables were created for intake and discharge self-esteem interpreting them as Guttman scales. The variables were then screened for normality. Tables 35 to 38 show

the results of the initial screening. The distribution for intake self-esteem appears to be fairly normal with a slight positive skew. The distribution for discharge self-esteem appears to have univariate outliers and the Z-values show it to be leptokurtic with a positive skew. Square root, log or inverse transformations were not attempted as the variable would then be in a format which would not allow for comparison to Currie and Zimmer's study (2002).

The univariate outliers were transformed. Three high outliers of 6.00 were transformed to the next highest value of 5.00. After the transformation bivariate scatterplots screening pairwise plots did not show evidence of nonlinearity or heteroscedasticity. Residual plots of predicted values against standardized residuals did not show any concerns of non-linearity, heteroscedasticity or non-normality. The z-values showed an improvement in skewness and kurtosis and the boxplots no longer showed any univariate outliers (see table 39).

Multicollinearity was screened through SPSS STATISTICS COLLIN. SPSS REGRESSION was run to evaluate for singularity. No concerns were evident.

Table 35

Bivariate Scatterplots Results to Screen for Linearity and Heteroscedasticity for Guttman Self-esteem Variables.

Variables	Is there evidence of a curvilinear relationship or heteroscedasticity?
Guttman discharge SE and Guttman intake SE	No. Possible outliers are evident.
Guttman discharge SE and age	No. Possible outliers are evident.
Guttman discharge SE and previous children	No. Possible outliers are evident.
Guttman discharge SE and number of days at Villa Rosa	No. Possible outliers are evident.
Guttman discharge SE and number of abuse types reported	No. Possible outliers are evident.
Guttman discharge SE and attitudes of social support network	No. Possible outliers are evident.
Guttman intake SE and age	No. Possible outliers are evident.
Guttman intake SE and previous children	No. Possible outliers are evident.
Guttman intake SE and number of days at Villa Rosa	No
Guttman intake SE and number of abuse types reported	No
Guttman intake SE and attitudes of social support network	No

Note. Results are the same for original data and all five imputations. SE = Self-esteem.

Table 36

Results of Residual Plots of Predicted Values Against Standardized Residuals used to Screen for Non-linearity, Heteroscedasticity and Non-normality for Guttman Self-esteem Variables

Variable	Any evidence of non-linearity, heteroscedasticity and non-normality?
Guttman discharge self-esteem	No. A possible outlier is evident.
Guttman intake self-esteem	No. A possible outlier is evident.

Note. Results are the same for original data and all five imputations.

Table 37

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Guttman

Discharge Self-esteem

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?	Does the boxplot indicate univariate outliers?
Original data	9.49	9.15	Positive skew	Yes	Yes	Yes
Imputation 1	9.49	9.20	Positive skew	Yes	Yes	Yes
Imputation 2	9.49	9.15	Positive skew	Yes	Yes	Yes
Imputation 3	9.49	9.20	Positive skew	Yes	Yes	Yes
Imputation 4	9.49	9.20	Positive skew	Yes	Yes	Yes
Imputation 5	9.49	9.15	Positive skew	Yes	Yes	Yes

Table 38

Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended Normal Probability Plots for Guttman Intake Self-esteem

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?	Does the boxplot indicate univariate outliers?
Original data	5.11	-0.56	Positive skew	Yes	Yes	No
Imputation 1	5.20	-0.32	Positive skew	Yes	Yes	No
Imputation 2	5.18	-0.40	Positive skew	Yes	Yes	No
Imputation 3	5.18	-0.55	Positive skew	Yes	Yes	No
Imputation 4	5.31	-0.29	Positive skew	Yes	Yes	No
Imputation 5	5.03	-0.61	Positive skew	Yes	Yes	No

Table 39

After Transformation for Univariate Outliers: Skewness, Kurtosis, Frequency Histograms, Normal Probability Plots and Detrended

Normal Probability Plots for Guttman Discharge Self-esteem

Imputation	Skewness z-Values	Kurtosis z-Values	Does the frequency histogram indicate a normal distribution?	Does the normal probability plot indicate a normal distribution?	Does the detrended normal probability plot indicate a normal distribution?	Does the boxplot indicate univariate outliers?
Original data	7.67	3.92	Positive skew	Yes	Yes	No
Imputation 1	7.66	3.95	Positive skew	Yes	Yes	No
Imputation 2	7.67	3.92	Positive skew	Yes	Yes	No
Imputation 3	7.66	3.95	Positive skew	Yes	Yes	No
Imputation 4	7.66	3.95	Positive skew	Yes	Yes	No
Imputation 5	7.67	3.92	Positive skew	Yes	Yes	No

8. Screening considerations specific to analysis used in this study. Tabachnick and Fidell (2007) have recommended some data screening that is specific to the type of analyses that will be used.

a. Repeated measures ANCOVA assumptions.

i. Homogeneity of regression. When using ANCOVA, an additional assumption is that the slopes will be equal for all cells when evaluating the slope of the regression between the dependant variable and each covariate. This was tested using SPSS MANOVA. Significant results in the interactions between the following covariates and fixed factors were found (see Table 40), resulting in violation of homogeneity of regression. To address this violation the scale variables of age, number of days, abuse and support were transformed into categorical variables with two categories, 1, mean and above and 2. below the mean, for research questions using ANCOVA. Variables of disability and pressure to parent were dropped from the equation based on their interaction with the independent variables of intake self-esteem. Support and abuse variables run against their missing variables caused redundancies in the design matrix, which are caused when variables are dependant upon each other. Variables for missing abuse and support were dropped from the equation. Education and the dummy variable for missing previous children could not be run because of empty cells. Education was transformed into three categories of special program, less than grade twelve or grade twelve and above and the variable for missing previous children was dropped from the equation.

ANCOVA analysis with SPSS was found to be limited in the number of variables which could be included in the equation. Where possible, categories were collapsed in

nominal and ordinal variables. Variables were then chosen based on theoretical importance. Variables which were retained and successfully entered in the repeated measures equation consisted of attitudes of social support network (with two categories of 'mean and above' or 'below the mean'), education (with three categories of special program, less than grade twelve or grade twelve and above), length of time at most recent address (with two categories of a month or less or over a month), ethnicity (with two categories of non-Aboriginal or not) and age (with two categories of 'mean and above' or 'below the mean'). At this point all covariates had been transformed into ordinal variables. The transformation of the data to meet the assumption of homogeneity of regression resulted in the loss of covariates and the change to an ANOVA analysis instead of an ANCOVA analysis.

In addition, a decision was made to discontinue with ANCOVA and to use sequential regression for studying ethnicity. This decision was made based on the loss of variables caused by meeting the assumption of homogeneity of regression. The variables were considered to be theoretically and empirically important.

Repeated measures ANOVA was used in studying if there is a difference between intake and discharge self-esteem as it remains the best analysis to control for variables other than the program which may explain differences.

As ANCOVA was not to be used, screening was discontinued for assumptions needing to be met to perform it.

Table 40

Significant Interactions Showing Violation of Homogeneity of Regression in Analysis of

Covariance

Covariate	Fixed factors
Intake self-esteem	Education and previous children missing could not run (empty cells)
	Disability
Age	Education and previous children missing could not run (empty cells)
	Pressure to parent
	Pressure to place for adoption
	Pressure to terminate
	Previous children
Number of days	Education and previous children missing could not run (empty cells)
	Ethnicity
Abuse	Education and previous children missing could not run (empty cells)
	Missing abuse – redundancies in design matrix
	Ethnicity
	Missing support
Support	Education and previous children missing could not run (empty cells)
	Missing support – redundancies in design matrix
	Pressure to parent
	Pressure to place for adoption
	Pressure to terminate
	Previous children

b. Multinomial logistic regression assumptions.

i. Linearity in the logit. When using logistic regression, there is an assumption of a linear relationship between the logit transform of the dependant variable and any continuous predictors (Tabachnick & Fidell, 2007). Tabachnick and Fidell (2007) suggest using the Box-Tidwell approach to test for this assumption and transformation of any predictors which violate this assumption. New variables were created for the interaction of each continuous variable and its log. A multinomial logistic regression was run, including all original variables and also including the new variables as predictors. No violation of the assumption of linearity in the logit was found.

ii. Ratio of cases to variables. When multinomial logistic regression was attempted singularities were reported by SPSS. All dummy variables that represented missing data from ordinal or nominal variables were removed. Crosstabulation tables were performed to find cells with low counts, possibly causing the singularities. All variables with zero cases in any cell were removed, including dummy variables for: education (special program), education (elementary or less), education (schooling beyond high school), plan for current pregnancy (place for adoption). The warning regarding singularities did not occur after these measures were taken.

iii. Adequacy of expected frequencies and power. When using logistic regression, Tabachnick and Fidell (2007) have recommended evaluating expected cell frequencies for all pairs of discrete variables. They have recommended that all expected frequencies be over one and that fewer than 20% be less than five. Chi-squared analysis was performed on all possible combinations of discrete variables. Only 11% of expected frequencies were less than five. Only the dummy variable for education (grade 7) was

found to combine with other variables to create expected cell frequencies of less than one. This variable was removed from the analysis.

iv. Independence of errors. There are no concerns regarding violation of this assumption. There are no repeated measures (for this question self-esteem is only measured at intake and discharge self-esteem is not used) and this is not a matched case control study.

v. Absence of multicollinearity. Although age is seen to have a high standard error in parameter estimates, the tolerance test used to screen for multicollinearity earlier demonstrated no concern with this assumption.

vi. Absence of outliers in the solution. With logistic regression and multiple regression Tabachnick and Fidell (2007) have also recommended examining residuals for outlying cases. Breastfeeding was divided into dummy variables for each response category. Residual analysis was performed by SPSS for each category against the predictor variables. If enough cases that have a high probability of being in one outcome category are found in a different category, the model is seen to have a poor fit (Tabachnick & Fidell, 2007). SPSS returned a residual over a value of 2. Outliers in the solution were identified when the regressions were run. Findings per imputation included; 12-13 residuals for the dummy variable "no"; 3 residuals for the dummy variable "not applicable"; 14-18 residuals for the dummy variable ""missing"; and no residuals for the dummy variable "yes". Considering the large sample size of 268 this number of residuals is not seen as a violation of this assumption.

c. Multiple regression warning. A warning occurred when running both the standard and sequential multiple regression stating that 'For models with dependent

variable Discharge Self-esteem, the following variables are constants or have missing correlations in split file Imputation Number=Original data : Dummy variable for Education (elementary or less), Dummy variable for Education (missing yes). They were deleted from the analysis. The warning was repeated for imputations one to five for the dummy variable for missing responses for previous children. When examining these dummy variables they were found to have extremely low counts. There was likely not sufficient statistical power to asses these variables.

Descriptive Characteristics of the Sample

SPSS FREQUENCIES was used to produce descriptive statistics regarding the cases used in this study. Several of the variables are presented in their original form as it would be difficult to understand many variables after transformation.

Self-esteem. The mean self-esteem that residents reported at intake was 20.42 with a standard error of 0.26 on the Likert scale of 10 to 40 discussed earlier, with lower scores indicating a healthier self-esteem. At discharge the mean self-esteem of the sample was 17.76 with a standard error of 0.27, showing a healthier score as women leave the program. These data represent the pooled values after replacement of missing data through multiple imputation. Pooled data does not produce a standard deviation.

Many studies measure self-esteem with a healthier self-esteem shown by a higher rating on the Likert scored Rosenberg Self-Esteem Scale. The means were inverted to allow for future comparison. The inverted mean for intake self-esteem was 29.58 the inverted mean for discharge self-esteem was 32.24.

Guttman self-esteem. The mean pooled Guttman self-esteem that residents reported at intake was 1.70 with a standard error of 0.09 on the Guttman scale of zero to six discussed earlier, with lower scores indicating a healthier self-esteem. At discharge the mean pooled Guttman self-esteem of the sample was 1.04 with a standard error of 0.07, showing a healthier score as women leave the program. Responses of three or higher were considered by Currie and Zimmer (2002) to indicate a concern in self-esteem. At intake 27% of women scored three or higher. At discharge only 11% of women scored three or higher.

The study done by Currie and Zimmer (2002) showed a mean self-esteem at intake of 2.0 with a standard deviation of 1.5. No discharge self-esteem was reported for their whole sample. At intake 30% of women scored three or higher. At discharge only 24% of women scored three or higher.

Length of time at Villa Rosa. The mean number of days that women resided at Villa Rosa was 185.44. The standard error of the mean was 9.80. These data represent the pooled values after replacement of missing data through multiple imputation.

Post Natal House participation. From the sample, 21.3% participated in the PNH program.

Pressure regarding plans. From the sample 19.8% of women reported being pressured to place their baby for adoption, 75.7% reported no pressure and 4.5% were missing a response for this question. Fifteen and three tenths percent of women reported pressure to parent, 80.2% reported no pressure and 4.5% were missing a response to this question. Thirty-two and one tenth percent of women reported pressure to terminate the pregnancy, 62.3% reported no pressure and 5.6% were missing a response for this question.

Plan for current pregnancy. Eight and six tenths percent of women were uncertain about their plan, 3.4% of woman planned to place their baby for adoption, 86.2% of women planned to parent, and 1.9% of women were missing responses.

Previous children. Sixty-eight and seven tenths percent of women responded that they had no previous children. Twenty-six and two fifths percent of women reported having between 1 and 9 previous children (19.4% of women had between 1 and 2

children).   Four and nine tenths percent of women were missing a response on this question.

     Age. All women in the sample (N=268) provided their age.   The mean age has gone up from that reported by Currie and Zimmer (2002) of 17.11 years (see Table 41).

Table 41

Age in years (N=268)

Mean	Median	Mode	Std. Deviation	Minimum	Maximum
18.97	18.00	17	4.132	13	36

Ethnicity. Slightly over a third of the sample (35.4%) responded as non-Aboriginal, 18.3% responded as Aboriginal (Ojibway), 13.4% responded as Aboriginal (Cree/Swampy Cree), 16% responded as Métis and 12.3% of the sample responded as other, and only 4.5% of the cases were missing a response on this variable. (See Figure 1)
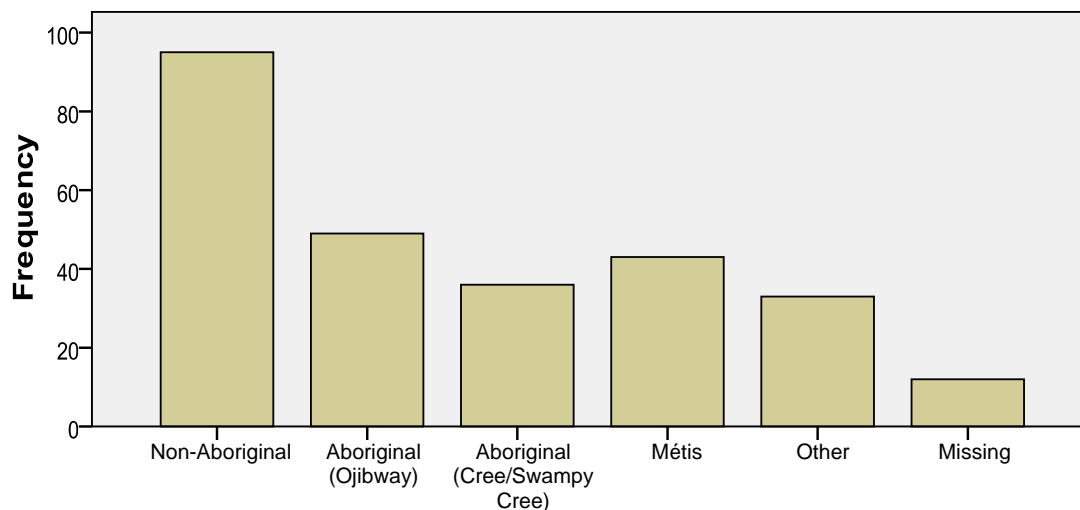
Figure 1: *Bar Chart Showing Responses to "How would you describe your nationality?"*

(N=268)

Length of time at most recent residence. It is concerning that over a third of respondents (34.0%) reported that they had been in their most recent residence for a month or less. Well over two-thirds of the women (70.9%) had been in their recent residence for a year or less. These data show concerns regarding the stability of previous living situations. This is especially concerning considering the information in the literature review regarding the negative impact of homelessness on self-esteem. (see Figure 2)
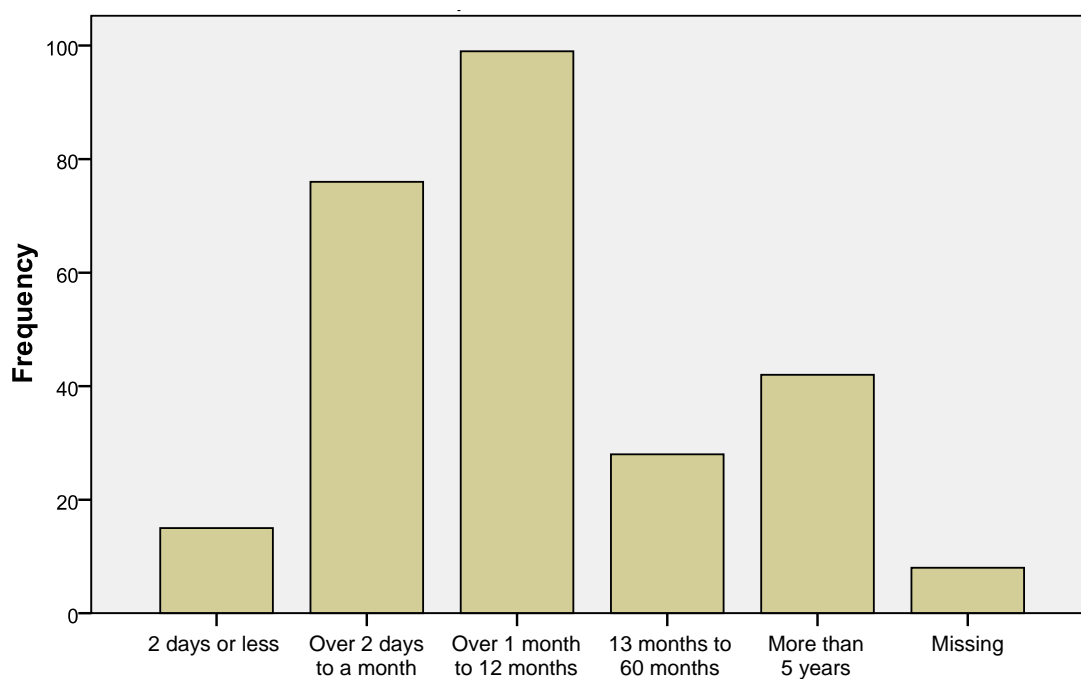
Figure 2: *Bar Chart Showing Responses to "How long have you lived at this address?"(N=268)*

Living with a disability. Sixteen and eight tenths percent of women responded "yes" to the question of "Do you have any special needs or disabilities?" 66.0% responded "no" and 16.8% of women were missing responses. (see Figure 3)
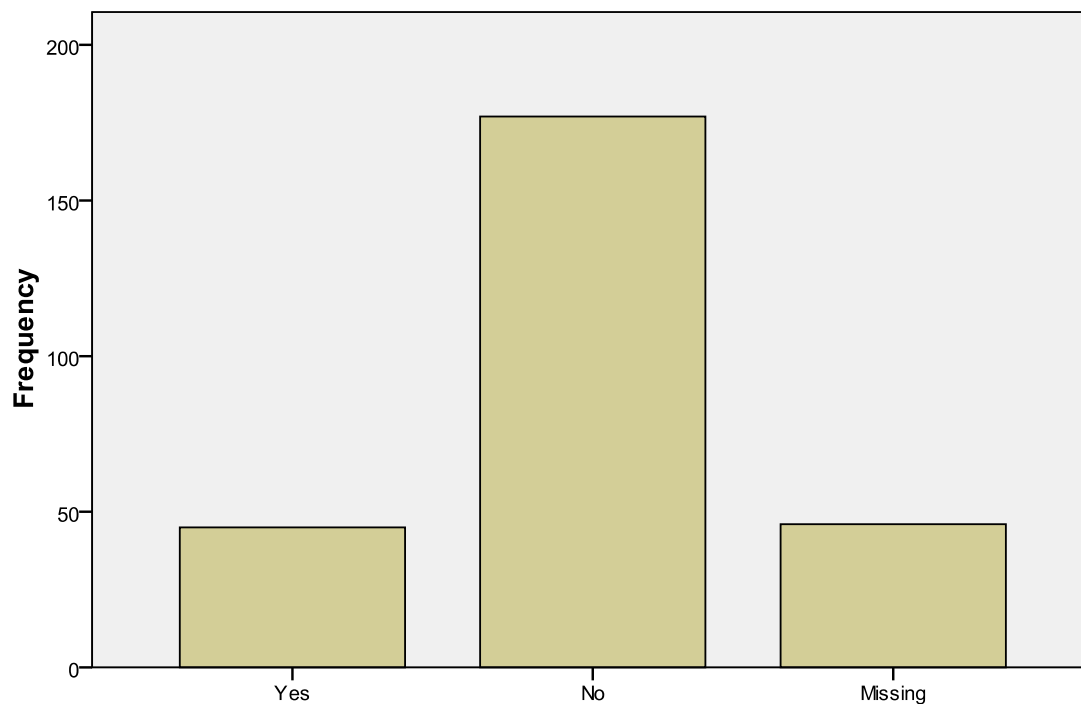
Figure 3: *Bar Chart Showing Responses to "Do you have any special needs or disabilities?" (N=268)*

Breastfeeding choices. Forty-two and five tenths percent of women responded "yes" when asked if they were breastfeeding as they returned to Villa Rosa from the hospital, 14.9% of women responded "no", 31.0% responded as "not applicable" and 11.6% of women were missing responses (see Figure 4). "Not applicable" did not have a defined use, however it does provide an option for women to choose when their baby was not with them.
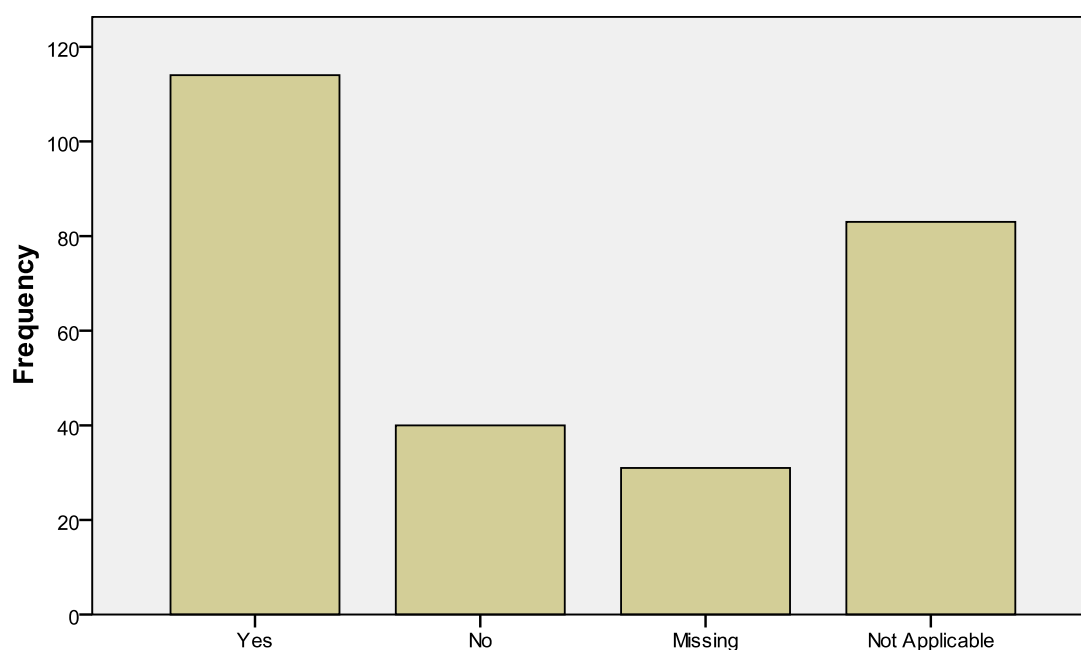
Figure 4: *Bar Chart Showing Responses regarding if a woman was breastfeeding when returning from the hospital.(N=268)*

Attitudes of social support network. Women were asked about the way that they thought people in their lives felt about their pregnancy and the birth of their child. Closest girlfriend received the highest percentage of responses of "very accepting" at 60.4% (see Figures 5 – 12). Table 42 shows the mode and median of each source which were identical for all imputations. Table 42 also shows the ratio of supportive to unsupportive responses. The statistics show that "father" is the least supportive source with a median of three. Table 43 shows statistics for the single variable created to measure attitudes of social support network as described in the measurement section of this thesis.

Table 42

Statistics for Attitudes of Social Support Network

	Mother	Father	Father of baby	Boyfriend (not father of baby)	Closest brother	Closest sister	Closest girlfriend	Other
*Median	2	3	1	1	1	1	1	1
*Mode	1	1	1	1	1	1	1	1
*Valid N	216	155	186	48	139	181	214	164
**Ratio	6.08	2.74	7.00	22.00	12.00	15.70	98.00	11.17
**Valid N	184	127	160	46	117	167	198	146

Note. * = Response categories of "not applicable", "doesn't know" and "don't know how they feel" were left out for these statistics. ** = Response categories of "neither accepting or rejecting", "not applicable", "doesn't know" and "don't know how they feel" were left out for the statistics in this table. Ratio = Ratio of sum of accepting to not accepting responses.

Table 43

Statistics for Attitudes of Social Support Network Single Variable (N=268)

| | Std. Error of | | | |
Mean	Mean	Median	Mode	Std. Deviation
0.58	0.01	0.58	0.58	0.22
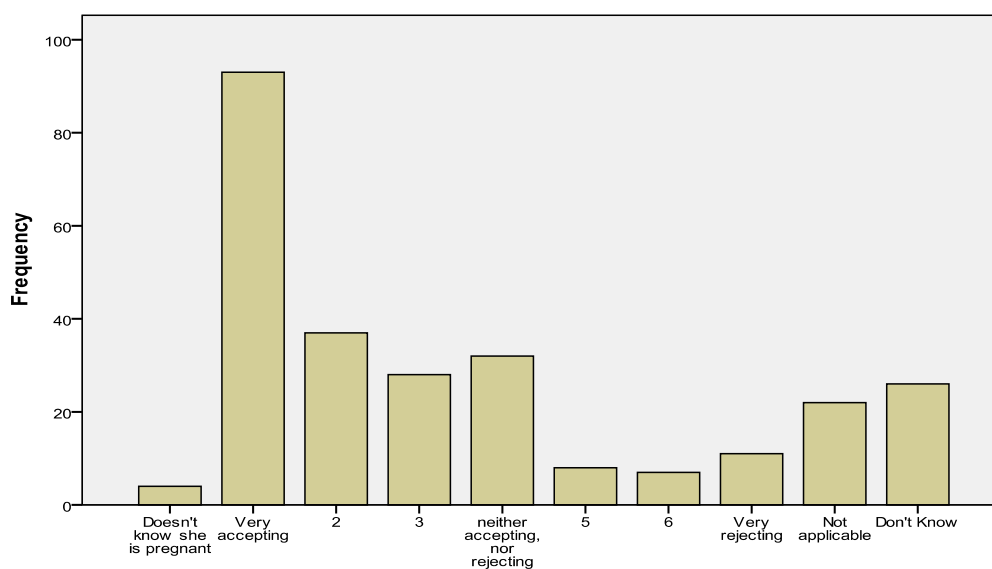
Figure 5: *Bar Chart Showing Responses to "How does your mother feel about your pregnancy?" (N=268)*
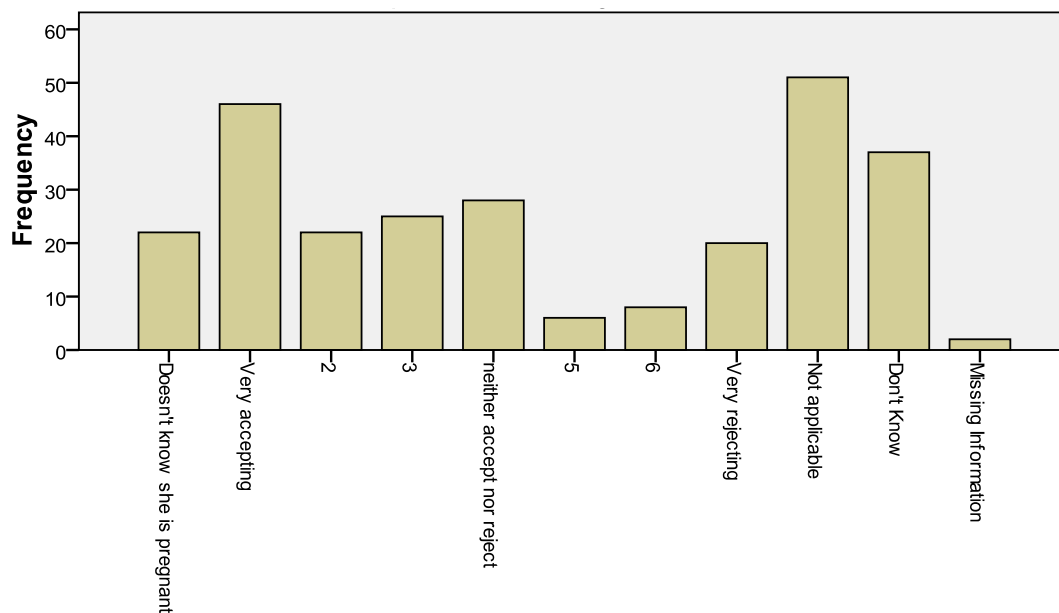
Figure 6: *Bar Chart Showing Responses to "How does your father feel about your pregnancy?" (N=268)*
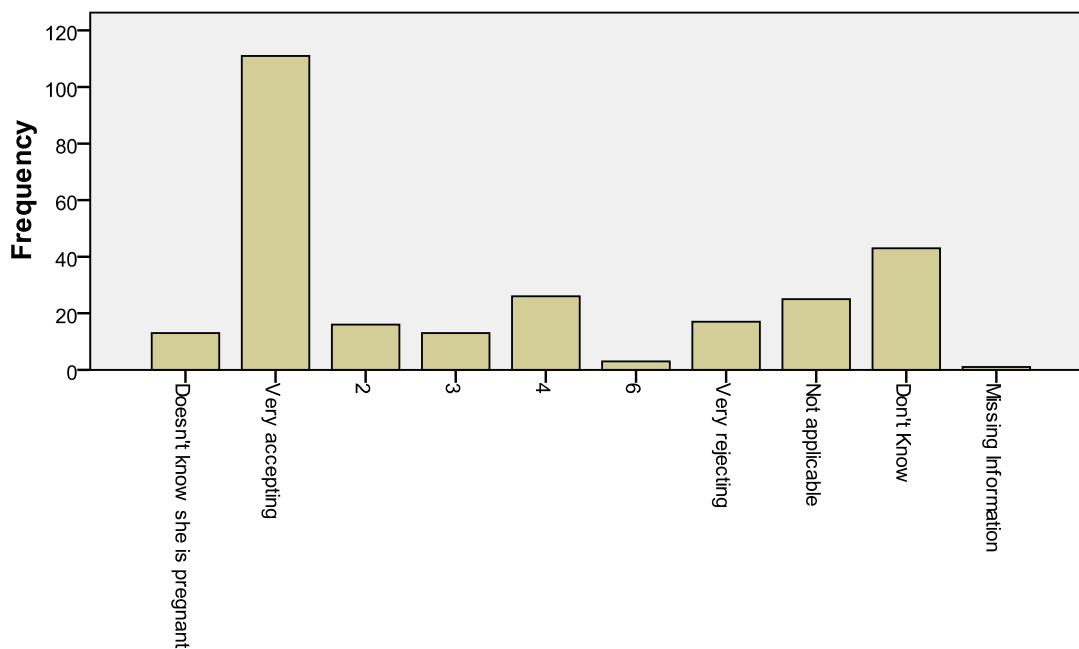
Figure 7: *Bar Chart Showing Responses to "How does the father of your baby feel about your pregnancy?" (N=268)*
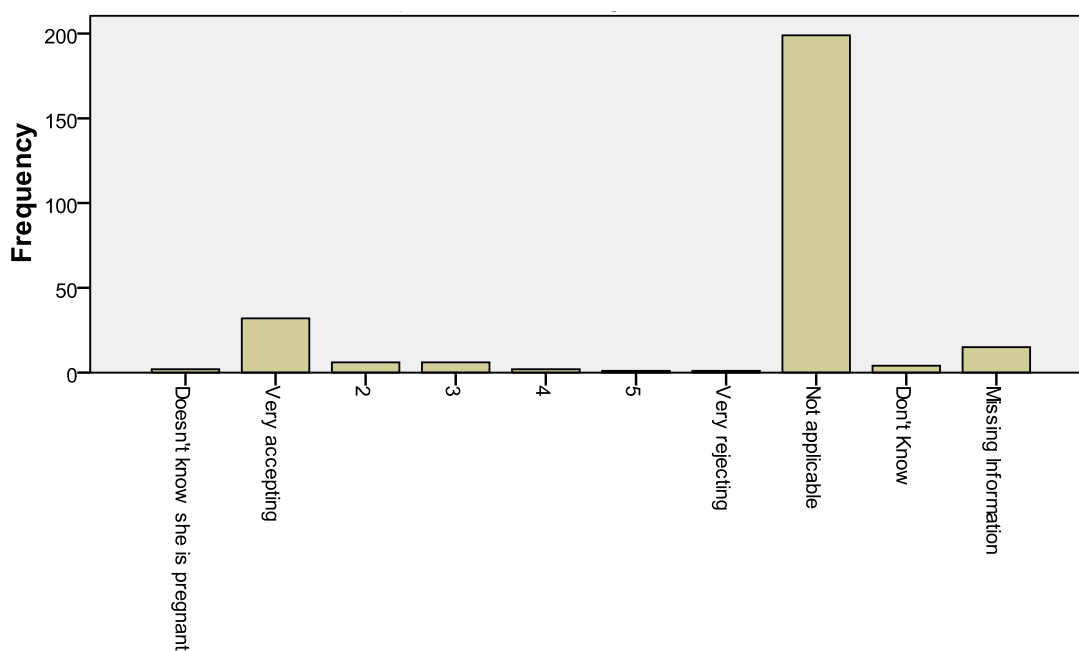
Figure 8: *Bar Chart Showing Responses to "How does your boyfriend (not the father of your baby) feel about your pregnancy?" (N=268)*
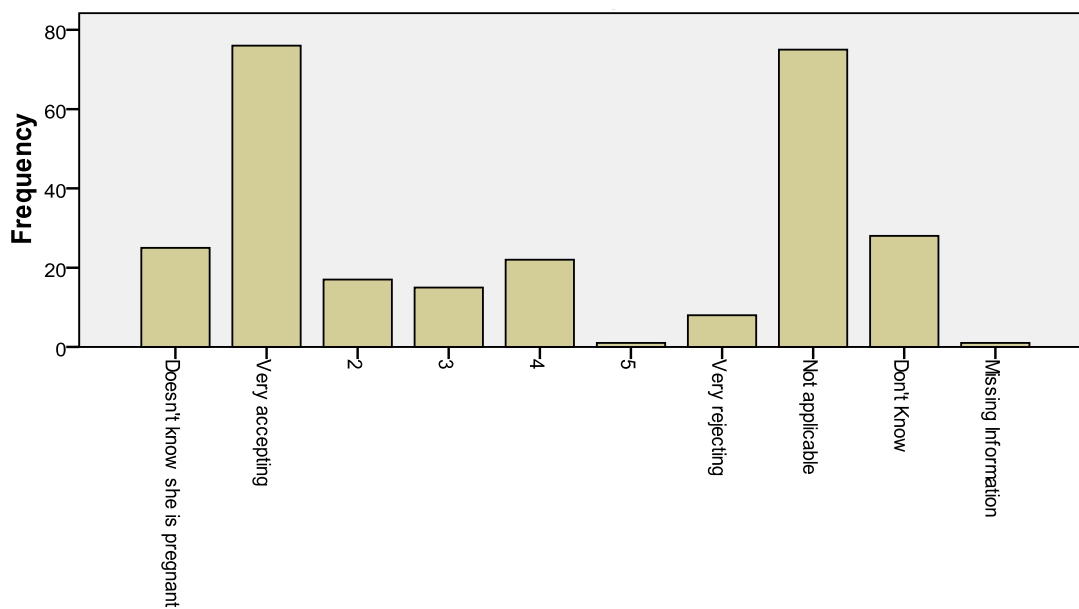
Figure 9: *Bar Chart Showing Responses to "How does your closest brother feel about your pregnancy?" (N=268)*
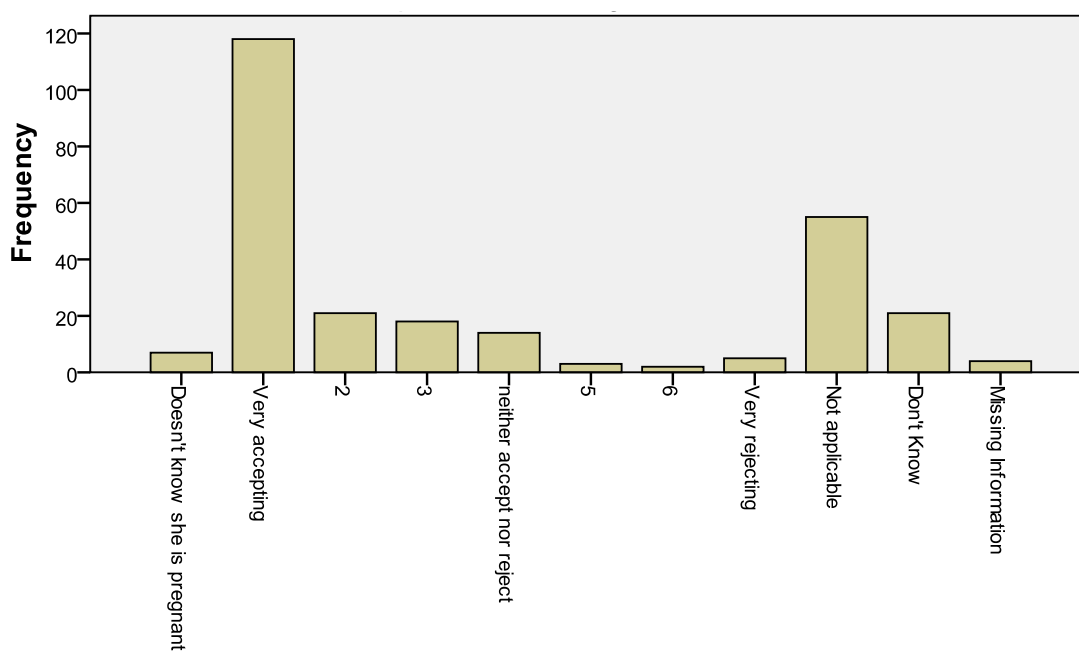
Figure 10: *Bar Chart Showing Responses to "How does your closest sister feel about your pregnancy?" (N=268)*
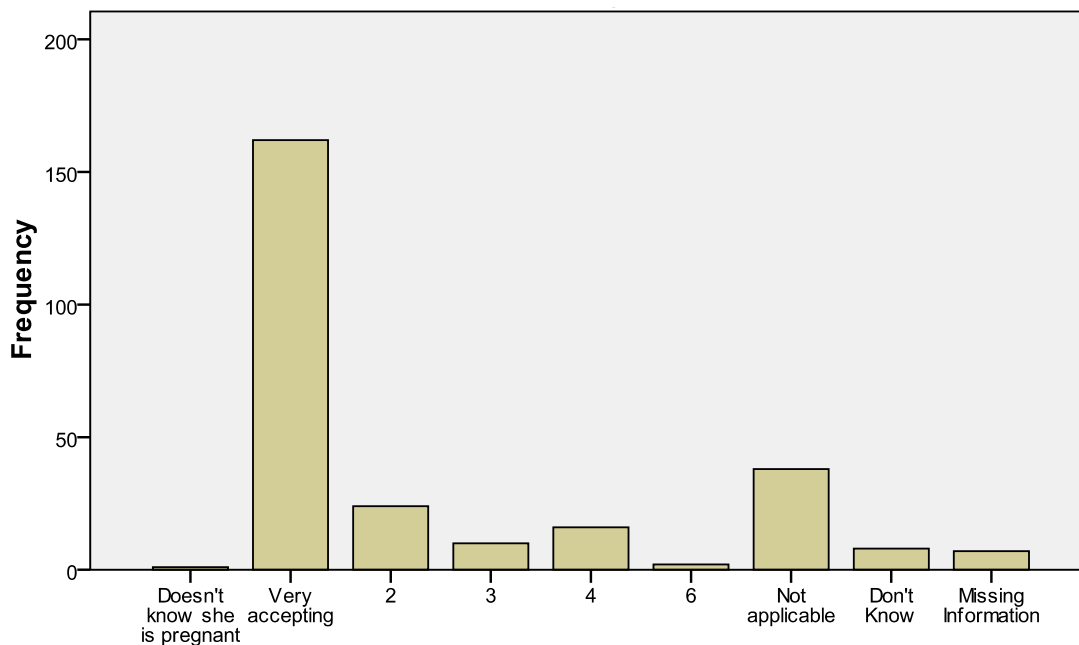
Figure 11: *Bar Chart Showing Responses to "How does your closest girlfriend feel about your pregnancy?" (N=268)*
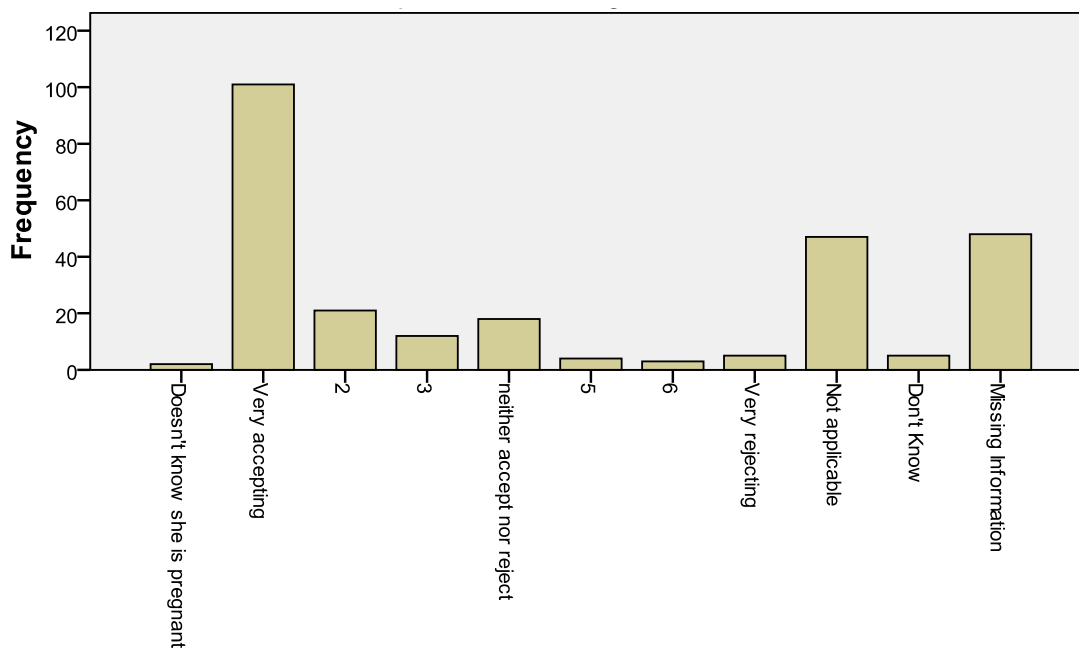
Figure 12: *Bar Chart Showing Responses to "How does an "other" feel about your pregnancy?" (N=268)*

Number of types of abuse reported. Eighty-four and seven tenths percent of women in the sample reported "yes" to experiencing some form of abuse. Table 44 shows the breakdown by type of abuse. Table 45 shows statistics for the single variable created to measure number of types of abuse reported as described in the measurement section of this thesis.

Table 44

Statistics for Number of Types of Abuse Reported (N=268)

	Yes	No	Missing	N/A
Were you ever neglected as a child?	34.0%	65.3%	0.7%	
Have you ever been physically abused by a parent?	44.4%	54.1%	1.5%	
Have you ever been physically abused by someone other than a parent?	54.1%	44.8%	1.1%	
Have you ever been emotionally abused?	75.7%	23.5%	0.7%	
Have you ever been sexually abused?	48.1%	48.5%	3.4%	
Have you experienced any abuse while you were pregnant?	21.6%	65.7%	3.7%	9.0%

Table 45

Statistics for Number of Types of Abuse Reported Single Variable (N=268)

	Std. Error of		
Mean	Mean	Median	Std. Deviation
2.81	0.11	3.00	1.82

Education. In looking at the length of time since women were last in school, it is striking to see that over half (53.0%) the sample had been out of school for more than six months. Over three quarters (76.5%) of the sample had been out of school for over one month, and this does not include summer break. For more than three quarters of the residents Villa Rosa has served as a reentry point to education. (see Figures 13)

This is especially significant when considering that only 13.0% of the sample had completed grade 12 or more. The highest percent of women had completed grade nine at 33.6%. (see Figure 14). The median and mode were both 5 (grade 9) for responses to "What grade did you finish before coming to Villa Rosa" excluding responses of "special program" (N=258).
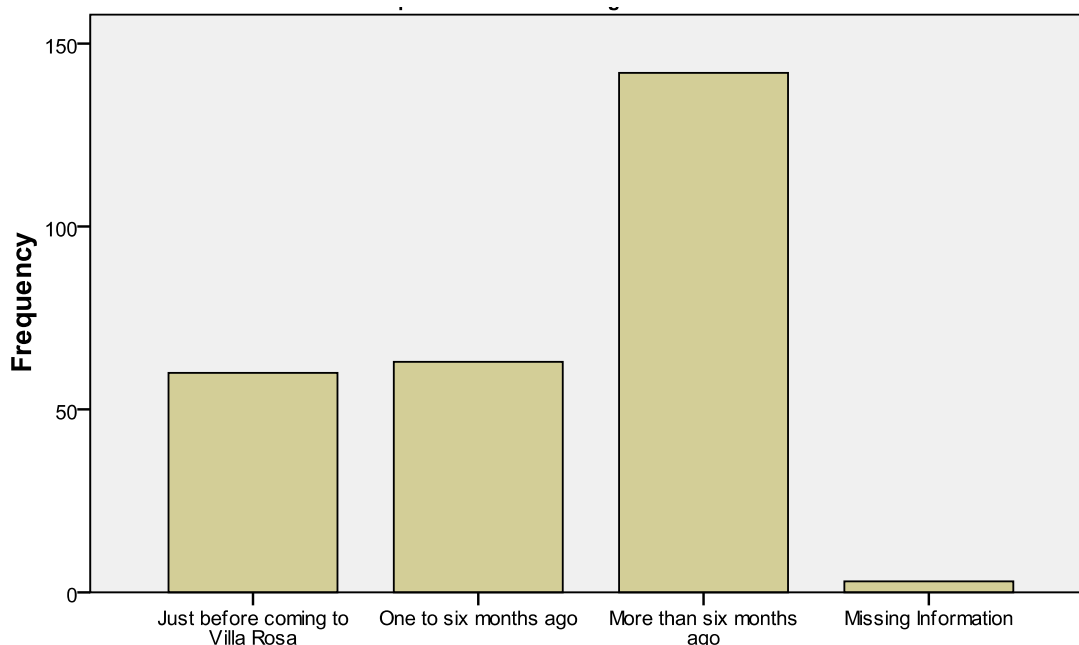
Figure 13: *Bar Chart Showing Responses at Intake to Villa Rosa to "When were you last in school?" (N=268)*
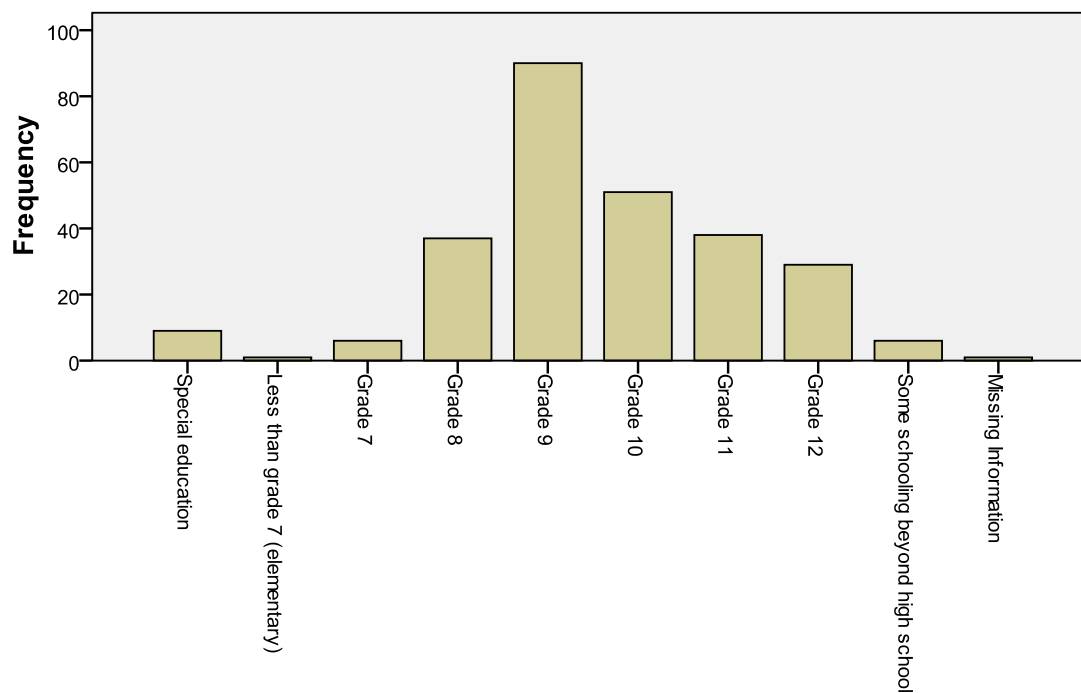
Figure 14: *Bar Chart Showing Responses to "What grade did you finish before coming to*

Villa Rosa?" (N=268)

Findings

    Multiple imputation considerations. As discussed earlier, multiple imputation was used to address some missing data concerns. One advantage of using multiple imputation is seen in additional information generated specific to the pooled results. SPSS provides pooling diagnostics. This includes fraction of missing information, relative increase in variance, and relative efficiency. The relative increase in variance shows the regression coefficient as a ratio of between imputation variance and within imputation variance, demonstrating how the estimates in each imputation vary.

