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Robert A Caldwell

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Adolescent Mothers and Their Infants: Relationships Among Social Support, Knowledge of Infant Development, Parenting Attitudes, Self-Esteem, Infant Health, and Infant Development

By

Beth Jeannine Milburn

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ABSTRACT

Adolescent Mothers and Their Infants: Relationships Among Social Support, Knowledge of Infant Development, Self-Esteem, Infant Health, and Infant Development

By

Beth J. Milburn

This study examined the relationship between social support and adolescent mothers' knowledge of infant development, parenting perceptions, and self-esteem. The influence of parenting perceptions and knowledge of infant development (KIDI) on infant health and development was also examined. Longitudinal data from 175 pregnant adolescents was collected over three time periods. Results indicated that at Time 1 and Time 3, adolescent mothers listed their mothers most often as social support providers. Time 1 social support advice and information was found to be positively correlated with KIDI underestimations at Time 2 ($r = .19$, $p < .05$), as well as when prior knowledge was controlled for ($r = .22$, $p < .05$). Time 1 network density was positively correlated with Time 2 KIDI underestimations ($r = .21$, $p < .05$) but Time 2 network density was negatively correlated with Time 3 KIDI overestimations ($r = -.19$, $p < .05$). Time 2 negative parenting attitudes were negatively correlated with Time 1 emotional support ($r = -.30$, $p < .01$) and positively correlated with Time 1 social support network size ($r = .19$, $p < .05$) while Time 2 positive parenting attitudes were positively correlated with Time 1 KIDI overestimations ($r = .31$, $p < .01$). Lastly, Time 2 self-esteem was positively correlated with changes in KIDI overestimations from Time 1 to Time 2 ($r = .29$, $p < .01$).

To my parents, Len and Pat, and to my best friend, Jim.

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Introduction

Social Support

As researchers attempt to amend prevention models (Mitchell, Billings, & Moos, 1982), a number of studies have focused on social support as an important moderator of life stress (Cobb, 1976; Crnic, Greenberg, Ragozin, Robinson, & Basham, 1983; Mitchell, Billings, & Moos, 1982) and perceived personal stress (Crnic, Greenberg, Robinson, & Ragozin, 1984). Several researchers have assumed that social support has an "interactive or conditioning effect" on stress (Felner, Primavera, Farber, & Bishop, 1982; Raphael, 1977; Spiegel, Bloom, & Yalom, 1981). They have found that among moderator variables, social support appears to be the most effective (Crnic et al., 1983) in lessening the consequences of crisis and change (Cobb, 1976) and in buffering individuals from the unfortunate effects of stress (Mitchell et al., 1982), possibly reducing the number of stressful events themselves (Crockenberg, 1982). In fact, researchers have proposed a buffering hypothesis of social support which speculates that events are less distressing if they occur when social support is present than if they occur when social support is absent (Thoits, 1982).

Social support has been defined as the information leading an individual to believe that s/he is esteemed, cared for and loved, and a member of a network of mutual obligation and communication (Cobb, 1976). Such information is typically transmitted in "intimate situations involving mutual trust" (Cobb, 1976, pp. 300-301) as well as in public. However, social support is not limited to emotional support (Cooley & Unger, 1991), but is considered to have several dimensions including instrumental/practical assistance,

informational support and guidance (Barling, MacEwen, & Pratt, 1980; Cohen & Wills, 1985; Cooley & Unger, 1991; Crnic et al., 1983; Crnic, Greenberg, Robinson, & Ragozin, 1984), and social companionship (Cohen & Wills, 1985; Cooley & Unger, 1991). Social support can also be defined in terms of perceived support, or, the quality of interpersonal relationships within an individual's support network (Unger & Wandersman, 1985).

Social support is thought to begin "in utero," while the mother is pregnant, and is believed to be communicated from a mother to a newborn baby by the way the baby is held (Cobb, 1976, p. 301). As life advances, support is increasingly drawn from the mother, then from other family members, and eventually from peers and the community. In cases of special need, the individual may also elicit support from professionals, such as mental health workers and physicians.

Social support has been found to have independent influences on the behavior and attitudes of the individual, in addition to being a protector against stress (Mueller, 1980). Derived from the assumption that stress and support are multidimensional in nature (Mitchell et al., 1982; Thompson, 1986), it has been postulated that as the type, amount, and source of stress varies from person to person and from time to time, so will the type, amount, and source of support vary from person to person and time to time. Stressful events may cause additional changes in social supports, therefore, the type, source, and amount of social support are all important dimensions in determining the effectiveness of the individual's social support network (Thoits, 1982). In addition, the structural components of support, such as size and density, may be important in influencing the provision of supportive means to the individual.

In their review of studies on social support, Mitchell, Billings, and Moos (1982) suggested that support may have direct, indirect, or interactive effects on functioning. Support may directly influence the welfare of an individual regardless of the presence of stress, while the indirect effects of support on functioning may occur through social support's influence on environmental stressors. The latter interactive relationship, also labeled the "stress-buffering" effect, suggested that the presence or absence of support would most strongly influence those individuals under high stress. However, the circumstances influencing these effects are complex and vary from person to person.

Social Support and the Stress of Motherhood

The decline of physical and emotional well-being is frequently the result of stressful life events (Cassel, 1970). Where women's mental health problems are concerned, events such as pregnancy, childbirth, and parenting (Brooks-Gunn & Furstenberg, 1986; Mowbray, Lanir, & Hulce, 1982) are among the most stressful, affecting the individual's psychological well-being (Crnic et al., 1984). However, Mowbray, Lanir, and Hulce (1982) proposed that for women, such stresses could be decreased by strong family relationships and support (see also, Crockenberg, 1982). Several other researchers have produced similar findings (Cutrona, 1984; Wandersman, Wandersman, & Kahn, 1980). Grossman, Eichler, and Winickoff (1980) demonstrated that a supportive marital relationship was important for first-time pregnancies. Gjerdingen and Chaloner (1994) found that women's postpartum mental health was related to level of social support. Likewise, Taylor, Casten, and Flickinger (1993) concluded that kinship support was especially important for single-parent households.

Equally as important as the effects social support has on the stress of motherhood are the effects social support has on the mother-child relationship. A study by Muller, Fitzgerald, Sullivan, and Zucker (1994) found that a lack of social support to older mothers in alcoholic families increased stress levels, indirectly predicting child maltreatment, while social support reduced the effects of stress on child maltreatment. Nevertheless, according to Cooley and Unger (1991, p. 230), "the quality of support and the intermediate experiences that support provides is more important than the mere presence of...family members."

Adolescent Motherhood

Adolescent pregnancy is seen as a major stressful event to a teenager and her family, beginning a time of social isolation and increased stress for the adolescent (Mowbray et al., 1982). Not only does the adolescent have to deal with the stress of being a single parent, but one also must consider the developmental factors and concerns of the adolescent which generate additional stress (Bacon, 1974; Kurtz & Derevensky, 1994) and may rival the infant for attention (Crockenberg, 1982). Adolescent parenthood often involves an unprepared adolescent with less than satisfactory coping resources. This increases the chances of parental stress and poor parent-child relations (Kurtz & Derevensky, 1994) and may negatively affect the adolescent's personal well-being (Dunst, Vance, & Cooper, 1986).

There are a variety of individual differences in the way adolescent girls experience pregnancy and adjust to motherhood. Developmental, social, cultural, and familial factors account for the variety of outcomes of adolescent pregnancy for both mother and child

(Buchholz & Gol, 1986). The majority of studies conducted lump together heterogeneous groups of adolescents from various social classes, races, cultures, marital status', and developmental levels. Therefore, it makes it difficult to determine the extent to which each variable contributes to positive outcomes for mother and child. However, a study by Garcia Coll, Hoffman, and Oh (1987) concluded that adolescent mothers in the United States possess a unique social ecology. For example, several researchers have found that, across several socioeconomic and ethnic groups, adolescents spend less time engaging in positive verbal interactions with their infants (e.g. Cooley & Unger, 1991; Levine, Garcia Coll, & Oh, 1985).

Typically, studies on adolescent motherhood compare and contrast the adolescent mother to older mothers (e.g. Baranowski, Schilmoeller, & Higgins, 1990; Garcia Coll, Sepkoski, & Lester, 1982; Reis, 1989; Rothenberg & Varga, 1981), as the age of the mother at the time of the baby's birth has been found to be a critical factor for the mother's, as well as, the baby's adjustment. In a study by Crnic and colleagues (1984) of 105 Caucasian mother-infant pairs, younger mothers, as compared to older mothers, reported having less community support, less intimate support, and greater stress due to motherhood. In a study by Reis (1989) of 150 young adolescent mothers, 260 older adolescent mothers, and 242 older mothers, young teen mothers were found to differ from older mothers on depression levels and knowledge of child development. Hence, it appears that adolescent mothers have more negative outcomes due to pregnancy. Nevertheless, a review by Buchholz and Gol (1986) concluded that support systems

available to adolescent mothers appear to be effective in redirecting negative outcomes to more positive outcomes.

Social Support and Adolescent Mothers

Social support to adolescent mothers has been found to influence the mother's well-being (Thompson, 1986; Cooley & Unger, 1991), adjustment (Taylor et al., 1993), positive intrapersonal functioning (Held, 1981), parenting knowledge, parenting behaviors, and infant health care (Unger & Wandersman, 1985). Similarly, perceived support and social network resources have been found to be related to greater life satisfaction (Unger & Wandersman, 1988), improved postpartum adjustment, and better infant health and development (Cooley & Unger, 1991; Unger & Wandersman, 1985). Social support may also decrease the negative consequences of stress on parenting (Unger & Wandersman, 1988).

The effects of social support and the provision of social support varies for adolescent mothers. Thompson (1986) conducted a study of teen mothers exploring the influence of family and peer support on adaptation to motherhood. The sample consisted of 64% black mothers, 30% white mothers, and 6% Hispanic mothers, which is similar to the national demographics of adolescent mothers (de Anda et al., 1992). Results supported the hypothesis that personal relationships contribute differently to the psychological well-being of adolescent mothers. Support from relatives and friends was found to be related to higher levels of distress, while support from a male partner was found to be related to lower distress levels. Likewise, a study of primarily black adolescent mothers by Unger and Wandersman (1985) suggested that the consequences of

adolescent pregnancy vary for different sources of social support at different points in time. At one month postpartum, perceived support from families and friends was related to greater life satisfaction and less parenting anxiety. However, at eight months postpartum, partner support and neighborhood satisfaction were related to less anxiety with parenting.

Several studies have concluded that adolescents rely most on family for support (Taylor et al., 1993; Vukelich & Kliman, 1985), as family support can both contribute to and benefit from the adolescent's adaptive response to the unscheduled transition to parenthood (Russell, 1980). In particular, support from maternal grandmothers (Cooley & Unger, 1991; Hoffman, Ushpiz, & Levy-Shiff, 1988) has been found to help contribute to increased attention given to the child, child care, and increased physical support to both mother and child (Cooley & Unger, 1991). Other studies have found that adolescent mothers relied more often on other teenagers (Garcia-Coll, Hoffman, & Oh, 1987), despite findings that support from friends was found to be associated with higher levels of distress (Thompson, 1986; Thompson & Peebles-Wilkins, 1992).

In a comparison of the frequency of partner and grandmother contact for African-American and Caucasian adolescent mothers, Unger and Cooley (1992) found no significant racial differences in the childcare role of the grandmother. Results did indicate that African-American teens tended to live with their parents longer after the birth of their child while Caucasian teens married earlier. Garcia Coll, Hoffman, Van Houten, & Oh (1987) compared adolescent and older Caucasian mothers and found that adolescent

mothers reported receiving more childcare help from their network, including more help from teenagers.

The structural properties of social support, specifically network size and density (Thoits, 1982), may also be important to influencing the well-being of adolescent mothers. Network size refers to how many people are listed as social support providers, while density refers to the extent to which members of the individual's network know each other. In a study by Dunst and colleagues (1986), results indicated that teen mothers with larger support networks were more likely to have improved self-esteem, as well as report a more positive family atmosphere. Barrera (1981) found that for pregnant teens, total network size buffered the effects of stress on depression. Several other studies have indicated that low density social support networks are better for adjustment (Cohen & Wills, 1985; Hirsch, 1981). Hence, it would appear that the adolescents who have a large, but less dense, support network would be less distressed.

Parenting Knowledge, Parenting Perceptions, and Knowledge of Infant Development

One of the more important conditions necessary for a smooth transition to parenthood is the acquisition of parenting knowledge. Parenting knowledge has been defined as the understanding that care-giving practices influence maternal functioning as well as the infant's present and future functioning (Parks & Smeriglio, 1983). It is a multidimensional concept that includes parental "awareness of developmental milestones,...care-giving techniques, and awareness of relationships between care-giving practices and development" (Parks & Smeriglio, 1983, p. 164). How do new parents learn about parenting? Research evidence indicates that most parents learn through

various social support resources. For example, MacPhee (1983) stated that one important source of parenting knowledge comes from the cultural transmission of child-rearing strategies through the social network of family and friends. Similarly, in a separate study, MacPhee (1984a) concluded that most mothers learn about parenting and infants through a combination of upbringing, friends, and books.

Cochran and Brassard (1979) suggested that social support networks outside of the immediate family influence parental behavior and attitudes, and consequently directly and indirectly influence child development (see also Crnic et al., 1983). However, a study by Crnic and colleagues (1984) concluded that maternal social support is important to parenting and the early mother-child relationship, positively affecting maternal life satisfaction and satisfaction with parenting, as well as promoting more positive child rearing attitudes. Similarly, Cooley and Unger (1991) argued that mothers who have social support available from their families are less likely to be stressed and therefore, are more likely to be responsive to their children and have more interest in child development.

Social support to adolescent mothers, likewise, has been found to influence their parenting experiences (Taylor et al., 1993) and attitudes towards their children (Dunst et al., 1986). For example, Mercer, Hackley, and Bostrom (1984) concluded that social support to adolescent mothers was positively related with feeling of love towards the infant and maternal role gratification. Lee and Coletta (1991) found that "information and advice, emotional support, and financial assistance lead to decreased aggressive behaviors, rejection, scolding, neglectful interactions, and depression in teen mothers" (p. 228).

Additionally, it has been proposed that a larger social support network may help to increase adolescent mothers' parenting knowledge and knowledge of child development due to the greater amount of people available to provide information (Miller, 1988). Furthermore, a less dense social support network, in which members contact others independently of one another (Walker, MacBride, & Vachon, 1977), would also supply a greater variety of persons from which to obtain advice, either directly or indirectly. Mitchell et al. (1982) indicated that although a dense family network may give emotional support, it may fail to encourage participation in other, non-family environments. Such failure to interact outside of the family setting may limit the amount of knowledge a teen mother gains about parenting and infant development. Therefore, a less dense network would allow the adolescent to obtain information from groups that may differ in their experiences (Miller, 1988) and may express different opinions concerning parenting and child development.

Knowledge of Infant Development, Parenting Perceptions, and Infant Outcomes

In addition to placing the teen at a higher risk for various negative outcomes, adolescent pregnancy also places the infant in a higher risk category as well. Researchers have found that the children of adolescent mothers are at a higher risk for infant mortality, prematurity, physical and neurological defects, and low birth weight (McKenry, Walters, & Johnson, 1979) and tend to score lower on tests of cognitive and intellectual development than children of older mothers (Rothenberg & Varga, 1981).

Nevertheless, evidence suggests that many of the risks of adolescent pregnancies can be lessened with adequate social support from families, peers, and others. For

example, a study by Garcia Coll and colleagues (1982) of mostly married (90%) Puerto Rican teen mothers and mostly married (95%) older mothers revealed that, although infants of adolescent mothers were originally conceptualized as more demanding, by the time the infant was age 1, there were no mental or motor developmental differences between older and younger mothers. The researchers concluded that this was due to the fact that most of the mothers were married and almost half of the teen mothers were part of a larger socially-supportive family environment.

Field, Widmayer, Stringer, and Ignatoff (1980) found that among factors placing infants of adolescent mothers at risk, two factors were the less realistic developmental expectations and the child-rearing attitudes of the mother. Teenage mothers appear to have less realistic expectations than older mothers regarding their children's development (Brooks-Gunn & Furstenberg, 1986; Reis, 1989; Unger & Wandersman, 1988), possibly due to the stress of early and unscheduled motherhood. Such stress may lead to poor parental adjustment in the adolescent, influencing her parental perceptions and child-rearing practices (Kurtz & Derevensky, 1994). Since parental "conceptions of child development often govern their reactions to their child" (DeLissovoy, 1973, p. 23), low tolerance and unrealistic expectations of development may contribute to impatience with children. Haskett, Johnson, and Miller (1994) reported that rigidity in parenting attitudes and inappropriate expectations of children were among the risk factors for abuse in a sample of adolescent mothers, as were adolescents reporting less social support. Similarly, results of a study by Fulton, Murphy, and Anderson (1991) of teen mothers

indicated that the lower the adolescent mother's knowledge of child development, the greater the child abuse potential.

Several studies examining the developmental expectations of adolescent mothers have found that adolescent mothers tend to both underestimate and overestimate the developmental progress of their children (Brooks-Gunn & Furstenberg, 1986). When the developmental expectations are lower, for example, when the adolescent expects that her child will speak at a later age than is typically expected, then the adolescent tends to communicate (vocalize) less with her child. Cooley and Unger (1991) indicated that for a sample of mothers of African-American and Caucasian children, maternal responsiveness and cognitive stimulation were related to child outcomes (increased achievement scores), implying that less maternal responsiveness and stimulation lead to decreased achievement scores. It may therefore be hypothesized that social support in the form of advice and information would influence the adolescent's developmental expectations, as well as her communication with the infant. Results of a study by Ninio (1988) of Israeli parent and nonparent adolescents suggested that attributing cognitive competence to infants is the result of preparenthood socialization. Based on these results, one could postulate that an adolescent would attribute a higher amount of cognitive competence to her infant if she were socialized to do so. The infant, in turn, would evidence increases in test scores on cognitive development.

Researchers have, in fact, argued that a factor in environmental contributions to infant development is the maternal social network (Cochran & Brassard, 1979). Several researchers have assumed an indirect relationship of social support on the child, remarking

that social support encourages appropriate parenting behaviors which, in turn, benefit the child (Crockenberg, 1982). In particular, studies have indicated that the adolescent's mother is the most important person involved in making decisions concerning prenatal care and infant health care (Crockenberg, 1987; Young, 1975; Zuckerman, Winsmore, & Alpert, 1979). Therefore, it is likely that health and development outcomes such as the number of medical problems, injuries, and hospitalizations (Rothenberg & Varga, 1981) would also be influenced by the adolescent's mother. In addition to maternal support, studies have found that the personal psychological resources of the teen may buffer the parent-child relation as well (Belsky, 1984).

Social Support and Self-Esteem

Oakley (1982) found that postpartum depression affecting 80% of women could be linked to low self-esteem. However, findings in a study by Dunst and colleagues (1986) suggest that providing "supportive experiences designed to foster a sense of empowerment can influence changes in intrapersonal beliefs" (p. 44). They concluded that having a less dense social support network was related to more positive self-esteem. For adolescents, maternal support has likewise been found to have a strong effect on self-esteem (Hoffman et al., 1988). Other studies have found that for teenage mothers, support is important for the recovery of self-esteem (Thompson, 1986). Similarly, Cobb (1979) suggested that the provision of support, indicating that one is held in esteem by others, gives individuals the self-confidence necessary to act against eliminating stress and to adjust psychologically to unchangeable circumstances.