    The fraction of missing information (γ_o) uses the relative increase in variance in a fraction of missing information to complete information, demonstrating how the missing responses affect the data. Molenberghs and Kenward (2007, p. 109) state that the fraction of missing information, "quantifies how much more precise the estimate might have been if no data had been missing".

    Relative efficiency compares the efficiency of the finite number of imputed estimates (*m*) to the efficiency of an unlimited amount of imputations. (SPSS Inc., 2007) Rubin (p.114, 1987) said that, "the efficiency of the finite-*m* repeated-imputation estimator relative to the fully efficient infinite-*m* repeated-imputation estimator is $(1 + \gamma_o/m)^{-1/2}$ in units of standard errors…in cases with little missing information, proper imputation with *m=2* or 3 is nearly fully efficient."

    A study from the Mayo Clinic (Vargas-Chanes, Decker, Schroeder & Offord, 2003) states that a relative efficiency ranging from .93 to 1.00 is considered satisfactory. This thesis will follow that cut off for evaluating if the use of multiple imputation has been a successful method of replacing missing data.

Rosenberg Self-Esteem Scale considerations. To demonstrate reliability of the Likert method of scoring the Rosenberg Self-Esteem Scale, Cronbach's alpha was calculated for the Likert scoring of intake and discharge self-esteem on all imputations. Cronbach's alpha for intake self-esteem was found to be .84. Cronbach's alpha for discharge self-esteem was found to be .83. This provides evidence of reliability in this sample.

To further demonstrate reliability of the Likert method of scoring the Rosenberg Self-Esteem Scale, a bivariate correlation was performed between the intake self-esteem and discharge self-esteem. The pooled Pearson's correlation was shown to be significant (r=-.567, one-tailed p<.001). The direction of the relationship shows a positive relationship; as intake self-esteem increases, discharge self-esteem also increases. This significant correlation contributes to the demonstration of reliability.

A bivariate correlation was performed between intake self-esteem calculated as a Likert scale and intake self-esteem calculated as a Guttman scale. The pooled Pearson's correlation was shown to be significant (r=-.806, one-tailed p<.001). The direction of the relationship shows a positive relationship; as Likert intake self-esteem increases, Guttman intake self-esteem also increases. This significant correlation contributes to the demonstration that the findings of this study are not dependant on Likert scoring.

A bivariate correlation was performed between discharge self-esteem calculated as a Likert scale and discharge self-esteem calculated as a Guttman scale. The pooled Pearson's correlation was shown to be significant (r=-.789, one-tailed p<.001). The direction of the relationship shows a positive relationship; as Likert discharge self-esteem

increases, Guttman discharge self-esteem also increases. This significant correlation contributes to the demonstration that the findings of this study are not dependant on Likert scoring.

Standard multiple regression. A standard multiple regression was performed between discharge self-esteem as the dependant variable and independent variables including: self-esteem at intake, age, number of days at Villa Rosa, number of types of abuse experienced and attitudes of social support network (a fraction based on the number of strong supports by the number of people the woman was able to evaluate).

Dummy independent variables entered included;

Length of time at most recent address (Five dummy variables were entered including response categories of; 2 days or less, 2 days to 1 month, 1 month to 12 months, 13 to 60 months and missing responses. The reference category was more than 5 years.)

Ethnicity (Five dummy variables were entered, including response categories of; Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis, and missing responses. The reference category was Non-Aboriginal.)

Living with a disability (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Education level (Nine dummy variables were entered including response categories of; special program, elementary or less, grade 7, grade 8, grade 9, grade 10, grade 11, schooling beyond high school, and missing responses. The reference category was grade twelve.)

Last involvement in school (Three dummy variables were entered including response categories of; just before coming to Villa Rosa, one to six months ago and missing responses. The reference category was more than six months ago.)

Plan for current pregnancy (Three dummy variables were entered including response categories of: uncertain, adoption, and missing responses. The reference category was parenting.)

If pressure had been experienced to parent (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to place for adoption (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to terminate the pregnancy (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Breastfeeding (Three dummy variables were entered including response categories of; yes, not applicable, and missing responses. The reference category was no.)

Previous children (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Post Natal House participation (A dummy variable was entered for the response category of yes. The reference category was no.)

Dummy variables were entered for missing responses for number of types of abuse experienced and attitudes of social support network. (The dummy variables were entered for the response category of yes - missing. The reference categories were no – not missing.)

Analysis was performed using SPSS REGRESSION. As several of the hypotheses are tested based upon this standard multiple regression the general results for the model are presented here together. Results specific to individual hypothesis are presented in the analysis of each hypothesis.

In examining the output no bivariate correlations of .90 or higher were found, decreasing concerns of multicollinearity.

Table 46 displays R, R^2 and adjusted R^2. The R-square values are quite high for each imputation between .45 and .46. This shows that this model explains about 45% of the variance in discharge self-esteem. More conservative adjusted R^2 values show the model to explain a third of the variance in discharge self-esteem. Adjusted R-square is the best inference to the population. Table 46 also presents ANOVA results which indicate that the set of independent variables was a statistically significant predictor $(p<.001)$.

Table 46

Summary of Standard Multiple Regression Results (N=268)

Imputation number	*R*	*R²*	*Adjusted R²*	SE of the Estimate	*df*	ANOVA Regression Mean Square	*F*	*P*
1	0.70	.46	.35	3.60	45	53.86	4.15***	.000
2	0.68	.45	.34	3.60	45	52.70	4.08***	.000
3	0.67	.45	.34	3.61	45	52.73	4.05***	.000
4	0.67	.45	.33	3.61	45	51.84	3.98***	.000
5	0.67	.45	.34	3.60	45	52.58	4.07***	.000

***p<.001

Results specific to individual hypotheses.

1) Are there significantly different levels of self-esteem at discharge among women who are Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis, Non-Aboriginal, or women whose responses are missing?

μ_1 is the level of self-esteem of women who reported as Non-Aboriginal

μ_2 is the level of self-esteem of women who reported as Aboriginal, Ojibway

μ_3 is the level of self-esteem of women who reported as Aboriginal, Cree/Swampy Cree

μ_4 is the level of self-esteem of women who reported as Aboriginal, other

μ_5 is the level of self-esteem of women who reported as Métis

$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$

$H_1: \mu_1 > \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$

Sequential regression. This question was addressed using sequential regression analysis performed using discharge self-esteem as the dependant variable. The independent variables were entered in two blocks. The first block included; self-esteem at intake, age, number of days at Villa Rosa, number of types of abuse and attitudes of social support network.

Dummy variables were also entered in this block for:

Length of time at most recent address (Five dummy variables were entered including response categories of; 2 days or less, 2 days to 1 month, 1 month to 12 months, 13 to 60 months and missing responses. The reference category was more than 5 years.)

Living with a disability (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Education level (Nine dummy variables were entered including response categories of; special program, elementary or less, grade 7, grade 8, grade 9, grade 10, grade 11, schooling beyond high school, and missing responses. The reference category was grade twelve.)

Last involvement in school (Three dummy variables were entered including response categories of; just before coming to Villa Rosa, one to six months ago and missing responses. The reference category was more than six months ago.)

Plan for current pregnancy (Three dummy variables were entered including response categories of; parent, adoption, and missing responses. The reference category was parenting.)

If pressure had been experienced to parent (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to place for adoption (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to terminate the pregnancy (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Breastfeeding (Three dummy variables were entered including response categories of; yes, not applicable, and missing responses. The reference category was no.)

Previous children (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Post Natal House participation (A dummy variable was entered for the response category of yes. The reference category was no.)

Dummy variables were entered for missing responses for number of types of abuse experienced and attitudes of social support network. (The dummy variables were entered for the response category of yes - missing. The reference categories were no – not missing.)

The second block of independent variables included five dummy variables for ethnicity including response categories of; Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis, and missing responses. The reference category was Non-Aboriginal. Analysis was performed using SPSS REGRESSION.

Table 47 displays R, R^2, adjusted R^2 and change statistics after entry of all independent variables for all five imputations. Addition of the variables for ethnicity in the second step did not reliably improve R^2. R^2 change was not significant, and ethnicity adds no further significant prediction. The null hypothesis that women who are; Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, other, Métis or Non-Aboriginal, and women whose responses are missing will have equal self-esteem at discharge (H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6$) cannot be rejected.

Table 47

Sequential Multiple Regression Results With Ethnicity Variables as the Second Step in the Model (N=268)

Imputation number	Model	R	R^2	Adjusted R^2	Change statistics				
					$R^2 \triangle$	$F \triangle$	df1	df2	$p\ F \triangle$
1	2	0.68	.46	0.35	.02	1.80	5	222	.114
2	2	0.67	.45	0.34	.03	2.02	5	222	.077
3	2	0.67	.45	0.34	.03	2.03	5	222	.076
4	2	0.67	.45	0.33	.03	2.13	5	222	.063
5	2	0.67	.45	0.34	.02	1.87	5	222	.100

***p<.001

2) Does self-esteem increase from intake to discharge in the Villa Rosa program?

μ_1 is the level of self-esteem at intake and μ_2 is the level of self-esteem at discharge.

$H_0: \mu_1 = \mu_2$ The level of self-esteem is equal before and after taking part in the Villa Rosa program.

$H_1: \mu_1 < \mu_2$ The level of self-esteem increased after taking part in the Villa Rosa program.

Paired samples t-test. This question was addressed first using a paired samples t-test. The test results indicate mean pooled discharge self-esteem scores (17.76) were, on average, significantly lower (showing healthier self-esteem) than pooled intake self-esteem scores (20.42); *paired t(24,861)= –10.76, p<.001.* The mean difference in pooled intake and discharge self-esteem is –2.66. This difference can be seen as theoretically significant. The null hypothesis that the level of self-esteem is equal before and after taking part in the Villa Rosa program ($H_0: \mu_1 = \mu_2$) is rejected. Evaluation of the use of multiple imputation for the paired samples test showed the fraction of missing information as .013, relative increase variance as .013 and relative efficiency was .997.

Repeated measures ANOVA.   A 2 x 5 between-subjects repeated measures analysis of variance was performed on self-esteem. As discussed previously SPSS was found to be limited in the number of variables which could be included in the equation. Where possible, categories were collapsed in nominal and ordinal variables. Variables were then chosen based on theoretical importance. Control variables consisted of; attitudes of social support network (with two categories of 'mean 0.582 and above' or

'below the mean'), education (with three categories of special program, less than grade twelve or grade twelve and above), length of time at most recent address (with two categories of a month or less or over a month), ethnicity (with two categories of non-Aboriginal or not) and age (with two categories of 'mean 0.0548 and above' or 'below the mean'). Analysis was performed by SPSS.

Evaluation of the repeated measured ANOVA assumptions (normality of sampling distributions, linearity and homogeneity of variance) were met satisfactorily as discussed in the screening section of this thesis. The original sample of 268 was reduced to 248 by twenty women who did not provide information on; education (1 case), length of time at most recent address (7 cases), ethnicity (11 cases), and one case missing both length of time at most recent address, and ethnicity. Because SPSS was limited in the number of variables it could include in the analysis, it was not possible to create non-response categories.

Controlling for other factors, there was a significant change in self-esteem in all imputations from intake to discharge ($p<.001$). Factors controlled for included social support, education, length of time at most recent address, ethnicity and age (see Table 48). The null hypothesis that the level of self-esteem is equal before and after taking part in the Villa Rosa program (H_0: $\mu_1 = \mu_2$) is rejected.

Table 48

Repeated Measures Analysis of Variance, Within Subjects Effects Test Results for Source:

Self-esteem

Imputation number	Type III Sum of Squares	df	MS	F	p
Original data	195.87	1	195.87	23.07	.000
1	214.67	1	214.67	26.07	.000
2	220.89	1	220.89	26.54	.000
3	224.15	1	224.15	27.33	.000
4	224.20	1	224.20	26.77	.000
5	218.57	1	218.57	26.62	.000

***p<.001

3) Do women who take part in the Post Natal House (PNH) program have greater self-esteem at discharge than women who do not take part in the Villa Rosa PNH program?

μ_1 is self-esteem at discharge for women who do not take part in the Post-Natal House program.

μ_2 is self-esteem at discharge for women who take part in the Post-Natal House program.

$H_0: \mu_1 = \mu_2$ Self-esteem at discharge is equal for women who take part in the Villa Rosa Post Natal House program and for women who do not take part in the Villa Rosa Post Natal House program.

$H_1: \mu_1 < \mu_2$ Self-esteem at discharge is greater for women who take part in the Villa Rosa Post Natal House program than it is for women who do not take part in the Villa Rosa Post Natal House program.

Independent samples t-test (one-tailed). This question was addressed first using an independent samples t-test. To calculate the one-tailed significance level the two-tailed level of significance provided by default was divided in two. The test results indicate pooled mean discharge self-esteem scores for women who participated in the PNH program (16.84, standard error = 0.54) were on average significantly lower (which would show healthier self-esteem) than mean discharge self-esteem scores of women who did not participate in the PNH program (18.01, standard error = .31); *one-tailed t(175,287)=1.77, p=.039.* The null hypothesis that women who take part in the Post Natal House (PNH) program will have equal self-esteem at discharge as women who do

not take part in the Villa Rosa Post Natal House program ($H_0: \mu_1 = \mu_2$) can be rejected. (see Appendix B for detailed results)

Multiple regression analysis. The results (see Table 49) presented for the standard multiple regression analysis performed show that although the bivariate difference in discharge self-esteem between PNH participants and non-participants was significant (p=.039), PNH participation did not contribute significantly to the regression when controlling for other variables. As discussed in detail earlier the other independent variables controlled for included; self-esteem at intake, age, number of types of abuse experienced, attitudes of social support network, length of time at most recent address, ethnicity, living with a disability, education level, last involvement in school, plan for current pregnancy, if pressure had been experienced to parent, if pressure had been experienced to place for adoption, if pressure had been experienced to terminate the pregnancy, breastfeeding choice, previous children, and length of time residing at Villa Rosa.

Apparently, the relationship between PNH participation and discharge self-esteem is confounded by the relationships between discharge self-esteem and other independent variables. The null hypothesis that women who take part in the Post Natal House (PNH) program will have equal self-esteem at discharge as women who do not take part in the Villa Rosa Post Natal House program ($H_0: \mu_1 = \mu_2$) cannot be rejected.

The multiple imputation information presented in Table 50 shows that the relative efficiency is .999.

Table 49

Standard Multiple Regression Results for PNH Participation (N=268)

Variable	B	SE B	β	t	p	sr²
Was there PNH participation?						
Imputation 1	0.01	0.71	0.00	0.01	.993	0.00
Imputation 2	-0.13	0.71	-0.01	-0.19	.851	0.00
Imputation 3	-0.06	0.70	-0.01	-0.08	.933	0.00
Imputation 4	-0.03	0.71	0.00	-0.04	.967	0.00
Imputation 5	-0.03	0.71	0.00	-0.05	.963	0.00
Pooled	-0.05	0.71		-0.07	.944	0.00

Note. Using a one-tailed *p*.

Table 50

Multiple Imputation Results for PNH Participation

	PNH participation
Fraction missing information	.006
Relative increase variance	.006
Relative efficiency	.999

4) Do women who report living with a disability at intake have lower levels of self-esteem at discharge than women who did not report living with a disability?

μ_1 is the level of self-esteem at discharge of women who reported living with a disability at intake and μ_2 is the level of self-esteem at discharge of women who did not report living with a disability at intake.

H_0: $\mu_1 = \mu_2$ Women who reported living with a disability at intake will not have significantly different levels of self-esteem at discharge than women who did not report living with a disability at intake.

H_1: $\mu_1 < \mu_2$ Women who reported living with a disability at intake will have a lower level of self-esteem at discharge than women who did not report living with a disability at intake.

ANOVA.   This question was addressed first using analysis of variance. The test results indicate that the discharge self-esteem mean for women who reported living with a disability (pooled=18.27), the discharge self-esteem mean of women who did not report living with a disability (pooled=17.54), and the discharge self-esteem mean for women whose responses were missing (pooled=18.12) were not significantly different for any imputation dataset. The null hypothesis that women who reported living with a disability, women who did not report living with a disability, and women whose responses were missing have equal self-esteem at discharge (H_0: $\mu_1 = \mu_2 = \mu_3$) cannot be rejected (see Appendix B for full ANOVA results).

Sequential regression. This question was addressed using sequential regression analysis to control for potentially confounding variables, performed using discharge self-esteem as the dependant variable. The independent variables were entered in two blocks.

The first block included; self-esteem at intake, age, number of days at Villa Rosa, number of types of abuse and attitudes of social support network.

Dummy independent variables entered included;

Length of time at most recent address (Five dummy variables were entered including response categories of; 2 days or less, 2 days to 1 month, 1 month to 12 months, 13 to 60 months and missing responses. The reference category was more than 5 years.)

Ethnicity (Five dummy variables were entered, including response categories of; Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis, and missing responses. The reference category was Non-Aboriginal.)

Education level (Nine dummy variables were entered including response categories of; special program, elementary or less, grade 7, grade 8, grade 9, grade 10, grade 11, schooling beyond high school, and missing responses. The reference category was grade twelve.)

Last involvement in school (Three dummy variables were entered including response categories of; just before coming to Villa Rosa, one to six months ago and missing responses. The reference category was more than six months ago.)

Plan for current pregnancy (Three dummy variables were entered including response categories of; parent, adoption, and missing responses. The reference category was uncertain.)

If pressure had been experienced to parent (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to place for adoption (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to terminate the pregnancy (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Breastfeeding (Three dummy variables were entered including response categories of; yes, not applicable, and missing responses. The reference category was no.)

Previous children (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Post Natal House participation (A dummy variable was entered for the response category of yes. The reference category was no.)

Dummy variables were entered for missing responses for number of types of abuse experienced and attitudes of social support network. (The dummy variables were entered for the response category of yes - missing. The reference categories were no – not missing.)

The second block of independent variables included two dummy variables for living with a disability (yes and missing). 'No' was used as the reference category for disability. Analysis was performed using SPSS REGRESSION.

Table 51 displays R, R^2, adjusted R^2 and change statistics after entry of all independent variables for all five imputations. Addition of the variables for living with a disability in the second step did not reliably improve R^2. R^2 change was not significant;

disability status adds no further significant prediction. The null hypothesis that women who respond 'yes' to living with a disability, women who respond 'no' to living with a disability, and women whose responses are missing for disability will have equal self-esteem at discharge (H_0: $\mu_1 = \mu_2 = \mu_3$) cannot be rejected.

Table 51

Sequential Multiple Regression Results Entering the Living with a Disability Dummy Variables as the Second Step (N=268)

Imputation number	Model	R	R^2	Adjusted R^2	Change statistics				
					$R^2 \triangle$	$F \triangle$	df1	df2	p F $\triangle$
1	2	0.68	0.46	0.35	0.01	1.34	2	222	.265
2	2	0.67	0.45	0.34	0.01	1.16	2	222	.315
3	2	0.67	0.45	0.34	0.01	1.36	2	222	.259
4	2	0.67	0.45	0.33	0.01	1.18	2	222	.309
5	2	0.67	0.45	0.34	0.01	1.62	2	222	.199

***p<.001

5) Is there a significant difference in the level of self-esteem at discharge among women who reside at Villa Rosa for different lengths of time?

μ is the level of self-esteem at discharge

H_0:   Length of time that women reside at Villa Rosa will not affect their self-esteem levels at discharge.

H_1: Self-esteem at discharge will increase as length of time at Villa Rosa increases.

Bivariate Correlation. A bivariate correlation was performed between length of stay and discharge self-esteem. The pooled Pearson's correlation was shown to be significant (*r=-.149, one-tailed p=.007*). The direction of the relationship shows that as length of stay increases discharge self-esteem decreases (indicating a healthier self-esteem).

Multiple Regression Analysis. The results presented for the standard multiple regression analysis performed show that the number of days that women reside at Villa Rosa did contribute significantly to discharge self-esteem while controlling for other variables. As discussed in detail earlier the other independent variables controlled for included; self-esteem at intake, age, number of types of abuse experienced, attitudes of social support network, length of time at most recent address, ethnicity, living with a disability, education level, last involvement in school, plan for current pregnancy, if pressure had been experienced to parent, if pressure had been experienced to place for adoption, if pressure had been experienced to terminate the pregnancy, breastfeeding choice, previous children, and Post Natal House participation.

The direction of the relationship indicates that as number of days in the program increase, discharge self-esteem scores decrease (indicating a healthier self-esteem). The null hypothesis that the number of days spent in the program will not contribute to the regression equation can be rejected (see Table 52). The squared semi-partial correlation indicates that number of days has a small effect, its unique contribution explains 2% of variance and the unstandardized slope shows that each additional day is associated with a 2.15 unit decrease in self-esteem score.

The multiple imputation information presented in Table 53 shows that the relative efficiency is .997.

Table 52

Standard Multiple Regression Results for the Number of Days Residing at Villa Rosa (N=268)

Variable	B	SE B	ß	t	p	sr²
Number of days						
Imputation 1	-2.25	0.74	-0.21	-3.06**	.003	.02
Imputation 2	-2.21	0.73	-0.21	-3.01**	.003	.02
Imputation 3	-2.09	0.72	-0.20	-2.89**	.004	.02
Imputation 4	-2.12	0.74	-0.20	-2.88**	.004	.02
Imputation 5	-2.08	0.73	-0.20	-2.86**	.005	.02
Pooled	-2.15	0.74		-2.92**	.004	.02

Note. Using a one-tailed *p.* **p<.01*

Table 53

Multiple Imputation Results for Number of Days Residing at Villa Rosa

	Number of days
Fraction missing information	.013
Relative increase variance	.013
Relative efficiency	.997

6) Do women who plan to breastfeed at convalescence have a higher level of self-esteem at intake than women who do not plan to breastfeed, women who responded as 'not applicable' and women for whom the response was missing?

μ_1 is the level of self-esteem at intake of women who plan not to breastfeed and μ_2 is the level of self-esteem of women who plan to breastfeed.

$H_0: \mu_1 = \mu_2$ Women who plan to breastfeed will not have a higher level of self-esteem at intake than women who do not plan to breastfeed.

$H_1: \mu_1 < \mu_2$ Women who plan to breastfeed will have a higher level of self-esteem at intake than women who do not plan to breastfeed.

ANOVA. This question was addressed first using analysis of variance. The test results indicate mean intake self-esteem scores for women who plan to breastfeed at convalescence (pooled=20.00), mean intake self-esteem scores of women who do not plan to breastfeed at convalescence (pooled=21.59), mean intake self-esteem scores for women who responded as not applicable (pooled=20.73) and mean intake self-esteem scores for women whose responses were missing (pooled=19.65) were not significantly different for any imputation dataset. The null hypothesis that women who plan to breastfeed at convalescence, women who do not plan to breastfeed at convalescence, women who responded as not applicable, and women whose responses were missing will have equal self-esteem at intake ($H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$) cannot be rejected. (see Appendix B for detailed results, SPSS does not provide *F* and *p* statistics for the pooled dataset)

Multinomial Logistic Regression. Multinomial logistic regression was performed to control for potential confounding factors using SPSS NOMREG with breastfeeding as

the outcome. The independent variable of interest was self-esteem at intake. Control variables included; age, number of types of abuse, attitudes of social support network.

Dummy control variables were entered for; previous children, length of time at most recent address, ethnicity, plan for current pregnancy, if pressure had been experienced to place for adoption or if pressure had been experienced to terminate the pregnancy, if pressure had been experienced to parent, living with a disability, education level, and length of time since being in school.

As discussed in the screening section of this paper, some dummy variables were excluded from the multinomial logistic regression to address violations of assumptions. Concerns of singularities were reported by SPSS. To address this concern dummy variables representing missing information for the above control variables and all dummy variables with zero cases in any cell including: education (special program), education (elementary or less), education (schooling beyond high school), and plan for current pregnancy (place for adoption) were removed. The assumptions of adequacy of expected frequencies and power was met by removing the dummy variable for education (grade 7) as it was found to combine with other variables to create expected cell frequencies of less than one.

The likelihood-ratio test of the null hypothesis that the coefficient for intake self-esteem is zero shows that this null hypothesis can be rejected. The results for this test are shown in Table 54. The test shows that there is a significant difference between the full model and a reduced model not including intake self-esteem.

Further information can be gained from looking at the intake self-esteem results of the Wald Statistic. The multinomial logit estimates for a one unit increase in intake

self-esteem score for "no", missing information and "not applicable" relative to "yes", given the other variables in the model are held constant, are shown in Table 55 SPSS does not produce Wald statistics for pooled data. If a resident were to increase her intake self-esteem score by one point (indicating less healthy self-esteem), she would be 1.18 times (pooled) as likely to answer "no". This was the only significant result at *p=.004*.

After controlling for the effects of the control variable noted above, it was found that there is a significant increase in the likelihood of answering "no" with less healthy self-esteem scores at intake. The null hypothesis that women who plan to breastfeed at convalescence, women who do not plan to breastfeed at convalescence, women who responded as not applicable, and women whose responses were missing will have equal self-esteem at intake (H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4$) can be rejected. A healthier self-esteem will lead to an increased likelihood of answering "yes" to breastfeeding instead of "no".

The multiple imputation information presented in Table 56 shows the relative efficiency is .998 to .999.

Table 54

Likelihood Ratio Tests Showing Effect of Intake Self-esteem on Choice to Breastfeed
(N=268)

Imputation number	Model fitting criteria	Likelihood ratio tests		
	-2 LL of reduced model	χ^2	df	p
1	607.29	10.00*	3	.019
2	607.24	9.58*	3	.022
3	608.94	10.57*	3	.014
4	608.46	9.94*	3	.019
5	602.82	9.45*	3	.024

Note. -2LL = -2 Log Likelihood.*p<.05

Table 55

Multinomial Logistic Regression Results for Breastfeeding, Parameter Estimates (N=268)

Breastfeeding	*B*	*SE*	*Wald*	*df*	*p*	*Exp(B)*
No						
Imputation 1	0.16	0.06	8.03**	1	.005	1.18
Imputation 2	0.16	0.06	7.80**	1	.005	1.17
Imputation 3	0.17	0.06	8.36**	1	.004	1.18
Imputation 4	0.16	0.06	8.04**	1	.005	1.18
Imputation 5	0.16	0.06	7.54**	1	.006	1.17
Pooled	0.16	0.06			.005	1.18
Missing						
Imputation 1	-0.02	0.54	0.14	1	.706	0.98
Imputation 2	-0.02	0.54	0.12	1	.733	0.98
Imputation 3	-0.02	0.54	0.20	1	.658	0.98
Imputation 4	-0.02	0.54	0.14	1	.713	0.98
Imputation 5	-0.02	0.55	0.19	1	.662	0.98
Pooled	-0.02	0.54			.694	0.98
Not applicable						
Imputation 1	0.02	0.04	0.30	1	.586	1.02
Imputation 2	0.03	0.04	0.47	1	.495	1.03
Imputation 3	0.03	0.04	0.50	1	.478	1.03
Imputation 4	0.03	0.04	0.53	1	.466	1.03
Imputation 5	0.02	0.04	0.34	1	.562	1.02
Pooled	0.03	0.04			.518	1.03

*Note.**p<.01.*

Table 56

Multiple Imputation Results for Breastfeeding, Dummy Variables (N=268)

	No	Missing	Not applicable
Fraction missing information	.004	.003	.008
Relative increase variance	.004	.003	.008
Relative efficiency	.999	.999	.998

7) Is there a significant relationship between self-esteem at discharge and level of attitudes of social support network at intake?

H$_0$: As the level of social support increases self-esteem at discharge will not increase.

H$_1$: As the level of social support increases, self-esteem at discharge will increase.

Bivariate Correlation. A bivariate correlation was performed between attitudes of social support network and discharge self-esteem. The pooled Pearson's correlation was shown to be significant (*r=-.114, one-tailed p=.031).* The direction of the relationship shows that as attitudes of social support network increases discharge self-esteem decreases (indicating a healthier self-esteem).

Multiple Regression Analysis. The results presented for the standard multiple regression analysis performed show that the amount of social support experienced did contribute significantly to the regression when controlling for other variables (see Table 57). As discussed in detail earlier, the other independent variables controlled for included; self-esteem at intake, age, number of types of abuse experienced, length of time residing at Villa Rosa, length of time at most recent address, ethnicity, living with a disability, education level, last involvement in school, plan for current pregnancy, if pressure had been experienced to parent, if pressure had been experienced to place for adoption, if pressure had been experienced to terminate the pregnancy, breastfeeding choice, previous children, and Post Natal House participation.

The direction of the relationship indicates that as support levels increase discharge self-esteem scores decrease (indicating a healthier self-esteem). The squared semi-partial correlation indicates that the unique contribution of attitudes of social support network

explains 1% of variance and the unstandardized slope shows that an increase in a unit of social support is associated with a 2.37 decrease in self-esteem score.

The dummy variable for missing support responses did not contribute significantly to the regression. The null hypothesis that social support levels are not related to discharge self-esteem after controlling for other variables can be rejected. The results also showed that whether the response was missing or not was not significant, using a one-tailed significance. This showed that those women with missing social support variables did not differ on discharge self-esteem scores after controlling for other independent variables.

The multiple imputation information presented in Table 58 shows that the relative efficiency is .998 for attitudes of social support network and .996 for missing support responses.

Table 57

Standard Multiple Regression Results for Attitudes of Social Support Network (N=268)

Social support variables by imputation number	*B*	*SE B*	ß	*t*	*p*	*sr²*
Social support						
1	-2.31	1.15	-0.12	-2.01*	0.02	0.01
2	-2.45	1.15	-0.12	-2.14*	0.02	0.01
3	-2.49	1.15	-0.12	-2.17*	0.02	0.01
4	-2.34	1.15	-0.12	-2.04*	0.02	0.01
5	-2.27	1.15	-0.11	-1.97*	0.03	0.01
Pooled	-2.37	1.15		-2.06*	0.02	0.01
Missing support						
1	0.09	0.57	0.01	0.16	0.44	0.00
2	0.18	0.56	0.02	0.33	0.37	0.00
3	0.10	0.57	0.01	0.17	0.43	0.00
4	0.09	0.57	0.01	0.16	0.44	0.00
5	-0.01	0.56	-0.00	-0.02	0.49	0.00
Pooled	0.09	0.57		0.16	0.44	0.00

Note. Using a one-tailed *p*. **p<.05*

Table 58

Multiple Imputation Results for Attitudes of Social Support Network

	Attitudes of Social Support	
	Network	Missing support
Fraction missing information	.008	.018
Relative increase variance	.008	.018
Relative efficiency	.998	.996

8) Is there a significant relationship between self-esteem at discharge and experiences of abuse reported at intake?

H_0: As the number of types of abuse reported increases self-esteem at discharge will not increase.

H_1: As the number of types of abuse reported increases, self-esteem at discharge will increase.

Multiple Regression Analysis. The results presented for the standard multiple regression analysis performed show that the number of types of abuse experienced did not contribute significantly to the regression (see Table 59). The bivariate relationship of the dummy variable showing a missing response for abuse to discharge self-esteem was not significant (pooled p=.073). The null hypothesis that number of types of abuse experienced does not contribute significantly to discharge self-esteem cannot be rejected. The results showed that whether the response was missing or not was not significant, using a two-tailed significance for the pooled data. This showed that those women with missing abuse variables did not differ on discharge self-esteem scores after controlling for other independent variables.

The multiple imputation information presented in Table 60 shows that the relative efficiency is .998 for number of reported abuse types and .997 for missing abuse responses.

Table 59

Standard Multiple Regression Results for Number of Types of Abuse (N=268)

Abuse variables by imputation number	B	SE B	ß	t	p	sr^2
Number of reported abuse types						
1	-0.13	0.14	-0.05	-0.91	.183	0.00
2	-0.13	0.15	-0.05	-0.86	.196	0.00
3	-0.11	0.15	-0.05	-0.78	.219	0.00
4	-0.10	0.15	-0.04	-0.70	.244	0.00
5	-0.11	0.15	-0.05	-0.78	.219	0.00
Pooled	-0.12	0.15		-0.80	.212	0.00
Missing abuse						
1	1.51	0.89	0.09	1.69	.093	0.01
2	1.57	0.89	0.10	1.76	.080	0.01
3	1.56	0.89	0.10	1.75	.081	0.01
4	1.76	0.89	0.11	1.97	.050	0.01
5	1.66	0.89	0.10	1.86	.064	0.01
Pooled	1.61	0.90		1.79	.073	0.01

Note. Using a two-tailed *p* for missing abuse and a one-tailed *p* for number of reported abuse types

Table 60

Multiple Imputation Results for Number of Types of Abuse

	Number of reported abuse types	Missing abuse
Fraction missing information	.008	.015
Relative increase variance	.008	.015
Relative efficiency	.998	.997

Summary of Findings

Input errors were screened and corrected. The data were found to have some data not randomly missing within a pattern of overall data that were randomly missing. Missing interval data was replaced by multiple imputation. Abuse and social support variables were converted to scale variables and missing values were replaced with the mean. Dummy variables were created to account for missing responses in the other nominal and ordinal variables

When screening for normality, linearity and homoscedasticity bivariate scatterplots showed no evidence of curvilinear relationships or heteroscedasticity, residual plots showed possible heteroscedasticity for age, previous children and number of days at Villa Rosa. Skewness, and kurtosis z-values, frequency histograms and probability plots showed all variables but intake self-esteem to have departures from normality. Transformations were performed. Age was inverted and successfully reduced to a slight skew. Number of days was logged and successfully reduced to a slight skew. On discharge self-esteem an attempted square root transformation resulted in a change from moderate positive skew to a moderate negative skew and was abandoned. The number of previous children was not successfully transformed, concerning skewness remained, therefore it was transformed to a categoric variable. Seventeen univariate outliers were found through boxplots and extreme statistics. They were changed to the next closest value or one above. One multivariate outlier case found through Mahalanobis distance was deleted. No concerns were found when screening for multicollinearity and singularity. Self-esteem variables were created using Guttman scaling to allow for comparison with past research.

Screening considerations specific to analyses used in this study found violations of repeated measures ANCOVA assumption and inability of SPSS to include all variables. ANCOVA analysis was discontinued. For studying ethnicity sequential regression was selected instead. Repeated measures ANOVA was selected to be used to study difference between intake and discharge self-esteem, resulting in a loss of variables. To meet assumptions of multinomial logistic regression all variables with zero cases in any cell were removed to account for singularities reported when multinomial logistic regression was attempted. The variable for education (grade 7) was also removed, it was found to create a violation of the assumption of adequacy of expected cell frequencies and power.

Descriptive statistics are provided.

Controlling for the factors reported, the main findings of the research included: 1) Ethnicity was not found to be significantly related to discharge self-esteem. 2) Self-esteem of residents was found to be significantly healthier at discharge from the program than at intake to the program. 3) Discharge self-esteem was not found to be significantly different between women who participated in a post-natal semi-independent living component of the program and those who did not. 4) A significant difference was not found between the discharge self-esteem of women who reported as living with a disability at intake, and women who did not. 5) Less healthy intake self-esteem was associated with plans not to breastfeed as opposed to plans to breastfeed. 6) More supportive attitudes of social support network as measured at intake were shown to be linked to healthier self-esteem at discharge. 7) Experiences of abuse were not shown to be significantly related to discharge self-esteem.

The following chapter provides a discussion of each finding according to; their consistency with the literature, theories that are supported through the finding, a discussion of any methodology issues, suggestions for future research, implications of the finding and a description of any further statistical exploration. The chapter also provides a discussion of the limitations of the study, implications for self-esteem theories, implications for practice and policy, and suggestions for future research.

Chapter V: Discussion

This study attempted to address the question asking what socio-economic factors and factors from a maternity group home program have an impact on the self-esteem of single pregnant women who reside in the Villa Rosa residential program.

The main findings related to the eight research questions put forward will now be discussed.

Discussion of Findings by Research Question

1) There are not significantly different levels of self-esteem at discharge among women who are Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, other, Métis and non-Aboriginal when controlling for; self-esteem at intake, age, number of days at Villa Rosa, number of types of abuse, attitudes of social support network, length of time at most recent address, living with a disability, education level, length of time since being in school, plan for current pregnancy, if pressure had been experienced to parent, if pressure had been experienced to place for adoption, if pressure had been experienced to terminate the pregnancy, participation in the PNH, choice to breastfeed, and previous children.

Consistency with the literature. The finding from the United States that there were differences in self-esteem based on race (Twenge & Crocker, 2000) would not be consistent with the difference observed here. Several differences existed between this study and the study done by Twenge and Crocker (2000). Twenge and Crocker (2000) performed a meta-analysis which included several different studies using a wide variety of samples, measurement instruments and controls. Their study is focused on race instead of ethnicity. To measure self-esteem they reported that several different instruments were

used including the Rosenberg Self-Esteem Scale, "semantic differential or adjective scales, omnibus measures summing over several areas of competence (e.g., the Tennessee Self-Concept Scale [TSCS], the Piers–Harris Self-Competence Scale for Children), and scales such as the Texas Social Behavior Inventory and the Janis–Field Feelings of Inadequacy Scale." (Twenge & Crocker, 2000). Studies examining the following populations were excluded, "psychiatric or hospital patients, alcoholics, drug addicts, children in foster home care, delinquents, hyperactive children, mentally retarded individuals, gang members, or abuse survivors" (Twenge & Crocker, 2000). These differences may contribute to the inconsistency with the findings in this study. Twenge and Crocker's (2000) study was in the United States, and the racial groups they studied were specific to that location. They would not have included data on Canadian Aboriginal people, the closest comparison would be a group they included for "American Indian" which represented "American Indian, Eskimo, or Aleut, sometimes labeled as American Indian or Alaska Native." (Twenge and Crocker, 2000). They did not specifically study pregnant women. They do include one study which appears to focus on the difference between pregnant and non-pregnant adolescents, but do not go into detail on the findings specific to that article.

The Manitoba study of 320 street-involved youth which found that Aboriginal youth had significantly lower self-esteem than non-Aboriginal youth (Beaudoin, 2004) would also not be consistent with the findings of this study. Several differences existed between this study and the study done by Beaudoin (2004). Beaudoin did not report on the name of the instrument used to measure self-esteem, but instead gave a description of it. "In this study, self-esteem was assessed using an eleven-item questionnaire in which

participants responded to a series of questions related to how they evaluate themselves. Self-esteem scores on this scale ranged from 11 to 55." (Beaudoin, 2004) Based on this brief description Beaudoin's study was seen as using a different measure.   The final sample included 319 youth between the ages of 14 and 24, both male and female. The youth in this study were all street-involved, the study on Villa Rosa did not specify street-involvement, 34% of respondents reported that they had been at their most recent residence for a month or less, which may show less stability in their housing. There were no controls reported. These differences may contribute to the inconsistency with the findings in this study.

Theories supported through this finding. This finding of no difference would be inconsistent with terror management theory's belief that anxiety buffers of indigenous cultures have been traumatically disrupted through contact with Europeans leading to lower self-esteem.

Discussion of methodology.   As discussed in the data screening section, there were inconsistencies in the use of the category of "other".   When descriptions were provided regarding what "other" referred to, some respondents included ethnicities that were not Aboriginal. The presence of a category of "non-Aboriginal" would indicate that the "other" category should only include "other" Aboriginal ethnicities than those identified (Cree/Swampy Cree and Ojibway). This has resulted in the loss of some cases that should be in the "non-Aboriginal" category.

Initially, this question was intended to be addressed through ANCOVA. The decision to use a sequential multiple regression (explained earlier) resulted in the loss of ability to evaluate the adjusted means of each ethnicity category.   Using sequential

multiple regression only allowed the study to compare differences between the dummy ethnicity variables entered into the equation with the reference category, but not with each other.

Suggestions for future research. Suggestions for future study would include modifications to the research instrument. Specifically to label the "other" category as "Aboriginal - other".

Implications. The null hypothesis that women who are Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, other, Métis or Non-Aboriginal, and women whose responses are missing have equal self-esteem at discharge (H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6$) cannot be rejected.

Further statistical exploration. To determine if there was variance related to ethnicity that was being explained by other parameters in the model, a one-way analysis of variance was performed on intake self-esteem. The test results indicate that the intake self-esteem means for women who reported their ethnicity as; Aboriginal Ojibway (pooled=19.79), Aboriginal Cree/Swampy Cree (pooled=20.46), other (pooled=20.28), Métis (pooled=21.14), Non-Aboriginal (pooled=20.80) and women whose responses were missing (pooled=17.67) were not significantly different for any imputation dataset. It does not appear that women who were Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, other, Métis or Non-Aboriginal, and women whose responses were missing had significant differences in self-esteem at intake (see Appendix B for full ANOVA results).

This question was then addressed using an independent samples t-test to compare the intake self-esteem for Aboriginal and Non-Aboriginal women. The Aboriginal and Métis ethnicities were pooled into one variable. Missing responses were left out of the

analysis, therefore N=256. To calculate the one-tailed significance level the two-tailed level of significance provided by default was divided in two. The test results indicate pooled mean intake self-esteem scores for women who reported their ethnicity as non-Aboriginal (20.80, standard error = 0.42) and women who reported their ethnicity as Aboriginal or Métis (20.40, standard error = 0.33) were not significantly different; *one-tailed t(101,651)=0.753, p=.23*. It does not appear that women who reported their ethnicity as Aboriginal/ Métis and women who reported as Non-Aboriginal have significant differences in self-esteem at intake (see Appendix B for full ANOVA results). The non-significant difference is in the opposite direction to that hypothesized, the mean for women who reported their ethnicity as Aboriginal is healthier than that for women who reported their ethnicity as Non-Aboriginal.

A further analysis was run using intake self-esteem as the dependant variable and controlling for factors present at intake to see if there are significantly different levels of self-esteem at intake among women who are Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis, Non-Aboriginal, or women whose responses are missing. Should the results have shown effects for Aboriginality, the possibility would have been raised that Villa Rosa is doing something to equalize self-esteem.

This question was addressed using sequential regression analysis performed using intake self-esteem as the dependant variable. The independent variables were entered in two blocks. The first block included; age, number of types of abuse and attitudes of social support network.

Dummy variables were also entered in this block for:

Length of time at most recent address (Five dummy variables were entered including response categories of; 2 days or less, 2 days to 1 month, 1 month to 12 months, 13 to 60 months and missing responses. The reference category was more than 5 years.)

Living with a disability (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Education level (Nine dummy variables were entered including response categories of; special program, elementary or less, grade 7, grade 8, grade 9, grade 10, grade 11, schooling beyond high school, and missing responses. The reference category was grade twelve.)

Last involvement in school (Three dummy variables were entered including response categories of; just before coming to Villa Rosa, one to six months ago and missing responses. The reference category was more than six months ago.)

Plan for current pregnancy (Three dummy variables were entered including response categories of; parent, adoption, and missing responses. The reference category was parenting.)

If pressure had been experienced to parent (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to place for adoption (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to terminate the pregnancy (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Previous children (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Dummy variables were entered for missing responses for number of types of abuse experienced and attitudes of social support network. (The dummy variables were entered for the response category of yes - missing. The reference categories were no – not missing.)

The second block of independent variables included five dummy variables for ethnicity including response categories of; Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis, and missing responses. The reference category was Non-Aboriginal. Analysis was performed using SPSS REGRESSION.

Table 61 displays R, R^2, adjusted R^2 and change statistics after entry of all independent variables for all five imputations. Addition of the variables for ethnicity in the second step did not reliably improve R^2. R^2 change was not significant; ethnicity adds no further significant prediction. The null hypothesis that women who are; Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, other, Métis or Non-Aboriginal, and women whose responses are missing will have equal self-esteem at intake (H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6$) cannot be rejected. Villa Rosa is not seen as doing something to equalize self-esteem.

Table 61

Sequential Multiple Regression Results With Ethnicity Variables as the Second Step in the Model and Intake Self-esteem as the Dependant Variable (N=268)

Imputation number	Model	R	R^2	Adjusted R^2	$R^2 \Delta$	$F \Delta$	df1	df2	$p\ F \Delta$
1	2	0.44	0.19	0.05	0.02	1.14	5	228	.338
2	2	0.44	0.19	0.05	0.02	1.24	5	228	.290
3	2	0.43	0.19	0.05	0.02	1.28	5	228	.274
4	2	0.44	0.19	0.05	0.02	1.28	5	228	.275
5	2	0.44	0.19	0.05	0.02	1.29	5	228	.269

***p<.001

2) Discharge self-esteem of Villa Rosa residents was found to be significantly healthier than intake self-esteem when controlling for; attitudes of social support network, education, length of time at most recent address, ethnicity, and age.

Consistency with the literature. This finding is consistent with the findings presented in the literature review, in particular consistent with the findings of Currie and Zimmer (2002). Several of the literature review findings show that what is offered at Villa Rosa should contribute to a healthier self-esteem. For example social support (Bednar et al., 1989; Clark & Barber, 1994; Coopersmith, 1967; Gecas, 1971; James, 2001; Kernis, 2003; Kernis & Goldman, 2003; Rosenberg, 1965; as cited in Mruk, 2006; Govender et al., 2004; Smith & Grenyer, 1999), improved educational attainment (Hattie, 1992, as cited in Alves-Martins, et al. 2002; Lane et al., 2004; Primavera et al., 1974; Robison-Awana et al., 1986), and secure shelter (Saade & Winkelman, 2002).

Theories supported through this finding. This finding supports the theories that propose that the social environment will influence self-esteem. The social learning theory is consistent with these findings as it proposes that self-esteem can be enhanced through altering the social environment. The belief that self-esteem rises as a person approaches their ideal self would also be supported in considering the many opportunities for self-enhancement available through Villa Rosa. The Jamesian theory and Susan Harter's developmental approach are consistent with these findings as participation in a healthy educational program will likely lead to feelings of competence and the belief that one is succeeding in their social role. Seymour Epstein's cognitive experiential self-theory would also be consistent with experiences of competence and lovability (through healthy social supports).

Discussion of methodology. The steps discussed earlier that were taken to meet the assumptions of repeated measures ANOVA resulted in the loss of control variables, the collapse of several variables into a smaller number of categories, and the transformation of several interval variables into ordinal variables. While still controlling for several theoretically important variables, findings cannot be reported to include as many control variables as were initially hoped. The collapse of categories also resulted in the deletion of the missing category from control variables and removal of twenty cases from the analysis. The reduction of sample size, while not substantial, is associated with a loss in the power of the analysis.

As this study provides statistical controls but not a control group, it is possible that another factor outside of Villa Rosa's program, such as having the baby, explains the improvement in self-esteem from intake to discharge. It is not possible to control for every factor. Regression to the mean is also a possibility as the sample may have had less healthy self-esteem to begin.

Suggestions for future research. Suggestions for further study would be to explore which programming components relate the strongest to self-esteem.

Implications. The null hypothesis that there is no difference between the mean of intake self-esteem and discharge self-esteem in the Villa Rosa program (H_0: $\mu_1 = \mu_2$) was rejected. What was previously unknown, and is now known, is that a significant difference exists even when controlling for several other variables. This research finding would encourage continued use and funding of maternity group home programming such as Villa Rosa to support the well-being of single pregnant women and their families. The

findings would also support the continuation of the programming components offered at Villa Rosa.

3) A significant difference was not found between the discharge self-esteem of women who took part in the PNH program and women who did not when controlling for; self-esteem at intake, age, number of days at Villa Rosa, attitudes of social support network, number of types of abuse experienced, length of time at most recent address, ethnicity, living with a disability, education level, length of time since being in school, plan for current pregnancy, if pressure had been experienced to parent, if pressure had been experienced to place for adoption, if pressure had been experienced to terminate the pregnancy, choice to breastfeed, and previous children.