Based on the assumption that adolescents who know more about child care feel more competent as mothers, it is also possible that as adolescents gain greater knowledge of infant development over time, they will also show increases in their self-esteem over time. For example, in a study by Fulton, Murphy, and Anderson (1991), findings supported the notion that a low sense of self-esteem was related to a greater tendency towards child abuse. Since a larger potential for child abuse was also found to be related to less child development knowledge, then it may be postulated that less child development knowledge may be related to low self-esteem. This is conceivable even though Fulton and colleagues (1991) also showed no significant differences in adolescent self-esteem over a four-month period as knowledge of child development increased.

Nevertheless, positive self-esteem has been linked to parenting ability. For example, the results of a study by Larsen and Juhasz (1985) indicated that adolescents' negative attitudes towards parenting were related to their lack of knowledge of child development and low social-emotional maturity. Unger and Wandersman (1985) found that often the mothers who had the better parenting skills were the ones with greater self-esteem and feelings of mastery.

A study by Youngs (1990) found that self-esteem in adolescents decreased as the number of stressful life events increased. For a teenage mother, childbirth alone is a stressful event for which the stress is intensified by lack of knowledge. Therefore, one could presume that the stressful event of adolescent motherhood could be less, and self-esteem could be greater, if the teen mother had a good deal of information concerning child development.

Methodological Issues

Type, Source, and Amount of Support

In much of the social support literature, researchers disagree on whether social support acts to protect against stress or whether it improves mental health under both high and low stress conditions (Cutrona, 1984). Therefore, in assessing the possible benefits of social support for reducing stress, it is helpful to know what types of support influence the different areas of mental and physical health (Mitchell et al., 1982), as well as examining which sources provide the most effective support to different populations. Likewise, it is beneficial to learn how much support is sufficient to buffer the individual from the damaging effects of stress (Mitchell et al., 1982).

Although recent research indicates that social support should be defined according to its type and source, type and source of support are often confounded (Dooley, 1985), as are conceptual definitions of support (Thoits, 1982). Hence, for purposes of this study, type of support will refer to emotional support, tangible aid, and guidance, while source of support will refer to, but is not limited to, support from family, friends, and professionals (Caldwell & Reinhart, 1988). Amount of support will refer to the quantity of support given to the individual, while social support density will refer to the degree to which members of a particular social support network contact each other independently of one another (Walker, MacBride, & Vachon, 1977).

Research Design

In a review on empirical work on the social support buffering hypothesis, Thoits (1982) concluded that cross-sectional studies may have inadvertently confounded the

direct and interactive effects of social support and life change. Therefore, since longitudinal studies provide a greater indication that support has a causal effect upon functioning (Mitchell et al., 1982), the present study is longitudinal in design. This is also due to the fact that several other studies of support use cross-sectional methods (Mitchell et al., 1982) and greater evidence on the stress of childbirth has been located in various longitudinal studies (Thompson, 1986).

Thoits (1982) stated that within the social support literature, conceptualizations and operationalizations of support have been deficient. For example, a study by Caldwell, Pearson, and Chin (1987) on stress-moderating effects found that the relationships between adjustment and social support changed depending on the social support measure used. However, as researchers have begun to define social support as a multidimensional concept, implications for measurement have changed, allowing researchers to adequately identify which specific aspects of support reduce the impacts of stress (Thoits, 1982). Multidimensional measures of support have begun to be used by researchers, therefore, this study uses a measure of support that is multidimensional.

Thoits (1982) also indicated that in much of the social support literature, the interactive effects of support with life events and the direct effects of life events on support have been confounded. Life events may directly cause changes in the nature of present social support or may warrant additional support. Thus, support may become a product of certain life events, such as childbirth. When a baby is born, for example, more people may show up to support the mother and/or existing roles of social support providers may change from mother or sister to baby-sitter.

Since many studies measure support after a life change occurs, it becomes difficult to determine the levels of support before the occurrence of a life event. In the case of unplanned adolescent pregnancy, the event of the baby's birth may determine the adolescent's support level. Although the present study does not have a measure of support before the adolescent became pregnant, it did take a measure of support before the baby was born. This may give a small indication of what supportive resources were like before the birth of the baby. In order to try and avoid biased results in favor of a buffering effect of support when support is measured after life events have occurred (Thoits, 1982), the present study will propose a delayed effect of social support when analyzing the data. In this way, it may be possible to discriminate between the direct effects of support and the interactive effects of support.

Lastly, according to Crnic and colleagues (1984), the only measurement times in which maternal support was affiliated with infant behavioral interactions was during the early data collection periods when the infant was one and four months old. These were the times when stress and social support influences on the mother-infant relationship were strongest, suggesting that support and stress might be the most influential during the transition to parenthood. Therefore, this study examined infants from one to six months old.

Hypotheses

This study examined the relationships among various kinds of social support perceived by adolescent mothers as well as their knowledge of infant development, their parenting perceptions, and their self-esteem. Also, the influence of parenting perceptions

and knowledge of infant development on infant health and development was examined. Therefore, several hypotheses were tested.

When data were collected for this experiment, the mothers were interviewed at three different times. Therefore, for ease of presentation, the terms Time 1, Time 2, and Time 3 will be used to refer to the prenatal interview, the interview given when the infant was one month old, and the interview given when the infant was six months old, respectively.

Hypothesis 1: Mothers of the adolescents will be cited as the most frequently named social support providers out of any other relationship category.

Hypothesis 2a: Due to the separate influences of emotional support and advice and information, as well as network size and density, knowledge of infant development will increase from Time 1 to Time 2 and from Time 2 to Time 3. Hypothesis 2b: Social support to adolescent mothers in the form of emotional support, at Time 1 and Time 2, will positively relate to knowledge of infant development at Time 2 and Time 3, respectively, with prior knowledge of infant development being controlled for. Hypothesis 2c: Social support to adolescent mothers in the form of advice and information, at Time 1 and Time 2, will positively relate to knowledge of infant development at Time 2 and Time 3, respectively, also controlling for prior knowledge. Hypothesis 2d: Social support network size, at Times 1 and 2, will positively influence knowledge of infant development at Time 2 and Time 3, respectively, when prior knowledge is controlled for. Hypothesis 2e: Low density social support networks, at Times 1 and 2, will positively influence

knowledge of infant development at Times 2 and 3, respectively, when prior knowledge is controlled for.

Hypothesis 3a: Social support given during Time 1, in the form of emotional support, will be more positively related to positive parenting attitudes at Time 2 than negative parenting attitudes at Time 2. Hypothesis 3b: Social support at Time 1 in the form of advice and information will also be more positively related to positive parenting attitudes at Time 2, than negative parenting attitudes at Time 2. Hypothesis 3c: Social support network size at Time 1 will be more positively related to positive parenting attitudes at Time 2, than negative parenting attitudes at Time 2.

Hypothesis 4: Accurate knowledge of infant development (less underestimations, less overestimations, and more correct answers) at Time 1, will be positively related to positive parenting attitudes at Time 2 and negatively related to negative parenting attitudes at Time 2.

Hypothesis 5a: Adolescent mothers with a high level of infant development knowledge at Time 1 and Time 2 (fewer underestimations, fewer overestimations, and more correct answers), will have infants with fewer hospitalizations, fewer illnesses, and fewer injuries due to accidents at Time 2 and Time 3, respectively. Time 2 knowledge will affect Time 3 infant health when prior Time 1 infant development knowledge and prior Time 2 infant health status are controlled. Hypothesis 5b: Similarly, these infant health outcomes at Time 3 will be related more positively to positive parenting attitudes at Time 2 than negative parenting attitudes at Time 2, when prior Time 2 infant health status is controlled for.

Hypothesis 6a: Adolescent mothers with a high level of infant development knowledge at Time 2, will have infants who score higher on tests of cognitive and intellectual development at Time 3 when prior Time 1 knowledge of infant development is controlled for. Hypothesis 6b: Adolescents with more positive parenting attitudes at Time 2 will have infants who score higher on cognitive tests at Time 3, while adolescents with more negative parenting attitudes at Time 2 will have infants who score lower on cognitive tests at Time 3.

Hypothesis 7a: Having a less dense social network at Time 1 and Time 2, will positively relate to the adolescent's self-esteem at Times 2 and 3, respectively. Hypothesis 7b: Having a larger social support network at Time 1 and Time 2 will positively relate to the adolescent's self-esteem at Time 2 and Time 3, respectively.

Hypothesis 8: Adolescent mothers with an increase in (higher) knowledge of infant development from Time 2 to Time 3, will have higher self-esteem at Time 3 when Time 2 self-esteem is controlled.

Method

Subjects

Subjects for the study included 175 pregnant adolescents who participated in the Adolescent Pregnancy Project at Michigan State University, a joint research project with the Lansing School District's Young Parents Educational Development Program (YPED) in Lansing, Michigan which began in 1990. The Adolescent Pregnancy Project was a longitudinal study that followed pregnant adolescents from before the birth of their child until their child was six months old in an effort to investigate the stresses and supports of

adolescents coping with pregnancy and parenting. Marian Phillips, from the YPED program, coordinated the service component of the project while Professor G. Anne Bogat, from Michigan State University, coordinated the research component of the project.

Adolescents in the study voluntarily participated in the YPED program. They attended YPED if they did not wish to continue attending their home school. At YPED, the adolescents learned about pregnancy, took child birth classes, and took classes on how to be a better parent. All of the adolescents came from the Lansing area schools and were allowed to enroll in the program at any time during their pregnancy.

Adolescents ranged in age from 12 to 18 years old (mean = 15 years old). The sample used represented a diverse range of ethnic and cultural backgrounds. The predominant ethnic group represented in the sample was African American (48%), followed by Caucasian (32%), Mexican American/Hispanic (16%), and Northern American Indian/Native American (4%). The majority of the adolescents lived with a legal guardian and were from lower socio-economic status families. Thirty-one percent of the adolescent's mothers did not graduate from high school and 22% of the adolescent's fathers did not graduate from high school. Ninety-seven percent of the adolescents were unmarried. Consent to participate in the study was obtained for each participant and from the legal guardian of each participant under 18.

Procedure

Subjects for the study were interviewed at three time periods, either at home, over the telephone, or at the YPED site in Lansing, Michigan. Undergraduate students who

were involved with the Adolescent Pregnancy Project were enrolled in either Psychology 490 or an Independent Study option at Michigan State University were trained to administer a series of questionnaires to the teenagers by a team of several graduate students led by an MSU professor. The first interview took place when the adolescent was five months pregnant (T1), the second interview took place one month after the birth of the baby (T2), and the third interview took place six months after the birth of the baby (T3). All questionnaires were read to the adolescent mothers. The adolescent received $5 for the first interview, $10 for the second, and $15 for the last interview.

For purposes of this particular study, the Bayley Scales of Infant Development, the Family Experiences Questionnaire (FEQ), the Infant Health Inventory, the Knowledge of Infant Development Inventory (KIDI), the Rosenberg Self-Esteem Scale, and the Norbeck Social Support Questionnaire (NSSQ) were used. At Time 1, Time 2, Time 3, the adolescents were asked to complete the KIDI, the Rosenberg Self-Esteem Scale and the Norbeck Social Support Questionnaire. The FEQ was administered to the adolescents at Time 2, the Infant Health Inventory was administered to the adolescents at Time 2 and Time 3, and the Bayley Scales of Infant Development were administered to the infants when they were six months old (T3).

Materials

When data collection began for the Adolescent Pregnancy Project in 1990, the second edition of The Bayley Scales of Infant Development (Bayley, 1993) was not yet developed. Therefore, the first edition of the Bayley was used for this study. The Bayley Scales of Infant Development (Bayley, 1969) are standard instruments used for the

assessment of mental, motor, and behavioral development in infants 2-30 months. It consists of two scales, the Mental Scale and the Motor Scale. The Mental Scale measures learning ability, early communication attempts, and sensory-perceptual behavior, while the Motor Scale assesses general body control and coordination. The scales were developed by combining several other measures of infant development, "specifically the California First-Year Mental Scale (Bayley, 1933), the California Preschool Mental Scale (Jaffa, 1934), and the California Infant Scale of Motor Development (Bayley, 1936)" (Brown, Nellis, & Gridley, 1994, p. 202). The scale of items constructed by Bayley were in a power sequence and fell into a hierarchical series, so that in order to pass each successive task, increasing age was necessary (Burns, Burns, & Kabacoff, 1992). Items for the Mental and Motor scales were selected from data on approximately 1,400 children aged 1-15 and 18-30 months (Brown, Nellis, & Gridley, 1994). The Bayley Scales of Infant Development are considered the most useful and widely used tests of infant developmental progress (Burns, Burns, & Kabacoff, 1992; Carlson, Labarba, Sclafani, & Bowers, 1986).

The Family Experiences Questionnaire (Frank, Jacobson, & Hole, 1986; Frank et al., in press) is a self-report measure developed to assess the negative and positive feelings and attitudes about parenting. The questionnaire contains 133 items grouped into 11 scales designed to assess the quality and nature of the parenting relationship, as well as parenting confidence (Floyd & Zmich, 1991). Internal consistency for the subscales ranges from alpha = .83 to .91 (Frank et al., 1986). Questions such as "I live for my children" and "I am a very strict parent" are rated on a four-point Likert scale from 1=strongly disagree to 4=strongly agree. For purposes of the present study, 62 items of

the original scale were used to create a teen version of the FEQ. New factor analysis for the present study revealed two main factors of positive parenting attitudes and negative parenting attitudes. Out of the 62 items, 25 loaded onto positive parenting attitudes, 17 loaded onto negative parenting attitudes, and the remaining 20 items were dropped due to double loadings. Internal consistency ranged from alpha = .82 to .87.

The Infant Health Inventory (Olds, 1986) is a twelve item inventory that assesses the health of the infant including number of accidents and number of times admitted to the hospital. Respondents are asked to indicate whether or not an illness occurred, and the majority of the questions are answered according to a no, yes once, or more that once response.

The Knowledge of Infant Development Inventory (KIDI) was developed by MacPhee (1981) to assess an individual's familiarity with infant developmental norms and milestones; principles and processes of development; parental child-rearing responsibilities and strategies; and health and safety concerns (MacPhee, 1984a; MacPhee, 1984b). It consists of 75 items, 48 of which use an Agree/Disagree/Not Sure format and 20 of which use an Agree/Younger/Older/Not Sure format. The remaining items use a multiple-choice/Not Sure format. Two summary variables, "attempted" and "accuracy", are utilized from the questionnaire answers. "Attempted" is gotten from the Not Sure option and indicates the individual's confidence in his/her knowledge and "accuracy" is the percent of correct answers. The KIDI was standardized using data from three sources, pediatricians and PhDs, undergraduate child psychology students, and mothers (MacPhee, 1981). Alpha reliability was highest for the mothers (a=.82), as was split-half reliability

(.85) and test-retest reliability (r(58)=.92). Validity was demonstrated from a variety of separate studies.

The Rosenberg Self Esteem Scale (Rosenberg, 1965) is a self-report measure of "global attitudes toward the self among adolescents" (Goldsmith, 1986, p. 253). It was standardized on 5,024 students attending ten public high schools in New York State (Rosenberg, 1965). A variety of social classes, races, religious groups, rural and urban communities, and nationality groups were well represented. The Rosenberg contains ten questions of self-worth rated on a four-point Likert response format from 1 (strongly agree) to 4 (strongly disagree). Five items, such as "I feel that I have a number of good qualities," are positively worded and five items, such as "I certainly feel useless at times," are negatively worded. Due to the controversy regarding the dimensionality of the scale, Goldsmith (1986) used confirmatory factor analysis to test the scale's dimensionality, concluding that it is multidimensional. However, analyses for the Adolescent Pregnancy Project indicated that only one factor was measured by the scale, implying that it is unidimensional. All ten items were included in this reliability analysis which yielded an alpha = .79.

Finally, a Social Support Questionnaire modified after Norbeck et al. (Norbeck, Lindsey, & Carrieri, 1981) was used to measure social support. The Norbeck Social Support Questionnaire (Norbeck et al., 1981) was developed to measure multiple dimensions of social support. It was based on social support definitions proposed by Kahn (1979), thereby proposing affirmation, aid, and affect as three parts of support. The respondent is asked to generate a list of significant others, up to twenty, who provide help

and personal support or are important to him/her. For each question, respondents are asked to rate each significant other on a five-point Likert scale. Findings from the first phase of testing indicated high test-retest reliability (.85-.92) and high internal consistency (>.85). A second testing phase for the NSSQ established evidence for construct and concurrent validity (Norbeck, Lindsey, & Carrieri, 1983). The version of the NSSQ utilized in this study differed from the original in that it did not contain a measure of recent losses of important relationships.

Results

Hypothesis 1

Hypothesis 1 was tested by calculating the percentage of mothers listed as social support providers for Times 1, 2, and 3. Nine paired t-tests were carried out for each time period in order to compare the percentage of mothers listed for each time period to the percentage of all nine other social support providers listed at each time period (see Table 1). Results for Time 1 indicated that adolescent mothers listed both their mothers and their friends equally as the most frequent providers of support, results for Time 2 indicated that adolescent mothers listed immediate family most frequently, and results for Time 3 indicated that adolescent mothers listed their mothers most frequently as providers of social support. Results also indicated that the percentage of mothers listed was significantly greater than all other social support providers except friends and immediate family at Times 1, 2, and 3 (see Table 1).

Table 1

Percentage of Social Support Providers Listed for Time 1 (n=164)

	Percent Listed as provider	Number Listed as Provider	t
Mothers Only	83.5	137	-
Friends	83.5	137	0.0
Immediate Family Not Including Mother	82.9	136	.17
Spouse/partner	73.8	121	2.3*
Other Relatives	62.8	103	4.8**
Other	21.3	35	14.0**
Professional	10.4	17	20.5**
Co-worker/ Classmate	2.4	4	24.6**
Group Member	1.8	3	26.0**
Mentor	1.2	2	26.5**

Table 1 con't

Percentage of Social Support Providers Listed for Time 2 (n=148)

	Percent Listed as Provider	Number Listed as Provider	t
Immediate Family Not Including Mother	81.8	121	-.98
Mothers Only	77.0	114	-
Friends	71.6	106	1.1
Spouse/partner	66.2	98	2.2*
Other Relatives	50	74	4.7**
Other	9.5	14	17.0**
Co-worker/ Classmate	2.0	3	20.3**
Professional	2.0	3	20.3**
Group Member	0.7	1	21.8**
Mentor	0.0	0	22.2**

Percentage of Social Support Providers Listed for Time 3 (n=133)

	Percent Listed as Provider	Number Listed as Provider	t
Mothers Only	75.9	101	-
Immediate Family Not Including Mother	75.2	100	.15
Friends	69.9	93	1.1
Spouse/partner	60.2	80	2.7**
Other Relatives	49.6	66	4.7**
Other	3.8	5	17.3**
Group Member	2.3	3	19.2**
Professional	0.8	1	19.2**
Co-worker/ Classmate	0	0	20.4**
Mentor	0	0	20.4**

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

Hypothesis 2

To test Hypothesis 2a that knowledge of infant development (KIDI) would increase from Time 1 to Time 2 and from Time 2 to Time 3, change indices were calculated to see if knowledge did indeed increase. Six change scores were calculated so that positive change signs meant an increase in correct answers, a decrease in overestimations, and a decrease in underestimations. For example, a positively calculated change between Time 1 underestimations and Time 2 underestimations indicates a decrease in underestimations, while a positively calculated change between Time 1 correct answers and Time 2 correct answers, respectively, indicates an increase in correct answers. Change scores can be seen in Table 2.