Consistency with the literature. This finding was not consistent with what was found in the literature. The literature presented by Currie and Zimmer (2002) measures preparedness to parent and concludes that women who take part in the PNH program are better prepared to parent after taking part in Villa Rosa's PNH program. Based on this finding, it was expected that self-esteem would also be shown to be healthier at discharge for women who did take part in the PNH program. A reason for the unexpected finding may be that these are two different areas being measured; discharge self-esteem and preparedness to parent. The PNH component of the Villa Rosa program may show its usefulness in this area versus discharge self-esteem. It would be important to note that as discussed above, whether or not women take part in the PNH program, there is an increase in self-esteem after taking part in Villa Rosa as a whole program. As discussed earlier Currie and Zimmer (2002) also used a different scoring method on the Rosenberg Self-Esteem Scale, and did not report using control variables in their analysis.

Further statistical exploration discussed below showed that when the variable for days in the program was removed, the relationship between PNH participation and discharge self-esteem became significant. This finding of significance would be consistent with the literature.

Discussion of methodology. As discussed in the reliability and validity section of this thesis the timing of the measurement may have influenced this finding. There is no measure for non-PNH residents from a similar time frame (showing how they would answer after several months post-partum). Women who did not reside in the PNH completed the discharge questionnaire at discharge from the prenatal residence. Women who resided in the PNH completed the discharge questionnaire after leaving the PNH program. Their life experiences would have included several months of parenting before filling out the questionnaire which may have influenced their answers.

Theories supported through this finding. None of the theories of self-esteem discussed earlier appear to be supported by this finding. It is inconsistent with theories that propose that the social environment will influence self-esteem such as the social learning theory. Carol Gilligan's theory of moral development, Susan Harter's developmental approach and the Jamesian theory, based on competence and successes, would expect that self-esteem would improve through being better prepared to parent (as described by Currie and Zimmer, 2002) educational attainment and program completion possible through the PNH program.

Suggestions for future research. Suggestions for further research would be to provide an additional measure from non-PNH residents during a similar time frame.

Implications. The null hypothesis of no difference between self-esteem of women who participated in the PNH program and women who did not cannot be rejected. It would appear that the PNH does not have an impact on self-esteem.

Alternately this finding may have revealed a relationship between PNH participation and another factor. PNH participation was initially found to have a significant impact on discharge self-esteem using an independent samples t-test, not controlling for other variables. Length of time at Villa Rosa may be the control variable which rendered the PNH variable non-significant in the standard multiple regression. PNH residence naturally results in an extension of the woman's stay at Villa Rosa. The mean length of stay for women who resided in the PNH was 402 days with a standard deviation of 140 to 147. The mean length of stay for women who did not was 126 to 127 days with a standard deviation of 104. An interesting point to consider would be that PNH participation contributes to self-esteem indirectly by providing the format for a longer stay.

Further statistical exploration. A further analysis was run using discharge self-esteem as the dependant variable and removing length of stay from the regression to see if length of stay masked the effects of the PNH program. A standard multiple regression was performed between discharge self-esteem as the dependant variable and PNH participation as the independent variable. After removing the variable for length of stay, the other independent variables controlled for remained the same as in the original analysis including; self-esteem at intake, age, number of types of abuse experienced, attitudes of social support network, length of time at most recent address, ethnicity, living with a disability, education level, last involvement in school, plan for current pregnancy,

if pressure had been experienced to parent, if pressure had been experienced to place for adoption, if pressure had been experienced to terminate the pregnancy, breastfeeding choice, and previous children.

Table 62 displays R, R^2 and adjusted R^2. The R-square values are quite high for each imputation at 0.43. This shows that this model explains 43% of the variance in discharge self-esteem. More conservative adjusted R^2 values show the model to explain almost a third of the variance in discharge self-esteem. Adjusted R-square is the best inference to the population. Table 62 also presents ANOVA results which indicate that the set of independent variables was a statistically significant predictor *(p<.001)*.

After removing length of stay from the analysis, PNH participation contributed significantly to the regression when controlling for other variables (see Table 63). The direction of the relationship indicates that discharge self-esteem will decrease (indicating a healthier self-esteem) when a resident participated in the PNH program. The zero order correlation of PNH participation to discharge self-esteem shows -0.11 total variance explained. The squared semi-partial correlation indicates that the unique contribution of PNH participation explains 1% of variance and the unstandardized slope shows that an increase in a unit of social support is associated with a 1.14 unit decrease in discharge self-esteem. The multiple imputation information presented in Table 64 shows that the relative efficiency is .997.

It appears that participation in the PNH program at Villa Rosa is a significant predictor of healthier discharge self-esteem (when controlling for other variables) when length of stay is removed from the analysis.

Table 62

Summary of Standard Multiple Regression Results After Removal of the Variable for Number of Days at Villa Rosa (N=268)

Imputation number	*R*	*R²*	*Adjusted R²*	SE of the Estimate	*df*	ANOVA Regression Mean Square	*F*	*p*
1	0.66	0.43	0.32	3.67	44	52.33	3.89***	.000
2	0.66	0.43	0.32	3.66	44	51.23	3.82***	.000
3	0.66	0.43	0.32	3.67	44	51.46	3.83***	.000
4	0.65	0.43	0.31	3.67	44	50.57	3.76***	.000
5	0.66	0.43	0.32	3.65	44	51.38	3.85***	.000

***p<.001

Table 63

Standard Multiple Regression Results for PNH Participation After Removal of the

Variable for Number of Days at Villa Rosa (N=268)

Variable	B	SE B	ß	t	p	Zero order correlation	sr^2
Was there PNH participation?							
Imputation 1	-1.16	0.62	-0.11	-1.88*	.031	-0.11	0.01
Imputation 2	-1.25	0.61	-0.12	-2.04*	.021	-0.11	0.02
Imputation 3	-1.09	0.61	-0.10	-1.78*	.039	-0.10	0.01
Imputation 4	-1.10	0.62	-0.10	-1.79*	.037	-0.11	0.01
Imputation 5	-1.10	0.61	-0.10	-1.80*	.037	-0.11	0.01
Pooled	-1.14	0.62		-1.84*	.033	-0.11	0.01

Note. Using a one-tailed *p*. **p<.05*

Table 64

Multiple Imputation Results for PNH Participation After Removal of the Variable for Number of Days at Villa Rosa (N=268)

	PNH participation
Fraction missing information	.014
Relative increase variance	.015
Relative efficiency	.997

4) A significant difference was not found between the discharge self-esteem of women who reported as living with a disability at intake, women who did not, and women for whom the data were missing. Variables controlled for included; self-esteem at intake, age, number of days at Villa Rosa, number of types of abuse, attitudes of social support network, participation in the PNH, length of time at most recent address, ethnicity, education level, length of time since being in school, plan for current pregnancy, choice to breastfeed, previous children, if pressure had been experienced to parent, if pressure had been experienced to place for adoption or if pressure had been experienced to terminate the pregnancy.

Consistency with the literature. This finding was not consistent with the literature regarding women with the disability of mental health (Farrow & Blissett, 2007). Several differences existed between this study and the study done by Farrow and Blissett (2007). These differences may contribute to the inconsistency with the findings in this study. Self-esteem was measured using the Maternal Self-Report Inventory-Short Version (Shea & Tronick, 1988 as cited in Farrow & Blissett, 2007). Living with a disability was not specifically measured. Farrow and Blisset (2007) used The Brief Symptoms Inventory (Derogatis, 1993 as cited in Farrow and Blissett, 2007) to measure general psychological distress. The Young Schema Questionnaire (Young, 1994 as cited in Farrow and Blissett, 2007) was used to measure unhealthy core beliefs. Additional differences were found in the sample composition which consisted of a final sample of 87 women remaining of the initial sample of 162 pregnant women from antenatal clinics in the UK. The mean age was 30 years (SD=5.78) and professions ranged from unskilled employees to major professionals. The areas the sample was recruited from were mainly middle

class and Caucasian. (Farrow & Blissett, 2007). This study at Villa Rosa consisted of a sample of 268 women from a maternity group home program with a mean age of 18.97 years and respondents who reported Aboriginal, Métis and non-Aboriginal ethnicities. Based on their article it does not appear that Farrow and Blisset (2007) controlled for any of the same factors controlled for in this study.

Mental health only represents one category of disability. The measure used for this study asks in a more general scope. This discrepancy between the findings in this study and the literature may indicate that self-esteem is not related to living with a disability in general but related specifically to the type of disability. A suggestion for further research would be to study how self-esteem relates to categories independent of each other.

Theories supported through this finding. No theories discussed earlier appear to be supported by this finding. This finding appears to be inconsistent with the humanistic theory. Women who have struggled with living with a disability may have lower abilities with regard to reasoning skills which are a basic component of enhancing self-esteem. Therefore they would likely have lower self-esteem under this theory.

Discussion of methodology. A possible concern discussed in the reliability and validity section of this thesis includes how living with a disability may affect the ability of a woman to complete the questionnaire. Although staff offers support when requested women usually complete the discharge survey without staff present. The question of if a woman is living with a disability is asked at intake. At times during residence at Villa Rosa a disability may be identified or diagnosed for the first time. The self-esteem of

these women would be included in a different category, affecting the accuracy of the results.

Suggestions for future research. Suggestion for further research would be to utilize measures that account for any effect that living with a disability may have on the ability of the respondent to provide accurate responses on a questionnaire.

Implications. The null hypothesis that women who reported living with a disability, women who did not report living with a disability, and women whose responses were missing will have equal self-esteem at discharge (H_0: μ_1 = μ_2= μ_3) cannot be rejected. As this finding was unexpected, the implication may be that further research into the self-esteem of women living with a disability during pregnancy is called for to further our understanding of how to conduct this research and how self-esteem and disability are related. An alternate implication may be that is positive that women with disabilities do not have less healthy discharge self-esteem.

Further statistical exploration. To determine if there was variance related to living with a disability that was being explained by other parameters in the model a one-way analysis of variance was performed on intake self-esteem. The test results indicate that the intake self-esteem mean for women who reported living with a disability (pooled=21.09), the intake self-esteem mean of women who did not report living with a disability (pooled=20.36), and the intake self-esteem mean for women whose responses were missing (pooled=20.00) were not significantly different for any imputation dataset. It does not appear that women who reported living with a disability, women who did not report living with a disability, and women whose responses were missing have significant differences in self-esteem at intake (see Appendix B for full ANOVA results).

A further analysis was run using intake self-esteem as the dependant variable and controlling for factors present at intake to see if there are significantly different levels of self-esteem at intake among women who are reported as living with a disability, women who answered no to living with a disability or women whose responses are missing. Should the results have shown effects for living with a disability the possibility would have been raised that Villa Rosa is doing something to equalize self-esteem.

This question was addressed using sequential regression analysis to control for potentially confounding variables and performed using intake self-esteem as the dependant variable. The independent variables were entered in two blocks. The first block included; age, number of types of abuse and attitudes of social support network.

Dummy independent variables entered included;

Length of time at most recent address (Five dummy variables were entered including response categories of; 2 days or less, 2 days to 1 month, 1 month to 12 months, 13 to 60 months and missing responses. The reference category was more than 5 years.)

Ethnicity (Five dummy variables were entered, including response categories of; Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis, and missing responses. The reference category was Non-Aboriginal.)

Education level (Nine dummy variables were entered including response categories of; special program, elementary or less, grade 7, grade 8, grade 9, grade 10, grade 11, schooling beyond high school, and missing responses. The reference category was grade twelve.)

Last involvement in school (Three dummy variables were entered including response categories of; just before coming to Villa Rosa, one to six months ago and missing responses. The reference category was more than six months ago.)

Plan for current pregnancy (Three dummy variables were entered including response categories of; parent, adoption, and missing responses. The reference category was uncertain.)

If pressure had been experienced to parent (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to place for adoption (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to terminate the pregnancy (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Previous children (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Dummy variables were entered for missing responses for number of types of abuse experienced and attitudes of social support network. (The dummy variables were entered for the response category of yes - missing. The reference categories were no – not missing.)

The second block of independent variables included two dummy variables for living with a disability (yes and missing). 'No' was used as the reference category for disability. Analysis was performed using SPSS REGRESSION.

Table 65 displays R, R^2, adjusted R^2 and change statistics after entry of all independent variables for all five imputations. Addition of the variables for living with a disability in the second step did not reliably improve R^2. R^2 change was not significant; disability status adds no further significant prediction. The null hypothesis that women who respond 'yes' to living with a disability, women who respond 'no' to living with a disability, and women whose responses are missing for disability will have equal self-esteem at intake (H_0: $\mu_1 = \mu_2 = \mu_3$) cannot be rejected. Villa Rosa is not seen as doing something to equalize self-esteem.

Table 65

Sequential Multiple Regression Results With the Living With a Disability Variables as the Second Step in the Model and Intake Self-esteem as the Dependant Variable (N=268)

Imputation number	Model	R	R^2	Adjusted R^2	$R^2 \triangle$	$F \triangle$	df1	df2	$p\ F \triangle$
1	2	0.44	0.19	0.05	0.00	0.65	2	228	.524
2	2	0.44	0.19	0.05	0.00	0.52	2	228	.595
3	2	0.43	0.19	0.05	0.00	0.68	2	228	.508
4	2	0.44	0.19	0.05	0.00	0.54	2	228	.582
5	2	0.44	0.19	0.05	0.00	0.63	2	228	.535

***p<.001

5) Self-esteem at discharge was found to be healthier with an increased number of days spent at Villa Rosa controlling for; self-esteem at intake, age, attitudes of social support network, number of types of abuse experienced, length of time at most recent address, ethnicity, living with a disability, education level, length of time since being in school, plan for current pregnancy, if pressure had been experienced to parent, if pressure had been experienced to place for adoption, if pressure had been experienced to terminate the pregnancy, choice to breastfeed, previous children, and participation in the PNH..

Consistency with the literature. This would be consistent with the literature that shows that educational attainment is linked with higher self-esteem (Hattie, 1992, as cited in Alves-Martins et al., 2002; Lane et al., 2004; Primavera et al., 1974; Robison-Awana et al., 1986). A longer stay will result in greater opportunity for educational achievement and completion of the programs offered. Women who stay longer are exposed longer to a supportive environment, giving more opportunity to develop supportive relationships with staff, other residents and to be referred to appropriate community supports. This would be consistent with the literature showing strong social supports linked to higher self-esteem (Bednar et al., 1989; Clark & Barber, 1994; Coopersmith, 1967; Gecas, 1971; James, 2001; Kernis, 2003; Kernis & Goldman, 2003; Rosenberg, 1965; as cited in Mruk, 2006; Govender et al., 2004; Smith & Grenyer, 1999). Literature also shows that longer periods of homelessness are related to lower self-esteem, a longer stay at Villa Rosa would result in a longer period of time with shelter (Saade & Winkelman, 2002).

Theories supported through this finding. This finding would support the social learning theory, as discussed above a longer stay would result in longer exposure to the

altered social environment and possibly greater self-enhancement. This is also consistent with Carol Gilligan's theory of moral development, Susan Harter's developmental approach and the Jamesian theory, based on competence and successes, through the possibility of greater educational attainment and program completion. It is consistent with the humanistic theory as Maslow's hierarchy requires basic needs to be met before complex needs can be enhanced.

Suggestions for future research. The pre-natal program at Villa Rosa is time limited by the duration of the pregnancy. The PNH program is limited to a stay of between 3 months to 1 year. A valuable area for future research would be to discover if, in a program without a maximum length of stay, there is a leveling off over time of the benefits of staying. Perhaps there is a time at which remaining in a program may begin to cause harm to self-esteem, or may level off.

Implications. The null hypothesis that the number of days spent in the program will not be related to discharge self-esteem can be rejected. This finding ties improved self-esteem to the program. It is encouraging when examining the value of the program at Villa Rosa. In planning for the greatest success of women who will enter the program staff can take into consideration that planning for a longer stay can be a factor in success.

6) Less healthy intake self-esteem was shown to significantly increase the likelihood of responses of "no" versus "yes" to plan to breastfeed when controlling for; age, number of types of abuse, attitudes of social support network, length of time at most recent address, ethnicity, living with a disability, education level, length of time since being in school, plan for current pregnancy, previous children if pressure had

been experienced to parent, if pressure had been experienced to place for adoption or if pressure had been experienced to terminate the pregnancy.

Consistency with the literature. This finding is consistent with the literature showing that a choice to breastfeed has been linked with a healthier self-esteem. (Gaff-Smith, 2004; Papinczak & Turner, 2000).

Theories supported through this finding. The sociometric theory would appear to be supported through this finding. The belief that those with higher self-esteem take more risks may be associated with breastfeeding being a new experience (risk) for many of the residents at Villa Rosa.

Discussion of methodology. As discussed in the results of analysis section, several variables had to be removed from the equation to account for singularities found when running the multinomial logistic regression. All dummy variables representing missing cases for control and independent variables were removed as well as three education variables. The loss of these variables resulted in the loss of ability to control for missing data, and assess if it had an impact on results. Additionally the education variables lost resulted in the loss of controlling for the impact of very low educational attainment, very high attainment and involvement in special programs.

Suggestions for future research. A suggestion for further research would be to explore what else is influencing choice to breastfeed. Another suggestion is to provide a way to measure the continuation of the feeding method chosen. Many of the cases were found to have responses missing. Suggestions for further research would be to discover the problems with obtaining a response.

Implications. The null hypothesis that women who plan to breastfeed at convalescence, women who do not plan to breastfeed at convalescence, women who responded as not applicable, and women whose responses were missing will have equal self-esteem at intake (H_0: $\mu_1 = \mu_2 = \mu_3 = \mu_4$) can be rejected. The initial ANOVA results that there was no difference between intake self-esteem means based on breastfeeding answers was not consistent with the literature. Significant findings were revealed once the above noted variables were controlled. It appears that one or more of the control variables was repressing the influence of intake self-esteem on choice to breastfeed. This information may be useful in targeting women with low self-esteem at intake with supports for breastfeeding. It supports programs which increase self-esteem as contributing to a choice to breastfeed. It highlights the importance for future research to control for other variables which may influence results, possibly leading to incorrect conclusions.

7) Stronger social support at intake was shown to be linked to healthier self-esteem at discharge when controlling for; self-esteem at intake, age, number of days at Villa Rosa, number of types of abuse experienced, length of time at most recent address, ethnicity, living with a disability, education level, length of time since being in school, plan for current pregnancy, if pressure had been experienced to parent, if pressure had been experienced to place for adoption, if pressure had been experienced to terminate the pregnancy, choice to breastfeed, previous children, and participation in the PNH. It was not found to be significant if the support variable response was missing when controlling for the same control variables.

Consistency with the literature. This finding is consistent with the literature showing that positive supports are related to healthier self-esteem. (Bednar et al., 1989; Clark & Barber, 1994; Coopersmith, 1967; Gecas, 1971; James, 2001; Kernis, 2003; Kernis & Goldman, 2003; Rosenberg, 1965; as cited in Mruk, 2006; Govender et al., 2004; Smith & Grenyer, 1999)

Theories supported through this finding. This finding would support the social learning theory as stronger social supports reflect a healthier social environment. It would support sociometric theory, Jamesian theory and terror management theory as perception of success in social roles will be evaluated in part based on the feedback of others. It is consistent with the humanistic theory as those women whose supports are rejecting of their pregnancy and the birth of their child may also not be experiencing unconditional and positive regard. Cognitive experiential self-theory would be consistent with this as greater experiences of lovability would lead to greater self-esteem. It is consistent with Susan Harter's developmental approach where self-esteem of adolescents is seen to be especially focused on interpersonal relationships.

Discussion of methodology. As discussed in the reliability and validity section of this thesis, the measurement instrument used was developed for this research and has not been tested for validity or reliability. Without careful review of the tool it is less certain to be measuring attitudes of social support network as intended.

Suggestions for future research. A suggestion for further research would be to evaluate the research tool.

Implications. The null hypothesis that there is no relationship between social support at intake and self-esteem at discharge is rejected. The implication of this finding

is seen in the importance of supporting the development and continuation of healthy relationships in the lives of single pregnant women. Villa Rosa is able to promote inclusion of guardians in planning through regular case conferences and sharing of information. Couples counselling and parenting classes for couples are offered as requested. Suggestions would be for agencies to pursue programming that reaches out to key supports. Such programming may include fathers' groups, groups for grandparents and family counselling. For some women, reaching out to their existing network may not be safe or healthy; the development of new social supports will therefore also be seen as a priority. The continuation of follow-up services after discharge to help in establishing connections to their new communities is seen as important.

8) Experiences of abuse were not shown to be significantly related to discharge self-esteem controlling for; self-esteem at intake, age, number of days at Villa Rosa, attitudes of social support network, length of time at most recent address, ethnicity, living with a disability, education level, length of time since being in school, plan for current pregnancy, if pressure had been experienced to parent, if pressure had been experienced to place for adoption, if pressure had been experienced to terminate the pregnancy, choice to breastfeed, previous children, and participation in the PNH. It was not found to be significant whether the abuse variable was missing or not when controlling for the same control variables.

Consistency with the literature. This finding is consistent with the findings of Currie and Zimmer (2002) that abuse was not statistically significantly associated with self-esteem of Villa Rosa residents.

This finding is not consistent with the literature findings that experiences of emotional/controlling abuse were significantly related to low self-esteem in women (Aguilar & Nightingale, 1994). Several differences existed between this study and the study done by Aguilar and Nightingale (1994). These differences may contribute to the inconsistency with the findings in this study. Aguilar and Nightingale (1994) used the Barksdale Self-esteem Evaluation (Barksdale, 1972 as cited by Aguilar & Nightingale, 1994) to measure self-esteem. Experiences of abuse were also measured differently. Aguilar and Nightingale (1994) described their survey questions as follows, "Participants were asked to answer "yes" or "no" to questions about their boyfriend/husband such as "Have you been hit with a fist?" and "Have you been told you were stupid?". The questions in Section 2 were devised to provide a basis for examining the possibility that certain battering behaviors might co-occur and that they may be differentially related to self-esteem. Three items on the questionnaire were excluded from the analysis because of low frequency; only one individual indicated that she had experienced those behaviors and was excluded from any further analyses. The three items were: (1) Have you ever been shot?, (2) Have you ever been burned?, (3) Have you ever been stabbed?." (Aguilar & Nightingale, 1994). Controls used were not statistical, but involved the use of a control group of women who indicated they had not experienced abuse. The sample was smaller with a older mean age; it consisted of 48 women left from an initial sample of 49 women who had experienced abuse and sought assistance from family violence and sexual assault programs with a mean age of 32.5 years (SD=14.35). The control group consisted of 48 women left from an initial sample of 49 women from a general university population with a mean age of 32 years (SD=8.28). (Aguilar & Nightingale, 1994)

Theories supported through this finding. This finding does not seem to be consistent with any of the theories discussed. It appears to be inconsistent with the unconditional and positive regard required for the development of healthy self-esteem in the humanistic theory. Experiences of abuse would have been seen to decrease feelings of lovability associated with self-esteem in the cognitive experiential self-theory. Sociometric theory is based on social input and therefore abuse experiences would be thought to lead to less healthy self-esteem.

Discussion of methodology. As discussed in the reliability and validity section of this thesis, the measurement instrument used was developed for this research and has not been tested for validity or reliability. Without careful review of the tool it may not be measuring abuse as intended.

Suggestions for future research. Although the measure used for this study did account for the number of types of abuse a woman experienced, it did not account for the severity of the experience or the length of time the abuse was experienced. It does ask if the abuse occurred during pregnancy, accounting in part for the factor of how recent the abuse was, but for those women who did not experience abuse in pregnancy this factor remains unmeasured. A suggestion is that further research should incorporate measures for these factors.

Implications. The null hypothesis that number of types of abuse experienced will not contribute significantly to the regression cannot be rejected. Considering the negative impacts of abuse, it was hypothesized that it would be found to also negatively impact self-esteem. It may be that the impacts of experiences of abuse are seen in other life areas. It may be that there is some significance to the fact that findings at Villa Rosa are

different from other literature. The population has a high occurrence of experiencing some form of abuse (85%). The supports accessed at Villa Rosa may have mediated impacts of abuse on self-esteem.

Further statistical exploration. A further analysis was run using intake self-esteem as the dependant variable and controlling for factors present at intake to see if there are significantly different levels of self-esteem at intake related to experiences of abuse and for women whose responses are missing. Should the results have shown effects for experiences of abuse, the possibility would have been raised that Villa Rosa is doing something to equalize self-esteem.

A standard multiple regression was performed between intake self-esteem as the dependant variable and independent variables including: number of types of abuse experienced, age, and attitudes of social support network.

Dummy independent variables entered included;

Length of time at most recent address (Five dummy variables were entered including response categories of; 2 days or less, 2 days to 1 month, 1 month to 12 months, 13 to 60 months and missing responses. The reference category was more than 5 years.)

Ethnicity (Five dummy variables were entered including response categories of; Aboriginal Ojibway, Aboriginal Cree/Swampy Cree, Aboriginal other, Métis, and missing responses. The reference category was Non-Aboriginal.)

Living with a disability (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Education level (Nine dummy variables were entered including response categories of; special program, elementary or less, grade 7, grade 8, grade 9, grade 10, grade 11, schooling beyond high school, and missing responses. The reference category was grade twelve.)

Last involvement in school (Three dummy variables were entered including response categories of; just before coming to Villa Rosa, one to six months ago and missing responses. The reference category was more than six months ago.)

Plan for current pregnancy (Three dummy variables were entered including response categories of; uncertain, adoption, and missing responses. The reference category was parenting.)

If pressure had been experienced to parent (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to place for adoption (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

If pressure had been experienced to terminate the pregnancy (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Previous children (Two dummy variables were entered including response categories of; yes and missing responses. The reference category was no.)

Dummy variables were entered for missing responses for number of types of abuse experienced and attitudes of social support network. (The dummy variables were

entered for the response category of yes - missing. The reference categories were no –
not missing.)

Analysis was performed using SPSS REGRESSION.

The results presented for the standard multiple regression analysis performed
show that the number of types of abuse experienced did not contribute significantly to the
regression (pooled one-tailed $p=.355$) (see Table 66). The bivariate relationship of the
dummy variable showing a missing response for abuse to intake self-esteem was not
significant (pooled p=.244).

To further explore the relationship between the number of types of abuse
experienced and intake self-esteem a bivariate correlation was performed. The Pearson's
correlation for the pooled data ($r =.03$, one-tailed $p=.30$) was not significant.

The null hypothesis that number of types of abuse experienced does not contribute
significantly to intake self-esteem cannot be rejected. The results also showed that
whether the response was missing or not was not significant, using a two-tailed
significance for the pooled data. This showed that those women with missing abuse
variables did not differ on intake self-esteem scores after controlling for other
independent variables.

The multiple imputation information presented in Table 67 shows that the relative
efficiency is 1.00 for number of reported abuse types and .995 for missing abuse
responses.

Table 66

Standard Multiple Regression Results for Number of Types of Abuse with Intake Self-esteem as the Dependant Variable (N=268)

Abuse variables by imputation number	*B*	*SE B*	*ß*	*T*	*P*	*sr²*
Number of reported abuse types						
1	0.06	0.16	0.02	0.35	.364	
2	0.07	0.16	0.03	0.42	.339	
3	0.05	0.16	0.02	0.32	.374	
4	0.07	0.16	0.03	0.40	.345	
5	0.06	0.16	0.03	0.38	.351	
Pooled	0.06	0.16		0.37	.355	
Missing abuse						
1	1.38	1.00	0.09	1.38	.170	
2	1.18	1.00	0.08	1.18	.240	
3	1.12	1.00	0.07	1.12	.263	
4	0.99	1.00	0.06	0.99	.324	
5	1.23	1.00	0.08	1.24	.218	
Pooled	1.18	1.01		1.17	.244	

Note. Using a one-tailed *p* for number of reported abuse types and a two-tailed *p* for missing abuse.

Table 67

Multiple Imputation Results for Number of Types of Abuse with Intake Self-esteem as the

Dependant Variable

| | Number of reported abuse | |
	types	Missing abuse
Fraction missing information	.002	.024
Relative increase variance	.002	.024
Relative efficiency	1.00	.995

Study Limitations

Limitations of theoretical validity, construct validity, internal validity and external validity will be discussed.

1. Theoretical validity. The Rosenberg Self-Esteem Scale was developed through the social learning theory, therefore comments on findings as related to other theories are considered speculative.

The data available did not provide more information on the social background of each woman. Given that the scale is based on a theory which believes that social environment is important it would have increased theoretical validity to include such information as socio-economic status and family composition.

Some of the theories have developed their own scales with which to measure self-esteem. To be able to accurately evaluate the theories it would have increased theoretical validity to use the relevant scale when looking at how findings support a particular theory.

2. Construct validity. Concerns exist in the literature regarding the ability of traditional scales to accurately measure the self-esteem of Aboriginal people and of women (Kenway & Willis, 1990; Lee, 2006). As discussed earlier there are concerns in the literature regarding the ability of tools which are based on values of individualism when Aboriginal self-esteem is seen as related to community, and based on values of competition and independence through separation when women's experiences value connectedness and self-sacrifice. This is a study of women and the descriptive section of this thesis shows that over half of the sample is Aboriginal or Métis. A concern of construct validity exists as all the research questions are based on the assumption of the

Rosenberg Self-Esteem Scale providing a valid measurement. It will be a strong recommendation of this study to explore the validity of this measurement tool in regards to women, Aboriginal culture and Métis culture.

3. Internal validity. As with any study there are factors beyond the ability of this study to control. There is not the ability to account for every factor beyond those studied which could be accounting for the significant or insignificant findings regarding differences in self-esteem. No control group is available which would provide an equivalent group of women not taking part in the program at Villa Rosa. Attempts were made through the use of statistical controls. This is an issue of internal validity and is a limit in inferring causality.

4. External validity. As discussed earlier there was a large amount of data missing from the original sample of 675 women. The screening section of this thesis found that the differences between the missing and not missing data were not random for every variable. This presents a limitation to the generalizability of the study findings. As the data were not completely randomly missing there may be differences which cause this sample to not be representative of the general population of single pregnant women in maternity group homes, or of the greater Villa Rosa population.

Implications for Self-Esteem Theories

This study has provided findings that are sometimes consistent and sometimes inconsistent with several of the theories of self-esteem.

The social learning theory was not supported through the finding that PNH participation was not significant, but was supported through the finding that self-esteem

was healthier from intake to discharge, and through the finding that discharge self-esteem was healthier with increased length of stay.

Carol Gilligan's theory of moral development was not supported through the finding that PNH participation was not significant, but was supported through the finding that discharge self-esteem was healthier with increased length of stay.

Susan Harter's developmental approach was not supported through the finding that PNH participation was not significant, but was supported through the findings that self-esteem became healthier from intake to discharge, the finding that discharge self-esteem was healthier with increased length of stay, and the finding that discharge self-esteem was healthier with increased social supports.

The Jamesian theory was not supported through the finding that PNH participation was not significant, but was supported through the finding that self-esteem was healthier from intake to discharge, the finding that discharge self-esteem was healthier with increased length of stay, and the finding that discharge self-esteem was healthier with increased social supports.

Terror management theory was not supported through the finding that discharge self-esteem was not less healthy for women who were Aboriginal, but was supported through the finding that discharge self-esteem was healthier with increased social supports.

The humanistic theory was not supported through the finding that experiences of abuse and living with a disability did not result in lower discharge self-esteem, but was supported through the finding that discharge self-esteem was healthier with increased

length of stay, and the finding that discharge self-esteem was healthier with increased social supports.

Cognitive experiential self-theory was not supported through the finding that experiences of abuse did not result in lower discharge self-esteem, but was supported through the finding that self-esteem became healthier from intake to discharge, and the finding that discharge self-esteem was healthier with increased social supports.

Sociometric theory was not supported through the finding that experiences of abuse did not result in lower discharge self-esteem, but was supported through the finding that healthier intake self-esteem was associated with an increased likelihood of answering yes to breastfeeding instead of no. It was also supported through the finding that discharge self-esteem was healthier with increased social supports.

Implications for Practice

Increases in self-esteem were experienced by women taking part in the Villa Rosa program. Maternity group homes can therefore be seen as a likely effective practice.

This study provided a descriptive analysis of the population of Villa Rosa, thereby providing information about this population group of single pregnant women. Future programming should take into account that most women are planning to parent and will not have completed grade twelve. Programming should provide for their educational needs and programming should support becoming prepared to parent. In addition, over a third of women are entering the program from short term living situations and will likely require support regarding future housing. Self-esteem was seen to be related to increased social supports, and therefore including a programming component aimed at increasing healthy social support would likely benefit the participants. Alternately, if a need is not

addressed through the agency's programming, referring participants to programming outside of the agency to address needs may be an effective practice.

The study provided information on the most effective practices to employ when working with single pregnant women. Healthier self-esteem is seen to increase the likelihood of choosing to breastfeed versus not breastfeeding. Breastfeeding programs may benefit from including self-esteem enhancement. Also, increasing length of stay in the program is seen as a method to promote a healthier self-esteem. As this is a mainly prenatal program the practice implication would be to encourage women at intake to enter the program earlier in their pregnancy in order to increase their length of stay. An alternate implication would be to explore methods of providing similar programming and supports postnatally (beyond what the program currently has the capacity to offer).

Implications for Policy

When considering the creation of and continued funding of maternity group homes, studies providing information on their effectiveness will be beneficial. This study supports the continued funding, creation, and support of maternity group homes.

At times access to a maternity group home or PNH program is not available. Some communities do not offer such programming, space is limited at Villa Rosa and funding is not always available to support women in attending. Additional policy implications would be to explore methods of delivering beneficial services in a non-residential manner. This thesis will suggest further research be conducted to determine more specifically what program components are associated with the improvement seen in self-esteem. The policy implications will be to discover methods of delivering those program components that are especially beneficial to women who cannot access

maternity group home programming. Communities may find this a more cost effective solution to supporting single pregnant women.

Based on socio-demographic information, it does not appear that experiences of abuse, living with a disability, or ethnicity affect women's chances for success in the program, at least as determined by changes in self-esteem. A low level of social support does appear to result in lower discharge self-esteem. Intake policies may be affected through planning to address the concern of low social support as part of entering the program.

Suggestions for Further Research

Several suggestions for further research were presented earlier in the discussion of each finding. This study has been able to contribute to addressing gaps identified earlier, including providing information from a study conducted over a lengthy period of time and including a large sample size. Information was presented on the relationship of self-esteem to Canadian Aboriginal status. Information was presented on the impact of self-esteem on the choice to breastfeed.

This study was not able to contribute to the lack of research involving a control group and this remains a suggestion for future research. This study was able to use statistical controls. An additional suggestion for future research would be to incorporate a comparison with similar populations from other programs. The Winnipeg Regional Health Authority or the Adolescent Parenting Centre would serve similar populations and perhaps help in narrowing the gap created in the literature by the lack of a control group. A regression-discontinuity design would likely be appropriate to use in this type of comparison as it does not require random assignment to groups or matched groups. A

regressions-discontinuity designs is a before and after two group design. Study participants are assigned to groups based on a cutoff score on a pre-program measure. The benefit is seen in allowing those who are seen to need services the most to access them while still having the ability to study the effects of the services (Lesik, 2008).

This study did not incorporate any qualitative data, it was based on quantitative data. Qualitative or mixed methods research could contribute a richer, more in-depth understanding of the issues being studies.

A suggestion for future research is to conduct a study examining how women are doing at different points in time after being discharged from the program. This would contribute to discovering if the improvements seen in self-esteem are stable over time.

Hundreds of cases were lost due to missing information. The intake questionnaires were completed at a much higher rate than the discharge questionnaires. Perhaps completion of the intake questionnaire in the presence of a social worker had a positive impact on completion rate. A suggestion would be to examine the data collection methods. An additional suggestion would be to take advantage of the larger sample provided by the intake questionnaire completion rate and conduct research relying only on the intake questionnaire.

The use of multiple imputation to replace missing values, where possible, was a successful approach with relative efficiencies always over .93 and generally near 1.00. Suggestions for future research would be to use this approach in dealing with missing data.

The literature review discusses the difficulties in self-esteem research. Problems arise in the inconsistency of findings, possibly based on different methods of defining

self-esteem. A suggestion for future research would be to explore if there is consistency in the findings of research studies which are based on similar definitions.

Summary of the Discussion

Non-significant findings related to the relationship between self-esteem and ethnicity, living with a disability, PNH participation and experiences of abuse, were not consistent with the literature reviewed and the theories reviewed. Further statistical analysis found that length of stay was masking the significant effects of PNH participation with discharge self-esteem. No other further statistical analysis for the other unexpected findings was significant.

Significant findings that healthier self-esteem is related to participation in the program, increased length of time in the program, plans to breastfeed, and more supportive attitudes of social supports were consistent with the literature reviewed and supported several of the theories of self-esteem.

Support received from the significant findings was found for social learning theory, Carol Gilligan's theory of moral development, Susan Harter's developmental approach, Jamesian theory, terror management theory, humanistic theory, cognitive experiential self-theory and sociometric theory.

A lack of support for several theories was received from insignificant findings including social learning theory, terror management theory, humanistic theory and cognitive experiential self-theory.

Initial non-significant findings for PNH participation did not support Carol Gilligan's theory of moral development, Susan Harter's developmental approach,

Jamesian theory, and sociometric theory. Significant results found in further analysis would support these theories.

Several limitations were discussed that were beyond the ability of a secondary data analysis to control. Concerns exist regarding the ability of the scale used in this study to accurately reflect the self-esteem of Aboriginal and Métis women. Control variables only consisted of data available, and therefore not all variables that influence self-esteem could be accounted for, and no control group was available.. Data were not found to be randomly missing for every variable which leads to concerns of generalizability of the findings beyond this sample. Differences were found between those cases which were included and those cases excluded from the study based on too many missing self-esteem variables. This has lead to a concern in external validity.

Several implications for policy and practice were discussed. Recommendations when working with this population included; to provide for educational needs and parenting skills development; to provide support securing future housing; to focus on increasing healthy social supports; address the concern of low social support at intake; to include self-esteem enhancement in breastfeeding programs; to explore non-residential alternatives; and to encourage women at intake to enter the program earlier or develop similar programming and supports postnatally.

Several suggestions were made for future research. Recommendations include; involve a control group; provide a comparison with similar populations from other programs using a regression-discontinuity design; incorporate a qualitative or mixed methods research design; follow-up after discharge; examine the data collection methods; conduct research relying only on the intake questionnaire; continue to use multiple

imputation in dealing with missing data; clearly define the "other" category in ethnicity; provide an additional measure from non-PNH residents during a similar time frame; utilize measures that account for any effect that living with a disability may have on the accuracy of the measure; explore if there is a leveling off over time of the benefits of residency at Villa Rosa; explore what else is influencing choice to breastfeed; provide a way to measure the continuation of the feeding method chosen; evaluate the social support and abuse research tools; incorporate measures for the severity of abuse experienced or the length of time the abuse was experienced; and explore if there is consistency in the findings of research studies which are based on similar definitions of self-esteem.

Increases in self-esteem were experienced by women taking part in the Villa Rosa program between intake and discharge. Several factors shown in the literature to influence self-esteem were controlled. The finding that increased length of time in the program is related to healthier discharge self-esteem ties improved self-esteem to the Villa Rosa program. Maternity group homes, (and the program at Villa Rosa) can therefore be seen as a likely effective practice. This study supports the continued funding, creation, and support of maternity group homes.

The information collected by Villa Rosa spans a great length of time and provides a powerful sample size. The potential for research findings involving this database appears endless. As discussed earlier, women who take part in this questionnaire provide much of the information voluntarily. They are told that the information will be used to understand them better in order to work more respectfully with them and, in addition, will

be used for research. Much of the information provided is sensitive and deeply personal. Using the information as promised shows respect for the openness with which it is provided.

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Appendix A

Appendix A includes selected SPSS output showing normality screening after transformations. Including bivariate scatterplots, residual plots, frequency histograms, normal probability plots and detrended probability plots, and boxplots.
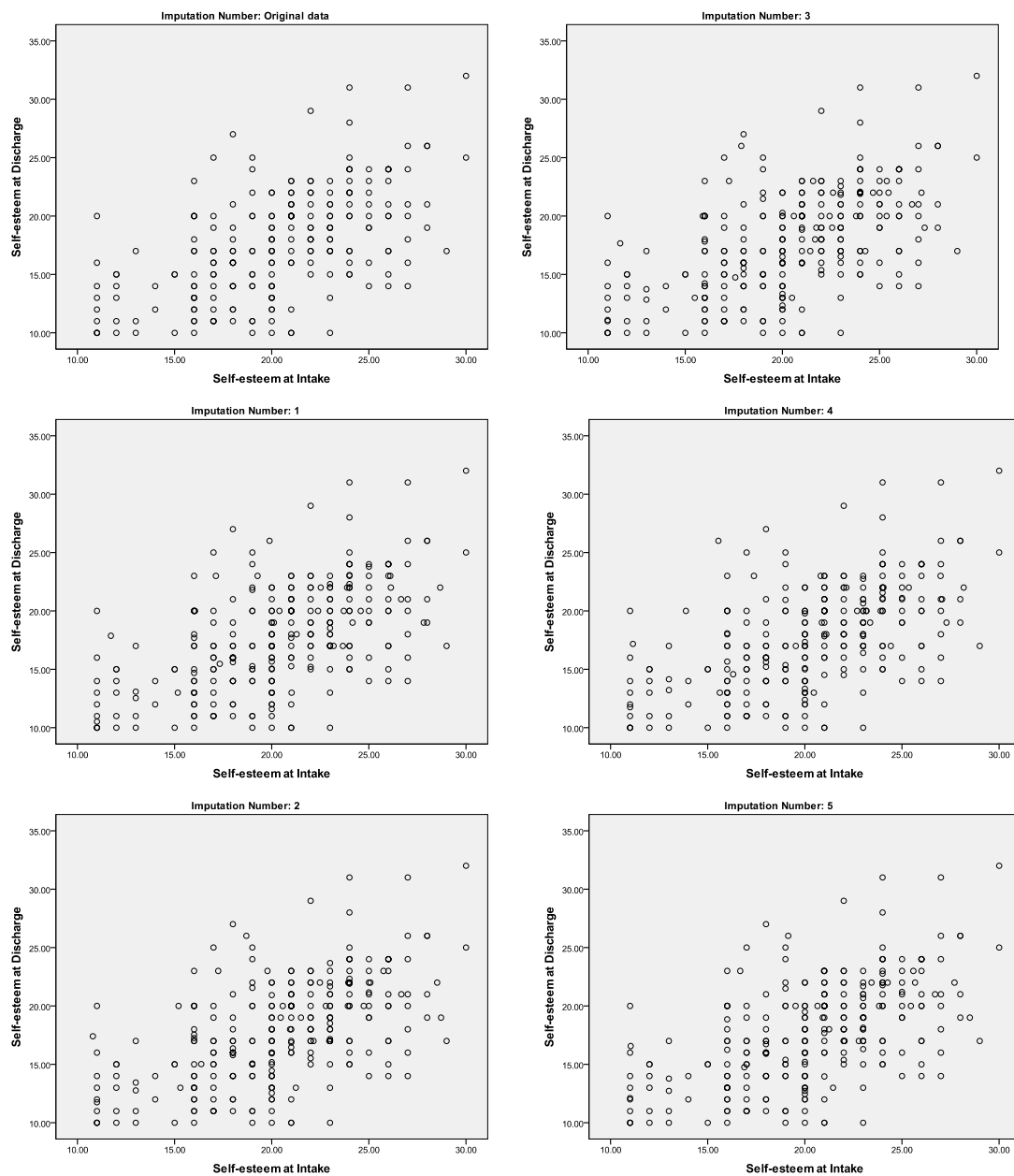
Bivariate Scatterplots

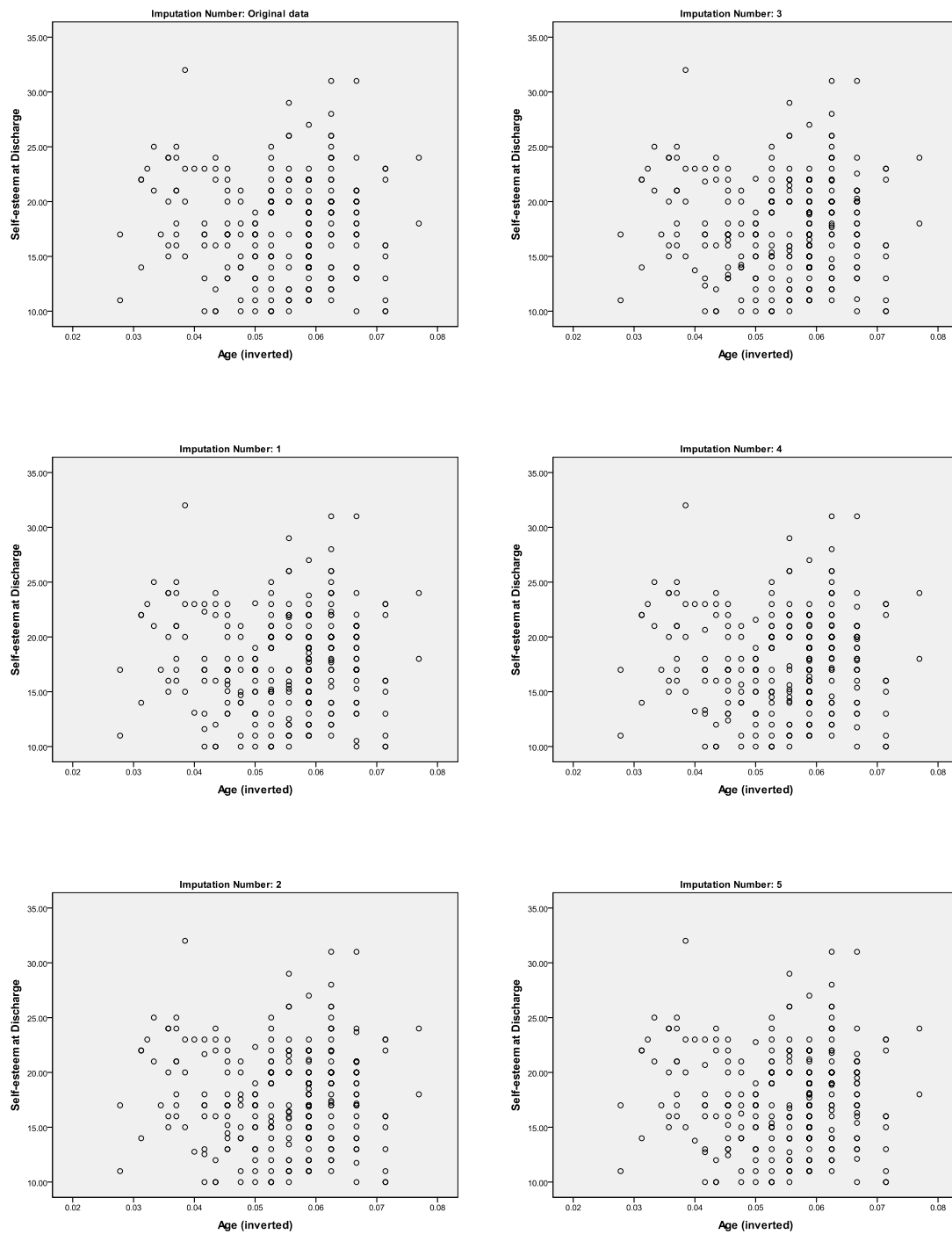Figure 15: *Bivariate Scatterplots for Intake Self-Esteem and Discharge Self-Esteem*

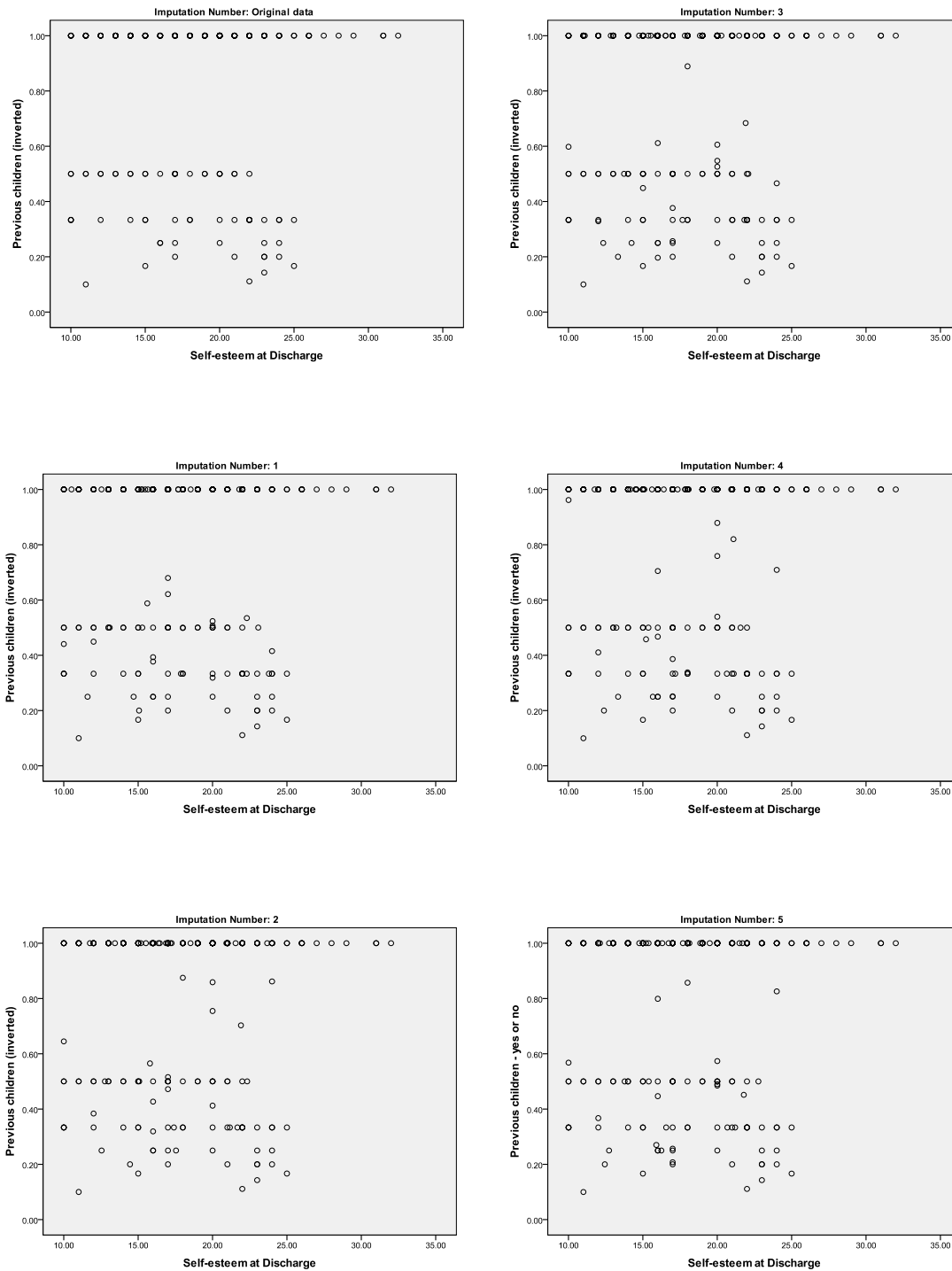Figure 16: *Bivariate Scatterplots for Age (inverted) and Discharge Self-Esteem*