Table 2

Change Scores and Confidence Intervals for Hypothesis 2a

	Percent Increased	Percent Decreased	Percent Remained the same	Mean Change	Standard Deviation	Confidence Interval
Time 1 to Time 2 KIDI Correct	52.0	30.2	17.6	.06	.19	.04 ≤ u *
Time 2 to Time 3 KIDI Correct	40.1	32.4	27.5	.02	.20	-.01 ≤ u
Time 1 to Time 2 Underestimations	39.4	35.5	25.4	0.0	.19	-.03 ≤ u
Time 2 to Time 3 Underestimations	42.4	31.7	25.8	.03	.20	0.0 ≤ u
Time 1 to Time 2 Overestimations	24.6	29.5	45.8	-.01	.14	-.03 ≤ u
Time 2 to Time 3 Overestimations	30.0	28.4	41.7	0.0	.16	-.03 ≤ u

*denotes significance

In order to check that the changes from Time 1 to Time 2 and Time 2 to Time 3 overestimations, underestimations, and accurate knowledge of infant development were greater than zero, the mean change score and a 95% confidence interval around that mean were calculated, using a one-tailed (unidirectional) test, in which the null hypothesis was rejected if zero was in the lower 5% of the distribution. For this hypothesis to be significant, the confidence interval must not have included zero. Results of the 95% confidence interval indicated that changes from Time 1 to Time 2 KIDI correct ($.04 \leq u$) were found to be significant and greater than zero (see Table 2).

For hypotheses 2b and 2c, it was predicted that Time 1 social support (emotional support and advice and information, respectively) would positively influence Time 2 KIDI (overestimations, underestimations, and correct answers) and Time 2 social support would positively influence Time 3 KIDI. In order to test this, six Pearson Product-Moment Correlations were first calculated between Time 1 and Time 2 emotional support and Time 2 and Time 3 overestimations, underestimations, and accurate knowledge of infant development, respectively, as well as Time 1 and Time 2 advice and information and Time 2 and Time 3 KIDI. Results shown in Table 3 indicate that hypotheses 2b and 2c were not supported, as most results were not significant. In fact, results for hypothesis 2b indicated that at Time 1, advice and information was positively correlated with underestimations at Time 2 ($r = .19$, $p < .05$), contradicting the hypothesis being tested.

Table 3

Bivariate Correlation Coefficients for Hypotheses 2

	Time 1 Emotional Support Average (n=139)	Time 1 Advice and Information Average	Time 1 Network Size	Time 1 Network Density
Time 2 KIDI Overestimations	.03	-.07	.07	-.04
Time 2 KIDI Underestimations	.09	.19*	-.09	.21*
Time 2 KIDI Correct	-.12	-.11	.07	-.01
	Time 2 Emotional Support Average (n=121)	**Time 2 Advice and Information Average**	**Time 2 Network Size**	**Time 2 Network Density**
Time 3 KIDI Overestimations	.06	-.01	.01	-.19*
Time 3 KIDI Underestimations	0	-.02	-.04	0
Time 3 KIDI Correct	.04	.04	-.02	.09

*$p < .05$.

In order to partial out the effects of previous knowledge of infant development, six partial correlations were also calculated between Time 1 and Time 2 emotional support and Time 2 and Time 3 overestimations, underestimations, and accurate knowledge of infant development, respectively, as well as, Time 1 and Time 2 advice and information and Time 2 and Time 3 KIDI. In each correlation, the appropriate KIDI variable was controlled for. For example, Time 1 overestimations were controlled for when measuring the effects of Time 1 emotional support on Time 2 overestimations. Results shown in

Table 4 likewise, did not support the hypothesis that social support would positively influence knowledge of infant development. For example, Time 1 advice and information was found to be positively related to Time 2 KIDI underestimations ($r = .22$, $p < .05$). None of the other results were shown to be significant.

For hypotheses 2d and 2e, it was predicted that Time 1 network size and density would positively influence Time 2 KIDI and Time 2 network size and density would positively influence Time 3 KIDI. Therefore, this was also tested by first calculating 6 Pearson Product-Moment Correlations, then by calculating 6 partial correlations between Time 1 and Time 2 social support network size and Time 2 and Time 3 KIDI, as well as Time 1 and Time 2 network density and Time 2 and Time 3 KIDI. In each correlation, the appropriate KIDI variable was controlled for. For example, Time 2 underestimations were controlled for when measuring the effects of Time 2 density on Time 3 underestimations. As can be seen in Table 3, Pearson Product-Moment Correlations resulted in several non-significant findings for Hypotheses 2d and 2e. Results did indicate a positive correlation between Time 1 network density and Time 2 KIDI underestimations ($r = .21$, $p < .05$), supporting hypothesis 2e that as Time 1 network density increases, Time 2 KIDI underestimations increase as well . Results, however, also indicated a negative relationship between Time 2 network density and Time 3 KIDI overestimations ($r = -.19$, $p < .05$), contradicting hypothesis 2e as Time 2 network density increases, Time 3 KIDI overestimations would also increase. When the effects of prior knowledge of infant development were controlled for in Table 4, all results but one were non-significant. The one significant result supported hypothesis 2e that as Time 1 network density increased, so

would Time 2 KIDI underestimations. Time 1 network density was found to be positively related to Time 2 KIDI underestimations ($r = .22$, $p < .01$).

Table 4

Partial Correlation Coefficients for Hypotheses 2

	(n=135) Time 1 Emotional Support Average	Time 1 Advice and Information Average	Time 1 Network Size	Time 1 Network Density
Time 2 KIDI Overestimations	0	-.10	.07	-.07
Time 2 KIDI Underestimations	.10	.22*	-.10	.22**
Time 2 KIDI Correct	-.01	-.02	.03	.01
	(n=116) Time 2 Emotional Support Average	Time 2 Advice and Information Average	Time 2 Network Size	Time 2 Network Density
Time 3 KIDI Overestimations	.03	0	-.01	-.17
Time 3 KIDI Underestimations	-.02	-.07	0	-.02
Time 3 KIDI Correct	.04	.05	-.04	.12

*p < .05. **p < .01.

Hypothesis 3

Hypotheses 3a and 3b were tested by calculating four Pearson Product-Moment Correlations between emotional support at Time 1 and parenting attitudes (positive and negative) at Time 2, as well as, advice and information at Time 1 and parenting attitudes at Time 2. As indicated in Table 5, there was a significant, negative relationship between

negative parenting attitudes at Time 2 and emotional support at Time 1 ($r = -.30$, $p < .01$), supporting the hypothesis.

Table 5

Bivariate Correlation Coefficients for Hypotheses 3

	(n=133) FEQ Positive Parenting Attitudes	FEQ Negative Parenting Attitudes
Time 1 Emotional Support Average	.01	-.30**
Time 1 Advice and Information Average	.02	-.07
Time 1 Network Size	0	.19*

*p < .05. **p < .01.

Hypothesis 3c was likewise tested by calculating two Pearson Product-Moment Correlations between network size at Time 1 and parenting attitudes (positive and negative) at Time 2 (see Table 5). Results revealed a significant relationship between FEQ negative parenting attitudes at Time 2 and social support network size at Time 1 ($r = .19$, $p < .05$).

Hypothesis 4

In order to test Hypothesis 4 that accurate knowledge of infant development (KIDI) at Time 1 would be positively related to positive parenting attitudes at Time 2 and negatively related to negative parenting attitudes at Time 2, six Pearson Product-Moment Correlations were calculated (see Table 6). Results indicated a significant positive relationship between Time 2 positive parenting attitudes and KIDI overestimations at

Time 1 ($r = .31$, $p < .01$), contradicting the hypothesis that as positive parenting attitudes went up, KIDI overestimations would go down.

Table 6

Bivariate Correlation Coefficients for Hypothesis 4

	(n=135) FEQ Positive Parenting Attitudes	FEQ Negative Parenting Attitudes
Time 1 KIDI Correct	-.15	-.07
Time 1 KIDI Overestimations	.31**	-.11
Time 1 KIDI Underestimations	-.05	.14

**p < .01.

Hypothesis 5

Hypothesis 5a was tested by calculating several Pearson Product-Moment Correlations between KIDI and infant health. Eighteen total correlations were calculated (see Table 7). Nine Pearson Product-Moment correlations were calculated for Time 1 KIDI and Time 2 infant health and development and nine Pearson Product-Moment correlations were calculated for Time 2 KIDI and Time 3 infant health and development. As can be seen by the frequency analysis done on the Time 2 and Time 3 infant health variables (see Table 8), the variables of drainage from ears (EARS), eaten something worrisome (EAT), and trouble hearing (HEAR) occur infrequently. Therefore, a new variable of infant illnesses (INFILL) was created by making a standard score out of the variables of bowel movement problems (BOWELM), other illnesses (OTHERILL), vomiting three times in 24 hours (VOMIT), trouble breathing (BREATHE), skin

infections (SKIN), bad diaper rash (RASH), and other ear problems (EARPROB). The variables of number of hospital admissions (ADMITN) and number of accidents (ACCID) were analyzed separately. No significant results were found.