Figure 17: *Bivariate Scatterplots for Previous Children (inverted) and Discharge Self-esteem*
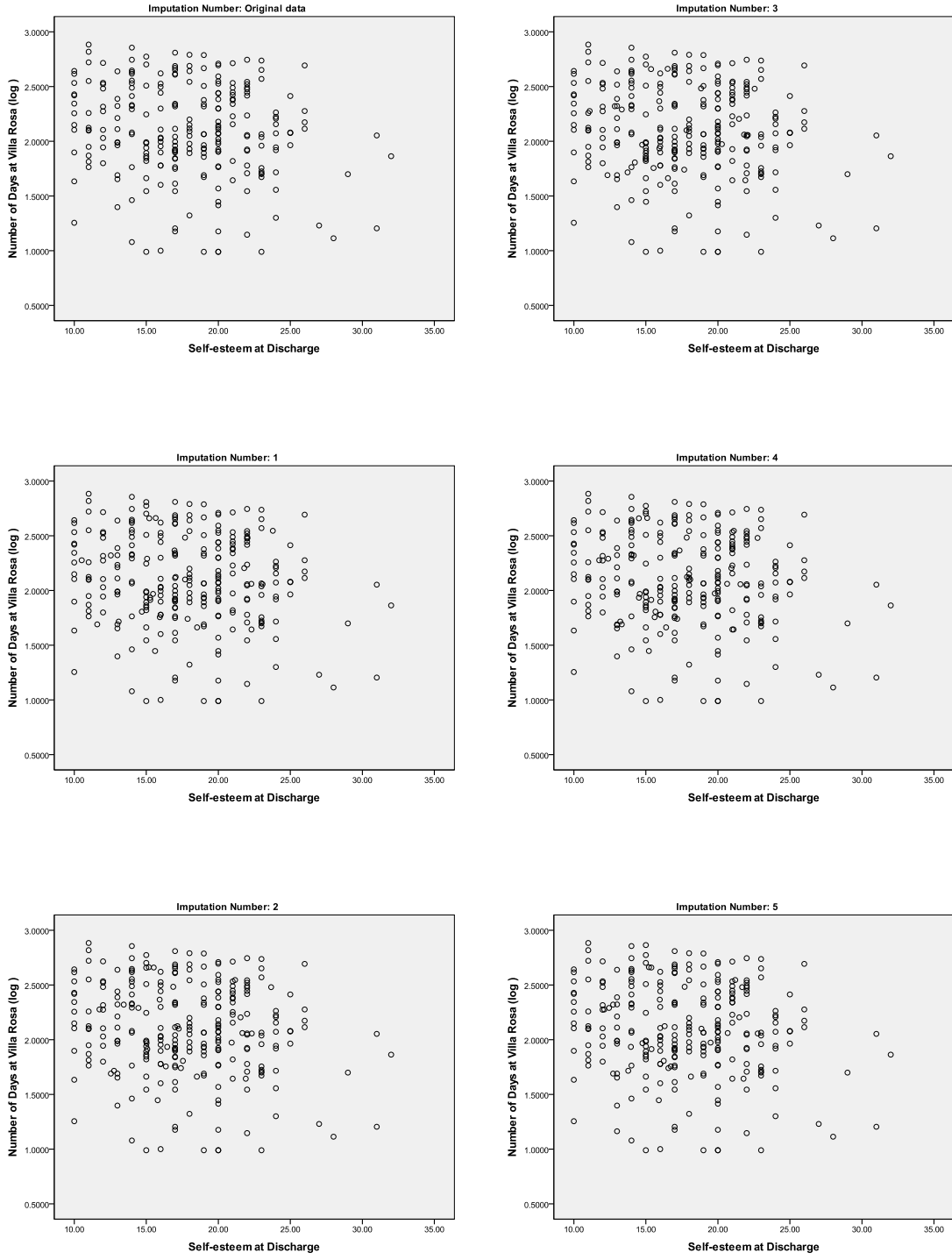
Figure 18: *Bivariate Scatterplots for Number of Days at Villa Rosa (log) and Discharge Self-esteem*

Figure 19: *Bivariate Scatterplots for Number of Reported Abuse Types and Discharge Self-esteem*

Figure 20: *Bivariate Scatterplots for Attitudes of Social Support Network and Discharge Self-esteem*
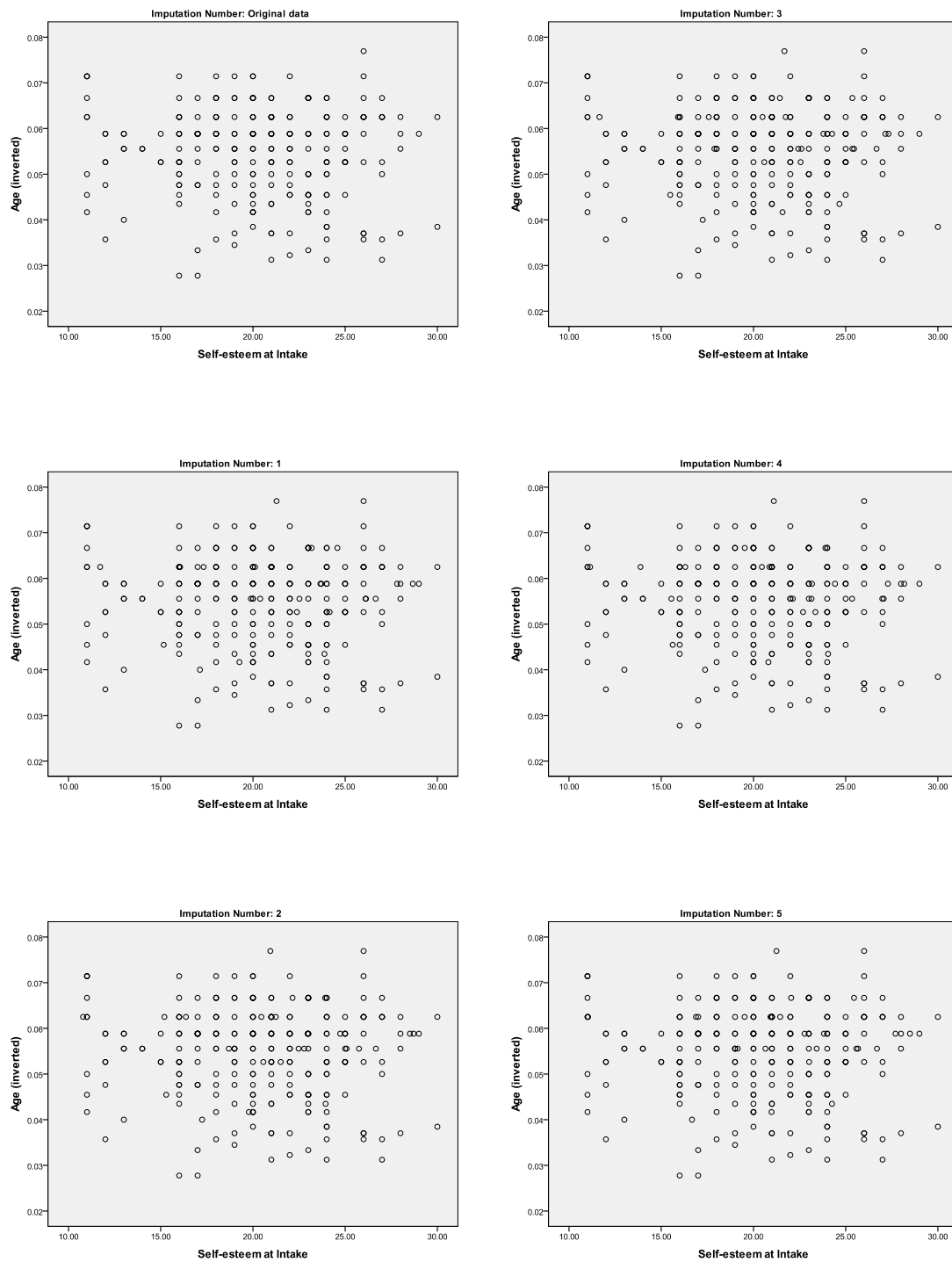
Figure 21: *Bivariate Scatterplots for Age (inverted) and Intake Self-esteem*
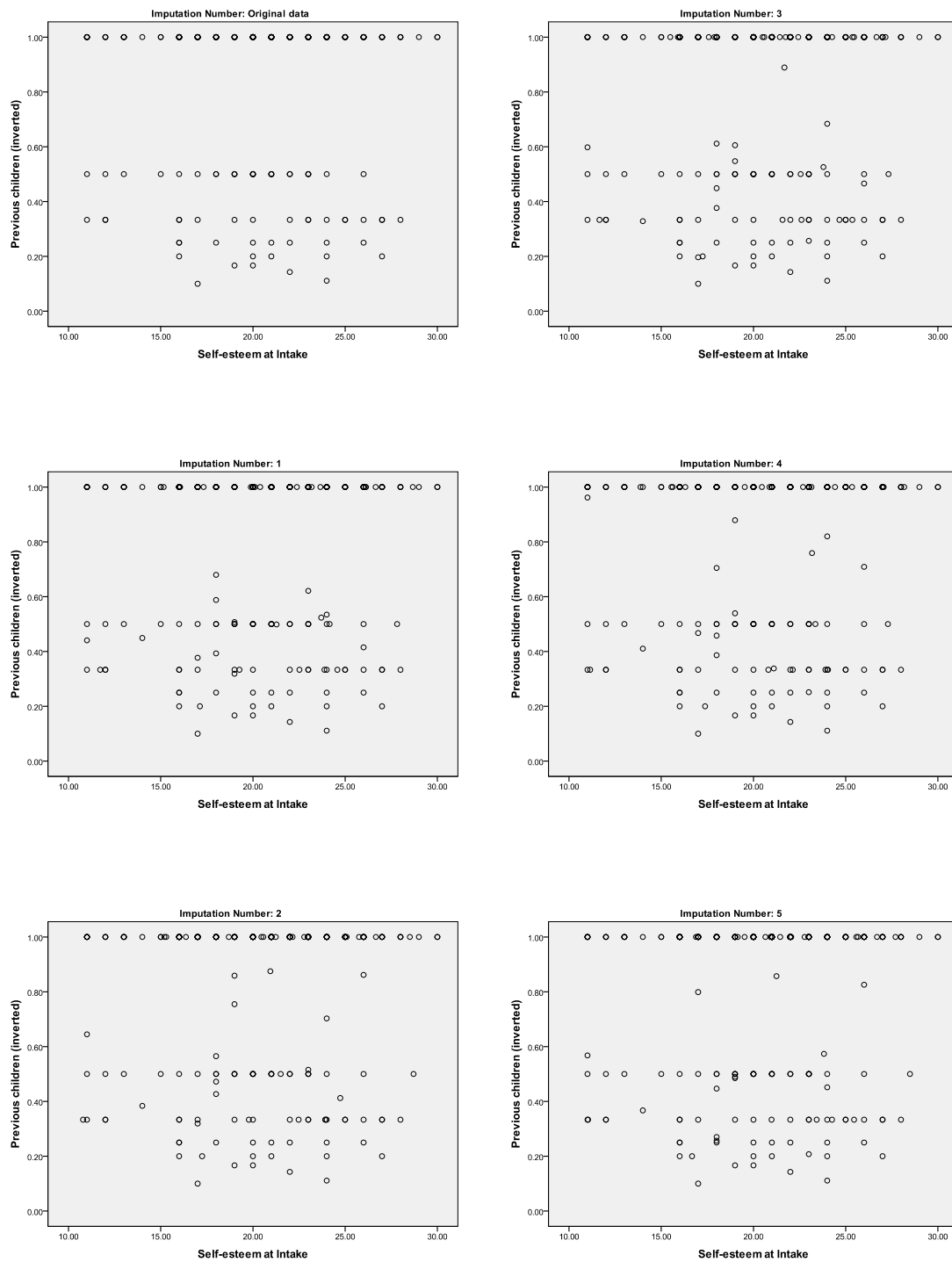
Figure 22: *Bivariate Scatterplots for Number of Previous Children (inverted) and Intake Self-esteem*
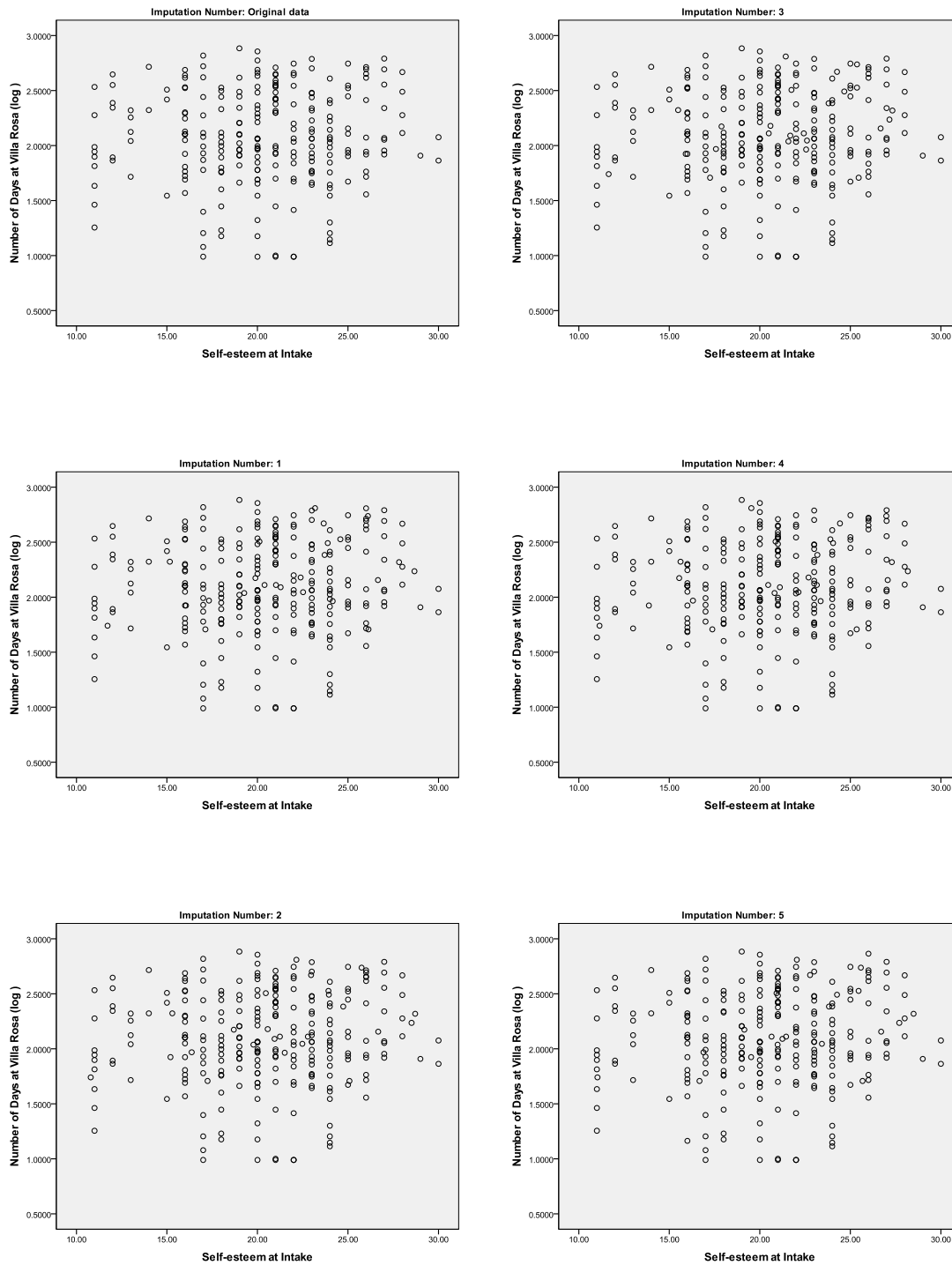
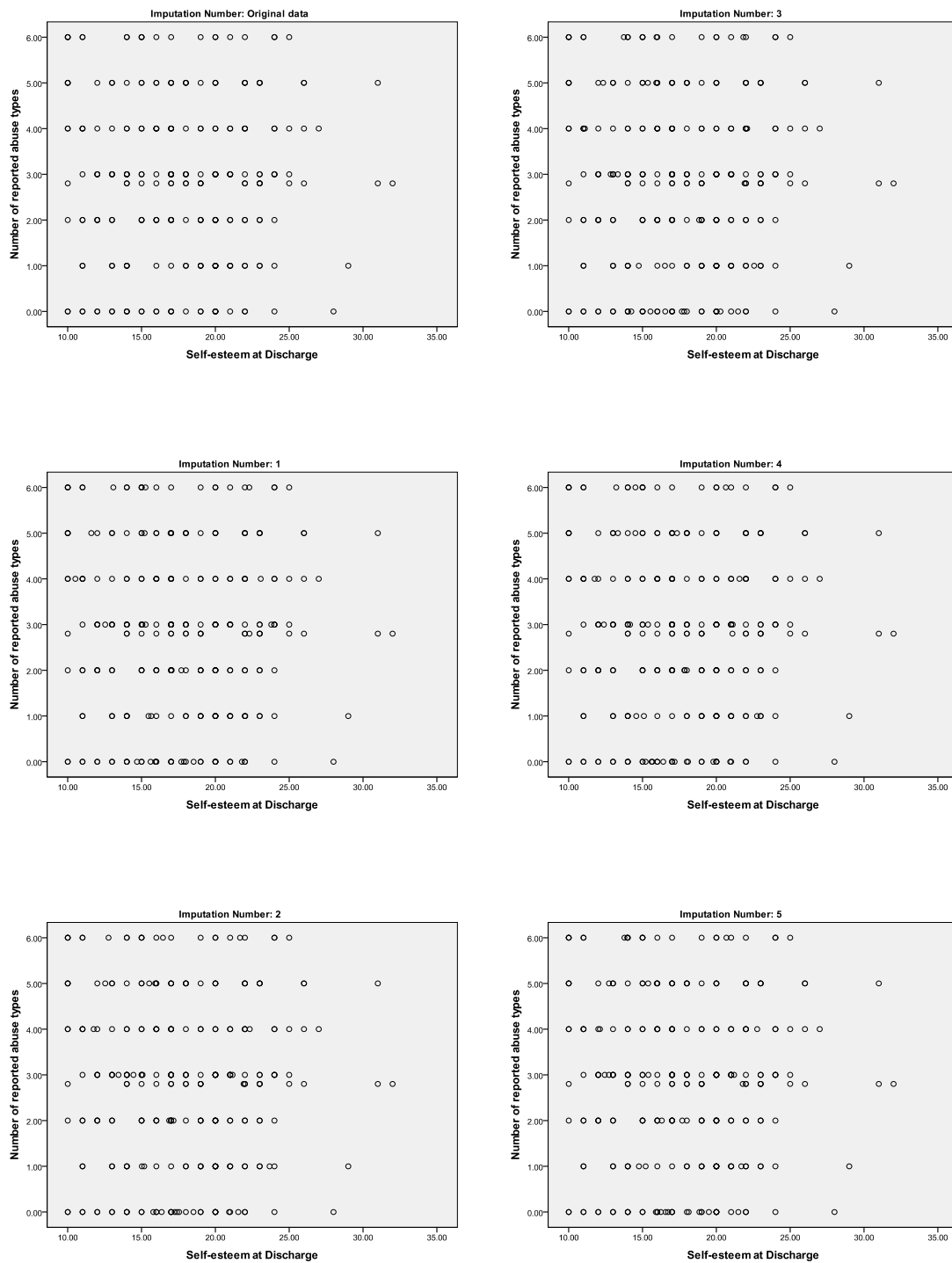Figure 23: *Bivariate Scatterplots for Number of Days at Villa Rosa (log) and Intake Self-esteem*
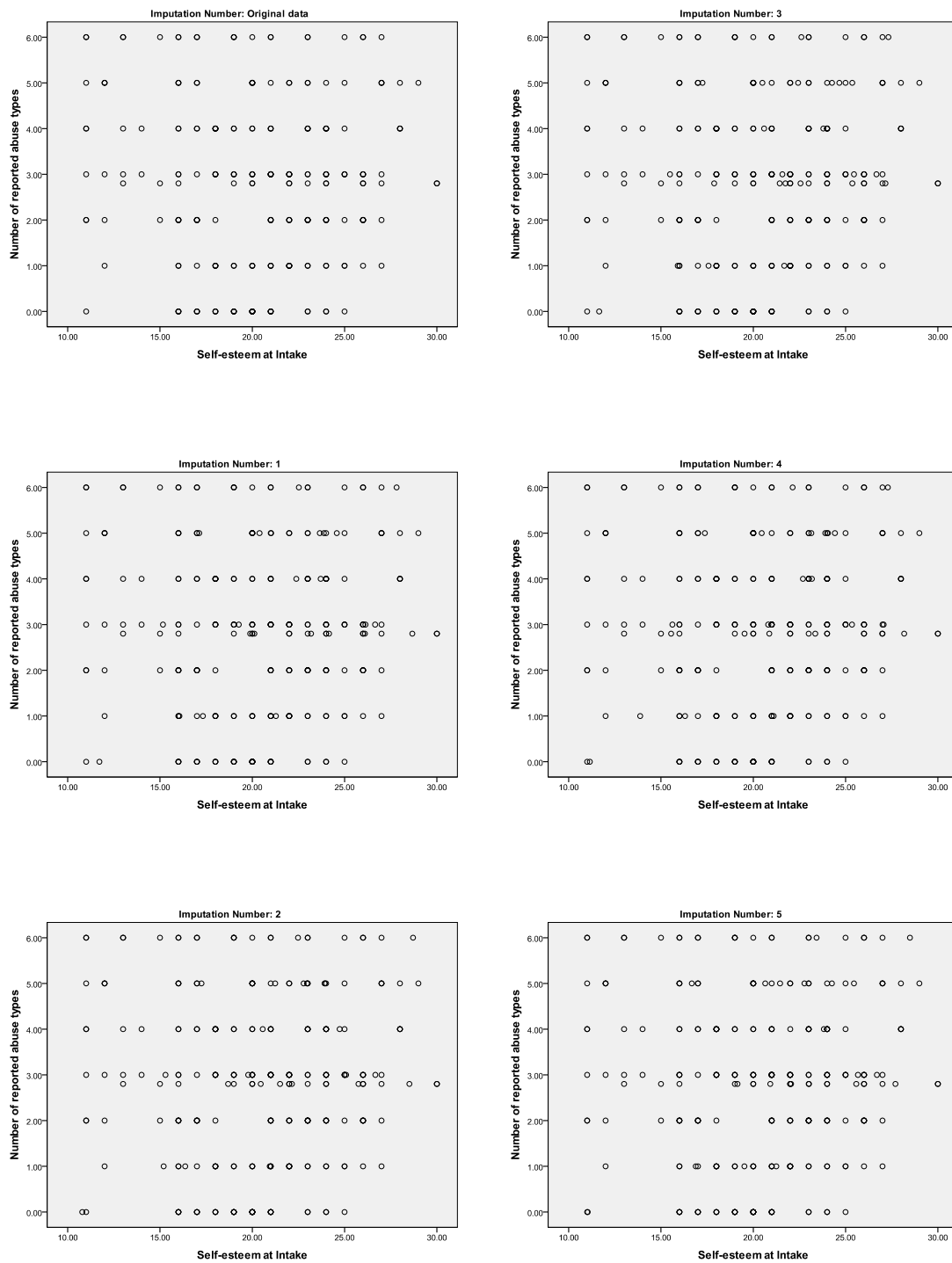
Figure 24: *Bivariate Scatterplots for Number of Reported Abuse Types and Intake Self-esteem*
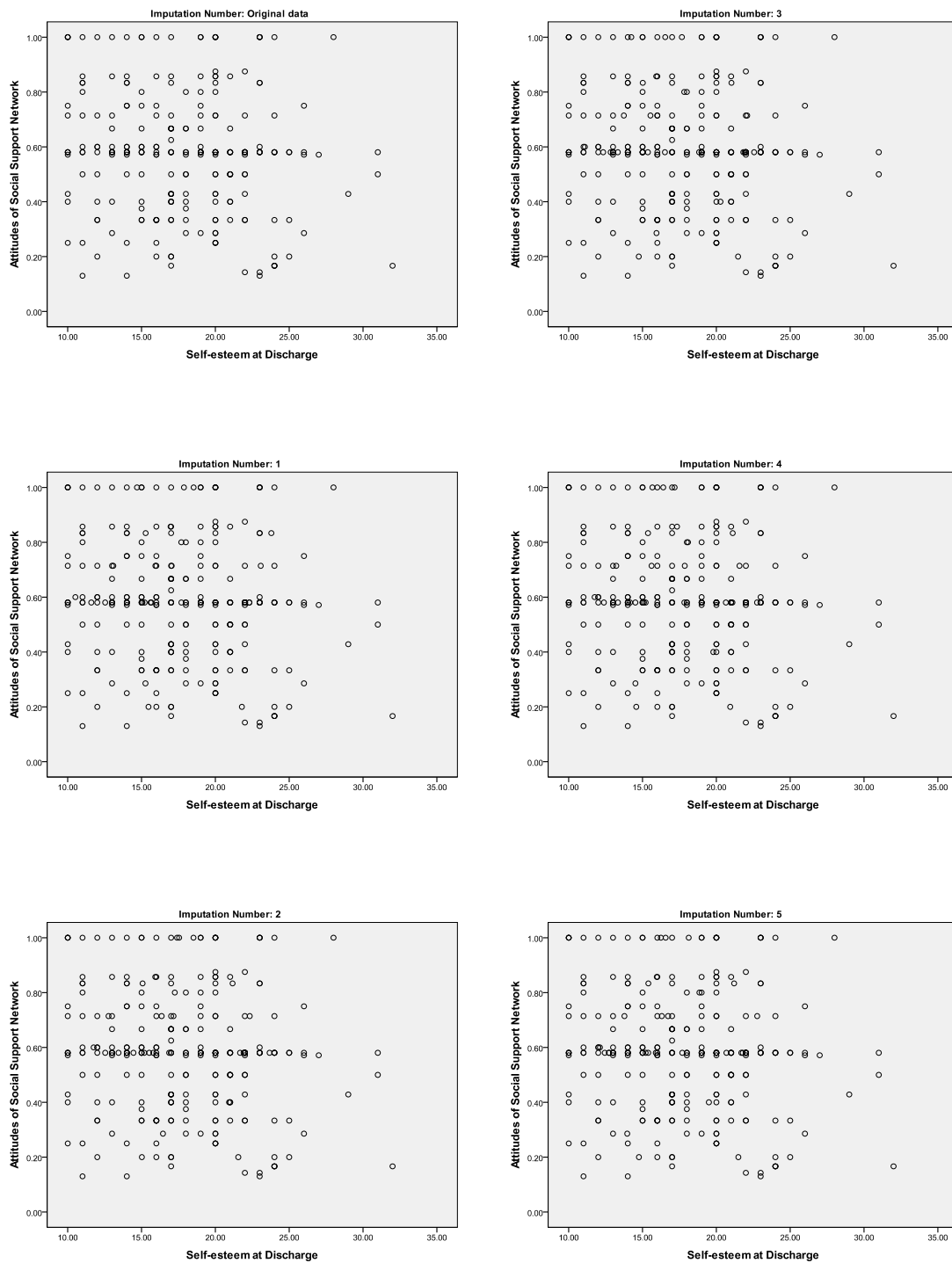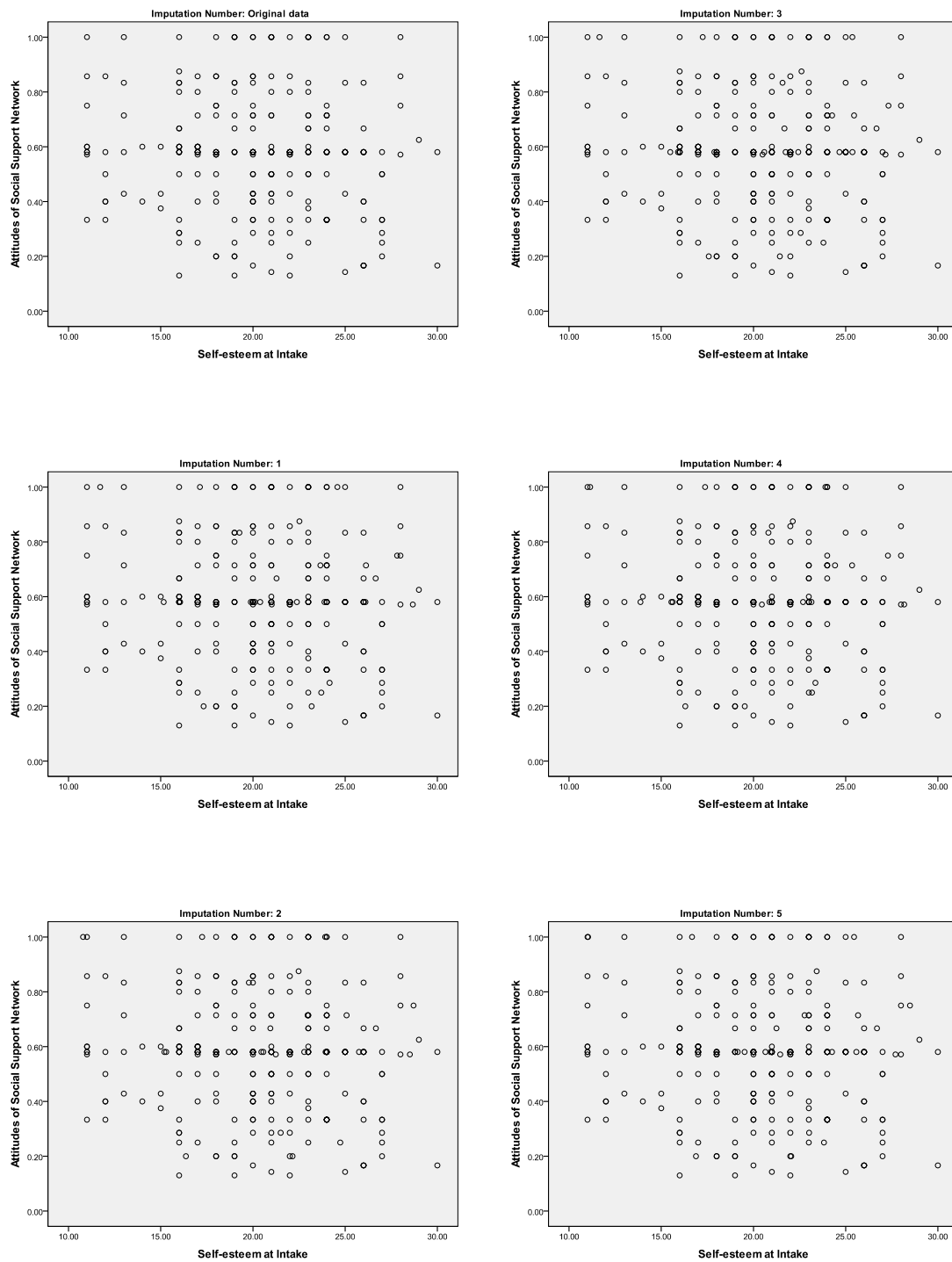
Figure 25: *Bivariate Scatterplots for Attitudes of Social Support Network and Intake Self-esteem*
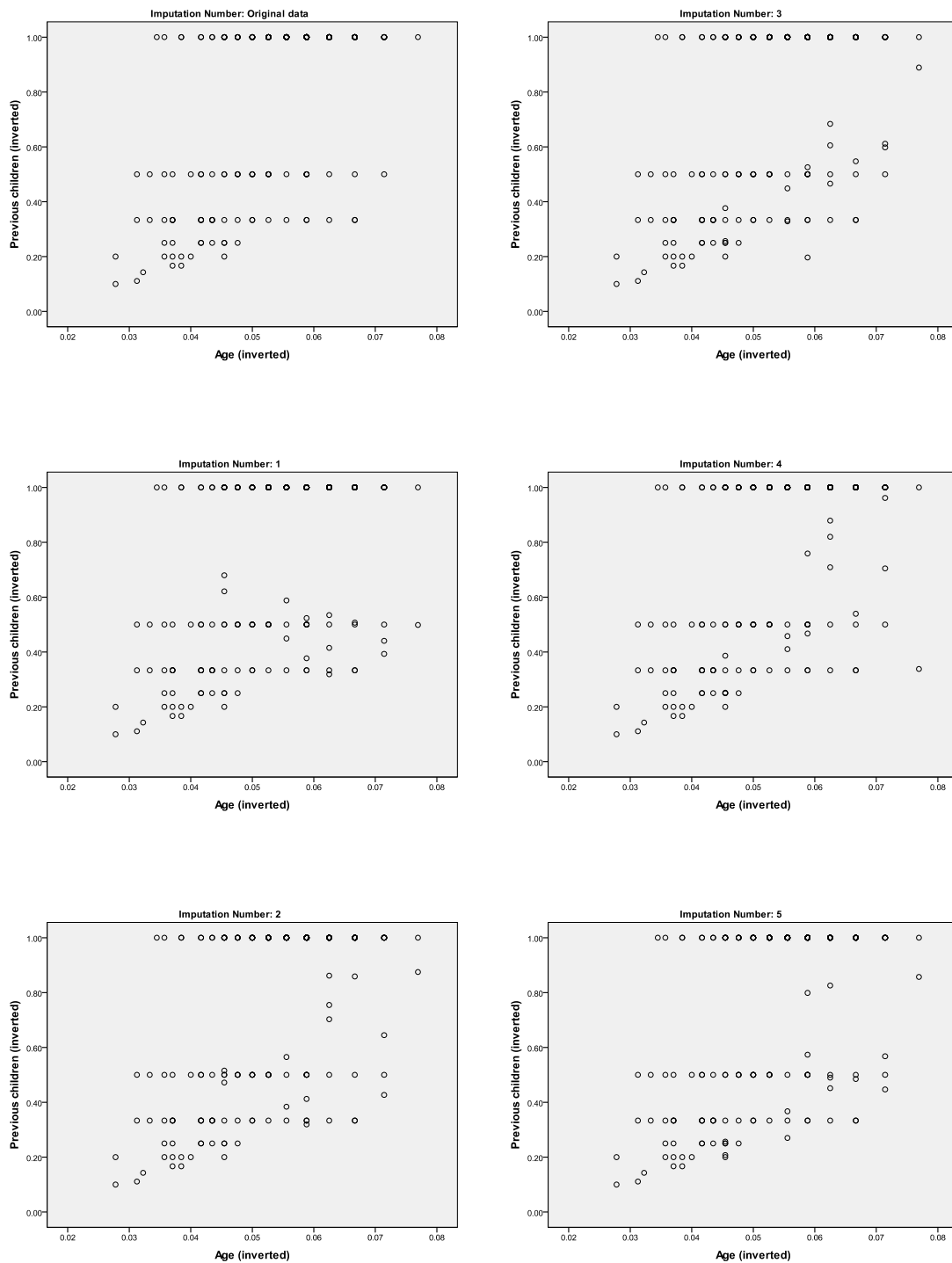
Figure 26: *Bivariate Scatterplots for Previous Children (inverted) and Age (inverted)*
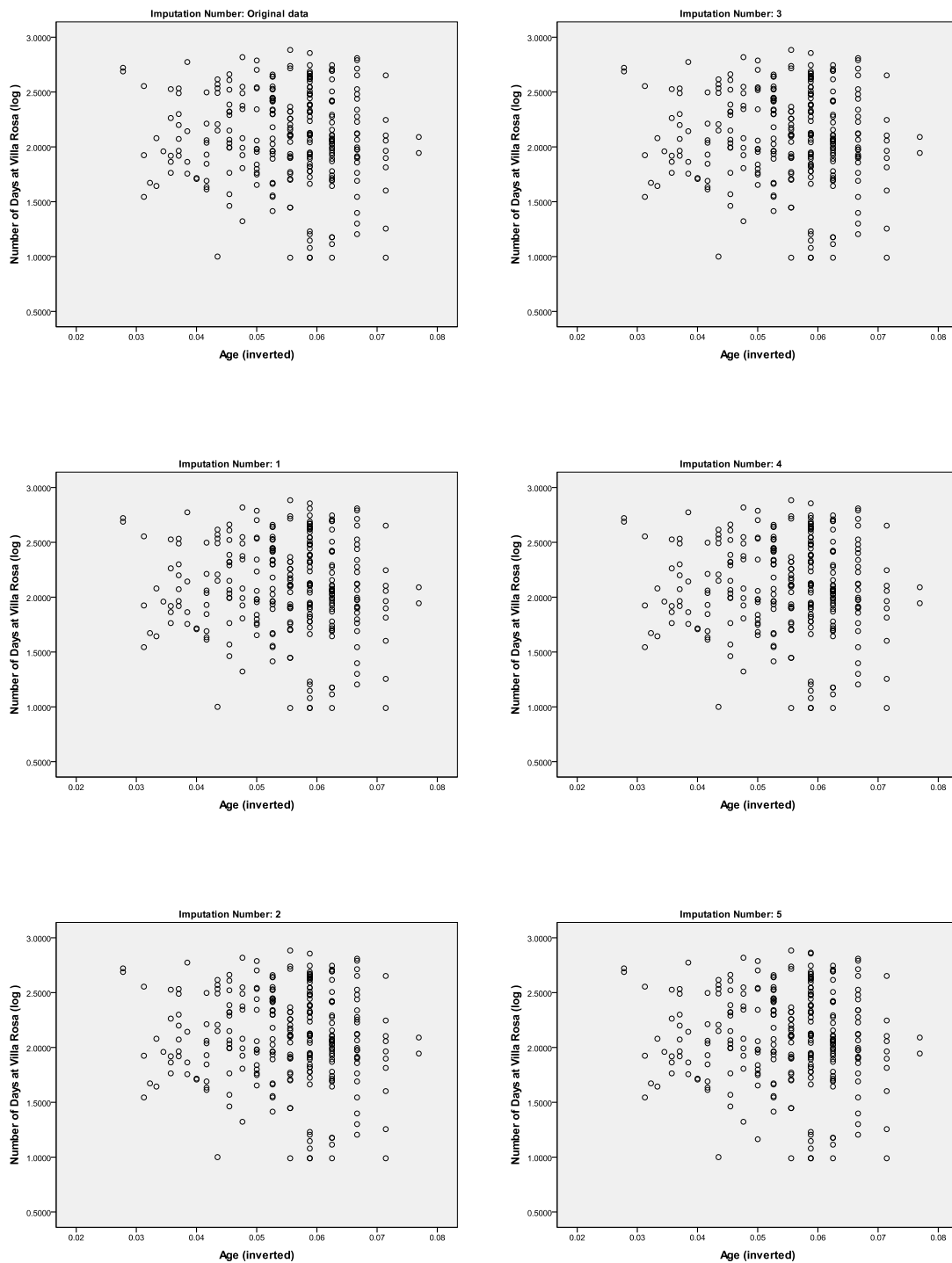
Figure 27: *Bivariate Scatterplots for Number of Days at Villa Rosa (log) and Age (inverted)*
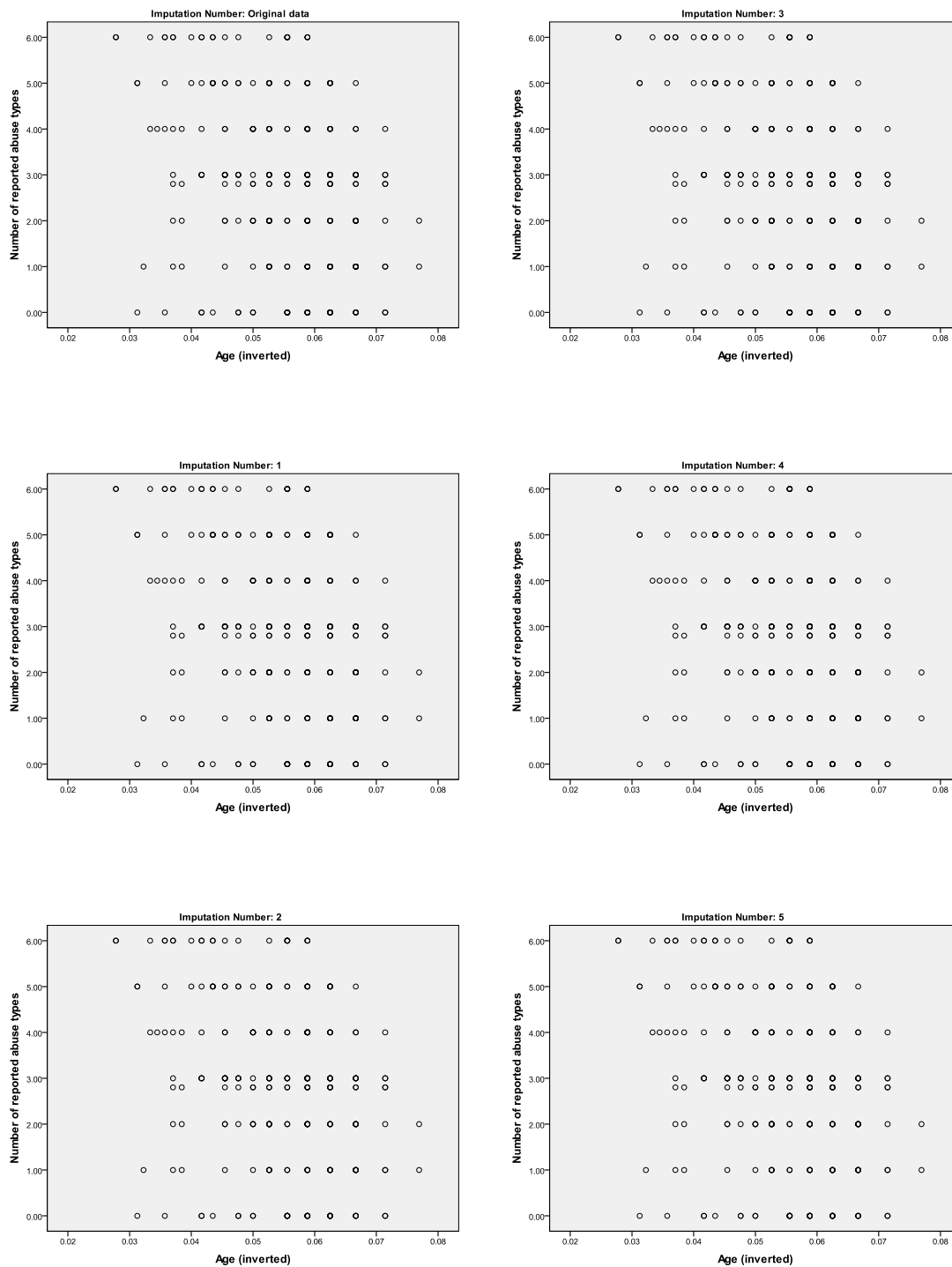
Figure 28: *Bivariate Scatterplots for Number of Reported Abuse Types and Age (inverted)*
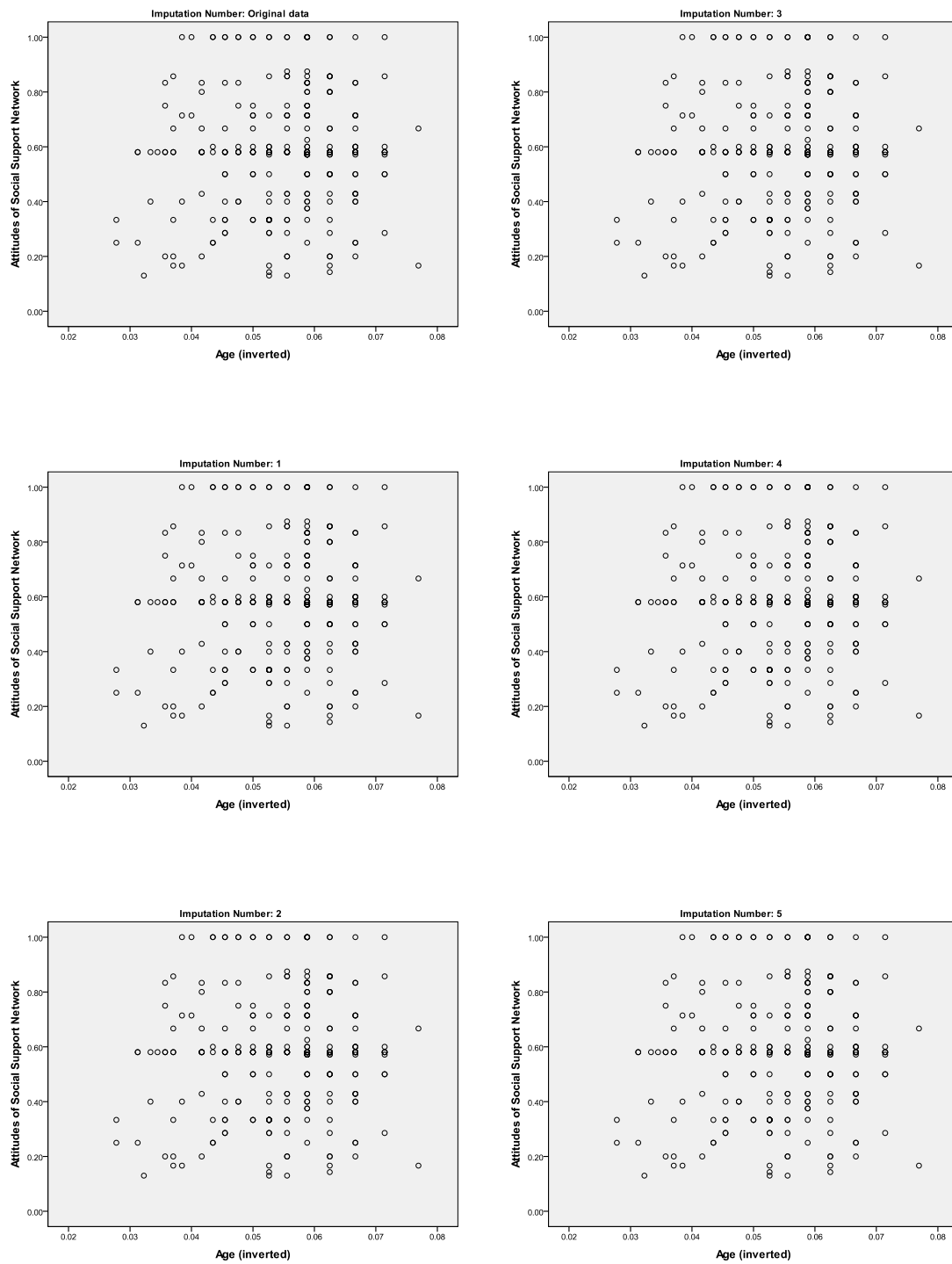
Figure 29: *Bivariate Scatterplots for Attitudes of Social Support Network and Age (inverted)*
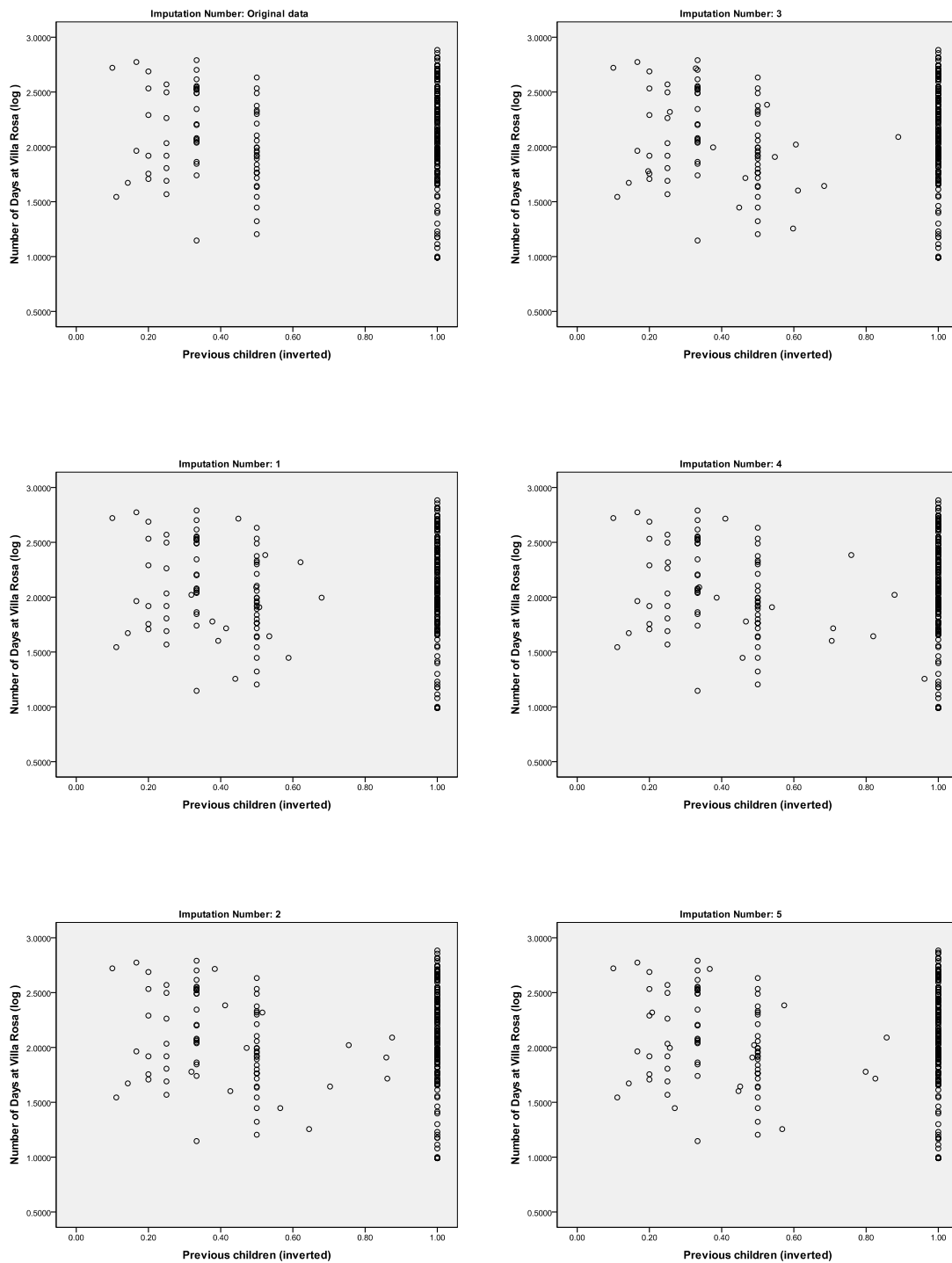
Figure 30: *Bivariate Scatterplots for Number of Days at Villa Rosa (log) and Previous Children (inverted)*
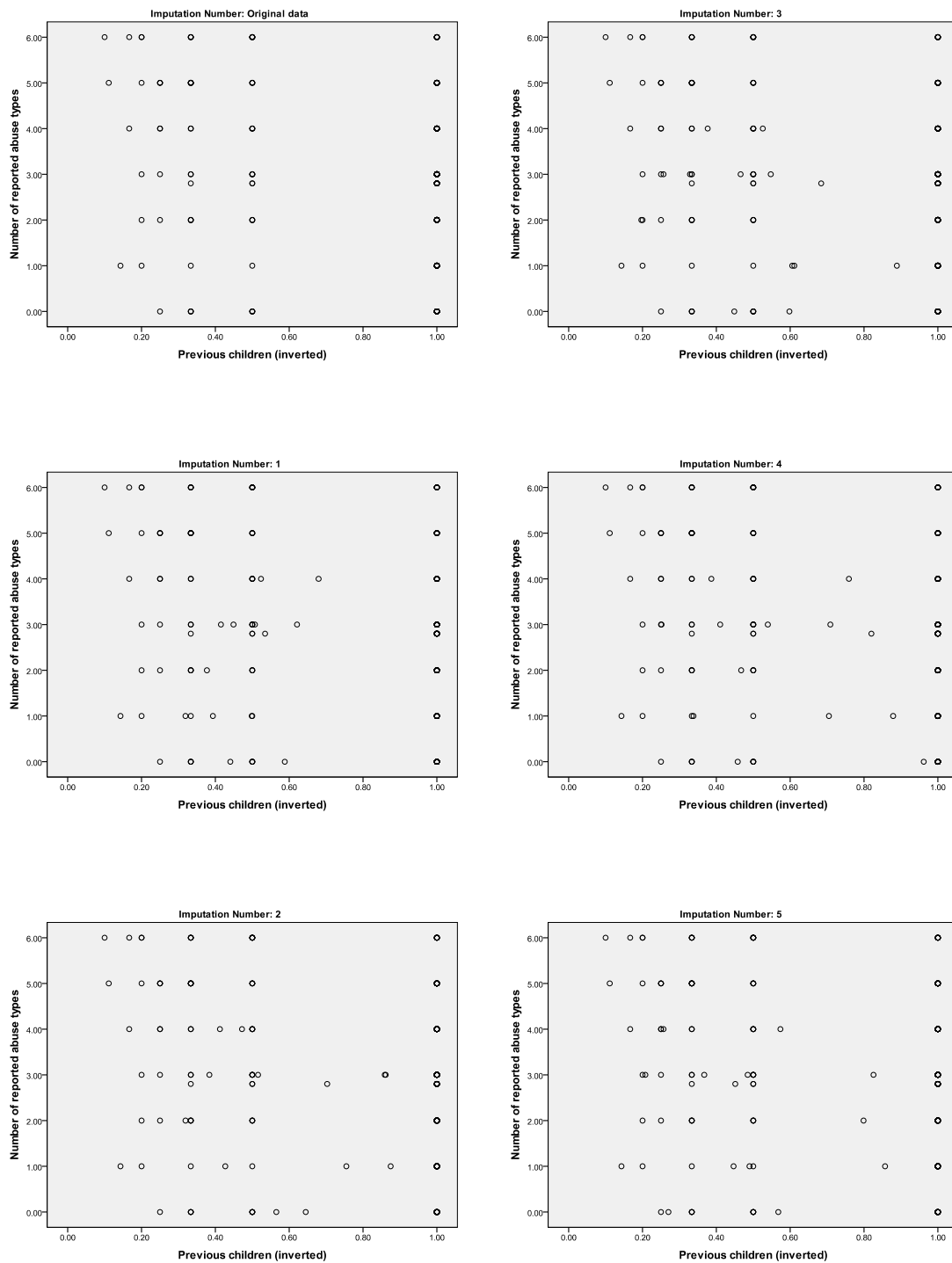
Figure 31: *Bivariate Scatterplots for Number of Reported Abuse Types and Previous Children (inverted)*
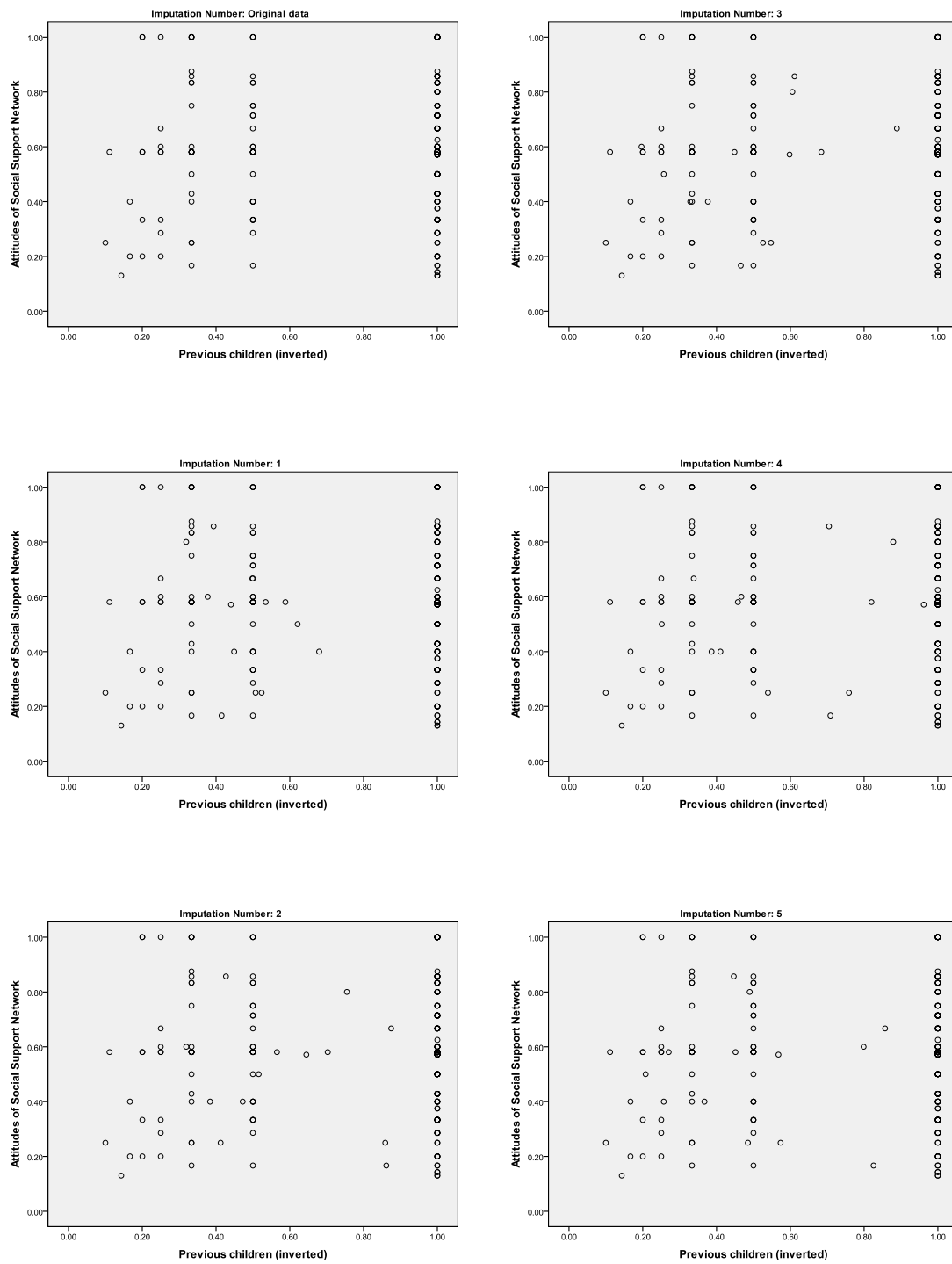
Figure 32: *Bivariate Scatterplots for Previous Children (inverted) and Attitudes of Social Support Network*
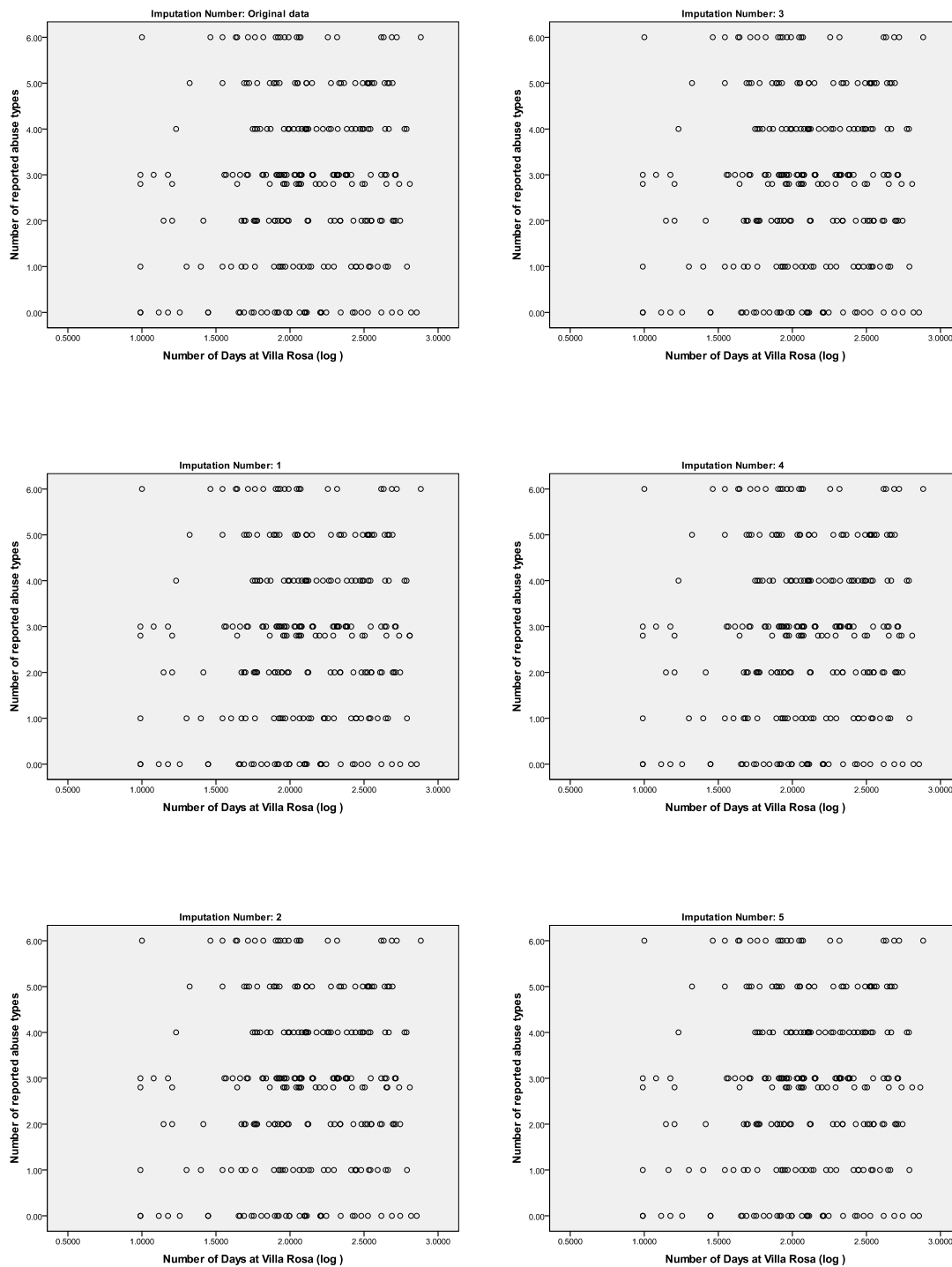
Figure 33: *Bivariate Scatterplots for Number of Days at Villa Rosa (log) and Number of Reported Abuse Types*
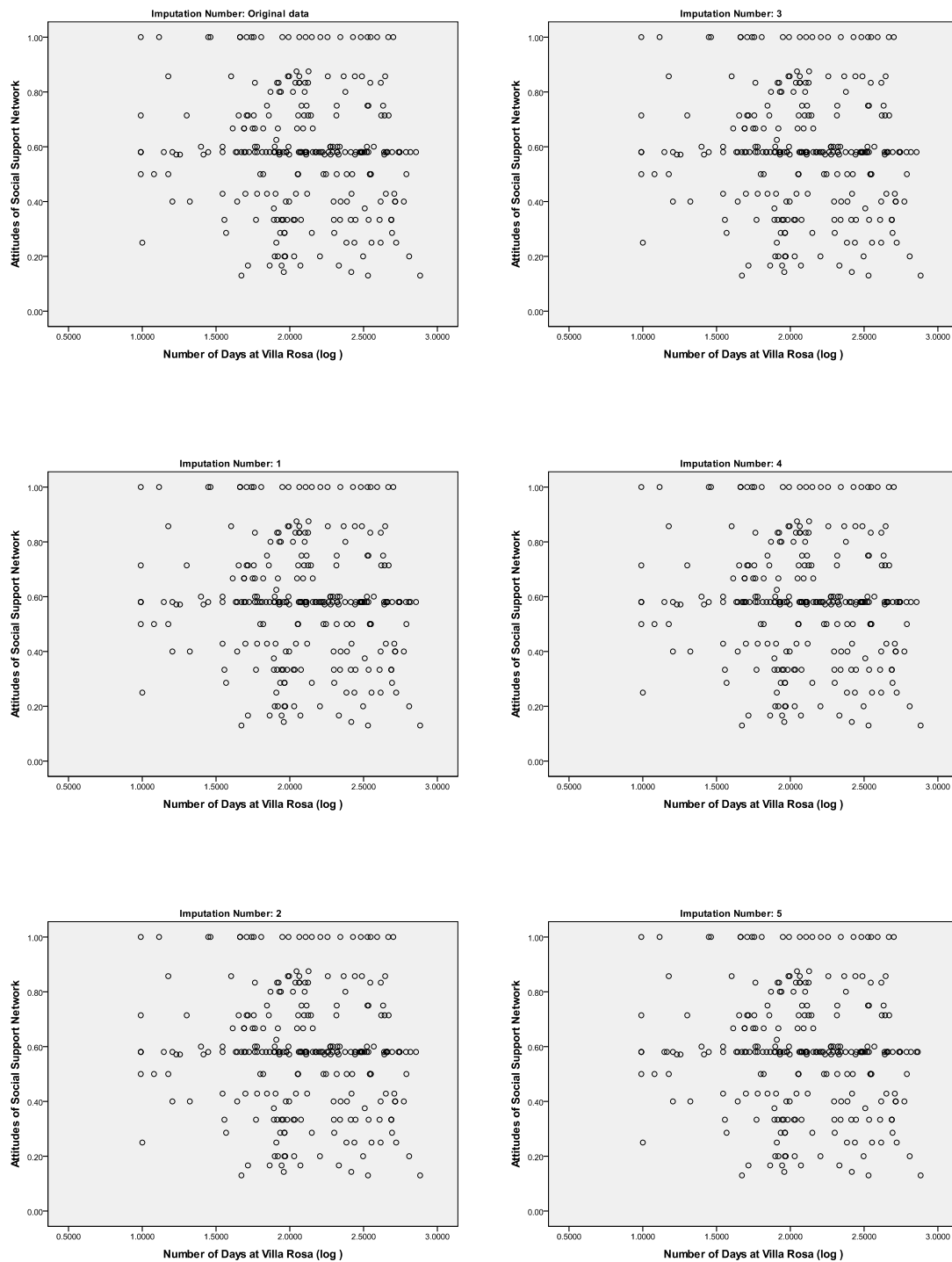
Figure 34: *Bivariate Scatterplots for Number of Days at Villa Rosa (log) and Attitudes of Social Support Network*
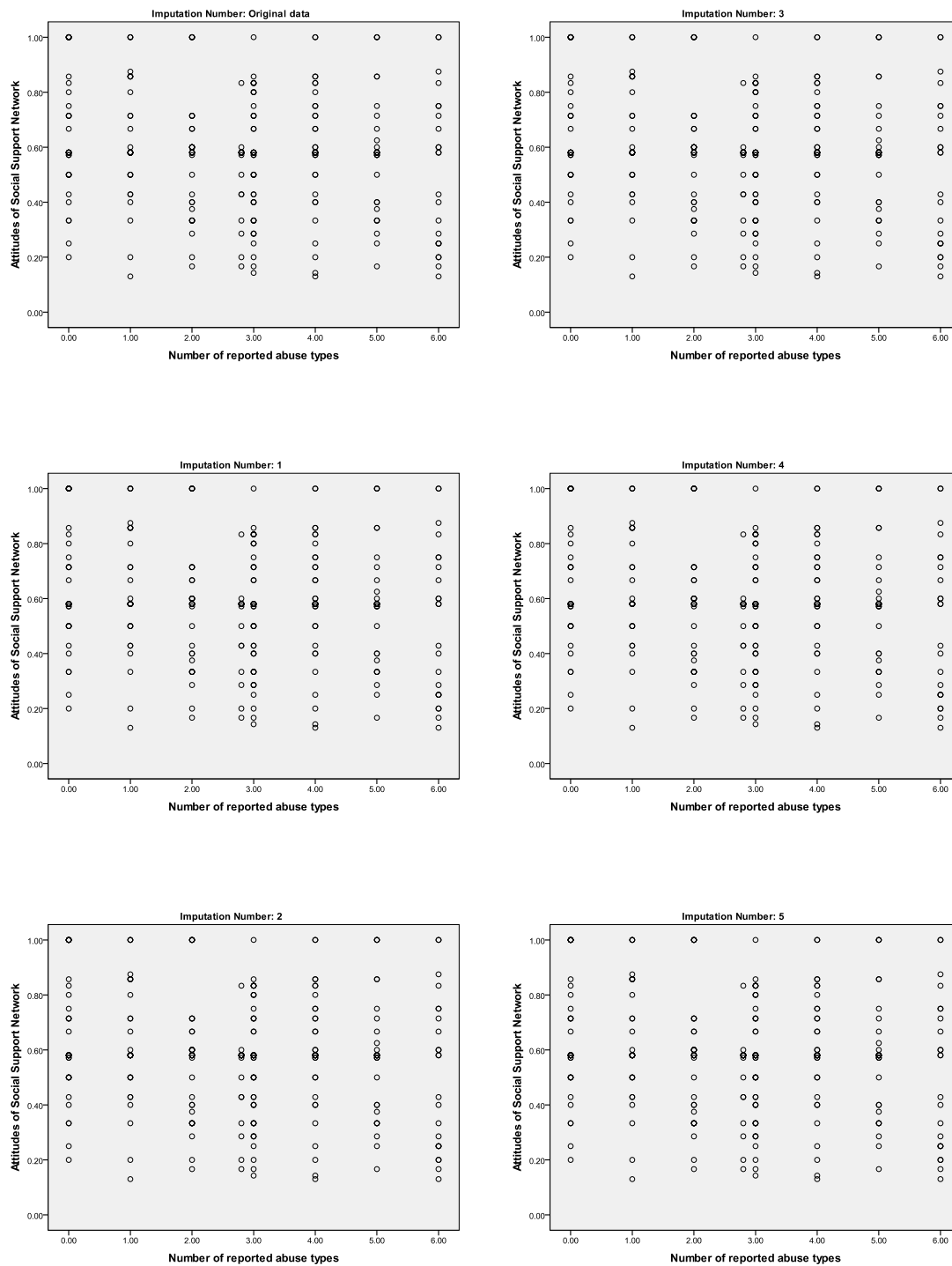
Figure 35: *Bivariate Scatterplots for Number of Reported Abuse Types and Attitudes of Social Support Network*

Residual Scatterplots
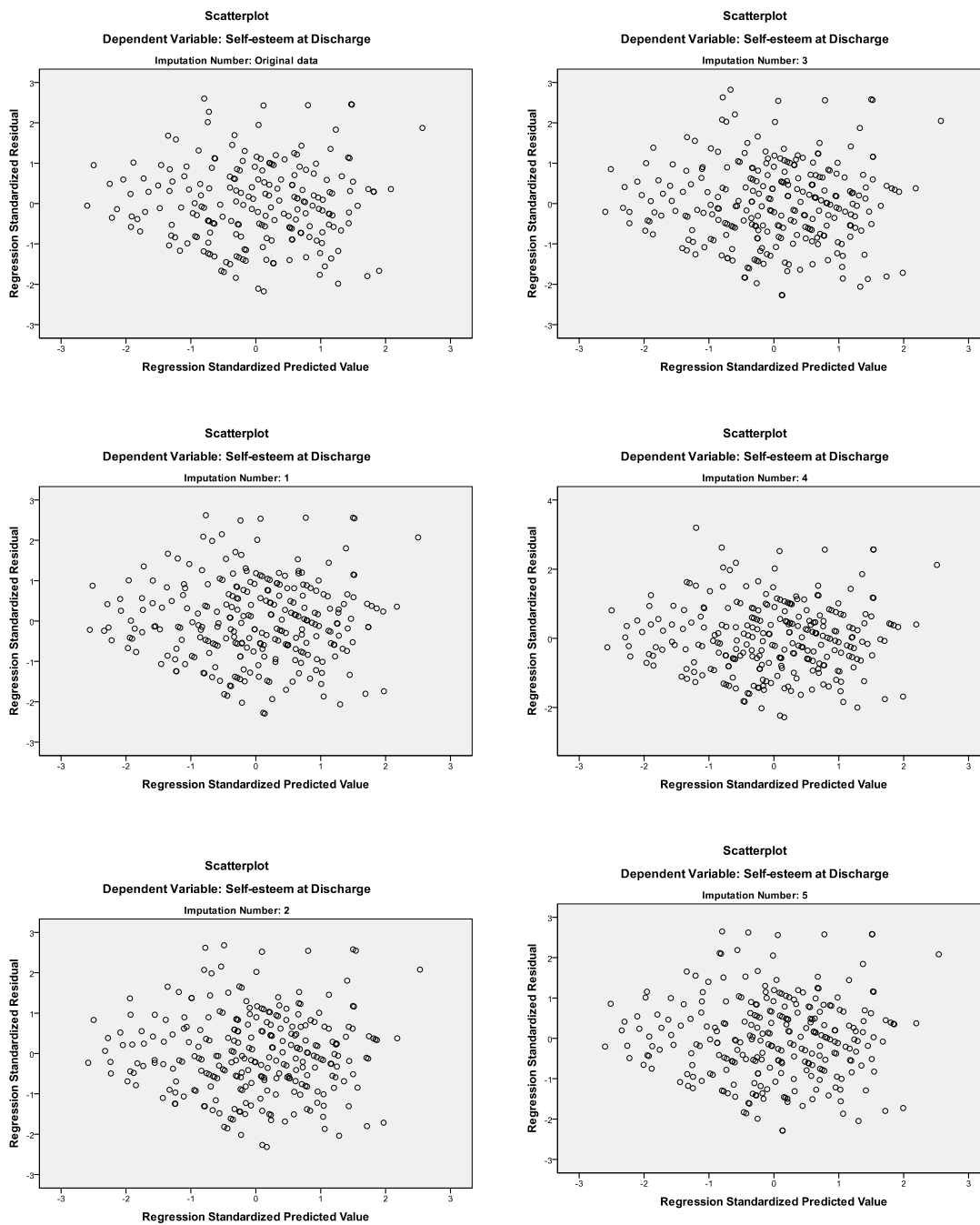
Figure 36: *Residual Scatterplots for Discharge Self-esteem*
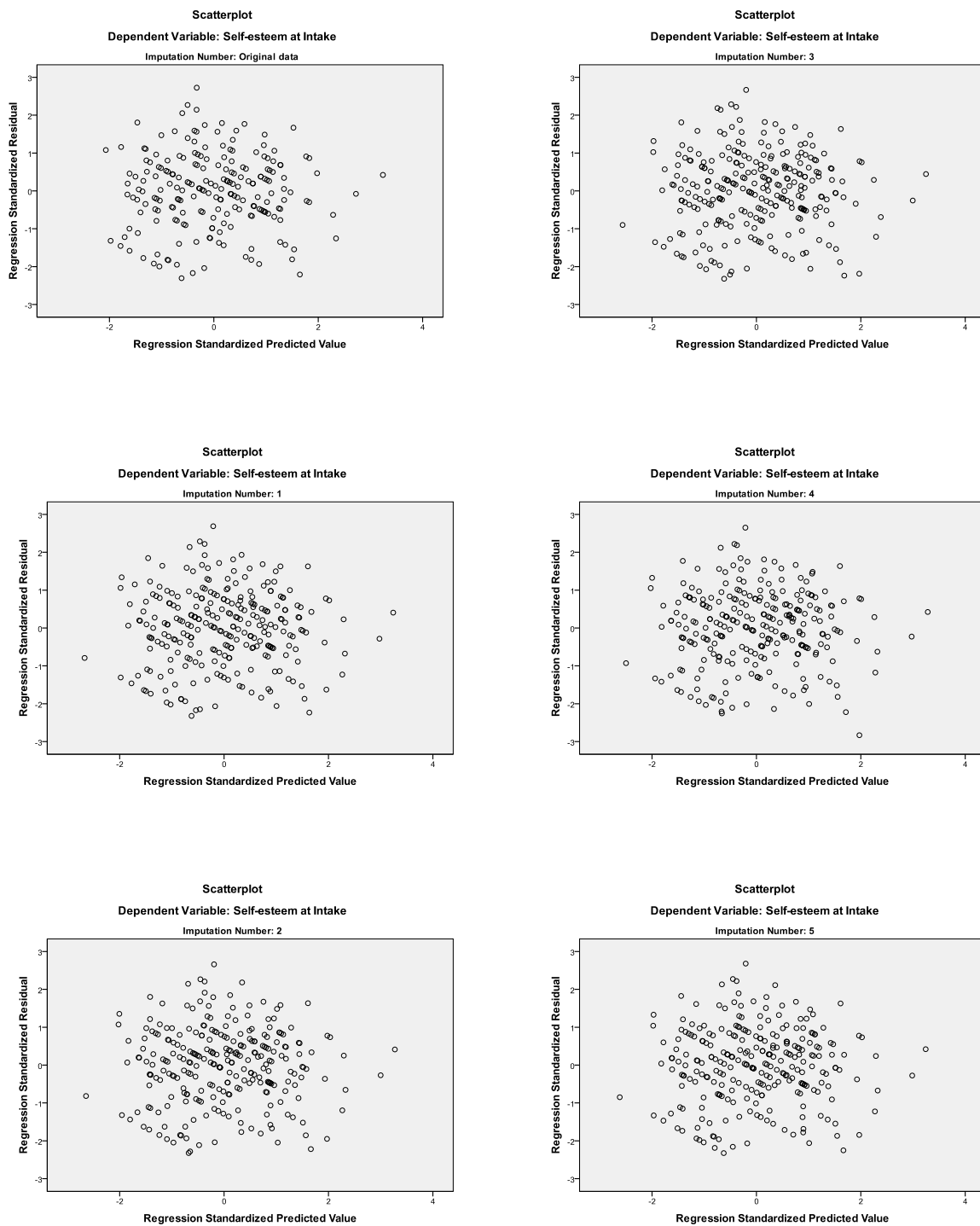
Figure 37: *Residual Scatterplots for Intake Self-esteem*
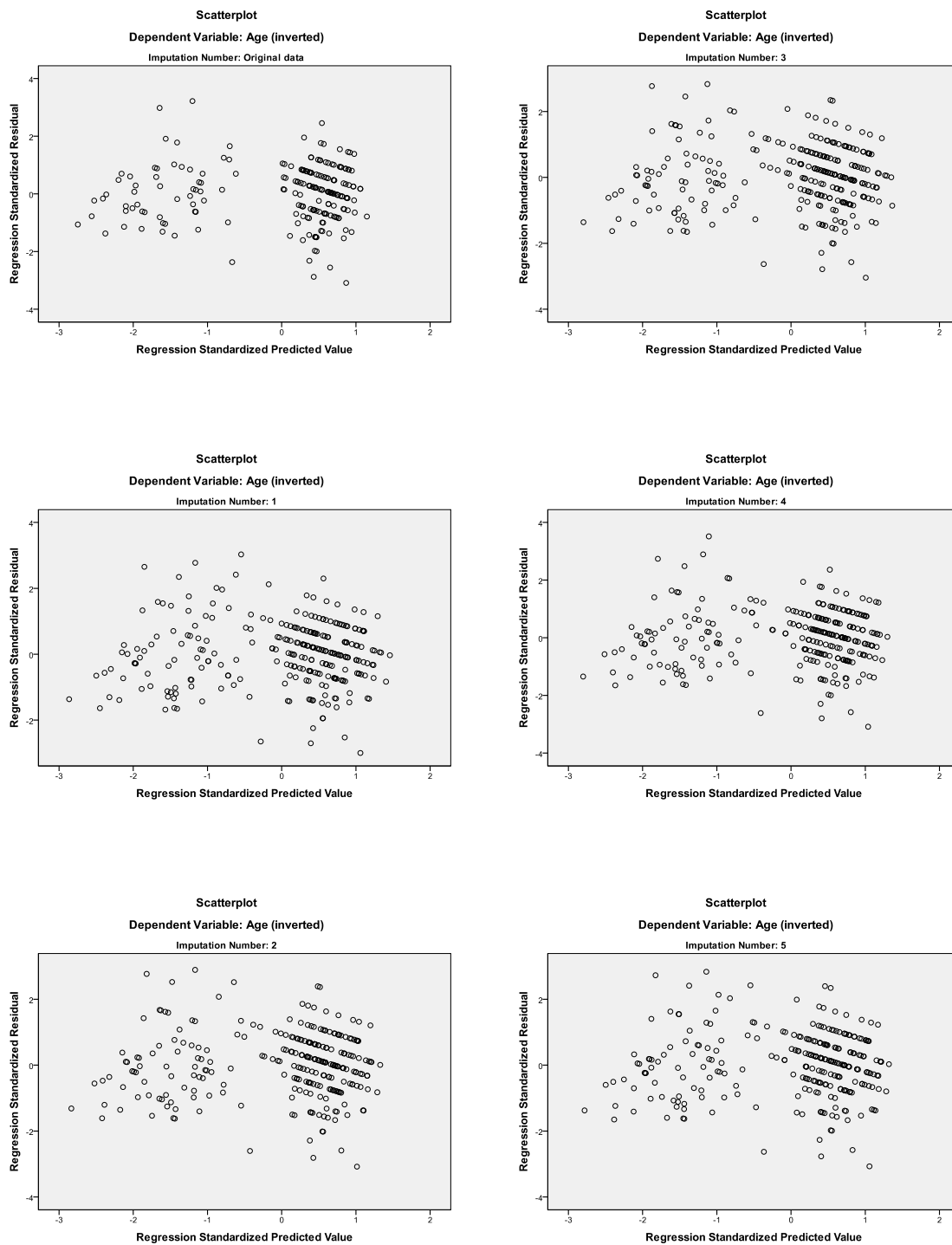
Figure 38: *Residual Scatterplots for Age (inverted)*
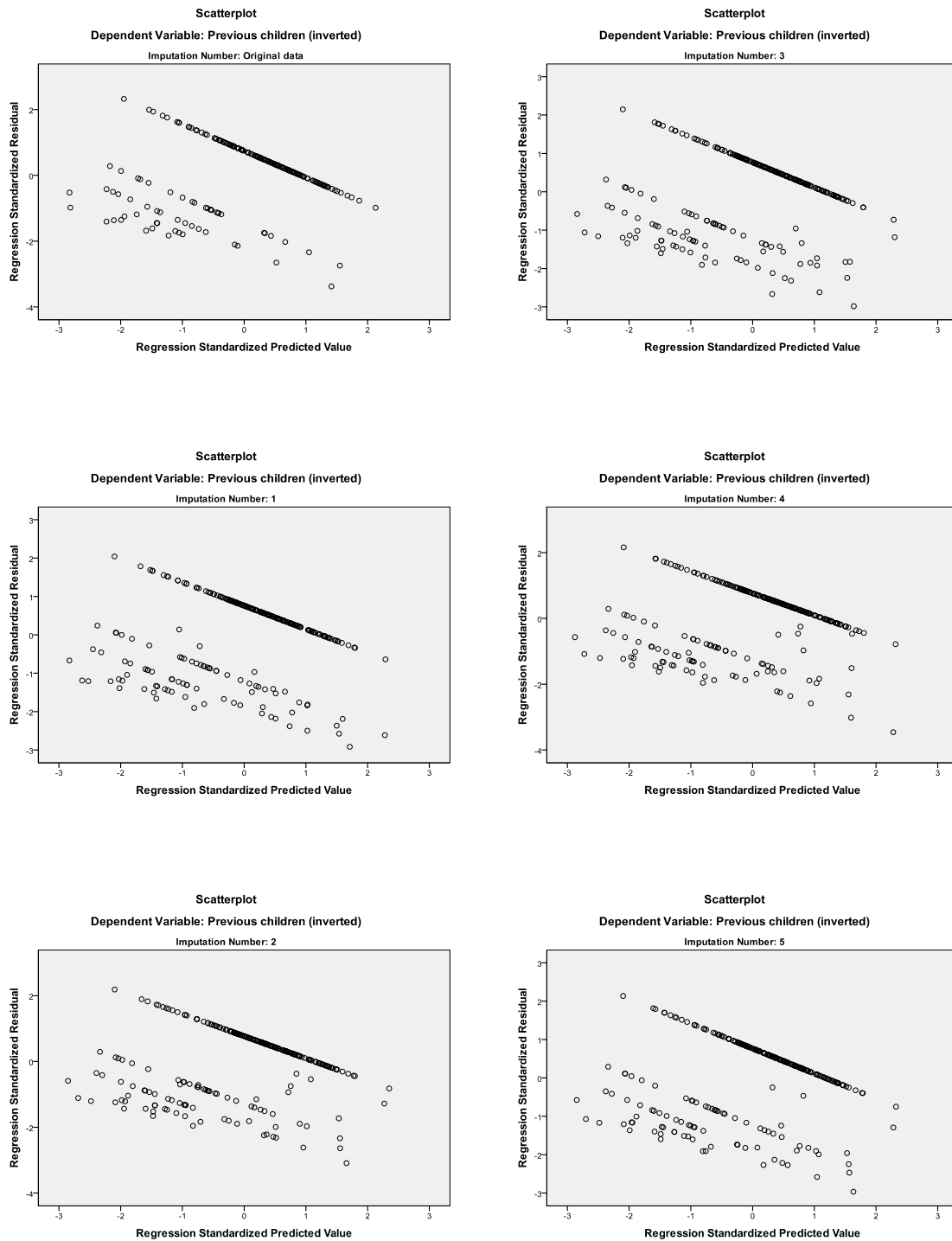
Figure 39: *Residual Scatterplots for Previous Children (inverted)*
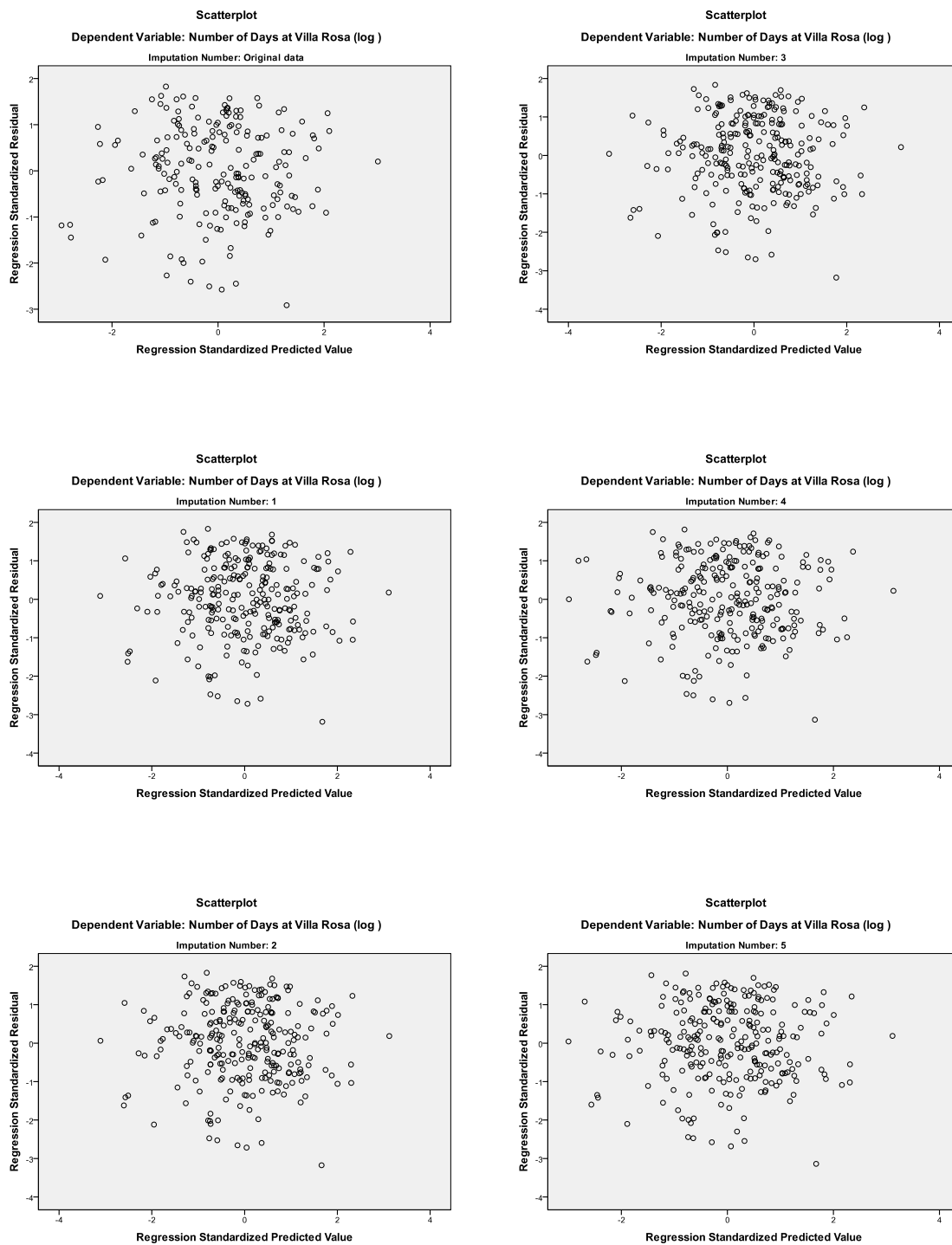
Figure 40: *Residual Scatterplots for Number of Days at Villa Rosa (log)*
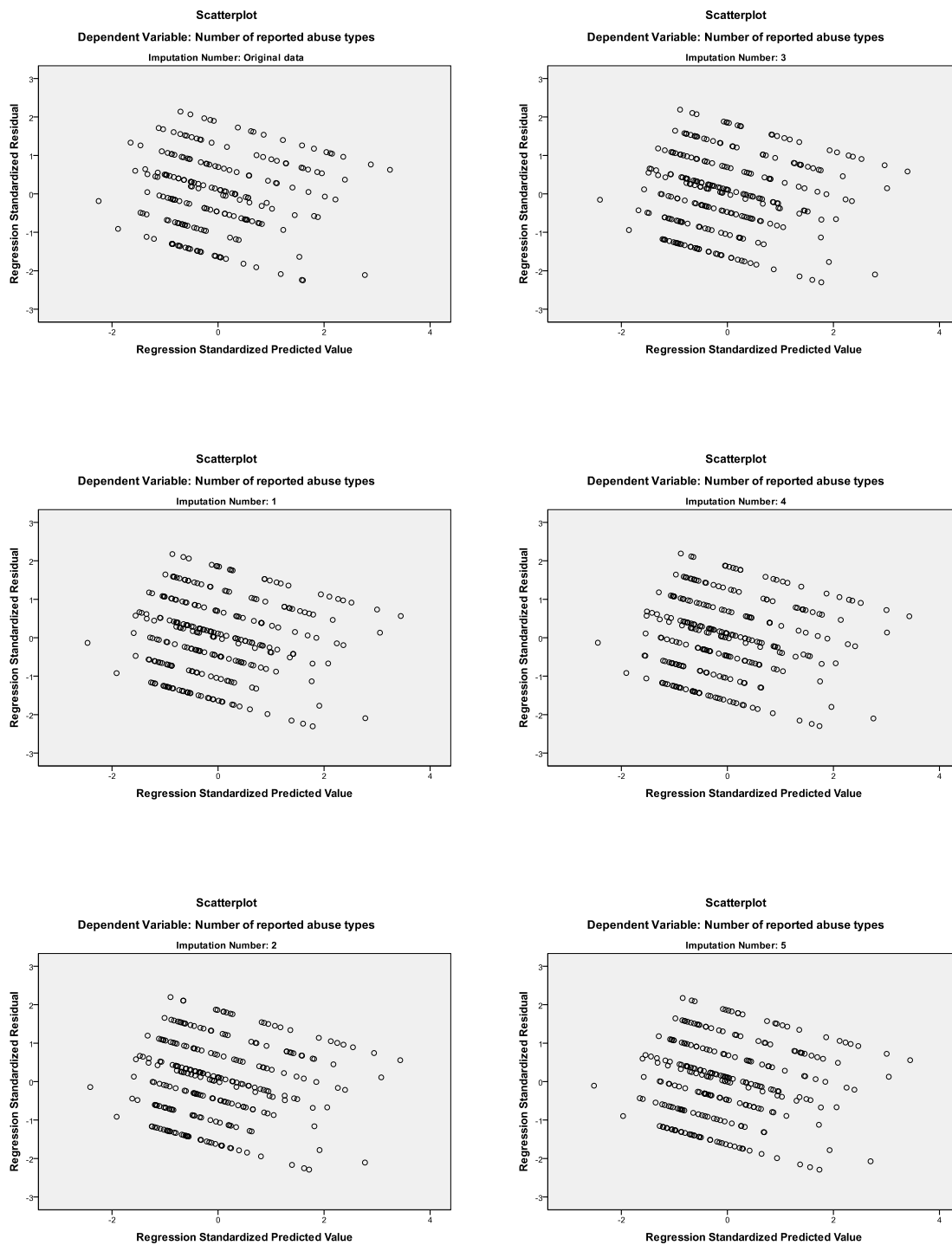
Figure 41: *Residual Scatterplots for Number of Reported Abuse Types*
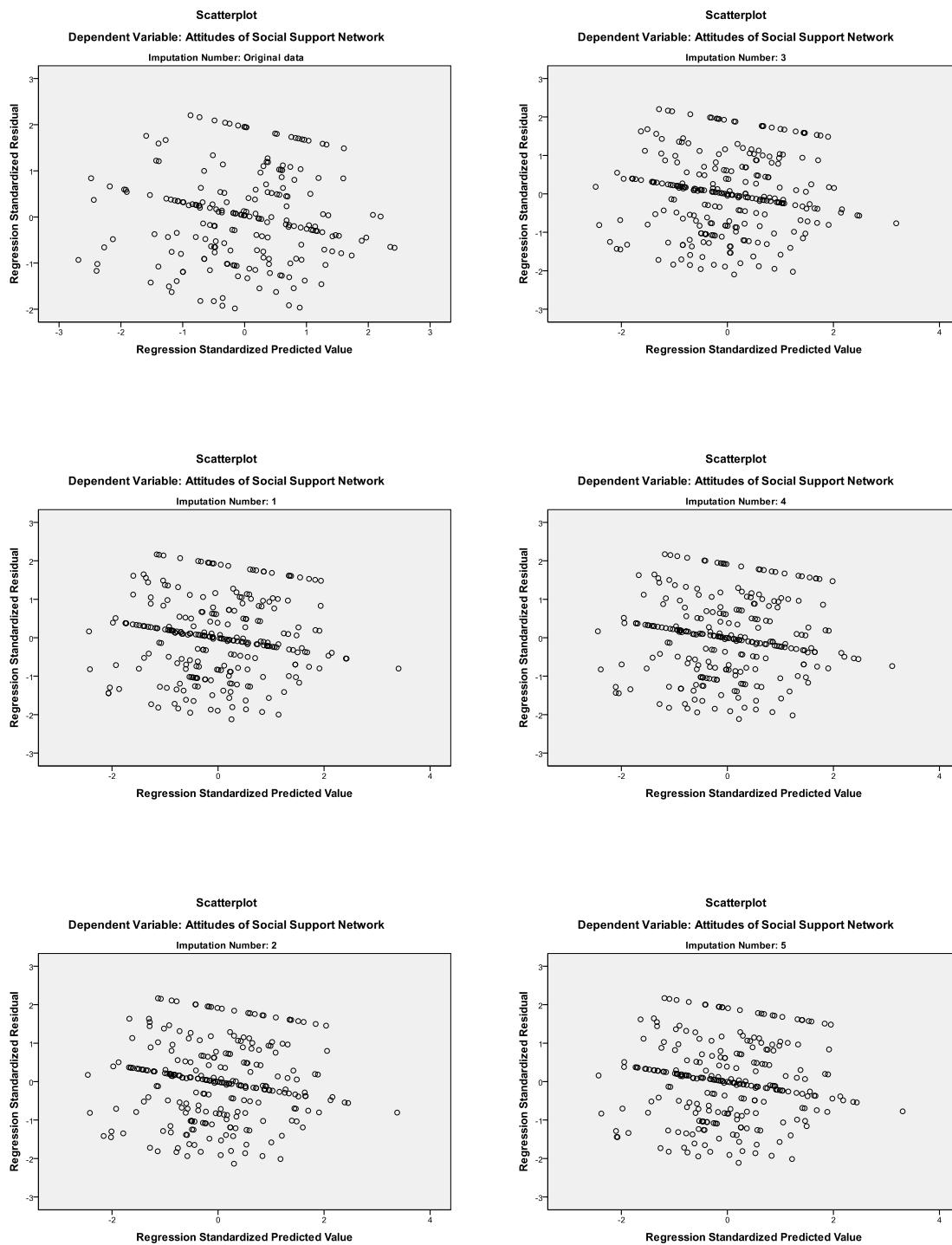
Figure 42: *Residual Scatterplots for Attitudes of Social Support Network*