Table 7

Bivariate Correlation Coefficients for Hypotheses 5

		(n=145)	
	Time 2 Hospital Admissions	Time 2 Number of Accidents	Time 2 Infant Illnesses
Time 1 KIDI Correct	-.09	-.10	.01
Time 1 KIDI Overestimations	.02	.12	-.11
Time 1 KIDI Underestimations	-.04	.13	.14
		(n=110)	
	Time 3 Hospital Admissions	Time 3 Number of Accidents	Time 3 Infant Illnesses
Time 2 KIDI Correct	0	-.06	-.12
Time 2 KIDI Overestimations	.03	.12	.02
Time 2 KIDI Underestimations	-.04	.12	0
		(n=96)	
	Time 3 Hospital Admissions	Time 3 Number of Accidents	Time 3 Infant Illnesses
FEQ Positive Parenting Attitudes	-.10	.01	.16
FEQ Negative Parenting Attitudes	.06	.15	.16

Table 8

Frequency Analysis of Infant Health Variables

	Time 2 Frequencies (n=151) Frequency	Percent
Bowel Movement Problems	55	36.4
Other Illnesses	49	32.4
Vomiting 3 times in 24 hours	45	29.8
Bad Diaper Rash	44	29.1
Trouble Breathing	43	28.5
Skin Infections	33	21.8
Number of Hospital Admissions	29	19.1
Number of Accidents	17	11.3
Other Ear Problems	13	8.6
Drainage from Ears	4	2.7
Eaten Something Worrisome	3	2.0
Trouble Hearing	0	0.0

	Time 3 Frequencies (n=117) Frequency	Percent
Other Illnesses	53	45.3
Trouble Breathing	51	43.6
Bad Diaper Rash	40	34.2
Other Ear Problems	37	31.6
Vomiting 3 times in 24 hours	37	31.6
Bowel Movement Problems	35	29.9
Number of Accidents	34	29.1
Number of Hospital Admissions	30	25.7
Skin Infections	30	25.6
Eaten Something Worrisome	20	17.1
Drainage from Ears	5	4.3
Trouble Hearing	2	1.7

Hypothesis 5b was tested by calculating six Pearson Product-Moment correlations (see Table 7). Results indicated that none of the tested correlations were significant.

Hypothesis 6

Hypothesis 6a was tested by calculating six Pearson Product-Moment Correlations (see Table 9). No significant results were found.

Table 9

Bivariate Correlation Coefficients for Hypothesis 6a

	(n=76) Bayley Mental Development Index	Bayley Physical Development Index
Time 2 KIDI Overestimations	-.09	.12
Time 2 KIDI Underestimations	.11	-.03
Time 2 KIDI Correct	0	-.16

To test hypothesis 6b that positive parenting attitudes at Time 2 would be related to infant's higher scores on tests of cognitive and intellectual development at Time 3 and that negative parenting attitudes would be related to lower scores, four Pearson Product-Moment Correlations were calculated between positive and negative parenting attitudes at Time 2 and cognitive tests at Time 3. Results shown in Table 10 indicated that there is no significant relationship between either positive or negative parenting attitudes and Bayley scores.

Table 10

Correlation Coefficients for Hypothesis 6b

	(n=78) Bayley Mental Development Index	Bayley Physical Development Index
FEQ Positive Parenting Attitudes	.11	.05
FEQ Negative Parenting Attitudes	-.01	-.08

Hypothesis 7

In order to test Hypothesis 7a, two Pearson Product-Moment Correlations were calculated between social network density at Times 1 and 2 and self-esteem at Times 2 and 3, respectively. Table 11 shows that network density was not significantly correlated with self-esteem at any time.

Table 11

Bivariate Correlation Coefficients for Hypotheses 7

	(n=139) Time 2 Self-Esteem
Time 1 Network Density	-.09
Time 1 Network Size	-.01
	(n=122) Time 3 Self-Esteem
Time 2 Network Density	.08
Time 2 Network Size	-.02

Likewise, to test Hypothesis 7b, two Pearson Product-Moment Correlations were calculated between social support network size at Time 1 and Time 2 and self-esteem at Time 2 and Time 3, respectively. In each case, the correlation was found to be non-

significant (see Table 11). Change indices for self-esteem were also calculated from Time 1 to Time 2 and from Time 2 to Time 3, in order to see if self-esteem did indeed increase (see Table 12). Two change scores were calculated so that positive change signs meant an increase in self-esteem and negative change signs meant a decrease in self-esteem.

Table 12

Change Scores and Confidence Intervals for Hypothesis 7b

	Percent Increased	Percent Decreased	Percent Remained Same	Mean Change	Standard Deviation	Confidence Interval
Time 1 to Time 2 Self-Esteem Change	49.1	36.4	14.1	.05	.36	$0.0 \leq u$
Time 2 to Time 3 Self-Esteem Change	39.1	46.6	14.2	-.05	.38	$-.10 \leq u$

In addition to calculated change scores, changes from Time 1 to Time 2 and from Time 2 to Time 3 were checked to see if they were greater than zero. The mean change score and a 95% confidence interval around that mean were calculated, using a one-tailed (unidirectional) test, in which the null hypothesis was rejected if zero was in the lower 5% of the distribution. For this hypothesis to be significant, the confidence interval must not have included zero (see Table 12). Results indicated that no changes in self-esteem were significantly different from zero.

Hypothesis 8

To test Hypothesis 8 that an increase in infant development knowledge from Time 2 to Time 3 would positively effect self-esteem at Time 3, change indices were first calculated from Time 2 to Time 3 to see if developmental knowledge did increase. Six

Pearson Product-Moment Correlations were calculated between Time 3 self-esteem and changes in Time 3 overestimations, underestimations, and correct answers. (see Table 13). All correlations were non-significant with the exception that Time 3 self-esteem was found to be positively related to changes in KIDI overestimations from Time 1 to Time 2 ($r = .29$, $p < .01$).

Table 13

Bivariate Correlation Coefficients for Hypothesis 8

	(n = 117) Time 3 Self-Esteem
Change in KIDI overestimations from Time 1 to Time 2	.29**
Change in KIDI correct from Time 1 to Time 2	.11
Change in KIDI underestimations from Time 1 to Time 2	-.05
	(n = 120) Time 3 Self-Esteem
Change in KIDI overestimations from Time 2 to Time 3	-.09
Change in KIDI correct from Time 2 to Time 3	0
Change in KIDI underestimations from Time 2 to Time 3	-.04

**p<.01.

Discussion

The present study was designed to investigate the effects of social support on adolescent mothers' knowledge of infant development, their parenting attitudes, their self-esteem, infant health, and infant development. It was hypothesized that social support would have a direct, positive effect on knowledge of infant development, adolescent parenting attitudes, and adolescent self-esteem, and an indirect, positive effect on infant health and infant development.

The current findings strongly supported previous researcher's assertions that adolescent mothers list their mothers most often as providers of support (e.g. Cooley & Unger, 1991; Hoffman, Ushpiz, & Levy-Shiff, 1988). No other group was listed significantly more frequently than mothers. Since most of the adolescent mothers in the sample were still living at home after the birth of the baby, it is most likely that their own mothers were most conveniently available to help with child care. It is also possible that adolescent mothers listed their own mothers as providers of support because their own mothers may had been adolescent mothers themselves. Hence, the adolescent's mother may have automatically provided her own child with more support because she empathized with her daughter.

An additional finding of hypothesis 1 indicated that at Time 1, adolescent mothers listed both their mothers and their friends most frequently as providers of support. This is not surprising as it supports several researcher's findings that adolescent mothers list their own mothers most frequently as providers of support (e.g. Cooley & Unger, 1991) as well as supporting the findings from other studies that adolescent mothers rely on support from

friends (e.g. Garcia-Coll, Hoffman, & Oh, 1987). While some studies have indicated that social support from friends may lead to higher distress in adolescent mothers (Thompson, 1986; Thompson & Peebles-Wilkins, 1992), it appears that at least at Time 1, adolescent mothers of this study felt most strongly supported by both friends and mothers.

An interesting outcome of hypothesis 1 was the finding that at Time 2, adolescent mothers listed immediate family other than their own mothers most frequently as providers of support. Although there was no significant difference between the listings of immediate family and mothers, this is an interesting finding to consider since at this time period, the adolescent mothers had just had their babies and presumably required the most amount of support. It is possible that in this and other studies, the importance of support from immediate family has been overlooked. It is also possible that at this time, several social support providers were available to help both the adolescent mother and the grandmother with the adjustment to the new baby. Support from the grandmothers may have been available along with additional support from aunts, uncles, sisters, and brothers.

Studies have indicated that the mother benefits from contact with the baby's father (e.g. Samuels, 1994; Thompson, 1986; Unger & Wandersman, 1985). In this study, the spouses/partners were among several social support providers that were listed significantly less often than mothers. With a sample of adolescent mothers such as the one in this study, it is possible that the young spouses/partners of the adolescent mothers may not have been available to provide support or support may have been provided from a significant other, other than the baby's father. In either case, the adolescents in this sample perceived less support from spouses/partners.

The finding that high amounts of advice and information were positively correlated with higher KIDI underestimations contradicted the hypothesis being tested. This may have occurred due to the possibility that many adolescents relied on friends and significant others for support as well as mothers. Therefore, they may have received inaccurate child development information from those friends. It is also possible that the adolescent's own mother had inaccurate perceptions of child development. It is likely that if these same adolescents received child development information from professionals, they may have had less underestimations.

In agreement with the literature (e.g., Miller, 1988), hypothesis 2e that KIDI underestimations would increase with a higher network density, was supported. Since network density refers to the amount of familiarity social support network members have with each other, it is conceivable that they are each also familiar with the same infant development information. This implies that those social support providers with incorrect infant development information pass that information among themselves and then to the teen. Such incorrect information tends to be more confined in high density networks where there is no one unknown to the network from which to obtain different information.

The finding that overestimations decreased as network density increased was surprising, and in disagreement with the literature (e.g., Miller, 1988). If incorrect information tends to be confined in high density networks, then it would be expected that overestimations would increase with network density as underestimations did. However, it is possible that overestimations are discovered sooner as the infant develops and does

not exhibit whatever behavior was overestimated. Therefore, with a dense network, this information may quickly get passed along to the teen, lowering her overestimations.

Among other results supporting the hypotheses, it was found that as emotional support went up, negative parenting attitudes decreased. This suggests that social support may influence the parenting attitudes of adolescent mothers, possibly boosting positive parenting attitudes as negative attitudes decrease. It is conceivable that as the mothers received praise for their parenting skills and/or sympathy for how difficult it is to be a young mother, the adolescent mothers felt that the pressures of parenting were eased, resulting in fewer negative parenting attitudes. However, results also revealed that negative parenting attitudes increased as network size increased for the adolescent. This may be due to an increased number of people telling the adolescent many negative stories about parenthood or an increase in the number of people criticizing the adolescent mother's parenting techniques. It is also possible that the size of the adolescent's network may have increased due to people who wanted to see the newborn, but actual support from that network may not have increased. Members of the support network may have stayed long enough to play with the baby and then departed, leaving the adolescent to do all of the typical parenting duties such as changing diapers. This may have caused the adolescent to feel left out of the joys of being a parent and dislike the responsibilities of being a parent.