Frequency Histograms
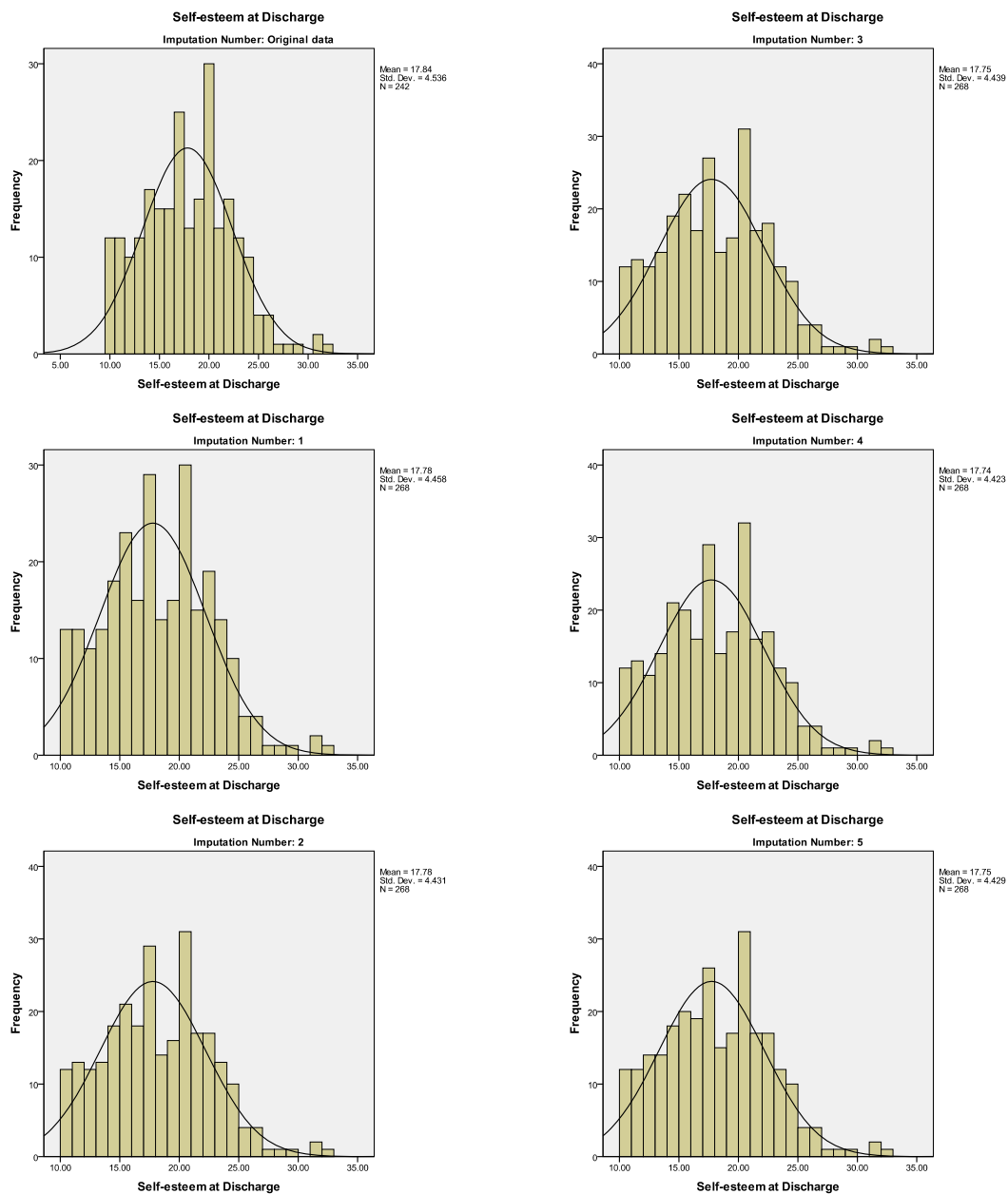
Figure 43: *Frequency Histograms for Discharge Self-esteem*
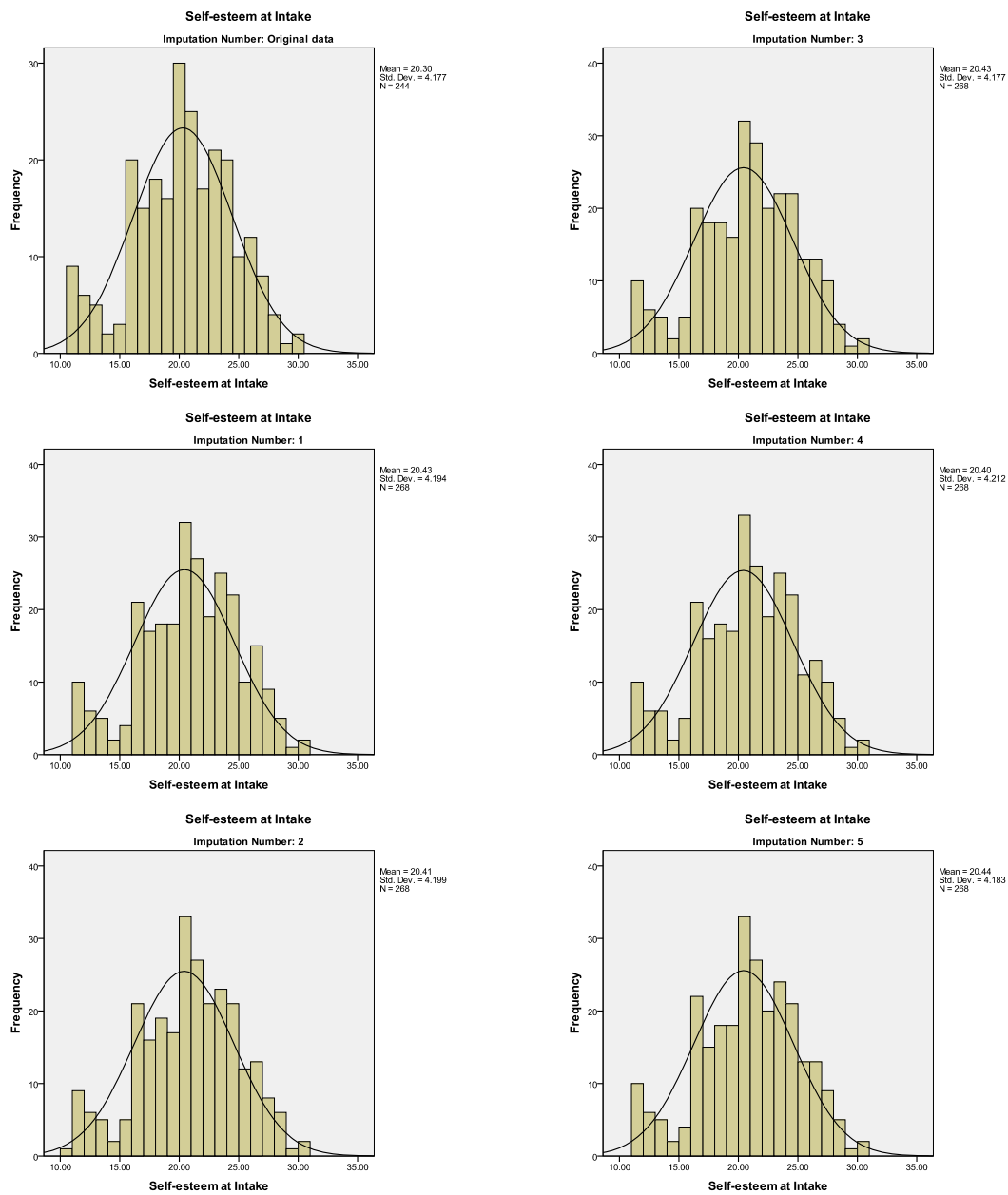
Figure 44: *Frequency Histograms for Intake Self-esteem*
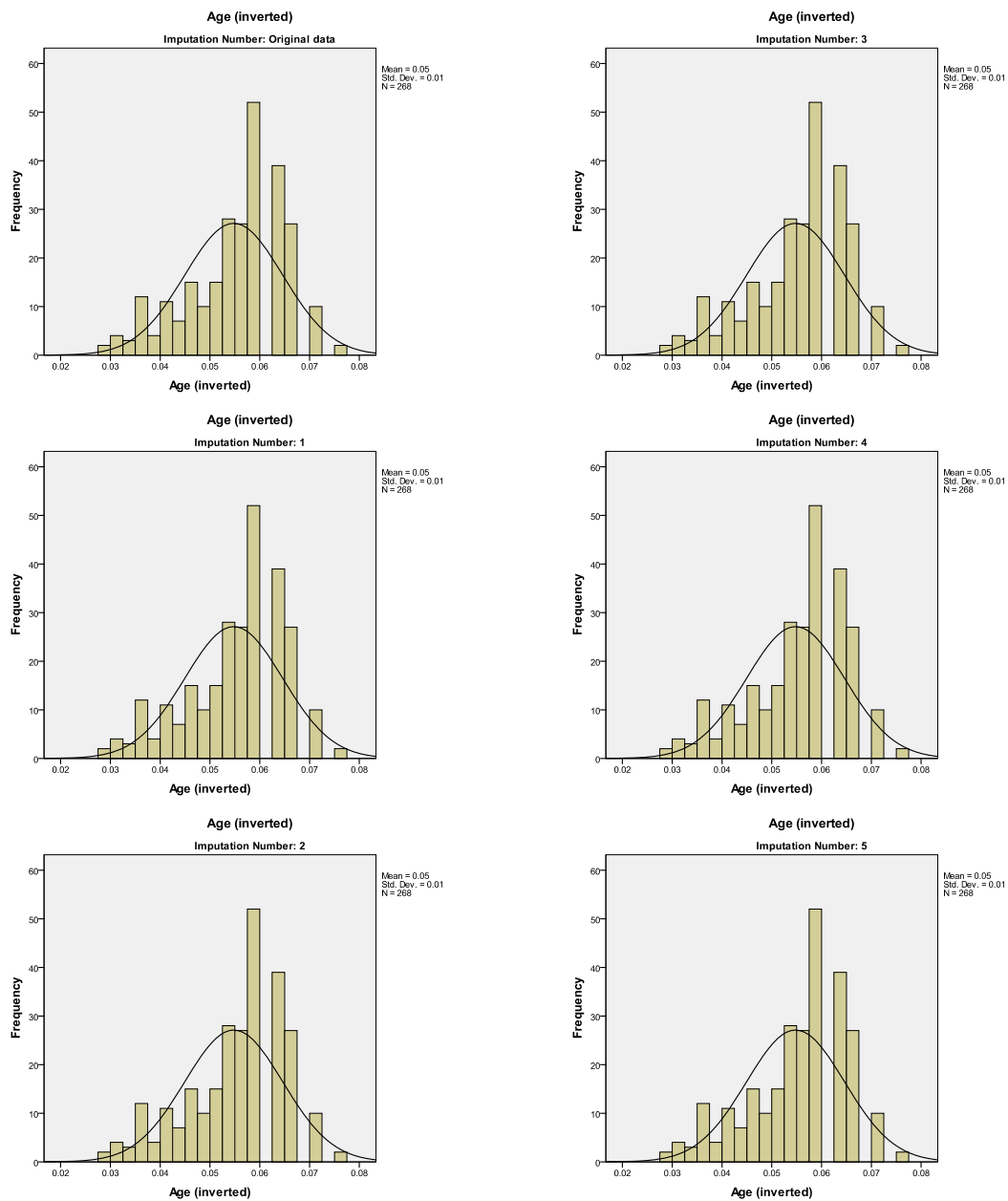
Figure 45: *Frequency Histograms for Age (inverted)*
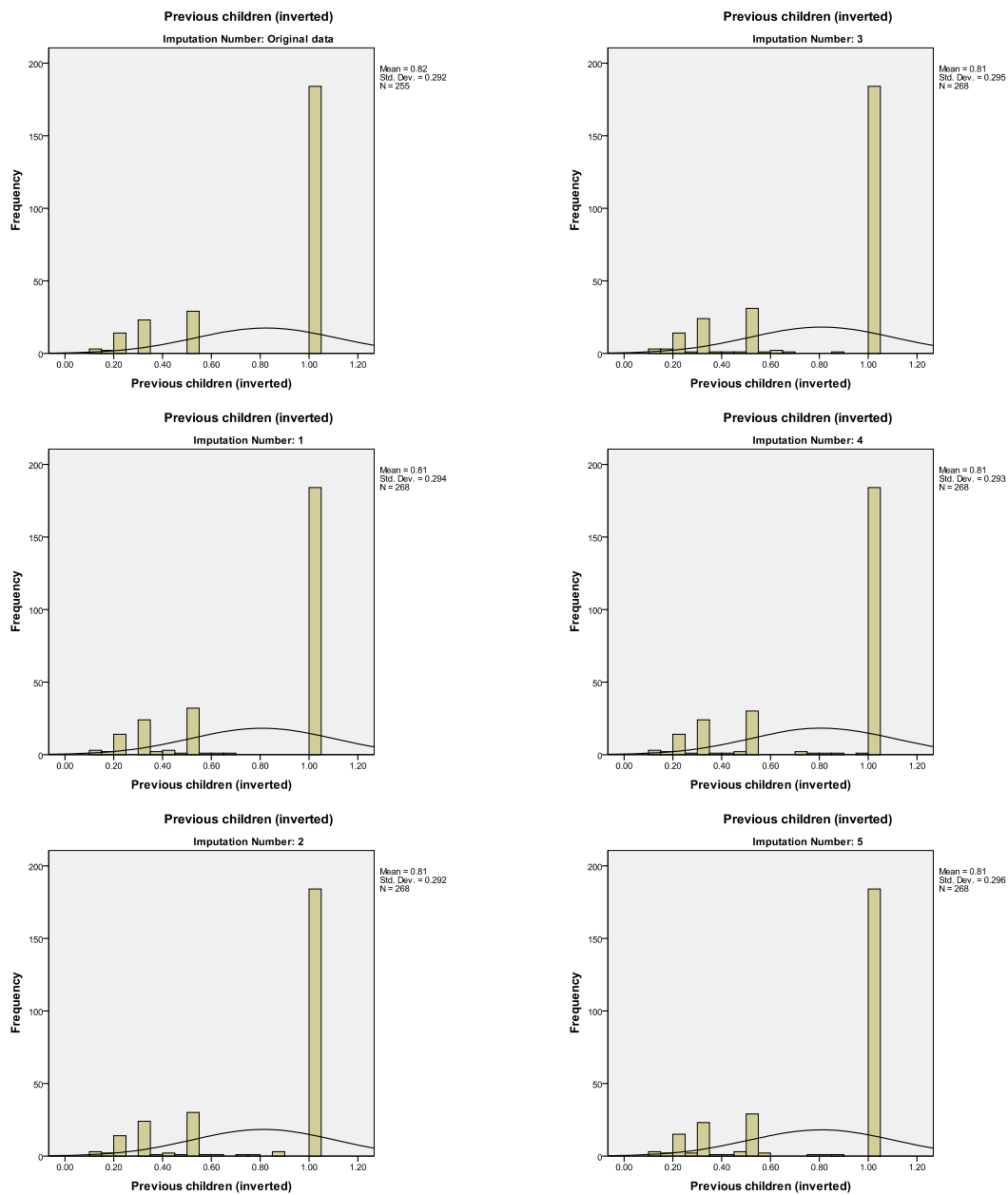
Figure 46: *Frequency Histograms for Previous Children (inverted)*
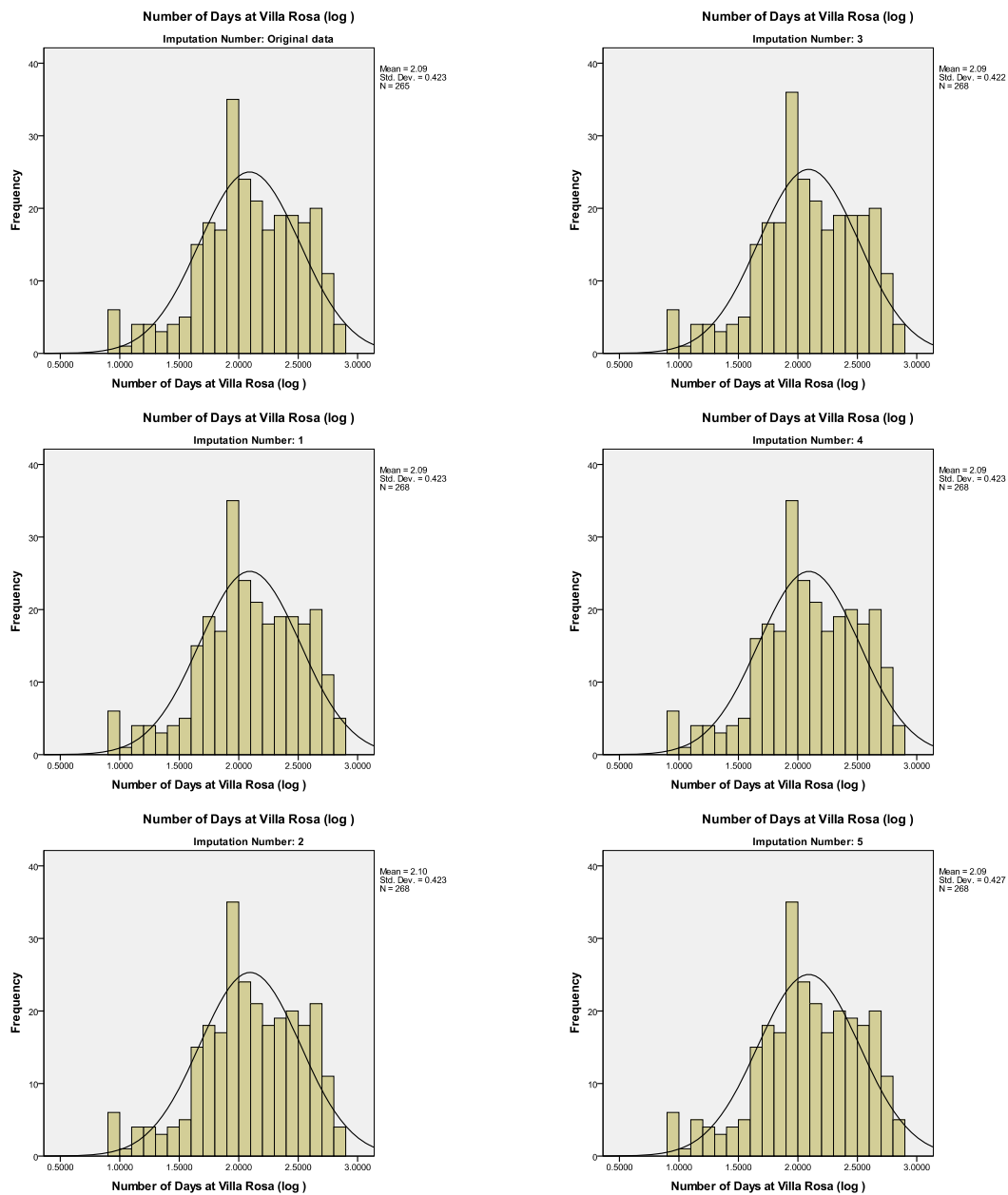
Figure 47: *Frequency Histograms for Number of Days at Villa Rosa (log)*
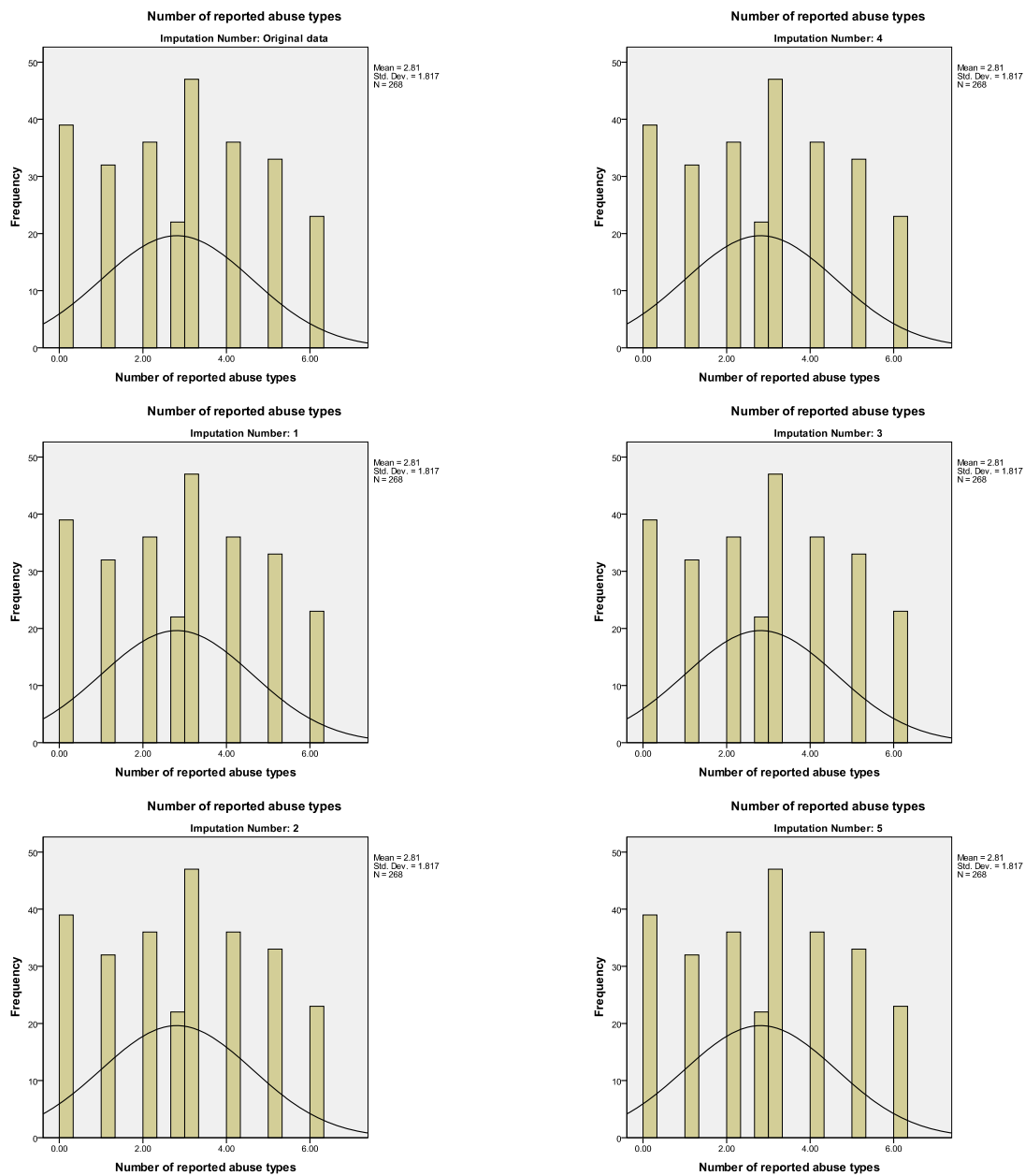
Figure 48: *Frequency Histograms for Number of Reported Abuse Types*
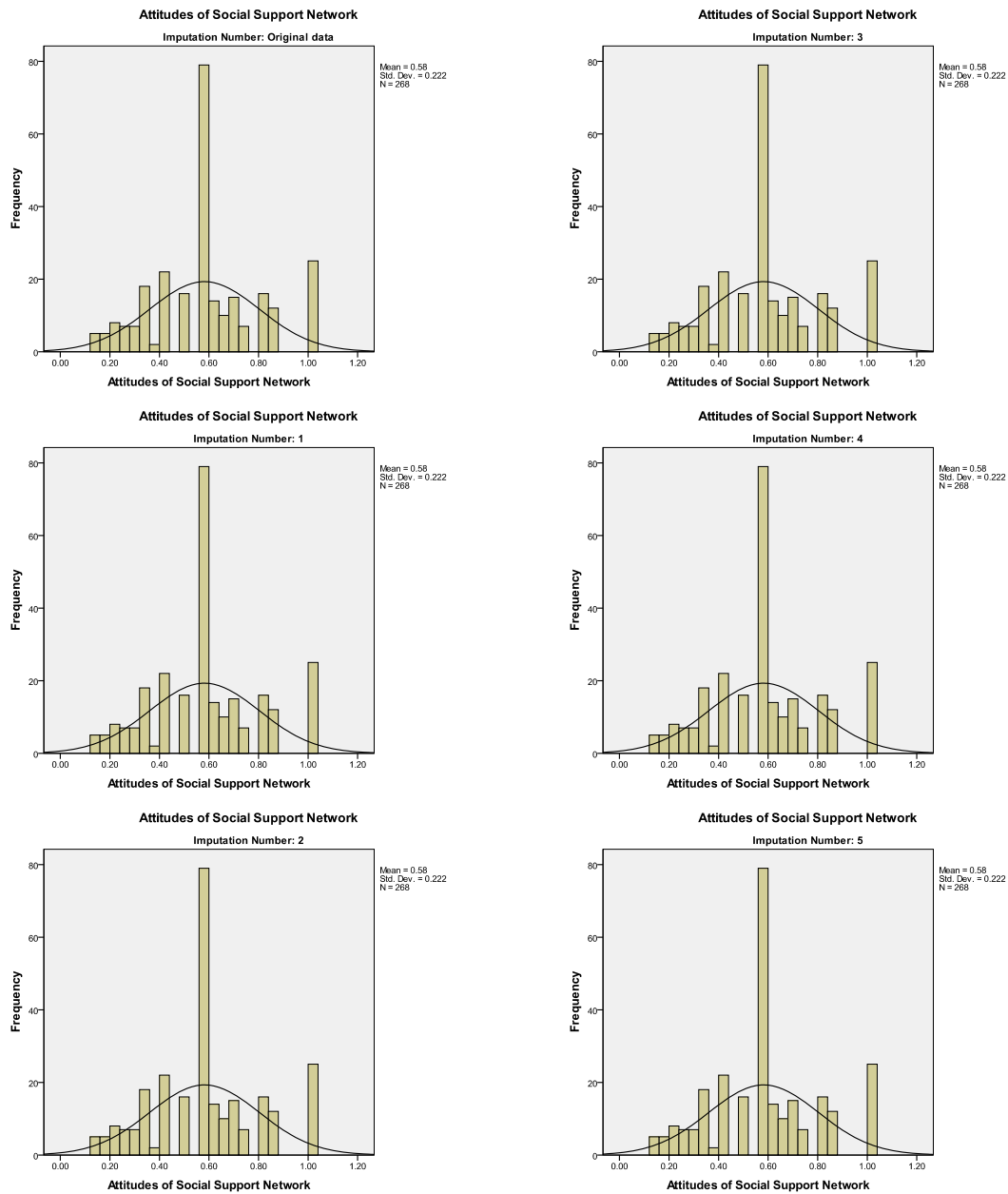
Figure 49: *Frequency Histograms for Attitudes of Social Support Network*

Normal Probability Plots and Detrended Probability Plots
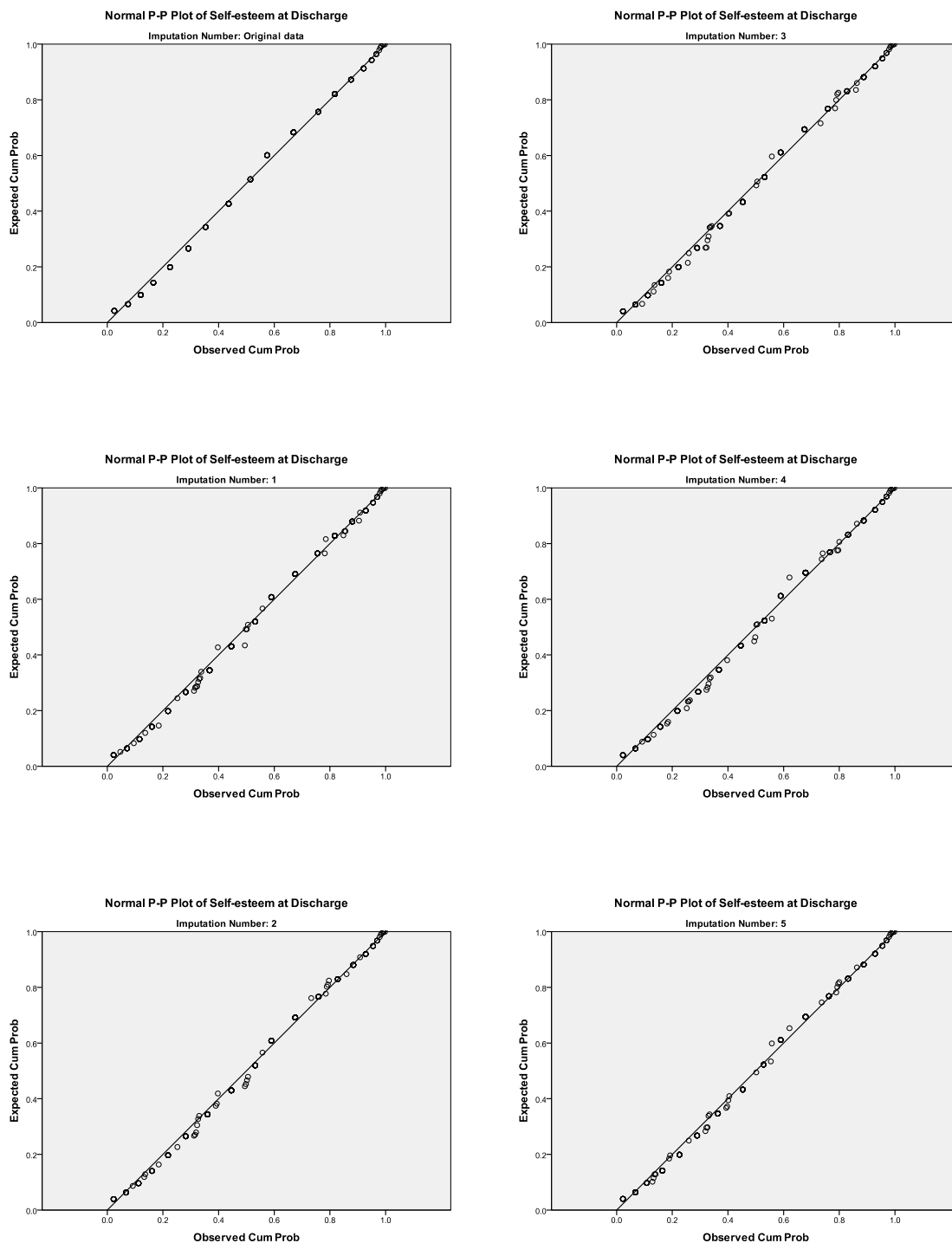
Figure 50: *Normal Probability Plots for Self-esteem at Discharge*
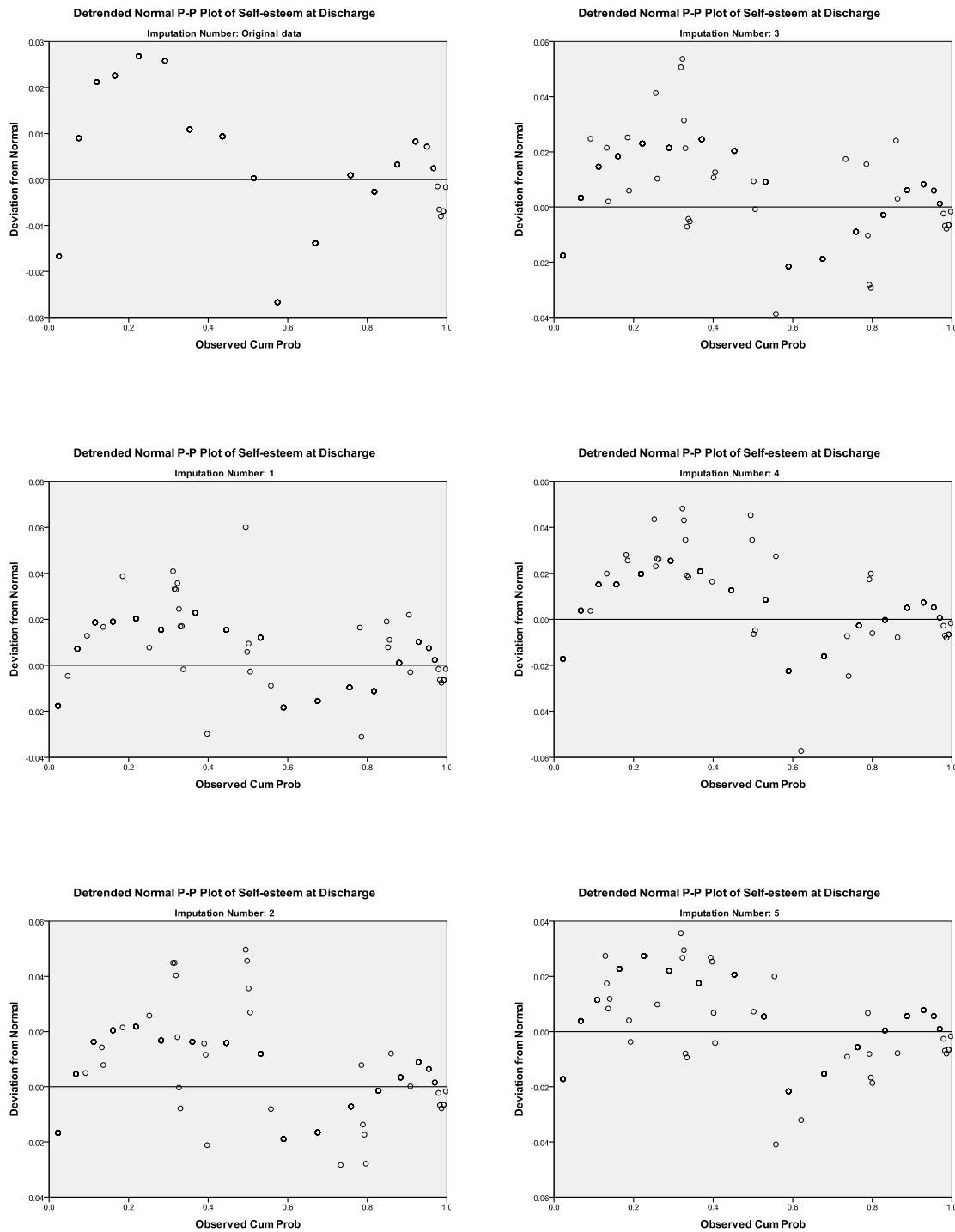
Figure 51: *Detrended Probability Plots for Self-esteem at Discharge*
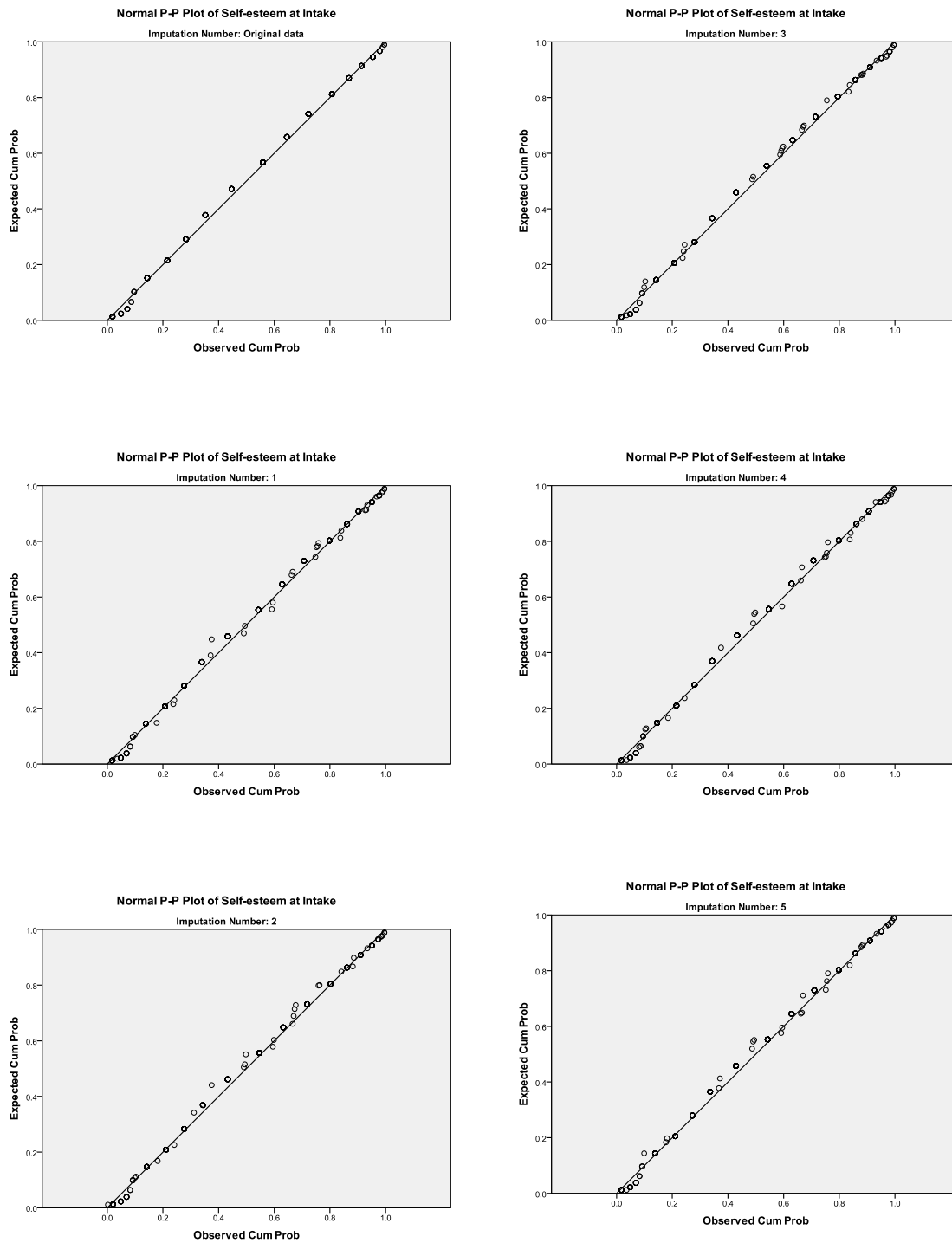
Figure 52: *Normal Probability Plots for Self-esteem at Intake*
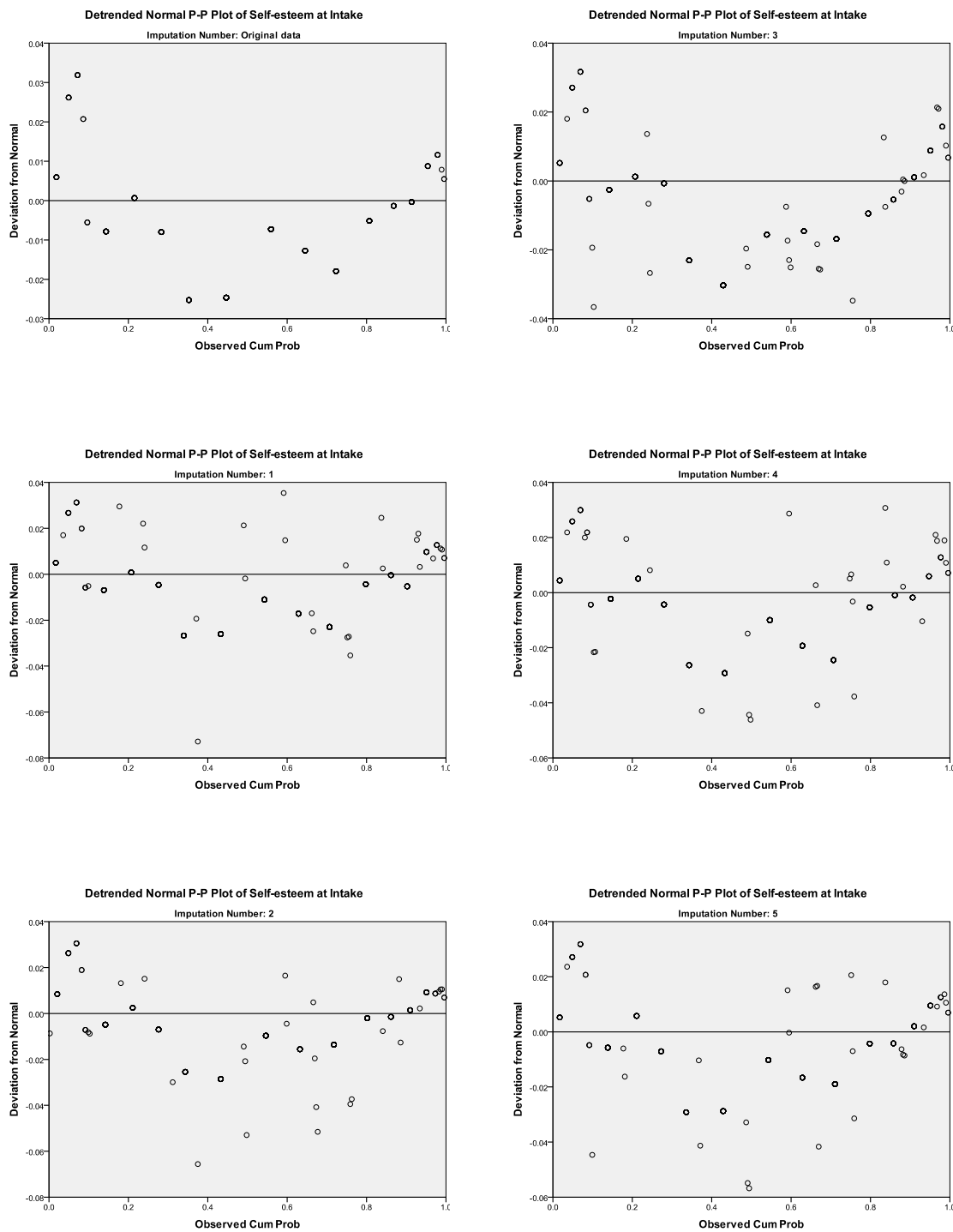
Figure 53: *Detrended Probability Plots for Self-esteem at Intake*
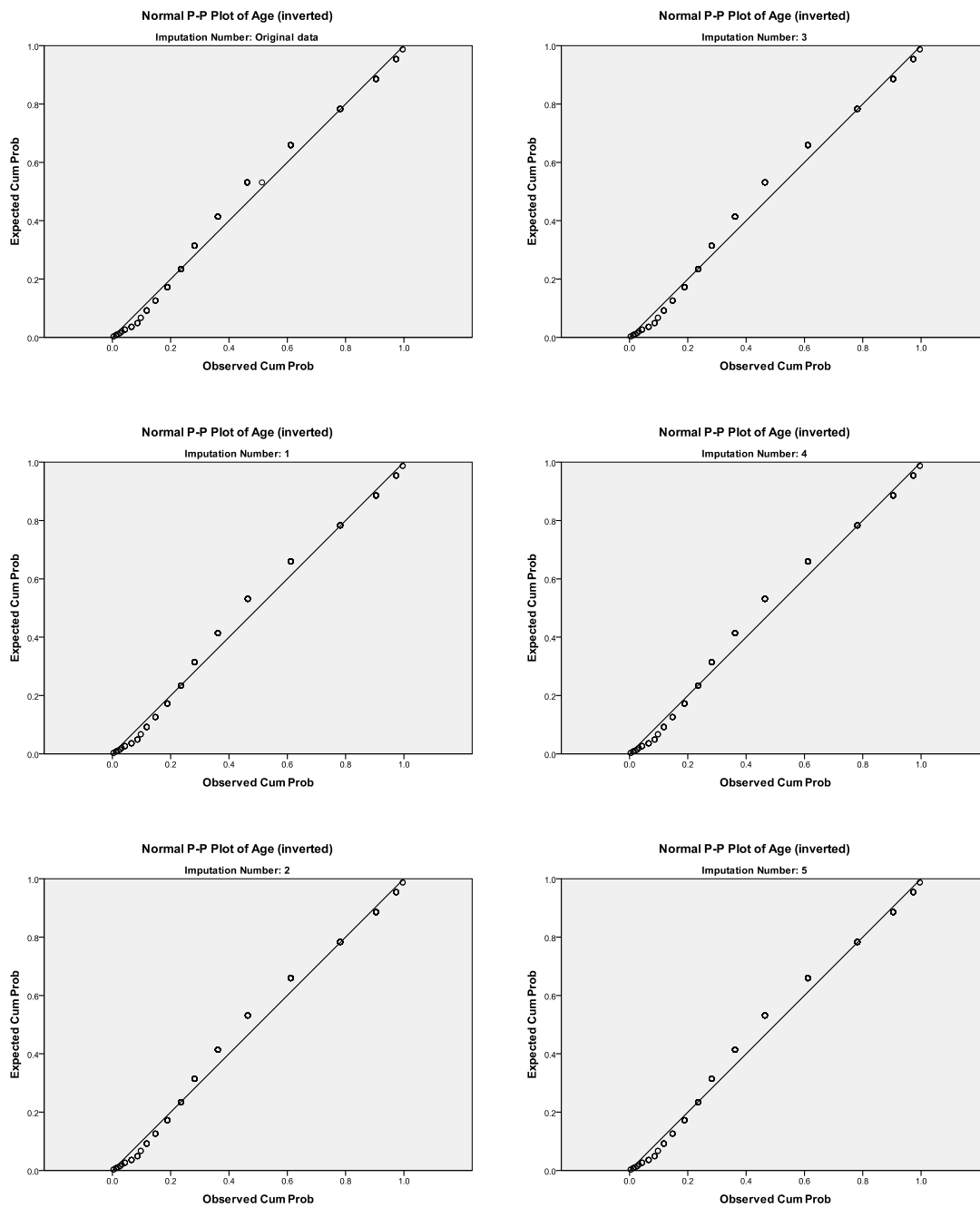
Figure 54: *Normal Probability Plots for Age (inverted)*
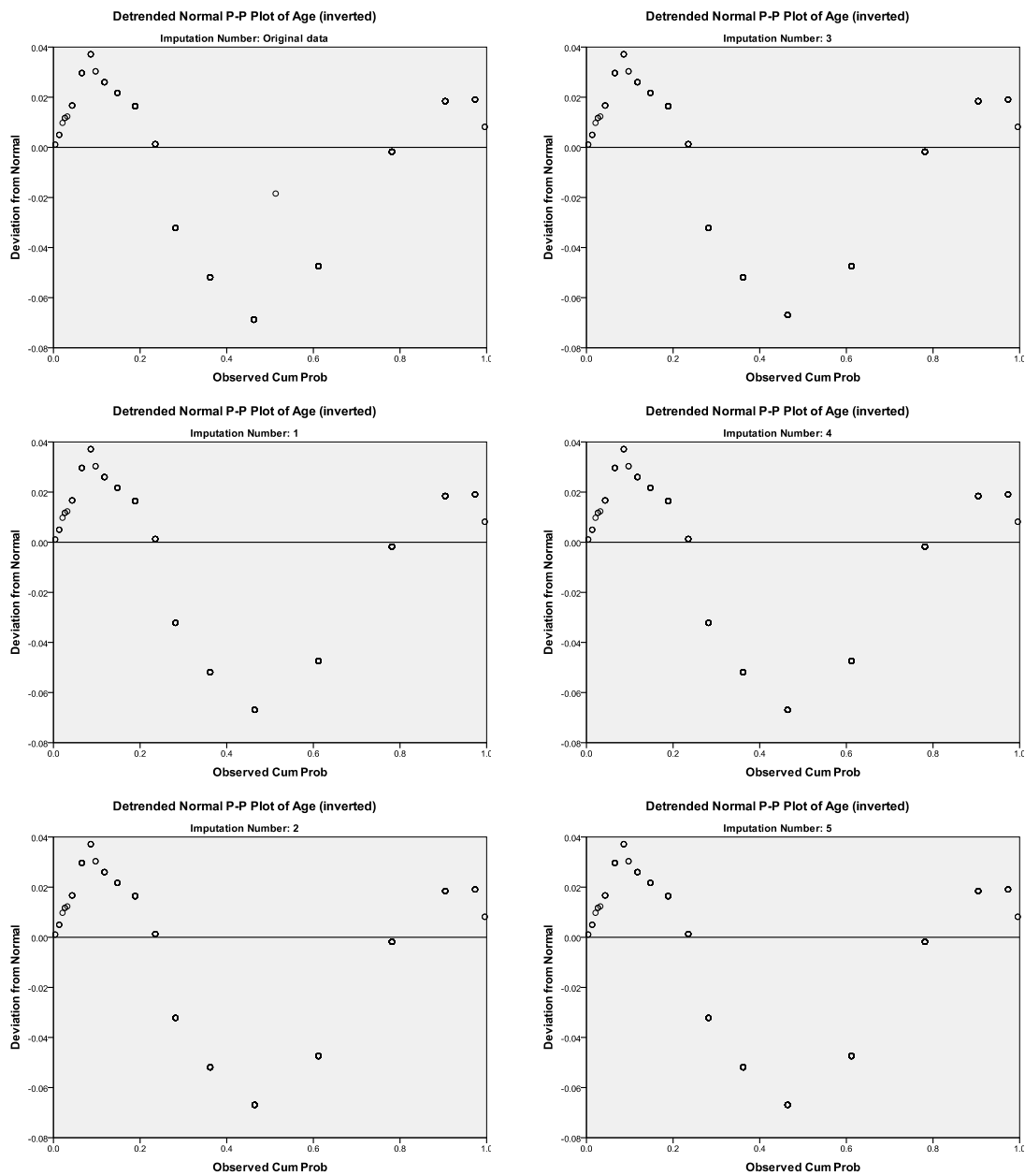
Figure 55: *Detrended Probability Plots for Age (inverted)*
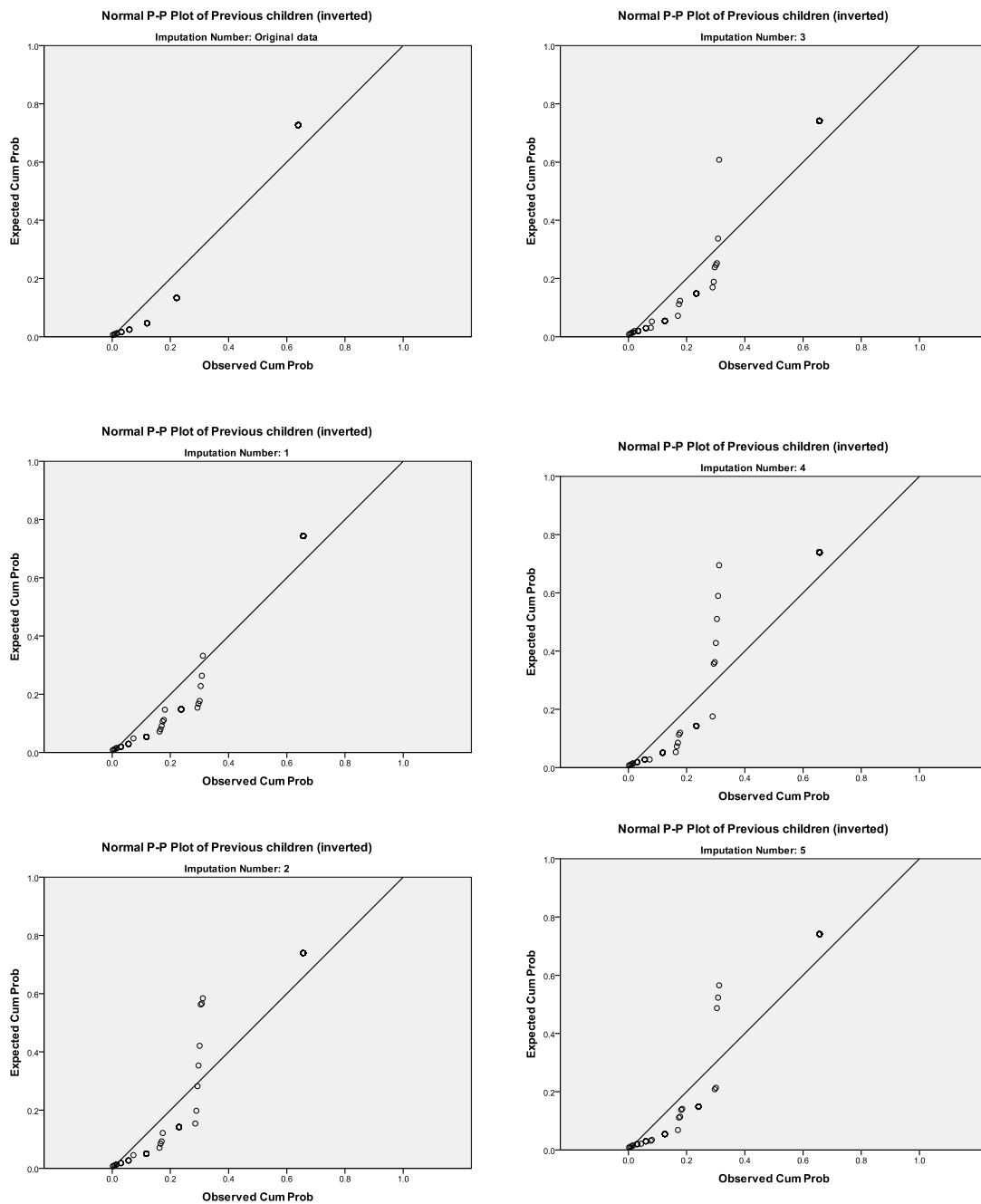
Figure 56: *Normal Probability Plots for Previous Children (Inverted)*
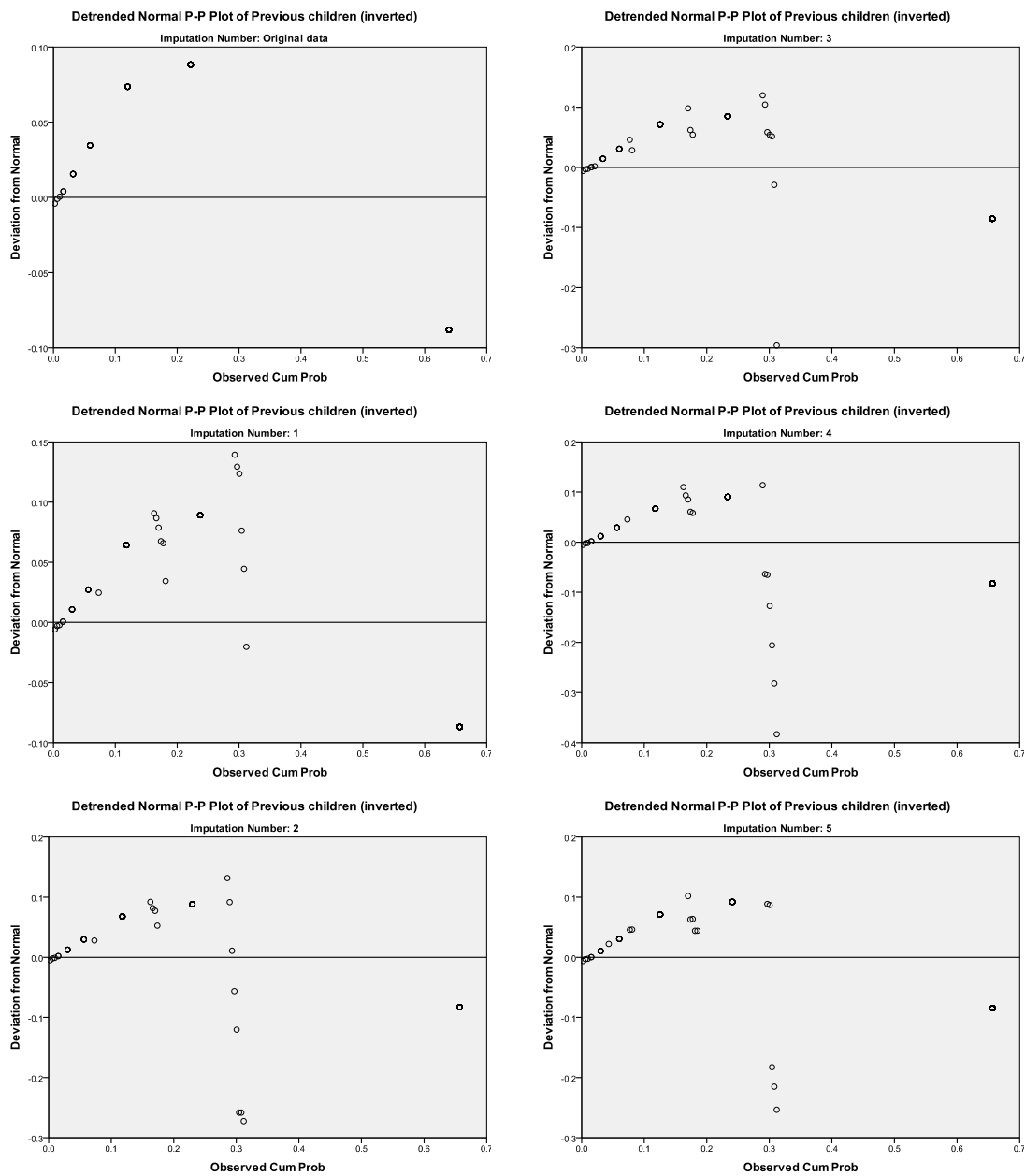
Figure 57: *Detrended Probability Plots for Previous Children (Inverted)*
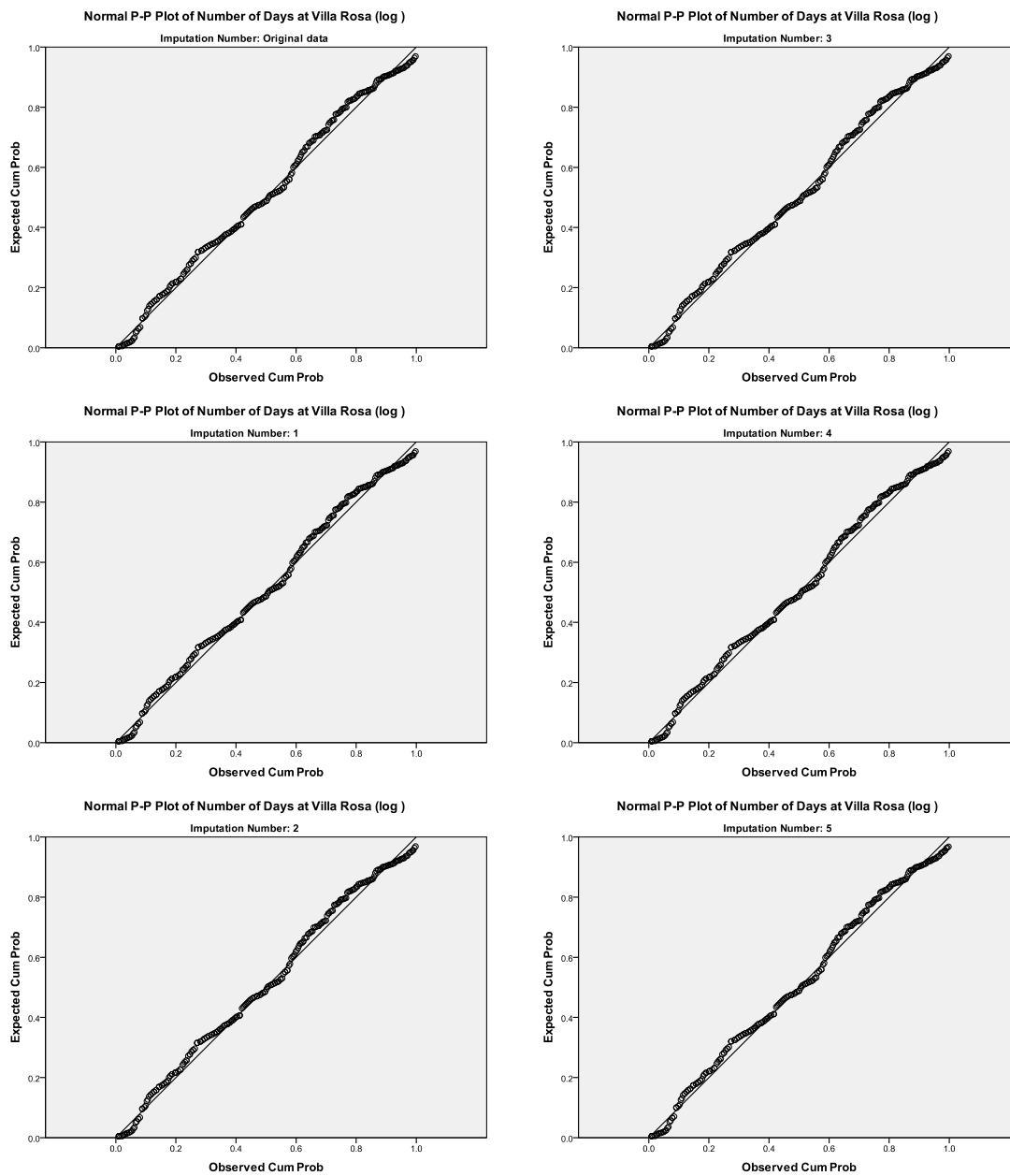
Figure 58: *Normal Probability Plots for Number of Days at Villa Rosa (log)*
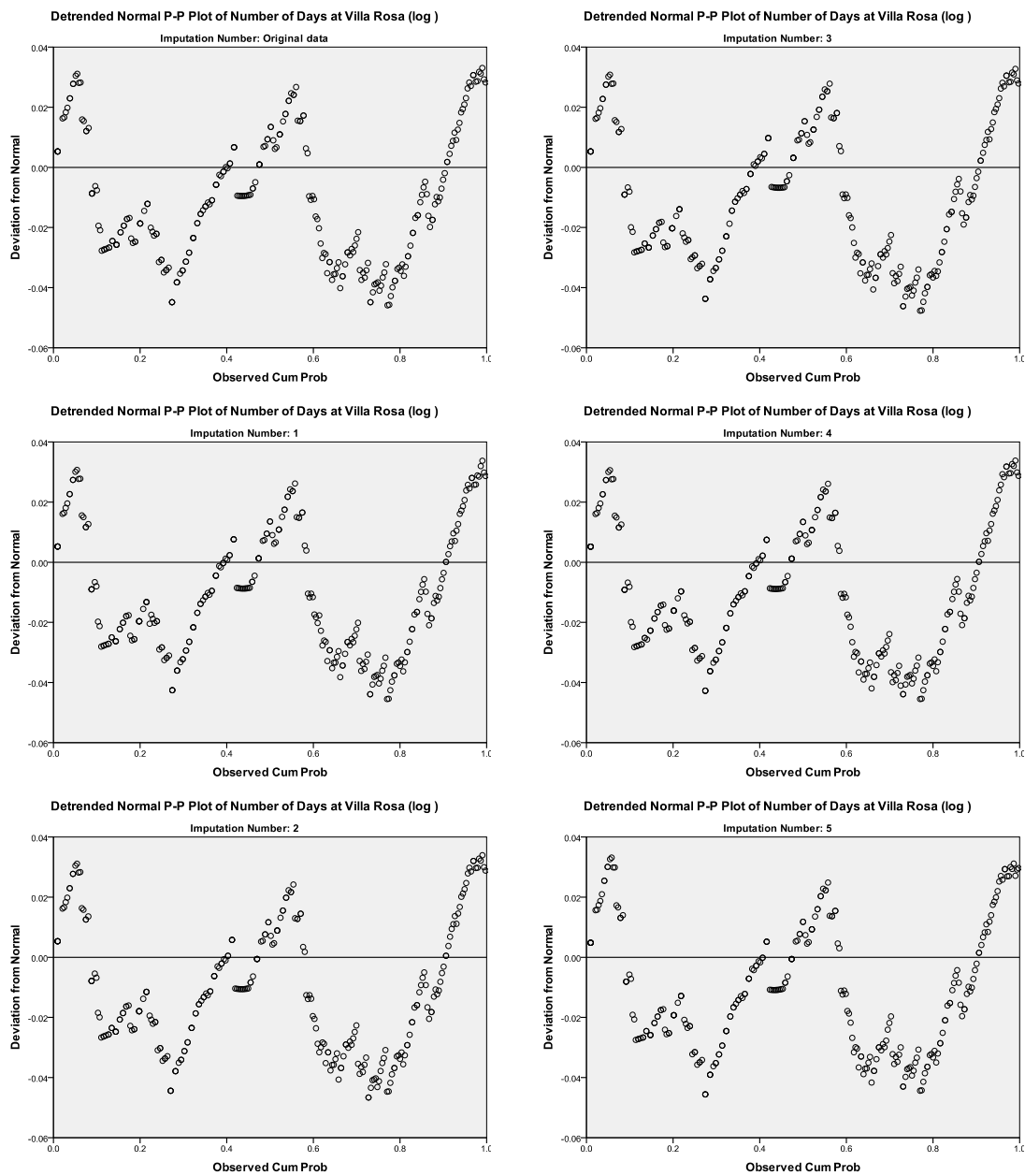
Figure 59: *Detrended Probability Plots for Number of Days at Villa Rosa (log)*
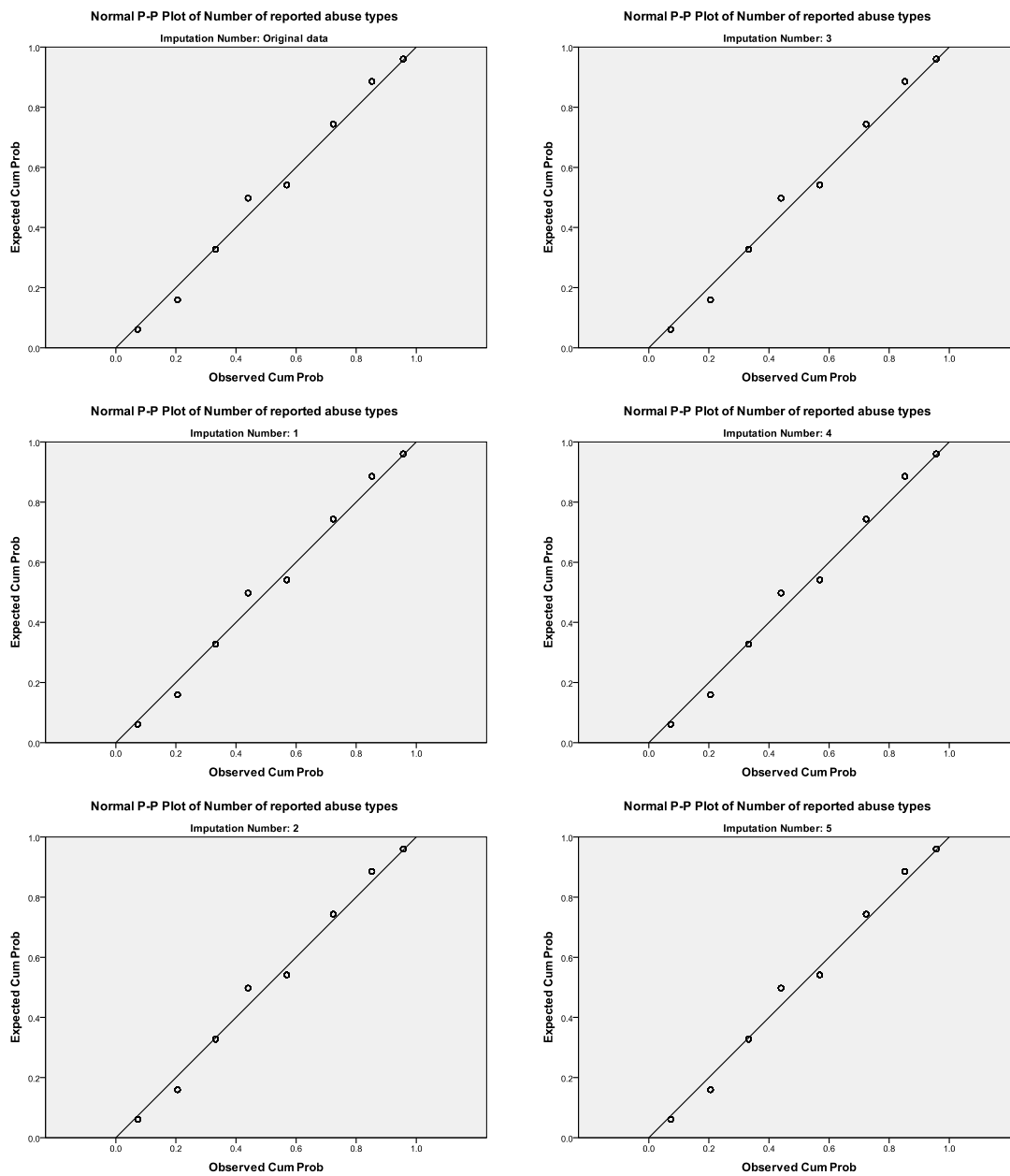
Figure 60: *Normal Probability Plots for Number of Reported Abuse Types*
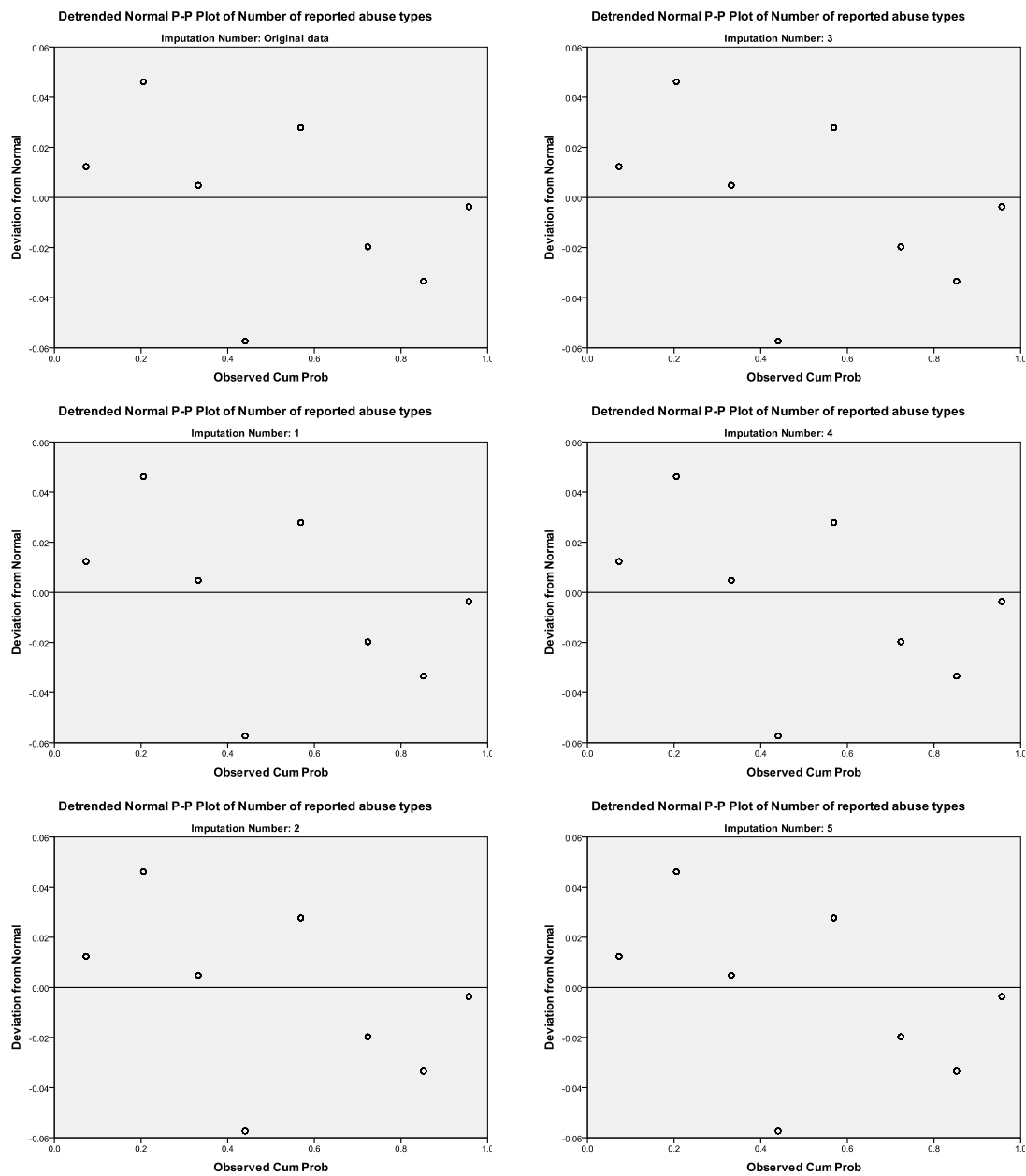
Figure 61: *Detrended Probability Plots for Number of Reported Abuse Types*
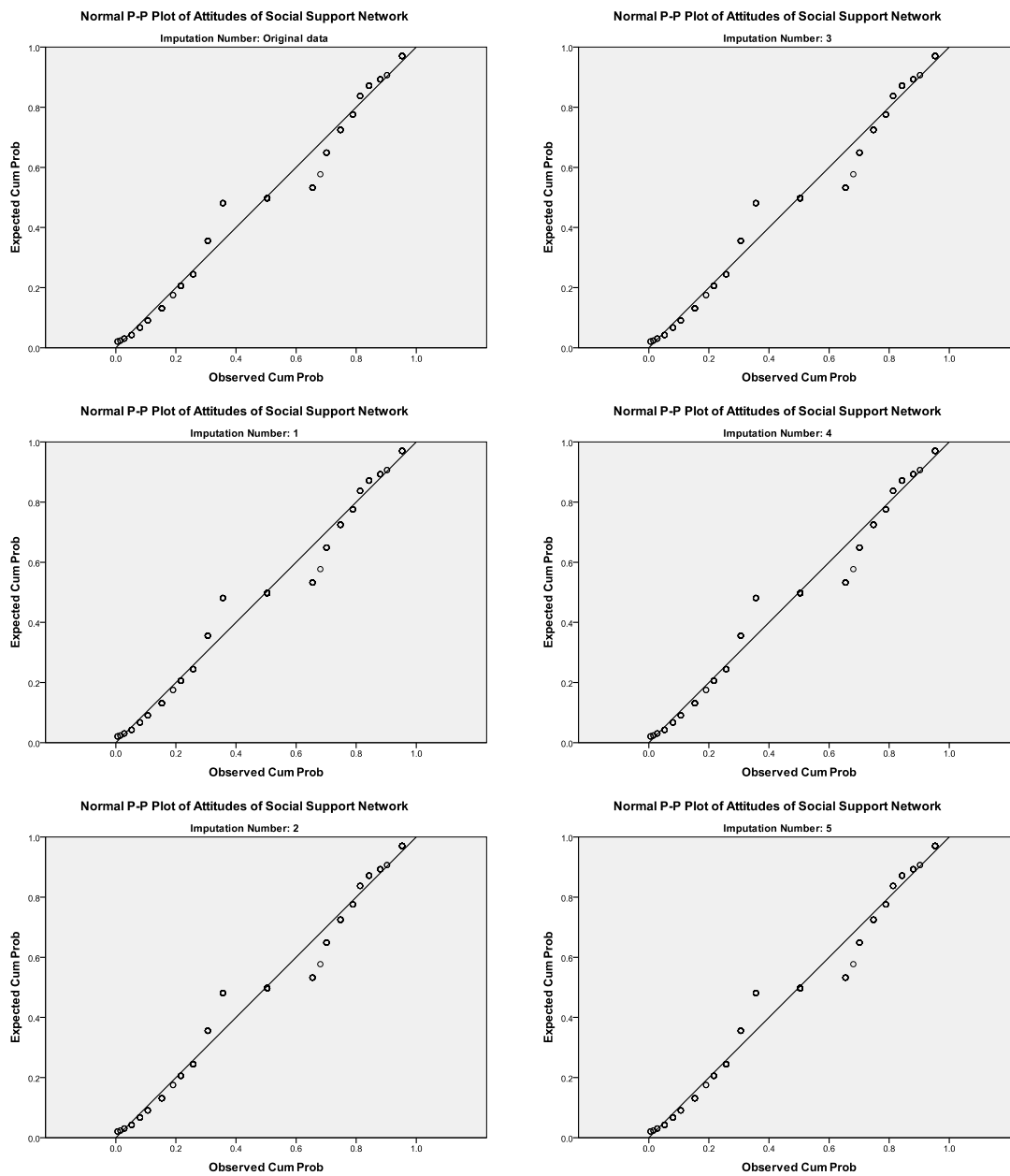
Figure 62: *Normal Probability Plots for Attitudes of Social Support Network*
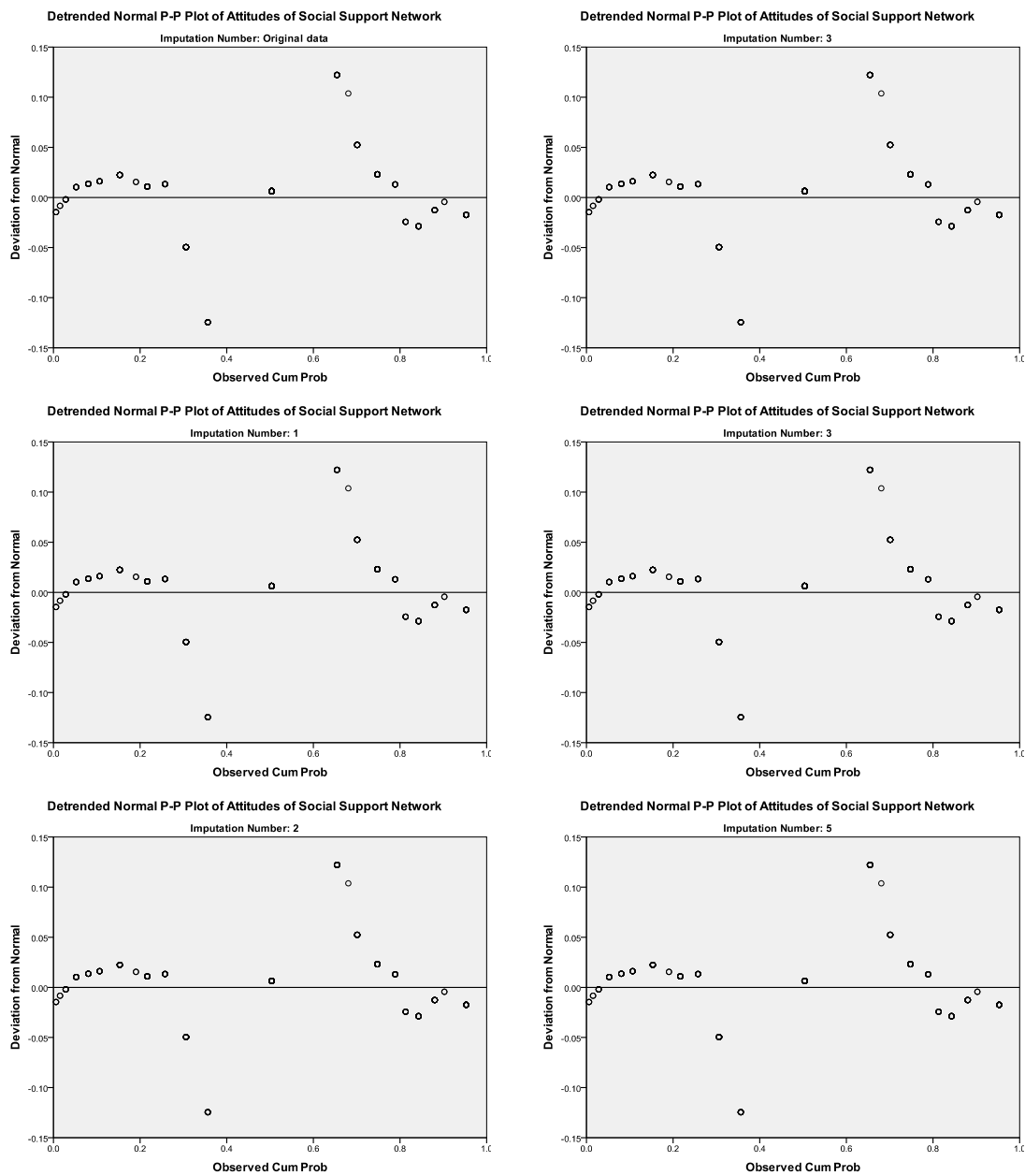
Figure 63: *Detrended Probability Plots for Attitudes of Social Support Network*

Boxplots
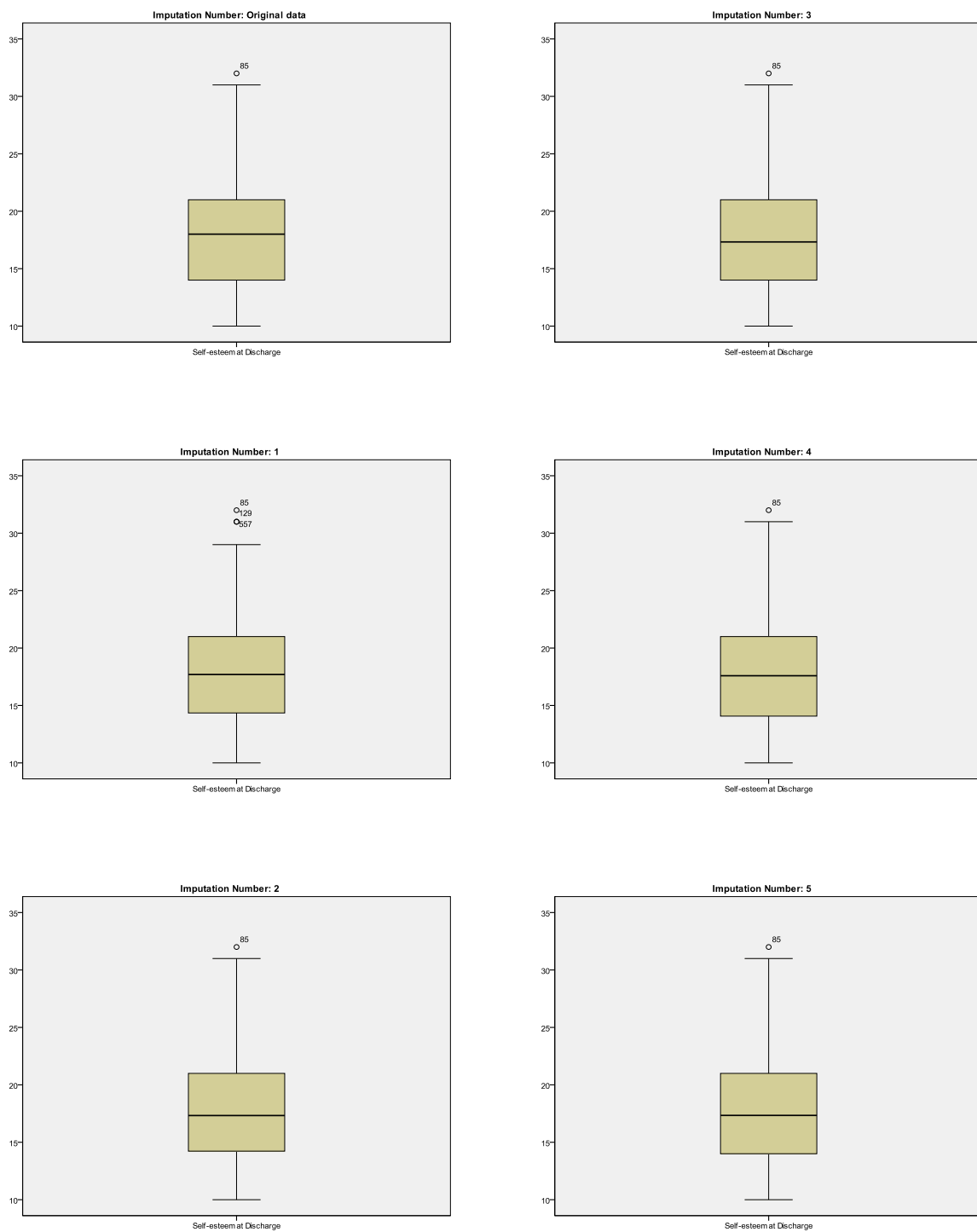
Figure 64: *Boxplots for Discharge Self-esteem*
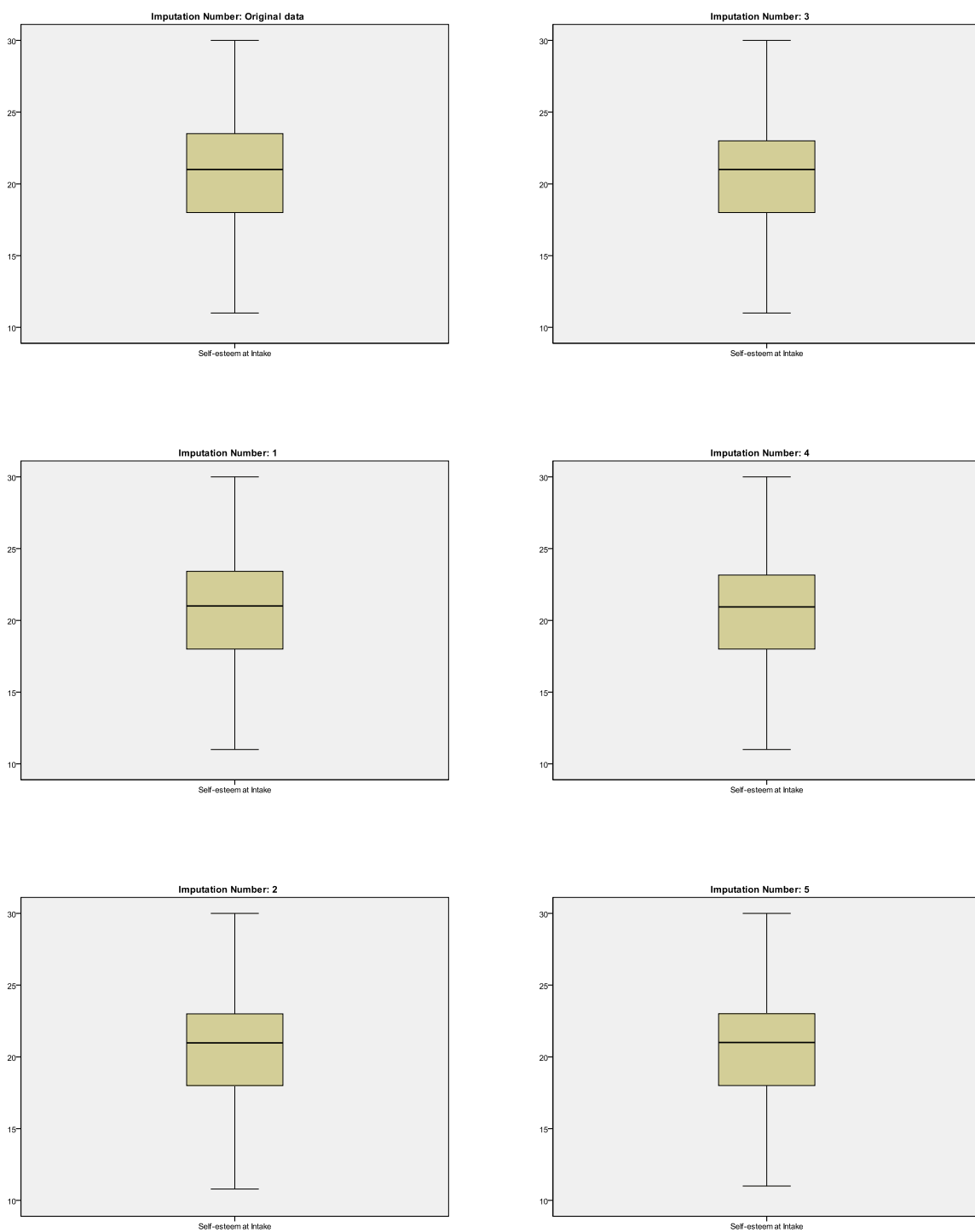
Figure 65: *Boxplots for Intake Self-esteem*
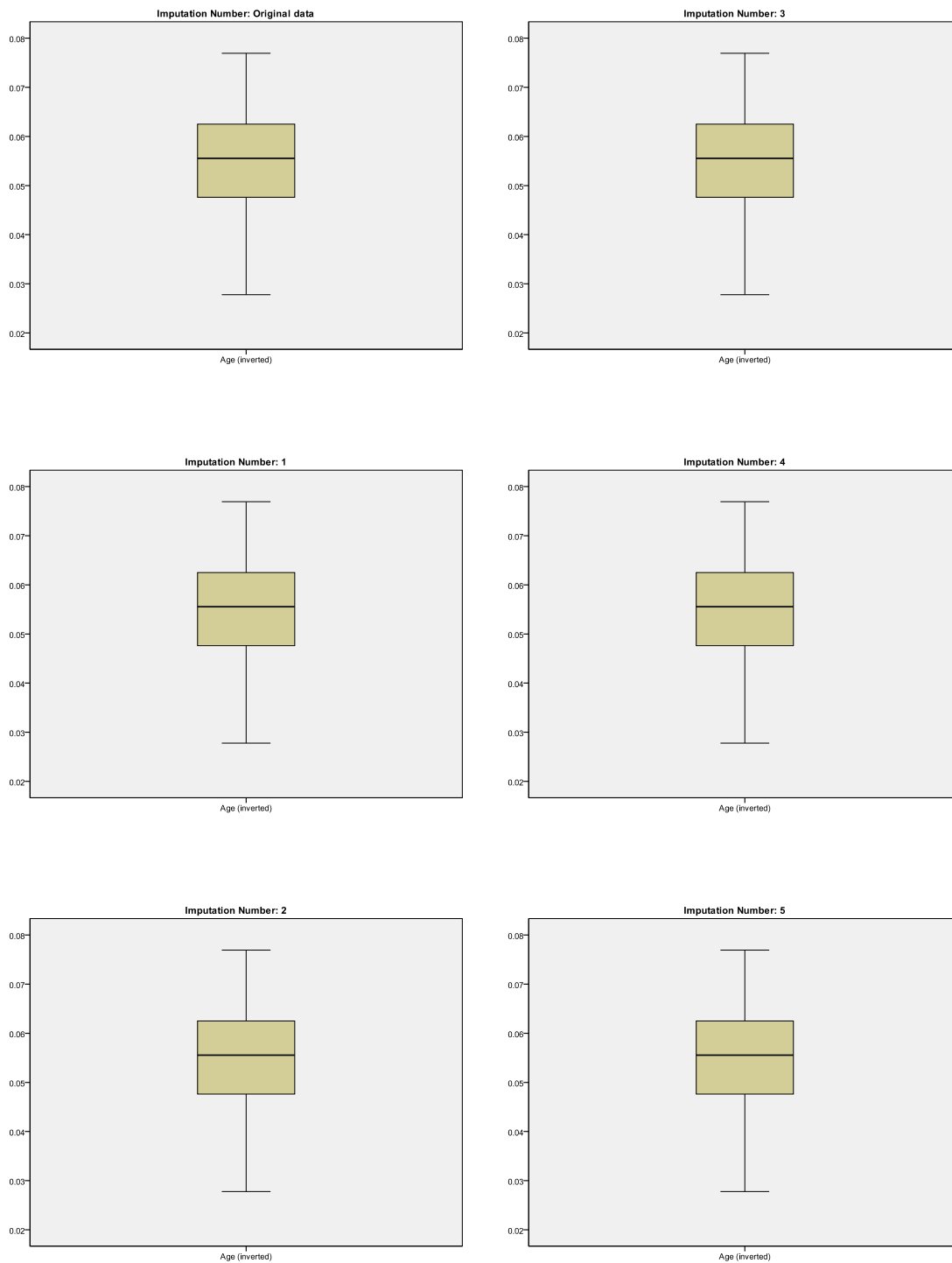
Figure 66: *Boxplots for Age (inverted)*
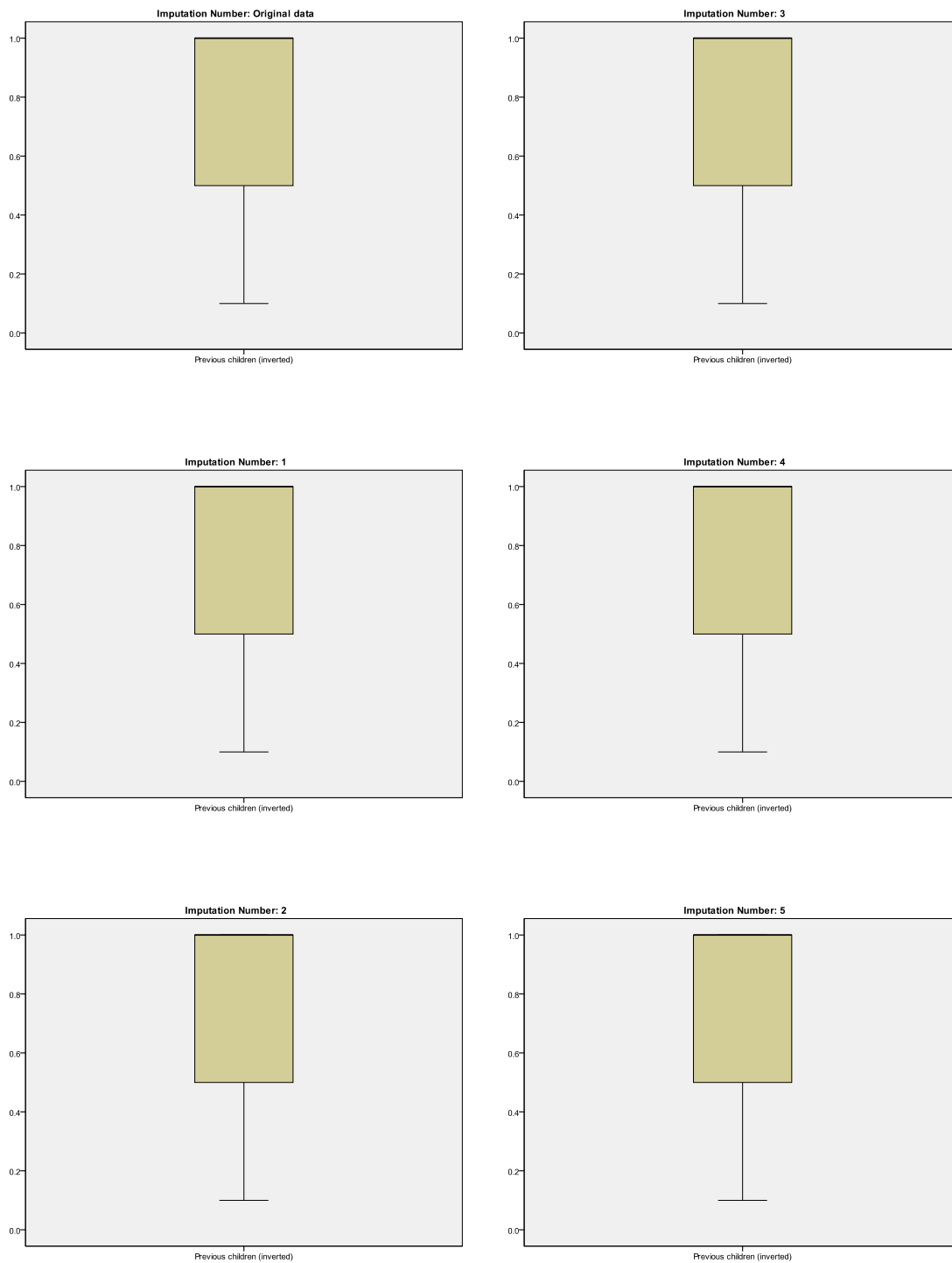
Figure 67: *Boxplots for Number of Previous Children (inverted)*
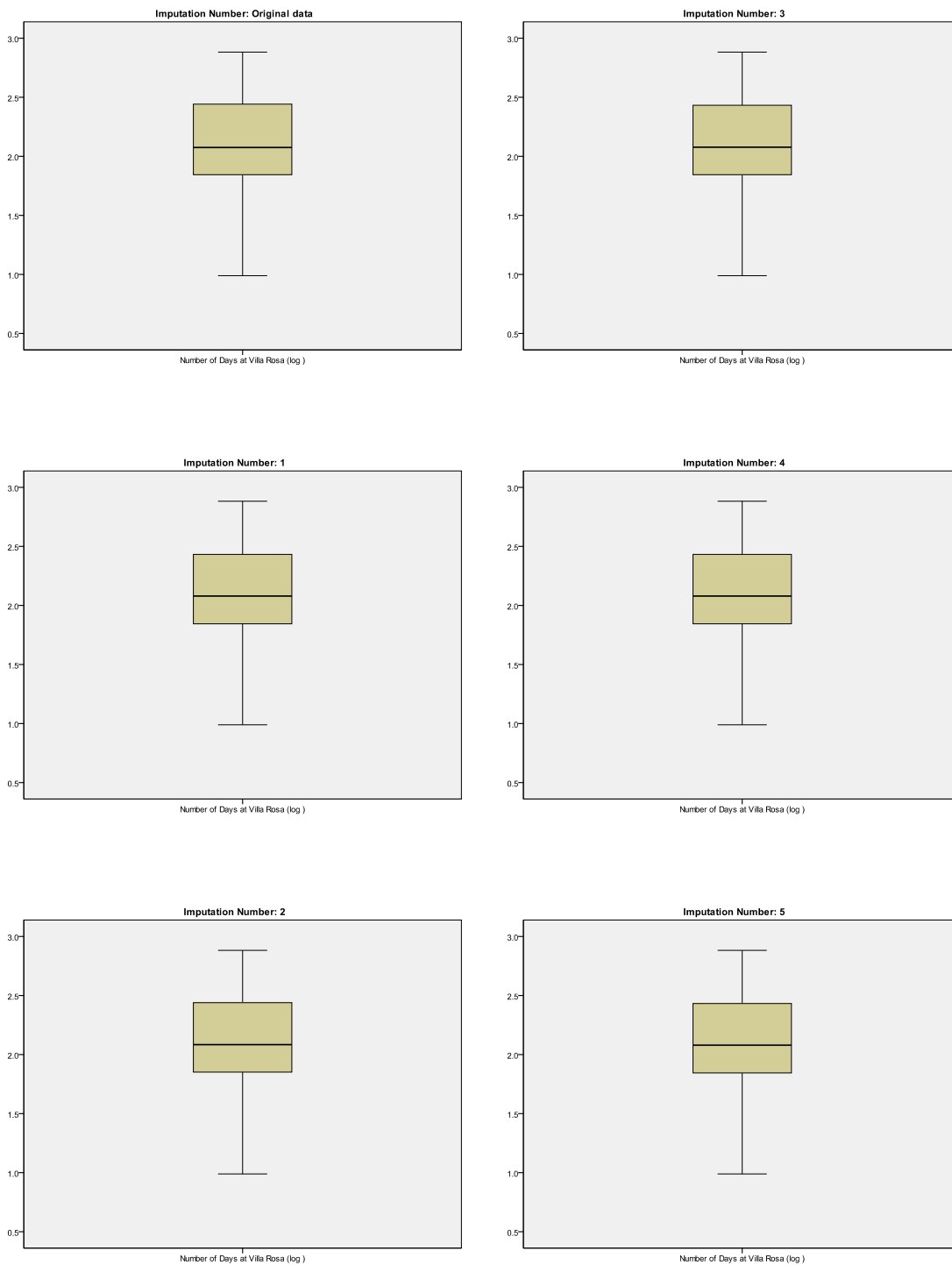
Figure 68: *Boxplots for Number of Days at Villa Rosa (log)*
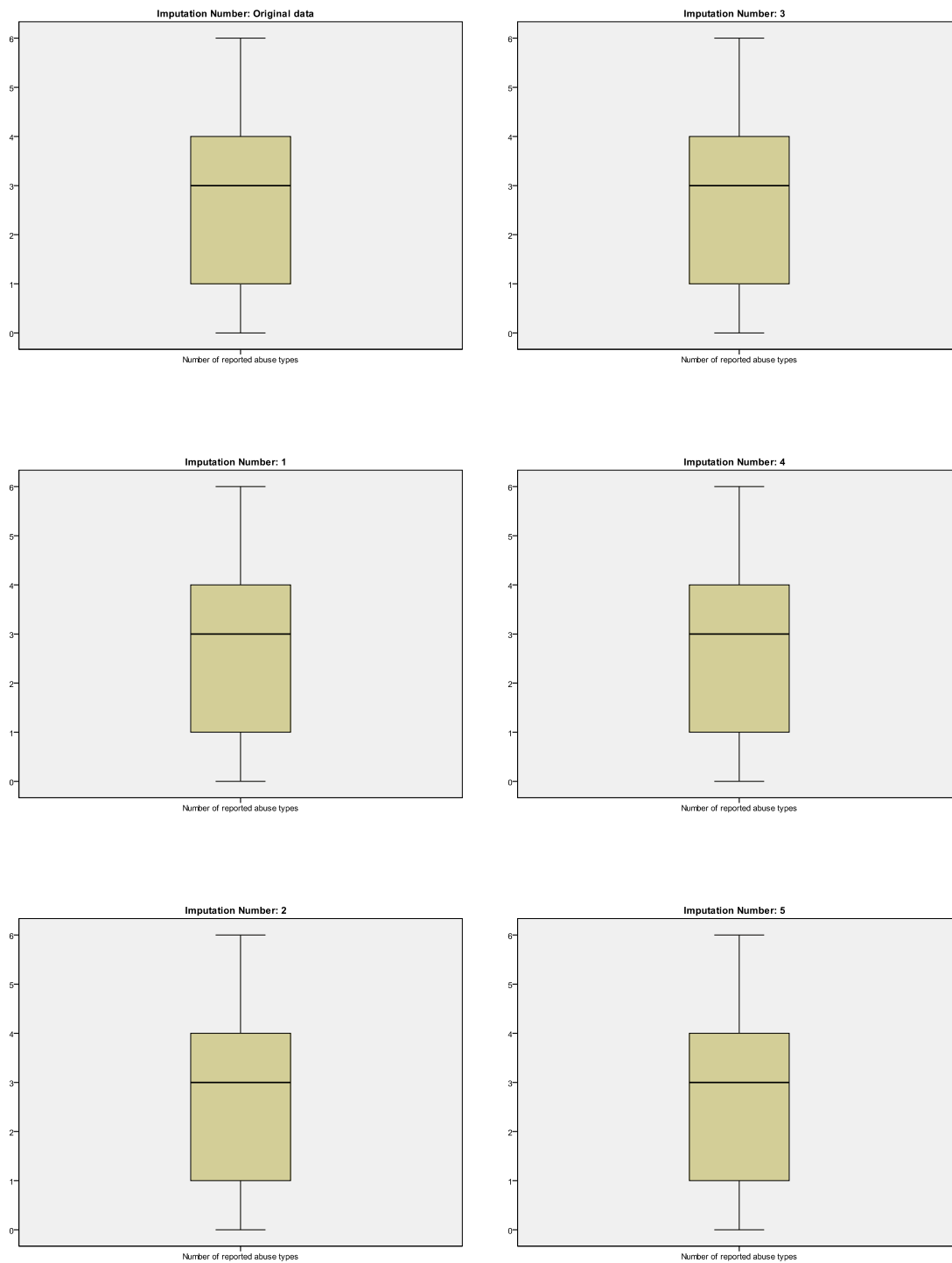
Figure 69: *Boxplots for Number of Reported Abuse Types*
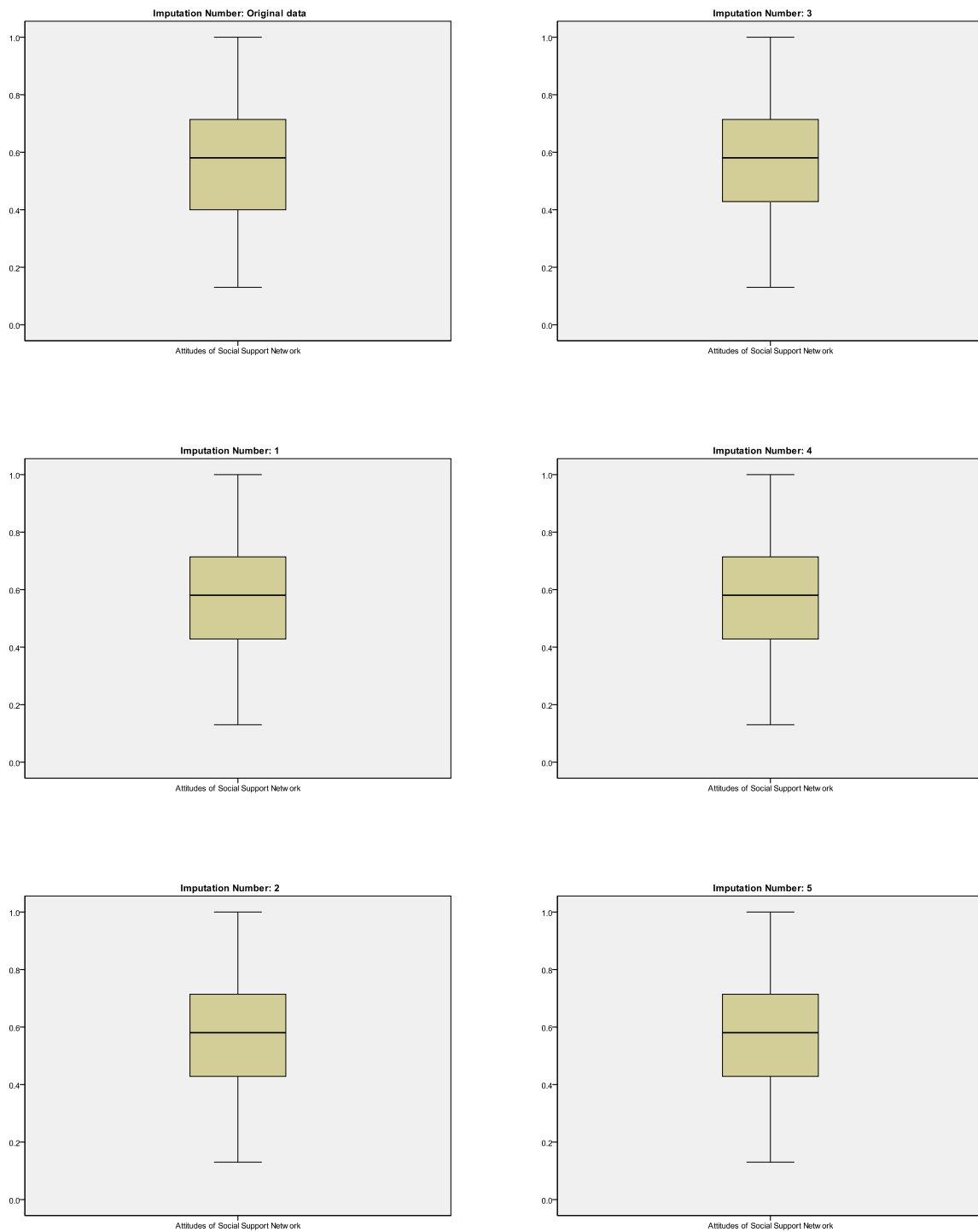
Figure 70: *Boxplots for Attitudes of Social Support Network*