Other findings indicated that as Time 1 KIDI overestimations increased, positive parenting attitudes increased. This is most likely due to the nature of the overestimations, which give the mother a positive attitude about parenting. For example, if a mother

believes that her child will be walking at 6 months, she may be more likely to have a positive attitude towards parenting. Likewise, results indicating that as KIDI overestimations from Time 1 to Time 2 go up, Time 3 self-esteem goes up, are most likely due to the nature of the overestimations. If the adolescent mother expects that her child will develop quickly, then she may be more likely to have higher self-esteem due to her beliefs that she is a good mother.

Current findings suggest that for all adolescents, social support may not increase or change knowledge of infant development. Adolescents who had low network densities and who received advice and information from their social support networks also had higher KIDI underestimations. However, social support does appear to slightly influence positive parenting attitudes of adolescent mothers, as findings indicated that negative parenting attitudes decrease as emotional support increases. This suggests that providing social support to adolescent mothers is helpful in respect to influencing the parenting attitudes of the adolescents. This, in turn, may indirectly influence the adolescent mother's reactions towards her child. While direct observations of mother-infant interactions were not a focus of this study, these findings provide useful information on which to base future studies.

Current findings also indicated that there were no significant effects, either positive or negative, found for knowledge of infant development or parenting attitudes on infant health and development. This implies that while knowledge of infant development and parenting attitudes did not positively impact infants of adolescent mothers, they did not harm infants either. It is possible, therefore, that a similar study may yield more

conclusive findings that pinpoint what effects, if any, knowledge of infant development and parenting attitudes have on infant outcomes. This finding also suggests that there may be additional, stronger influences on infant health and development than knowledge of infant development and parenting attitudes.

Findings of the present study, that self-esteem and positive parenting attitudes were positively correlated with KIDI overestimations, imply that as KIDI overestimations go up, self-esteem and positive parenting attitudes go up. This suggests the possibility that the adolescent mother may be protected from feelings of low self-esteem and/or negative parenting attitudes by incorrect infant development knowledge. If an adolescent mother does not know that many infants will begin to vocalize as early as six months of age, then she may be inclined to believe that her child is special or gifted. Likewise, she may think that parenting is not so hard and that she is a good mother. As a result, her self-esteem is likely to be very high.

With this in mind, it is possible that providing adolescent mothers with correct infant development knowledge may negatively affect their self-esteem and their attitudes towards parenting. For example, if an adolescent mother is informed that she can expect to see her baby's first social smile around two months of age and her baby has yet to smile at three months of age, her self-esteem as a parent may drop and she may become indifferent towards parenting. Since many programs implemented for the benefit of adolescent mothers are aimed at educating them about infant development, this finding should be considered when implementing such programs. Providing adolescent mothers with such information by itself may not be as helpful as was once thought.

A possible suggestion for future programs aimed at educating adolescent mothers may be to focus on both teaching knowledge of infant development as well as focusing more on teaching hands-on parenting skills. Classes that encourage adolescent mothers to bring their babies along with them and teach the adolescent mothers how to engage and have positive interactions with their infants through play may be useful in addition to classes that teach factual information. Not only would it be helpful for the mother to learn how to have fun with her infant, but it would be beneficial for the baby as well.

There are a few limitations to the study. Since the study was begun in 1990 before the second version of the Bayley Scales of Infant Development came out in 1993, the first edition of the Bayley was used to measure infant development. This may have affected the reliability and/or validity of the Bayley results. If a similar study on adolescent mothers and social support were to be conducted, the newer version of the Bayley should be used. However, the staying power of the original Bayley Scales and the fact that The Bayley Scales of Infant Development are still considered the most useful and widely used tests of infant's developmental progress (Burns, Burns, & Kabacoff, 1992; Carlson, Labarba, Sclafani, & Bowers, 1986) suggests that the use of the original Bayley Scales may not have affected the results.

Another limitation focuses on the use of a longitudinal design. As with any longitudinal study, attrition must be considered. The amount of accessible data for the present study steadily declined from Time 1 to Time 2 to Time 3 as fewer subjects were available to interview at each new time period. This resulted in a smaller ending sample size and fewer subjects for each analysis performed. However, attrition was anticipated

and accounted for in the original data collection of 175 subjects, therefore, the subject difference between Time 1, Time 2, and Time 3 data was not so large as to effect the results.

The restricted demographic make-up of the sample (low-income, single mothers) calls for caution in drawing conclusions and generalizing to other groups of adolescent mothers such as middle-class, married adolescents. Although many studies on adolescent mothers are conducted on primarily low-income, single mothers, it would be beneficial to the overall literature on adolescent motherhood to study more diverse groups of adolescent mothers including mothers from all marital and socioeconomic backgrounds.

Similar conditions among studies conducted on adolescent mothers are the age and developmental factors of the adolescent. However, in addition to the age and developmental factors of the adolescent, adolescent motherhood must be considered as occurring within the context of cultural, social, and familial factors. Buchholz and Gol (1986) conducted a review and concluded that the developmental level of the adolescent mother interacts with various cultural, family, economic, and psychological variables to produce varying outcomes for teen mothers. No one variable was found to consistently produce the same outcome due to the individual differences in the adolescents. For various mothers, any combination of these factors produces positive or negative outcomes for a teen mother and her child. This study analyzed the effects of the psychological variable of self-esteem as well as the familial variable of social support from mother, however, it overlooked other significant factors of cultural and economic variables.

Nevertheless, of the 139 tests of significance conducted in this study, 31 of those tests were significant at either $p \leq .05$ or $p \leq .01$. By chance alone, it could be expected that 5% of these tests would be significant, yet 22% of these tests were significant. Therefore, despite some of the limitations of this study, the experiment-wide findings can be confidently expanded on or applied to future studies. Further analysis, however, lends caution to these findings when the results are broken into the calculated paired t-tests for hypothesis 1 and the calculated correlations for hypotheses 2 through 8. Among the 27 calculated t-tests, 21 tests, or 78%, were significant at either $p \leq .05$ or $p \leq .01$. Among the other 112 calculated correlations, 10 tests, or 9%, were significant at either $p \leq .05$ or $p \leq .01$. This indicates that possibly half of the significant correlational findings may have occurred by chance alone.

For future studies, it is important to keep in mind that social support is not the only possible influence on adolescent mothers, as other factors such as the characteristics of the mother or the child (Belsky, 1984) may also influence parenting attitudes and child health and development. Although, compared to these influences, social support is presumed to be somewhat malleable (Crockenberg, 1982). Therefore, future studies may want to focus on the effects of social support on adolescent mothers with handicapped or difficult children.

This study focused primarily on the role that the adolescent's mother provided, with results partially indicating that the adolescent's mothers were the most frequently listed providers of social support. Future studies should focus on the effects of other social support providers such as the role professionals have in providing support to

adolescents as evidence indicates that mothers tend to look to professionals for child care advice. For example, a study by Crockenberg (1986) found that 76% of a sample of adolescents indicated that they would like to receive more information on child care from professionals.

Finally, future researchers must consider the possible consequences of too much support. It may initially be helpful to an adolescent mother to have additional people to help ease her into the role of mother (Crockenberg, 1982). There is considerable evidence that social support is favorable for the adolescent mother and her infant the first few months after birth. However, continued reliance on a large network of family members may add to or validate the teen mother's incompetence. The present study did not look at social support for the teen mothers after the child was six months old. Therefore, future studies of this nature should focus on how social support effects the adolescent and her child when the child is school age and older.

APPENDICES

APPENDIX A

APPENDIX A

INFANT HEALTH QUESTIONNAIRE

Instructions: We are interested in how your baby's health has been in the last month. Please indicate which of these health problems your baby experienced during the past month by circling the appropriate number.

	No	Yes Once	More Than Once
1. Loose or watery bowel movements (3 or more times in a 24 hour period).	0	1	2
2. Vomiting 3 or more times in a 24 hour period.	0	1	2
3. Trouble coughing or breathing that interfered with his/her feeding or sleeping.	0	1	2
4. Eaten or swallowed something that made you worry.	0	1	2
5. Skin infections (e.g., pimples, boils, impetigo, infected insect bites, open sores).	0	1	2
6. Bad diaper rash (e.g., rash covering most of diaper area and/or causing baby to cry).	0	1	2
7. Any other type of illness?	0	1	2
A. What? _____			
B. What? _____			
8. An accident of any kind?	0	1	2
Specify _____			
9. Greenish or yellowish material draining from the ears.	0	1	2

10. Other type of ear problem? 0 1 2

    What? _____

11. Do you think your baby has any trouble hearing? ___

    (1) Yes
    (0) No
    Why? _____

12. Since the baby was born or since I saw you last, how many times has he/she been admitted to the hospital for any reason? (CLARIFY THAT THIS MEANS STAYING OVERNIGHT AT LEAST ONE NIGHT.)

    ___

    For what? (SPECIFY HOSPITAL IF NOT REGULAR HOSPITAL)

    First Time _____

    Second Time _____

    Third Time _____

    Fourth Time _____

    Fifth Time _____

APPENDIX B

APPENDIX B

SOCIAL SUPPORT QUESTIONNAIRE

Directions: This questionnaire asks about the people in your life who provide you with support. Specifically, we are interested in several different ways in which people can support you.

Emotional Support includes: Listening to your troubles, being understanding, comforting, and sympathetic.

Advice and Information includes: Telling you how to solve a particular problem, sharing what they would do in a situation like yours, helping you get the information you need to help yourself.

Practical Assistance includes: Helping by doing things for you (for example, baby-sitting, housecleaning, shopping, driving, and so forth), lending you money, solving a problem for you.

Please list each significant person in your life on the right. Consider all the persons who provide support for you or are important to you. Use only first names and initials, and then indicate whether this person is a male or female, as in the following example:

	First name or Initial	Male or	Female
1.	D. W.	(M)	F
2.	Jane	M	(F)
3.	Anne	M	(F)
4.	Bill	(M)	F

and so on...

Use the following list to help you think of the people important to you and list as many people as apply in your case.

- spouse or partner
- family member or relative
- in-laws
- friends and neighbors
- work or school associates
- health care providers
- counselor, therapist, or clergy
- other

You do not have to use all 20 spaces. Use as many as you have important persons in your life.

For each person you listed, please answer the following questions using the following scale:

1 = none at all
2 = a little
3. = some
4 = quite a bit
5 = a great deal

Question 1

How much emotional support, specifically about being a parent, do you receive from this person?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 2

How much advice and information specifically about being a parent, do you receive from this person?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

1 = none at all
2 = a little
3. = some
4 = quite a bit
5 = a great deal

Question 3

How much practical assistance specifically about being a parent, do you receive from this person?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 4

How much support, in general, do you receive from this person on other important aspects in you life?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 5

What is your major relationship with this person?

1 = spouse or partner
2 = immediate family (parent bother, sister)
3 = other relatives
4 = friend
5 = co-worker or classmate
6 = member of a group to which I belong
7 = professional or health care provider
8 = other
9 = mentor

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 6

For how long have you know this person?

1 = less than six months
2 = between six months and a year
3 = about a year
4 = two to three years
5 = four years or more

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 7

Is this person:

1 = currently married with children?
2 = currently married without children?
3 = currently single with children?
4 = currently single without children?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 8

Where does this person live:

1 = same house as me
2 = same neighborhood as me
3 = same city or town as me
4 = same state as me
5 = out of state

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 9

How frequently have you had contact with this person during the last six months?

1 = daily or almost daily contact
2 = several times a week
3 = several times a month
4 = several times in the last six months
5 = once or less in the last six months

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 10

How often during the last six months has this person caused you trouble or made things more difficult for you?

1 = daily or almost daily trouble
2 = several times a week
3 = several times a month
4 = several times in the last six months
5 = once or less in the last six months

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 11

Please indicate which of the other people on your list this person knows. For each person, circle the numbers which correspond to the people he/she knows. For example, if "Joe" knows "Ann" you'd circle Joe's number on Ann's line and Ann's number on Joe's line. If this person knows no other people on your list please circle the zero (0) at the end of the line.

		First name or Initials	Male or Female?	
1.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	1. _____	M	F
2.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	2. _____	M	F
3.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	3. _____	M	F
4.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	4. _____	M	F
5.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	5. _____	M	F
6.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	6. _____	M	F
7.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	7. _____	M	F
8.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	8. _____	M	F
9.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	9. _____	M	F
10.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	10. _____	M	F
11.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	11. _____	M	F
12.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	12. _____	M	F
13.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	13. _____	M	F
14.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	14. _____	M	F
15.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	15. _____	M	F
16.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	16. _____	M	F
17.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	17. _____	M	F
18.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	18. _____	M	F
19.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	19. _____	M	F
20.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 0	20. _____	M	F

APPENDIX C

APPENDIX C

ROSENBERG SELF-ESTEEM SCALE

Instructions:

For each of the following 10 items please tell me the number which best matches how you feel about yourself. Use the following scale to complete your answers:

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

1. I feel I'm a valuable person, at least equal with others.
2. I feel that I have a number of good qualities.
3. I feel I do not have much to be proud of.
4. I am able to do things as well as most other people.
5. All in all, I tend to feel I am a failure.
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself.
9. I certainly feel useless at times.
10. At times I think I am no good at all.

APPENDIX D

APPENDIX D

THE FAMILY EXPERIENCES QUESTIONNAIRE - TEEN VERSION

INSTRUCTIONS: These questions have to do with your attitudes and feelings about parenting. If you do not yet have a child, some of these questions will not apply to you, but try to answer them as though they did. Please tell me how much you agree with each of the following statements using this scale:

1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree

1. I often overreact when my child misbehaves.

2. I live for my children.

3. I want my children to behave in public so that people will know that I am a good parent.

4. I know that I am doing a good job as a parent.

5. Having children makes me feel as though I am contributing to the future of society.

6. As a parent, I never stop enjoying seeing the world through my children's eyes.

7. I try to give my children direction, but mostly I let them grow by themselves.

8. Being a parent makes me feel more important because I know that I am the center of someone's world.

9. Being a parent turned out not to be as difficult as I thought it would be.

10. Parenting has taught me not to get too upset about little frustrations.

11. Knowing that my children will carry on in my place is the most important reward of being a parent that I know.

12. Being a parent makes me feel drained and depleted.

13. I intend to push my children in order to make sure that they achieve the things I never got to do myself.

14. I am able to be consistent with my children so that they do not have to wonder what I am going to do next.

15. I am overly protective of my children; it is better to be safe than sorry.

16. I have the knowledge I need to be a good parent.

17. I get a feeling of pride from watching my children accomplish a goal that they are proud of.

18. I am a very strict parent.

19. I should have read more books on parenting because I often feel like I don't know what I am doing.

20. My children are reflections of myself.

21. My children get on my nerves.

22. One of things I like most about being a parent is that my children are so tuned in to what I do and say.

23. If I could do it over again I would raise my children the same way I am raising them now.

24. What I find most satisfying about being a parent is showing my children the difference between right and wrong.

25. I often worry that I am letting my children down.

26. My kids are always trying my patience.

27. What I most enjoy about being a parent is watching my children grow and change in ways that I never imagined.

28. I see to it that my children are only exposed to things that I want them exposed to.

29. I am going to make sure that my children accomplish the things in life that are important to me.

30. Whenever I start feeling comfortable as a parent something goes wrong and the doubts start all over again.

31. Because my children are a part of me, I find it difficult to let them be independent.

32. I worry that I am not doing the right thing as a parent.

33. As a parent I really enjoy the feeling that I am molding another human being.

34. I did not know how much anger I had inside of me until I became a parent.

35. I like watching my children's personalities develop even when they turn out differently from what I expected.

36. I have learned to accept that I cannot shelter my children from everything I do not like.

37. I want my children to do the same things I did when I was a child.

38. I try not to box my children in with too many rules.

39. No matter how hard I try, I never seem to be a good enough parent.

40. When I get short with my children, I usually can catch myself before I do something I regret.

41. I get a great deal of pleasure out of shaping and molding my children so that they grow up to the kind of people I want them to be.

42. I often worry I don't know enough to be a good parent.

43. What I most enjoy about being a parent is that my children make it possible for me to get a new perspective on the world and myself.

44. I want my children to be interested in the things I was interested in as a child.

45. I have to be on guard with my children all the time to keep them from getting into trouble.

46. I get a thrill watching my children discover new things all by themselves.

47. Compared to most parents I know, I seem to have less difficulty disciplining my children.

48. I often feel guilty about neglecting my children.

49. One of the things I most enjoy about parenting is seeing myself in my child.

50. I work hard at shaping my children's lives rather than just letting them grow up as they would.

51. I do not mind that being a parent makes my life less orderly.

52. I find it difficult to find the right balance between discipline and love in raising my children.

53. When I am around my children, I usually find myself thinking "Why do they have to be so difficult?"

54. Juggling all the responsibilities of being a parent is one of my talents.

55. When my children show their will, I make sure they know who is boss.

56. When I tell my children to do something, they will do it, no "ifs", "ands", or "buts".

57. Parenting means a lot of responsibilities and problems, but I always feel that I can cope with the difficulties that come along.

58. I often feel that I have no control over my children.

59. When my kids do something I do not like I blow up first and ask questions later.

60. When there is a crisis with the children, I know that I will do what needs to be done.

61. I have learned to accept that sometimes my kids will not do what I want no matter how hard I try.

62. When my child misbehaves or breaks a rule I try to find out the reasons why.

APPENDIX E

APPENDIX E

KNOWLEDGE OF INFANT DEVELOPMENT INVENTORY

Instructions:

I'm going to ask some questions about the age at which most infants can do certain things. If you think the age is about right, answer 2 for Agree. If you don't agree, then decide whether a younger or older infant could do it. Answer 1 for Younger and 3 for Older. If you aren't sure of the age, answer 4 for Not Sure.

1 = Younger 2 = Agree 3 = Older 4 = Not Sure

1. Most babies can sit on the floor without falling over by 7 months.
2. A baby of 6 months will respond to someone differently depending on whether the person is happy, sad, or upset.
3. Most two-year-olds can tell the difference between a make-believe story on TV and a true one.
4. Infants usually are walking by 12 months of age.
5. An eight-month-old acts differently with a familiar person than with someone not seen before.
6. A baby is about 7 months old before he (she) can reach for and grab things.
7. A two-year-old is able to reason logically, much as an adult would.
8. A one-year-old is able to reason logically, much as an adult would.
9. An infant of 3 months often will smile when she (he) sees an adult face.
10. Most infants are ready to be toilet trained by one year of age.
11. An infant will begin to respond to his (her) name at 10 months.
12. Babies begin to laugh at things around 4 months of age.
13. Five-month-olds know what "no" means.
14. A four-month-old lying on his (her) stomach can lift his (her) head.
15. Babbling ("a-bah-bah" or "bup-bup") begins around 5 months.

16. **One-year-olds often cooperate and share when they play together.**

17. **An infant of 12 months can remember toys she (he) has watched being hidden.**

18. **The baby usually says his (her) first real word at 6 months.**

19. **Infants have depth perception by 6 months of age (can tell they are on a high place).**

20. **Two-month-olds can tell some speech sounds apart.**

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