Appendix B

Appendix B includes selected SPSS output showing results from analyses using t-tests and ANOVA.

Table 68

Independent Samples T-test Results Comparing PNH Participation and Discharge Self-Esteem (N=268)

Imputation Number			Levene's Test for Equality of Variances	
			F	*p*
Original data	Self-esteem at Discharge	Equal variances assumed	0.28	.598
		Equal variances not assumed		
1	Self-esteem at	Equal variances assumed	0.24	.627
	Discharge	Equal variances not assumed		
2	Self-esteem at	Equal variances assumed	0.31	.581
	Discharge	Equal variances not assumed		
3	Self-esteem at	Equal variances assumed	0.39	.533
	Discharge	Equal variances not assumed		
4	Self-esteem at	Equal variances assumed	0.25	.618
	Discharge	Equal variances not assumed		
5	Self-esteem at	Equal variances assumed	0.29	.594
	Discharge	Equal variances not assumed		
Pooled	Self-esteem at	Equal variances assumed		
	Discharge	Equal variances not assumed		

Table 68 continued

Imputation Number			t-test for Equality of Means	
			t	*df*
Original	Self-esteem at	Equal variances assumed	2.00	240.00
data	Discharge	Equal variances not assumed	2.11	93.73
1	Self-esteem at	Equal variances assumed	1.73	266.00
	Discharge	Equal variances not assumed	1.81	94.96
2	Self-esteem at	Equal variances assumed	1.87	266.00
	Discharge	Equal variances not assumed	1.98	95.79
3	Self-esteem at	Equal variances assumed	1.70	266.00
	Discharge	Equal variances not assumed	1.80	96.09
4	Self-esteem at	Equal variances assumed	1.77	266.00
	Discharge	Equal variances not assumed	1.87	95.64
5	Self-esteem at	Equal variances assumed	1.78	266.00
	Discharge	Equal variances not assumed	1.88	95.75
Pooled	Self-esteem at	Equal variances assumed	1.77	175287.00
	Discharge	Equal variances not assumed	1.86	141755.98

Table 68 continued

			t-test for Equality of Means		
Imputation Number			*p (2-tailed)*	*MD*	Std. Error Difference
Original data	Self-esteem at Discharge	Equal variances assumed	.047	1.39	0.70
		Equal variances not assumed	.037	1.39	0.66
1	Self-esteem	Equal variances assumed	.086	1.14	0.66
	at Discharge	Equal variances not assumed	.073	1.14	0.63
2	Self-esteem	Equal variances assumed	.062	1.23	0.66
	at Discharge	Equal variances not assumed	.051	1.23	0.62
3	Self-esteem	Equal variances assumed	.091	1.12	0.66
	at Discharge	Equal variances not assumed	.076	1.12	0.62
4	Self-esteem	Equal variances assumed	.078	1.17	0.66
	at Discharge	Equal variances not assumed	.065	1.17	0.62
5	Self-esteem	Equal variances assumed	.076		0.66
	at Discharge	Equal variances not assumed	.063		0.62
Pooled	Self-esteem	Equal variances assumed	.078		0.66
	at Discharge	Equal variances not assumed	.063		0.63

Table 68 continued

| | | | t-test for equality of means | |
| | | | 95% Confidence Interval of the Difference | |
Imputation Number			Lower	Upper
Original data	Self-esteem at Discharge	Equal variances assumed	0.02	2.76
		Equal variances not assumed	0.08	2.69
1	Self-esteem at	Equal variances assumed	-0.16	2.45
	Discharge	Equal variances not assumed	-0.11	2.40
2	Self-esteem at	Equal variances assumed	-0.06	2.53
	Discharge	Equal variances not assumed	-0.01	2.47
3	Self-esteem at	Equal variances assumed	-0.18	2.42
	Discharge	Equal variances not assumed	-0.12	2.36
4	Self-esteem at	Equal variances assumed	-0.13	2.46
	Discharge	Equal variances not assumed	-0.07	2.40
5	Self-esteem at	Equal variances assumed	-0.12	2.47
	Discharge	Equal variances not assumed	-0.07	2.41
Pooled	Self-esteem at	Equal variances assumed		
	Discharge	Equal variances not assumed		

Table 69

Multiple Imputation Results for Independent Samples T-test Comparing PNH Participation and Discharge Self-Esteem (N=268)

		Fraction Missing Info.	Relative Increase Variance	Relative Efficiency
Self-esteem at Discharge	Equal variances assumed	.005	.005	.999
	Equal variances not assumed	.005	.005	.999

Table 70

Paired Samples T-test Results Comparing Intake Self-Esteem and Discharge Self-Esteem

(N=268)

			Paired Differences		
Imputation Number			Mean	Std. Deviation	Std. Error Mean
Original data	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-2.74	4.08	0.28
1	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-2.65	4.01	0.24
2	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-2.63	4.03	0.25
3	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-2.68	4.01	0.24
4	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-2.66	4.06	0.25
5	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-2.69	4.00	0.24
Pooled	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-2.66		0.25

Imputation Number			95% Confidence Interval of the Difference	
			Lower	Upper
Original data	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-3.28	-2.20
1	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-3.13	-2.17
2	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-3.11	-2.14
3	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-3.16	-2.19
4	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-3.15	-2.17
5	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-3.17	-2.21
Pooled	Pair 1	Self-esteem at Discharge - Self-esteem at Intake		

Table 70 continued

Paired Differences

Table 70 continued					
Imputation Number			*t*	*df*	*p* (2-tailed)
Original data	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-9.95	219.00	.000
1	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-10.83	267.00	.000
2	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-10.67	267.00	.000
3	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-10.94	267.00	.000
4	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-10.73	267.00	.000
5	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-11.01	267.00	.000
Pooled	Pair 1	Self-esteem at Discharge - Self-esteem at Intake	-10.76	24861.00	.000

Table 71

Multiple Imputation Results for Paired Samples T-test Comparing Intake Self-Esteem and

Discharge Self-Esteem (N=268)

		Fraction Missing Info.	Relative Increase Variance	Relative Efficiency
Pair 1	Self-esteem at Discharge -	.013	.013	.997
	Self-esteem at Intake			

Table 72

Independent Samples T-test Results Comparing Ethnicity coded into two categories

(Aboriginal and Non-Aboriginal) and Intake Self-Esteem

Imputation Number			Levene's Test for Equality of Variances	
			F	*p*
Original data	Self-esteem at Intake	Equal variances assumed	0.42	.520
		Equal variances not assumed		
1	Self-esteem at Intake	Equal variances assumed	0.19	.665
		Equal variances not assumed		
2	Self-esteem at Intake	Equal variances assumed	0.30	.585
		Equal variances not assumed		
3	Self-esteem at Intake	Equal variances assumed	0.54	.464
		Equal variances not assumed		
4	Self-esteem at Intake	Equal variances assumed	0.29	.592
		Equal variances not assumed		
5	Self-esteem at Intake	Equal variances assumed	0.22	.637
		Equal variances not assumed		
Pooled	Self-esteem at Intake	Equal variances assumed		
		Equal variances not assumed		

Table 72 continued

Imputation Number			t-test for Equality of Means	
			t	*df*
Original	Self-esteem at	Equal variances assumed	0.36	230.00
data	Intake	Equal variances not assumed	0.37	187.85
1	Self-esteem at	Equal variances assumed	0.84	254.00
	Intake	Equal variances not assumed	0.85	201.51
2	Self-esteem at	Equal variances assumed	0.76	254.00
	Intake	Equal variances not assumed	0.77	203.08
3	Self-esteem at	Equal variances assumed	0.66	254.00
	Intake	Equal variances not assumed	0.66	204.16
4	Self-esteem at	Equal variances assumed	0.78	254.00
	Intake	Equal variances not assumed	0.79	202.40
5	Self-esteem at	Equal variances assumed	0.71	254.00
	Intake	Equal variances not assumed	0.71	202.91
Pooled	Self-esteem at	Equal variances assumed	0.75	101651.00
	Intake	Equal variances not assumed	0.75	98106.18

Table 72 continued

Imputation Number			t-test for Equality of Means	
			p (2-tailed)	*MD*
Original	Self-esteem	Equal variances assumed	.717	0.20
data	at Intake	Equal variances not assumed	.714	0.20
1	Self-esteem	Equal variances assumed	.401	0.45
	at Intake	Equal variances not assumed	.398	0.45
2	Self-esteem	Equal variances assumed	.447	0.41
	at Intake	Equal variances not assumed	.443	0.41
3	Self-esteem	Equal variances assumed	.512	0.35
	at Intake	Equal variances not assumed	.508	0.35
4	Self-esteem	Equal variances assumed	.435	0.42
	at Intake	Equal variances not assumed	.432	0.42
5	Self-esteem	Equal variances assumed	.481	0.38
	at Intake	Equal variances not assumed	.477	0.38
Pooled	Self-esteem	Equal variances assumed	.455	0.40
	at Intake	Equal variances not assumed	.451	0.40

Imputation Number			t-test for Equality of Means Std. Error Difference
Original data	Self-esteem at Intake	Equal variances assumed	0.56
		Equal variances not assumed	0.56
1	Self-esteem at Intake	Equal variances assumed	0.54
		Equal variances not assumed	0.54
2	Self-esteem at Intake	Equal variances assumed	0.54
		Equal variances not assumed	0.54
3	Self-esteem at Intake	Equal variances assumed	0.54
		Equal variances not assumed	0.53
4	Self-esteem at Intake	Equal variances assumed	0.54
		Equal variances not assumed	0.54
5	Self-esteem at Intake	Equal variances assumed	0.54
		Equal variances not assumed	0.53
Pooled	Self-esteem at Intake	Equal variances assumed	0.54
		Equal variances not assumed	0.54

Table 72 continued

Imputation Number			t-test for Equality of Means 95% Confidence Interval of the Difference	
			Lower	Upper
Original data	Self-esteem at Intake	Equal variances assumed	-0.91	1.32
		Equal variances not assumed	-0.90	1.30
1	Self-esteem at Intake	Equal variances assumed	-0.61	1.52
		Equal variances not assumed	-0.60	1.51
2	Self-esteem at Intake	Equal variances assumed	-0.65	1.48
		Equal variances not assumed	-0.64	1.47
3	Self-esteem at Intake	Equal variances assumed	-0.71	1.41
		Equal variances not assumed	-0.70	1.40
4	Self-esteem at Intake	Equal variances assumed	-0.64	1.49
		Equal variances not assumed	-0.64	1.48
5	Self-esteem at Intake	Equal variances assumed	-0.68	1.44
		Equal variances not assumed	-0.67	1.43
Pooled	Self-esteem at Intake	Equal variances assumed		
		Equal variances not assumed		

Table 72 continued

Table 73

Multiple Imputation Results for Independent Samples T-test Comparing Ethnicity coded into two categories (Aboriginal and Non-Aboriginal) and Intake Self-Esteem

		Fraction Missing Info.	Relative Increase Variance	Relative Efficiency
Self-esteem at	Equal variances assumed	.006	.006	.999
Intake	Equal variances not assumed	.006	.006	.999

Table 74

One-Way ANOVA: Living with a Disability and Discharge Self-Esteem

Imputation Number		Sum of Squares	df	MS	F	p
Original data	Between Groups	24.65	2.00	12.32	0.60	.551
	Within Groups	4934.07	239.00	20.65		
	Total	4958.72	241.00			
1	Between Groups	24.35	2.00	12.17	0.61	.544
	Within Groups	5281.02	265.00	19.93		
	Total	5305.37	267.00			
2	Between Groups	25.14	2.00	12.57	0.64	.529
	Within Groups	5216.56	265.00	19.69		
	Total	5241.70	267.00			
3	Between Groups	28.57	2.00	14.29	0.72	.486
	Within Groups	5232.93	265.00	19.75		
	Total	5261.51	267.00			
4	Between Groups	26.70	2.00	13.35	0.68	.507
	Within Groups	5197.74	265.00	19.61		
	Total	5224.43	267.00			
5	Between Groups	27.65	2.00	13.82	0.70	.496
	Within Groups	5209.31	265.00	19.66		
	Total	5236.95	267.00			

Table 75

One-Way ANOVA: Breastfeeding and Self-Esteem at Intake

Imputation Number		Sum of Squares	df	MS	F	p
Original data	Between Groups	24.65	3	31.910	1.848	.139
	Within Groups	4934.07	240	17.264		
	Total	4958.72	243			
1	Between Groups	24.35	3	32.723	1.879	.133
	Within Groups	5281.02	264	17.414		
	Total	5305.37	267			
2	Between Groups	25.14	3	33.440	1.916	.127
	Within Groups	5216.56	264	17.449		
	Total	5241.70	267			
3	Between Groups	28.57	3	35.582	2.064	.105
	Within Groups	5232.93	264	17.242		
	Total	5261.51	267			
4	Between Groups	26.70	3	35.613	2.030	.110
	Within Groups	5197.74	264	17.542		
	Total	5224.43	267			
5	Between Groups	27.65	3	32.747	1.890	.132
	Within Groups	5209.31	264	17.324		
	Total	5236.95	267			

Table 76

One-Way ANOVA: Ethnicity and Intake Self-Esteem

Imputation Number		Sum of Squares	df	MS	F	p
Original data	Between Groups	143.09	5.00	28.62	1.66	.144
	Within Groups	4096.07	238.00	17.21		
	Total	4239.16	243.00			
1	Between Groups	143.52	5.00	28.70	1.65	.147
	Within Groups	4551.84	262.00	17.37		
	Total	4695.36	267.00			
2	Between Groups	149.34	5.00	29.87	1.72	.131
	Within Groups	4557.49	262.00	17.40		
	Total	4706.84	267.00			
3	Between Groups	146.75	5.00	29.35	1.70	.134
	Within Groups	4511.86	262.00	17.22		
	Total	4658.61	267.00			
4	Between Groups	152.14	5.00	30.43	1.74	.126
	Within Groups	4585.80	262.00	17.50		
	Total	4737.94	267.00			
5	Between Groups	145.54	5.00	29.11	1.69	.139
	Within Groups	4526.14	262.00	17.28		
	Total	4671.68	267.00			

Table 77

One-Way ANOVA: Living with a Disability and Intake Self-Esteem

Imputation Number		Sum of Squares	df	MS	F	p
Original data	Between Groups	22.29	2.00	11.14	0.64	.530
	Within Groups	4216.87	241.00	17.50		
	Total	4239.16	243.00			
1	Between Groups	29.26	2.00	14.63	0.83	.437
	Within Groups	4666.10	265.00	17.61		
	Total	4695.36	267.00			
2	Between Groups	25.50	2.00	12.75	0.72	.487
	Within Groups	4681.34	265.00	17.67		
	Total	4706.84	267.00			
3	Between Groups	32.72	2.00	16.36	0.94	.393
	Within Groups	4625.89	265.00	17.46		
	Total	4658.61	267.00			
4	Between Groups	28.26	2.00	14.13	0.80	.453
	Within Groups	4709.68	265.00	17.77		
	Total	4737.94	267.00			
5	Between Groups	31.38	2.00	15.69	0.90	.409
	Within Groups	4640.30	265.00	17.51		
	Total	4671.68	267.00			

Appendix C

Questionnaires used in the study.

The forms have been modified to account for the page margin required for binding this thesis. All questionnaire wording remains the same (except for page numbers), but some aspects of formatting have been altered such as margins, font size, and column size.

VILLA ROSA INTAKE FORM

Commitment			Date:_____
Admission Villa Rosa	No._____		Date:_____
Admission Convalescence	No._____		Date:_____
Admission Post Natal House	No._____		Date:_____
	Apt #_____		Phone #_____
Admission Day Student	No._____		Date:_____

> We are going to ask you a number of questions which, we hope, will not only help us, but also will help you. We assure you that your answers will all be kept confidential. You are, of course, free not to answer any questions or to end the interview when you like.

1.   Former Resident of Villa Rosa?   Yes   No

2.   If yes, Former Villa Rosa No. _____

3.   Villa Rosa Social Worker   _____

4.   Last Name   _____

5.   First Name   _____

6.   Street Address:_____

7.   City   _____

8.   Postal Code _____

9.   Telephone _____

10.   How long have you lived there?

    1.   2 Days or Less   4.   13 Months to 60 Months

    2.   2 Days to 1 Month   5.   More than 5 years

    3.   1 Month to 12 Months

11.   In how many different homes have you ever lived:

    1. 1   4.   6 to 10

    2.   2 to 3   5.   More than 10

    3.   4 to 5

12.	How many of these moves have involved one or both of your parents/guardians?

    1. 1   4.   6 to 10

    2. 2 to 3   5.   More than 10

    3. 4 to 5

13.	Age: _____

Birthdate:
14.	Day	_____
15.	Month _____
16.	Year	_____

17.	Social Insurance No.

    _____

18.	What is your religious affiliation?	1. Specify_____3. None

19.	How would you describe your nationality:

    1.	Non-Aboriginal	4.	Métis

    2.	Aboriginal (Ojibway)	5.	Other _____

    3.	Aboriginal (Cree/Swampy Cree)

If Aboriginal, what is your

20.	Band Name	_____

21.	Band Number _____

22.	Were you living on a reserve just prior to coming to Villa Rosa? 1. Yes 2. No

23.	If yes, will you return to the reserve after leaving Villa Rosa? 1. Yes 2. No

                                     88. Don't know

24.	If no to either or both #22 or #23, have you ever lived on a reserve? 1.Yes 2.No

25.	 If yes, how many years? _____

26.	Doctor/Midwife: _____ Phone: _____

Due Date:
27.	 Day	_____
28.	 Month _____
29.	 Year	_____

30. Medicare No. _____

31. Whose Medicare Number is it? 1. Province 2. Parents 3. Self

32. Health Service No. _____

33. Guardian's No. _____

34. Guardian's Name and

Address:_____

35. Child & Family Agency: (check as many as apply)

1. Wpg. Child & Family Services   4. Wpg. Perinatal   7. Other

2. Wpg. Aboriginal   5. Rural Aboriginal   8. None

3. Rural Child & Family Services   6. Wpg. CFS & Perinatal

36. CFS Worker's Name _____Phone _____

NOTIFY IN CASE OF EMERGENCY:

37. Name: _____

Address: _____ Phone:_____

38. Relationship: _____

39. **FINANCIAL ARRANGEMENTS**

1. Federal Agency (Band Name):_____

Address: _____

40. 1. Federal Funding: _____

2. Block Funding: _____

3. Other: _____

41. Client to Receive Allowance and Clothing money? Yes   No

42.	If no, who is responsible?	1. Band	4. Self
		2. Employment & Income Assistance	5. Father of Baby
		3. Parent/Guardian	6. Other

<u>Agreement</u>

I agree to participate to the best of my ability in the Villa Rosa Programs I have chosen. I will arrange any changes with Villa Rosa Social Work staff.

_____   _____

Signature of Resident   Date

VILLA ROSA NUMBER _____

HISTORY

43.   What have been your living arrangements?

1. Living alone   6.   Emergency Placements

2. Living with another (not common law)   7.   Foster home

3. Common law   8.   Place of Safety

4. Parent(s) home   9.   Other

5. Relative(s) home

44.   Do you have any special needs or disabilities?   1.   Yes   2. No

If yes, please describe (check all that apply):

a.   FAS/FAE

b.   ADD/ADHD

c.   Learning disability

d.   Cognitive disability

e.   Physical disability

f.   Mental health issue

g.   Other

45.   How important is it to you to get further education?

1.   Very important

2.   Somewhat important

3.   Not very important

46.   What was the last school you attended?_____

47.   What grade did you finish before coming to Villa Rosa?

1.   Special program   5.   Grade 9   9. Schooling beyond high school

2.   Elementary or less   6.   Grade 10

3.   Grade 7   7.   Grade 11

4.   Grade 8   8.   Grade 12

48.   When were you last in school? If admitted in the summertime, but were in school
        until end of school term, check #1:

1.   Just before coming to Villa Rosa

2.   One to six months ago

3.   More than six months ago

49. After you leave Villa Rosa, do you think it is likely you will ever go back to school?

     1.   Yes   2.   No   3.   Not sure

50. Are you currently pregnant?   1. Yes   2.   No (if no, go to question 54)

51. Have you seen a doctor since you have been pregnant?   1. Yes   2. No

52. First Pregnancy?   1.   Yes   2.   No

53. Number of other children: _____

Here are ten short statements. For each, please answer if you strongly agree, agree, disagree or strongly disagree.

54. I feel that I am a person of worth, at least on an equal plane with others:
     1.   _____ Strongly Agree
     2.   _____ Agree
     3.   _____ Disagree
     4.   _____ Strongly Disagree

55. I feel that I have a number of good qualities:
     1.   _____ Strongly Agree
     2.   _____ Agree
     3.   _____ Disagree
     4.   _____ Strongly Disagree

56. All in all, I am inclined to feel that I am a failure:
     1.   _____ Strongly Agree
     2.   _____ Agree
     3.   _____ Disagree
     4.   _____ Strongly Disagree

57. I am able to do things as well as most other people:
     1.   _____ Strongly Agree
     2.   _____ Agree
     3.   _____ Disagree
     4.   _____ Strongly Disagree

58. I feel I do not have much to be proud of:
     1.   _____ Strongly Agree
     2.   _____ Agree
     3.   _____ Disagree
     4.   _____ Strongly Disagree

59.	I take a positive attitude toward myself:
	1.	_____	Strongly Agree
	2.	_____	Agree
	3.	_____	Disagree
	4.	_____	Strongly Disagree

60.	On the whole, I am satisfied with myself:
	1.	_____	Strongly Agree
	2.	_____	Agree
	3.	_____	Disagree
	4.	_____	Strongly Disagree

61.	I wish I could have more respect for myself:
	1.	_____	Strongly Agree
	2.	_____	Agree
	3.	_____	Disagree
	4.	_____	Strongly Disagree

62.	I certainly feel useless at times:
	1.	_____	Strongly Agree
	2.	_____	Agree
	3.	_____	Disagree
	4.	_____	Strongly Disagree

63.	At times, I think I am no good at all:
	1.	_____	Strongly Agree
	2.	_____	Agree
	3.	_____	Disagree
	4.	_____	Strongly Disagree

64.	Were you ever neglected as a child? (ie. you left alone, left without food, not protected)

	1.	Yes		2.	No

65.	Have you ever been physically abused by a parent? (ie. hit, slapped, kicked or
	otherwise physically hurt)

	1.	Yes		2.	No

66.	Have you ever been physically abused by someone other than a parent?

	1.	Yes		2.	No

67. Have you ever been emotionally abused? (ie. your behaviour is put down, threatened or controlled)

   1. Yes   2. No

68. Have you ever been sexually abused? (ie. touched without consent or forced to have sexual contact)

   1. Yes   2. No

If you answered "yes" to any of the above questions:

69.   Have you experienced any abuse while you were pregnant?

   1. Yes   2. No   77. Not applicable

Beside each family member listed below, please check the appropriate answer which best describes how you think that person now feels about your pregnancy and birth. If the person is very accepting, you would answer 1. If the person is very rejecting you would answer 7. If the person is neither very accepting nor very rejecting, you would answer somewhere in between. For example, 4 would mean the person is neither accepting nor rejecting. First, how does your mother feel now?

70.　　MOTHER/GUARDIAN

1	2	3	4	5	6	7	0	88	77
very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how she feels	not applicable

71.　　FATHER/GUARDIAN

1	2	3	4	5	6	7	0	88	77
very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how he feels	not applicable

72.　　FATHER OF YOUR BABY

1	2	3	4	5	6	7	0	88	77
very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how he feels	not applicable

73.　　BOYFRIEND (*not* the father of your baby)

1	2	3	4	5	6	7	0	88	77
very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how he feels	not applicable

74.　　BROTHER (record the attitude of the brother you are closest to)

1	2	3	4	5	6	7	0	88	77
very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how he feels	not applicable

75.   SISTER (record the attitude of the sister you are closest to)

1	2	3	4	5	6	7	0	88	77
very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how she feels	not applicable

76.   GIRLFRIEND (Record the attitude of the Girlfriend you are closest to)

1	2	3	4	5	6	7	0	88	77
very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how she feels	not applicable

77.   OTHER:
78.(please specify) grandmother, grandfather, stepfather, aunt:_____) (record the attitude of "other" you are closest to)

1	2	3	4	5	6	7	0	88	77
very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how she/he feels	not applicable

INFORMATION RE FATHER OF CHILD

79   Name_____

80.   Age_____

81.   Is the father aware you are expecting?   1. Yes   2. No   88. Don't Know

82.   Do you have any contact at this time?   1. Yes   2. No   3. Deceased

83.   Current living arrangements of the Father of your baby:

1.   Single, living alone   4. Living with another woman

2.   Living with parent/Guardian   5. Other

3.   Living common law with you   88. Don't Know

84.   Is the father of your baby going to school? 1. Yes   2. No   88. Don't Know

85.   Is the father employed?

1.   Yes, full time   3.   Looking for work   88.   Don't Know

2.   Yes, part time   4.   No

86.   Do you expect to continue your relationship with the father of your baby?

1. Yes   4. Neither of us is sure

2. I want to, but he does not/is not sure   5. No

3. He wants to, but I do not/am not sure

87.   Do you expect financial support from the father of the baby?

1.   Yes   3.   Not sure

2.   No   4.   Don't know who the father of the baby is

88.   **Referred to Villa Rosa by:**

1.   Child & Family Services – Aboriginal   6. Former resident

2. Child & Family Services - Non-Aboriginal 7. Self

3. Employment & Income Assistance   8. Family/Friend

4. School   9. Hospital/Professional/Clinic

5. Band/Nursing Station   10. Other

                                        (Specify) _____

INFORMATION RE FAMILY

89. Name of *Your* Father/Guardian: _____

90. Does he know you are pregnant?   1. Yes   2. No   88. Don't Know

91. Any contact with Father/Guardian at this time? 1. Yes   2. No   3. Deceased

92. Address of Father/Guardian: _____

93. Where could we contact your Father/Guardian during the day?_____

    Work Telephone No. _____

94. Name of *Your* Mother/Guardian: _____

95. Does she know you are pregnant?   1. Yes   2. No   88. Don't Know

96. Any contact with Mother/Guardian at this time?   1. Yes   2. No   3. Deceased

97. Address of Mother/Guardian _____

98. Where could we contact your Mother/Guardian during the day?   _____

    Work Telephone No. _____

99. Comments:

    _____

    _____

    _____

    _____

INFORMATION RE PREGNANCY

100. Plan for current pregnancy: 1. Uncertain   2. Place for adoption   3. Parent

101. At any time have you felt pressured to place for adoption?

    1.   Yes   2.   No

102. If yes, would you care to comment:

_____

_____

103. At any time have you felt pressured to parent?

    1.   Yes   2.   No

104. If yes, would you care to comment:

_____

_____

105. At any time have you felt pressured to terminate this pregnancy?

    1.   Yes   2.   No

106. If yes, would you care to comment:

_____

_____

If parenting is an option who will be financially responsible?

107. Child & Family Services	1. Yes	2. No	88. Don't Know
108. Income Assistance	1. Yes	2. No	88. Don't Know
109. Your Band	1. Yes	2. No	88. Don't Know
110. Self	1. Yes	2. No	88. Don't Know
111. Your Family	1. Yes	2. No	88. Don't Know
112. Father of Baby	1. Yes	2. No	88. Don't Know
113. Father of Baby's Family	1. Yes	2. No	88. Don't Know
114. Other: _____	1. Yes	2. No	88. Don't Know

115.   Do you expect to apply to enter Villa Rosa's Post Natal Residence after your baby is born?

1. Yes   2.   Not sure   3. I don't know enough yet to decide   4.   No

Would you care to comment about:

116.   Sometimes those who come to Villa Rosa have quite different feelings about pregnancy or motherhood: (How are you feeling about being pregnant?):

_____

_____

_____

117.   What about your reasons for coming to Villa Rosa:

_____

_____

_____

_____

118.   What about your hopes or goals while at Villa Rosa:

_____

_____

_____

_____

Thank you for taking the time to fill out this form.

CONVALESCENCE ADMISSION AND INFANT ADMISSION AND/OR INFORMATION:
(To be filled out by Social Workers only)

Mother's name: _____ Villa Rosa No. _____

Return from Hospital - Mother:
119. Day   _____
120. Month _____
121. Year   _____

Date of Admission - Baby (if applicable) or: ☐ **Baby not admitted**
122. Day   _____
123. Month _____
124. Year   _____

(If baby was not admitted, please still add the data below if possible.)

125. Baby's Name:_____

126. Baby's sex: 1. Female   2. Male

127. Doctor: _____

128. Pediatrician: _____

129.Breast Feeding: Yes ☐   No ☐   N/A ☐

130. Special formula:_____

What was the due date of the baby?
131. Day   _____
132. Month _____
133. Year   _____

What was the actual date of delivery?
134. Day   _____
135. Month _____
136. Year   _____

Was the baby premature?	1. Yes	2. No
138. If yes, by how many weeks?	_____	

139. What was the birth weight of the baby? _____lbs._____oz.____grams

140. How many days were you in the hospital for delivery?_____

141. Home delivery/Other _____

142.   Has the baby had any health problems since birth? For example, have you taken baby to emergency or seen a doctor on an emergency basis?

1. Yes	2. No
143. If yes, reason:	_____

144.   Has the baby been in Special Care Nursery/Neo-natal Intensive Care Unit?

1. Yes	2. No
145. If yes, reason:	_____

146.   How long was the baby in hospital? _____

147.   Any other health or developmental problems of the baby since birth?

1. Yes	2. No
148. If yes, reason:	_____

149.   Special Needs:
_____
_____
_____
_____

150.   **PLAN FOR BABY**
      1. Uncertain   2. Place for adoption   3. Parent   4. Apprehended

Thank you for taking the time to fill out this form

VILLA ROSA
DISCHARGE INFORMATION

Villa Rosa No._____

Post Natal House No._____

Day Student No._____

Name: _____

Date of Discharge:
151. Day _____
152. Month _____
153. Year _____

154. Street Address:_____

155. City _____

156. Postal Code _____

157. Telephone _____

Name of Baby: _____

Date of Discharge of Baby:
158. Day _____
159. Month _____
160. Year _____

161. Plan for Baby:
1. Adoption
2. Parenting
3. Left Before Confinement
4. Undecided
5. Other _____

Follow up Referral:	Yes	No

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Villa Rosa File No. _____

We are going to ask you a number of questions which, we hope, will not only help us, but also will help you. We assure you that your answers will all be kept confidential. You are, of course, free not to answer any questions or to end the interview when you like.

Beside each of the following items please tell us how you felt about the programs at Villa Rosa. For each program, would you say it was:	1 very helpful	2 somewhat helpful	3 not helpful	4 did not attend
162. Prenatal Classes				
163. Pottery				
164. Sewing				
165. Physical Fitness Program				
166. Being a Parent				
167. Anger Management				
168. Cooking				
169. Budgeting and Nutrition				
170. Decision Making				
171. Adoption Support				
172. Infant Massage				
173. Parenting the Newborn				
174. Mom's Group				
175. Prenatal				
176. Healthy Lifestyles				
177. Mother Goose				
178. Speakers				
179. PCC/Toddler Room Practicum				
180. Breastfeeding Club				
181. Smoking Awareness				

As a result of my stay at Villa Rosa, I am:	1 More	2 Less	3 The same	88 Don't know
182. Assertive				
183. Honest				
184. Accepting of myself				
185. Able to get along with others				
186. More Respectful of others				
187. Confident about care of my baby				
188. Angry about things in general				
189. Certain of my worth as a person				
190. Open				
191. Trusting				
192. Confused about my future				
193. Able to think about tough questions				
194. Able to make decisions				
195. Able to handle my feelings				

Beside each family member listed below, please check the appropriate answer which best describes how you think that person now feels about your pregnancy and birth. If the person is very accepting, you would answer 1. If the person is very rejecting you would answer 7. If the person is neither very accepting nor very rejecting, you would answer somewhere in between. For example, 4 would mean the person is neither accepting nor rejecting. First, how does your mother feel now?

196.   MOTHER/GUARDIAN

1	2	3	4	5	6	7	0	88	77
Very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how she feels	not applicable

197.   FATHER/GUARDIAN

1	2	3	4	5	6	7	0	88	77
Very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how he feels	not applicable

198.   FATHER OF YOUR BABY

1	2	3	4	5	6	7	0	88	77
Very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how he feels	not applicable

199.   BOYFRIEND (*not* the father of your baby)

1	2	3	4	5	6	7	0	88	77
Very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how he feels	not applicable

200.   BROTHER (record the attitude of the brother you are closest to)

1	2	3	4	5	6	7	0	88	77
Very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how he feels	not applicable

201.   SISTER (record the attitude of the sister you are closest to)

1	2	3	4	5	6	7	0	88	77
Very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how she feels	not applicable

202.   GIRLFRIEND (Record the attitude of the Girlfriend you are closest to)

1	2	3	4	5	6	7	0	88	77
Very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how she feels	not applicable

203.   OTHER:
204.(please specify) grandmother, grandfather, stepfather, aunt:_____) (record the attitude of "other" you are closest to)

1	2	3	4	5	6	7	0	88	77
Very accepting			neither accepting nor rejecting			very rejecting	doesn't know	I don't know how he/she feels	not applicable

Here are ten short statements. For each, please answer if you strongly agree, agree, disagree or strongly disagree.

205.   I feel that I am a person of worth, at least on an equal plane with others:
       1.   _____ Strongly Agree
       2.   _____ Agree
       3.   _____ Disagree
       4.   _____ Strongly Disagree

206.   I feel that I have a number of good qualities:
       1.   _____ Strongly Agree
       2.   _____ Agree
       3.   _____ Disagree
       4.   _____ Strongly Disagree

207.   All in all, I am inclined to feel that I am a failure:
       1.   _____ Strongly Agree
       2.   _____ Agree
       3.   _____ Disagree
       4.   _____ Strongly Disagree

208.   I am able to do things as well as most other people:
       1.   _____ Strongly Agree
       2.   _____ Agree
       3.   _____ Disagree
       4.   _____ Strongly Disagree

209.   I feel I do not have much to be proud of:
       1.   _____ Strongly Agree
       2.   _____ Agree
       3.   _____ Disagree
       4.   _____ Strongly Disagree

210.   I take a positive attitude toward myself:
       1.   _____ Strongly Agree
       2.   _____ Agree
       3.   _____ Disagree
       4.   _____ Strongly Disagree

211.   On the whole, I am satisfied with myself:
       1.   _____ Strongly Agree
       2.   _____ Agree
       3.   _____ Disagree
       4.   _____ Strongly Disagree

212.   I wish I could have more respect for myself:
1.   _____ Strongly Agree
2.   _____ Agree
3.   _____ Disagree
4.   _____ Strongly Disagree

213.   I certainly feel useless at times:
1.   _____ Strongly Agree
2.   _____ Agree
3.   _____ Disagree
4.   _____ Strongly Disagree

214.   At times, I think I am no good at all:
1.   _____ Strongly Agree
2.   _____ Agree
3.   _____ Disagree
4.   _____ Strongly Disagree

Now I would like to ask you some questions about education:

215.   How important is it to you to get further education?

    1. Very Important   2. Somewhat important   3. Not very important

Which of the following school programs did you attend at Villa Rosa
(*if you did not attend school while at Villa Rosa, skip to question #227*)

216.   Villa Rosa School Courses   1. Yes   2. No
217.   Write Examinations Only   1. Yes   2. No
218.   Correspondence Program   1. Yes   2. No
219.   Home School Program   1. Yes   2. No

220.   Overall, how would you rate your school experience at Villa Rosa?
1.   Very helpful
2.   Somewhat helpful
3   Not very helpful

Thinking about your school experience at Villa Rosa, how would you rate the following:

221.   Personal support from teachers
1.   Very helpful
2.   Somewhat helpful
3   Not very helpful

222.   Personal support from other students
1.   Very helpful
2.   Somewhat helpful
3   Not very helpful

223.   Classroom setting (site, noise level, arrangement)
1.   Very helpful
2.   Somewhat helpful
3   Not very helpful

Compared to your past school experiences, how would you rate the following at Villa Rosa:

224.   Your school attendance   1. Better   2. The same   3. Worse
225.   Your course progress   1. Better   2. The same   3. Worse
226.   Your overall school performance 1. Better   2. The same   3. Worse

227. When you leave Villa Rosa, do you think you will attend school?

1.Yes, Immediately -	*(skip to question #237):*		
2.Yes, within 1 to 6 months	3.Yes, in more than 6 months	4.Not sure	5.Not likely
If you are not going back to school **immediately**, why is that so?			
228. I want to stay home with my baby		1. Agree	2. Disagree
229. I can't afford to go to school		1. Agree	2. Disagree
230. I don't have appropriate child care		1. Agree	2. Disagree
231. I plan to work		1. Agree	2. Disagree
232. I have completed all the schooling I need		1. Agree	2. Disagree
233. I don't like school		1. Agree	2. Disagree
234. Other (specify) _____		1. Agree	2. Disagree

235.   From questions #225 to 231 above, which is the most important reason why you are not going back to school immediately? Please circle the number:

    228 229   230   231   232   233   234

236.   Comments:
_____
_____
_____

237.   Where are you likely to attend school?

    1. In the same school you were in before coming to Villa Rosa
    2. Continuing with Villa Rosa School program
    3. Continuing with a different school than you were in before coming to Villa Rosa
    4. Not sure

Now I am going to ask you about pressure to place your baby for adoption or to parent:

At any time have you felt pressured to place your baby for adoption?

238.	Before I came to Villa Rosa.	1. Yes	2. No
239.	While I was at Villa Rosa.	1. Yes	2. No
240.	Now that I am leaving Villa Rosa.	1. Yes	2. No

If yes, when you felt pressured to place your baby for adoption, who was this from?

241.	Your mother	1. Yes	2. No
242.	Your father	1. Yes	2. No
243.	Other members of your family	1. Yes	2. No
244.	Father of your baby	1. Yes	2. No
245.	Boyfriend (not the father of the baby)	1. Yes	2. No
246.	Your community (Native Band, Church)	1. Yes	2. No
247.	Villa Rosa staff	1. Yes	2. No
248.	Child & Family Services	1. Yes	2. No
249.	Any residents of Villa Rosa	1. Yes	2. No
250.	Friends outside of Villa Rosa	1. Yes	2. No
251.	Other (please specify) _____	1. Yes	2. No

At any time have you felt pressured to parent your baby?

252.	Before I came to Villa Rosa.	1. Yes	2. No
253.	While I was at Villa Rosa.	1. Yes	2. No
254.	Now that I am leaving Villa Rosa.	1. Yes	2. No

If yes, when you felt pressured to parent your baby, who was this from?

255.	Your mother	1. Yes	2. No
256.	Your father	1. Yes	2. No
257.	Other members of your family	1. Yes	2. No
258.	Father of your baby	1. Yes	2. No
259.	Boyfriend (not the father of the baby)	1. Yes	2. No
260.	Your community (Native Band, Church)	1. Yes	2. No
261.	Villa Rosa staff	1. Yes	2. No
262.	Child & Family Services	1. Yes	2. No
263.	Any residents of Villa Rosa	1. Yes	2. No
264.	Friends outside of Villa Rosa	1. Yes	2. No
265.	Other (please specify) _____	1. Yes	2. No

As you think about the next couple of years, which of the following cause you some concern:

266.	Money	1. Yes	2. No
267.	Family problems	1. Yes	2. No
268.	Relationship with your parent(s)	1. Yes	2. No
269.	Parenting your baby	1. Yes	2. No
270.	Who you are going to live with	1. Yes	2. No
271.	Schooling	1. Yes	2. No

272.   If you knew a single woman who was expecting a child, would you encourage her to go to Villa Rosa to have the baby?

1. Would strongly encourage her   4. Would discourage her
2. Would encourage her   5. Would strongly discourage her
3. Not sure

273.   Would you please explain your answer:

_____

_____

_____

_____

274.   Would you encourage her to spend three months in the Post Natal Residence?

1. Would strongly encourage her   4. Would discourage her
2. Would encourage her   5. Would strongly discourage her
3. Not sure

275.   Would you please explain your answer:

_____

_____

_____

_____

276.   Do you expect to be part of Villa Rosa's Follow Up Program?   1. Yes   2. No

277.　　COMMENTS ON STAY:

_____

_____

_____

_____

Thank you for taking the time to fill out this form

Appendix D

Research Ethics Board letter. Personal information and signatures have been removed.

UNIVERSITY OF MANITOBA | OFFICE OF RESEARCH SERVICES
Office of the Vice-President (Research)

CTC Building
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Winnipeg, MB R3T 2N2
Fax (204) 269-7173
www.umanitoba.ca/research

11 February 2009

Ms Joan Geres

Dear Ms Geres:

In response to your letter dated February 4, 2009 please be advised that, as described in your letter, your research does not require ethics review.

If you have any other questions at all please don't hesitate to contact us.

Sincerely,

Bruce Tefft,
Chair
Psychology/Sociology Research Ethics Board

BT/mab

cc: Dr. Sid Frankel

Bringing Research to Life