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THE EFFECTS OF PUBERTAL TIMING ON DEVIANT
BEHAVIORS IN ADOLESCENT FEMALES

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Social Work

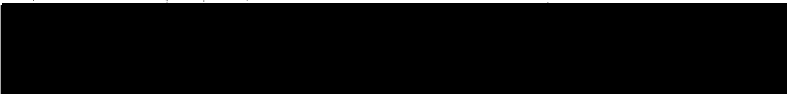
by
Angela Sadowski
September 2001

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ABSTRACT

There is extensive evidence suggesting that early maturing females are at greater risk than on time and late maturing females for the development of behavioral problems. This study investigated the relationship between timing of puberty and deviant behaviors using a sample of college women ranging in age from 18 to 72. The study utilized a positivist (quantitative) approach to assess subjects' age of menarche, participation in deviant behaviors, relationship to same sex and opposite sex peers, and parental relationships. In addition, socio-demographic data were collected to determine if external factors such as ethnicity have a bearing on any relationships discovered. The data were analyzed to determine which of the traditional lines of thought (stressful change, deviance, early maturation, or synchronous events hypothesis), if any, are supported. Implications of these findings are discussed in light of concerns that early maturing females are at greater risk for developing behavior problems, and some suggestions for intervention and education are outlined.

DEDICATION

For my Dad

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CHAPTER ONE

INTRODUCTION

The transition to puberty is a unique time of rapid biological, cognitive and social changes and can be considered a major developmental period of a person's life. Pubertal maturation is characterized by two dramatic physiological changes, large increases of sex hormones and rather dramatic changes in physical appearance (Alsaker, 1996). It is also a period that seems to be important for the development of certain types of problems, such as depression, eating disorders, and norm-breaking behavior (Alsaker, 1995). Many models have been proposed to describe and explain the above phenomena, and most have concluded that a variety of biological and social factors play an essential role in the development of these behavioral problems. Most researchers consider early adolescence as a period marked by rapidly changing physiology and role transition. Pubertal maturation is often accompanied by social problems that appear to be the result of unclear and loosely defined expectations.

Puberty is one of the most profound biopsychosocial transitions. For the adolescent girl the onset of menarche not only signals her approaching reproductive capacity,

but it also elicits new expectations from others, alters her reference group, and reorganizes her body image and sexual identity (Brooks-Gunn, Peterson, & Eichom, 1985). Studies of girls' responses to menarche have clearly demonstrated that this event is highly salient, intensely experienced, and a turning point in female development (Koof & Rierdan, 1995). Research also demonstrates that the younger the adolescent is at the onset of menarche, the less well prepared she feels (Koof & Rierdan, 1995).

Recent research has shown that girls in our culture have a more difficult time adapting to the changes that occur during puberty than do boys. Adolescence may be a highly stressful event for both males and females, however, research indicates that female adolescents who mature earlier than their reference group may be at greater risk for social problems than either males, or females who mature on-time or late (Caspi, Lynam, Moffitt, & Silva, 1993; Ge, Conger, & Elder, 1996).

Although everyone passes through puberty, individual patterns of pubertal development can vary greatly (Hayward et al., 1997). This variability of pubertal timing affects boys and girls differently. For example, boys who enter puberty at a younger age have been reported to have a social advantage (Brooks-Gunn, 1987), although this has

not been the case with girls. "Early sexual maturation in girls has been associated with disturbing body image, scholastic underachievement and higher psychopathology subscale scores on the Self-Image for Young Adolescence" (Hayward et al., 1997, p. 259). Research shows that girls seem to suffer from eating disorders at a significantly higher rate than boys, and that the onset of anorexia nervosa and bulimia nervosa starts around puberty. Although only 3-5% of all adolescent girls suffer from bulimia nervosa and anorexia nervosa, eating problems can also include body dissatisfaction, chronic dieting and weight cycling (Smolak, Levine, & Galen, 1993).

A possible explanation for the adolescent girl having a more challenging time with early puberty is that as she moves towards womanhood, role models and social norms are ambiguous. Boys have much clearer transitions to adulthood, as Western societies' role of adult men is more fixed and unchanging. Early maturing females are at a social disadvantage when compared to early maturing males, but they are also at a disadvantage when compared to on-time or late maturing girls. Caspi et al. (1993) suggest that the young physically mature female must negotiate the demands of her new status without the benefit of those social and institutional structures that

support and smooth the way for later maturing girls. Moreover, precocious puberty may "trigger an individual nexus of social comparisons at a developmental period that is already characterized by heightened vulnerability" (Alsaker, 1995, p. 428). In addition, early maturing girls may be vulnerable to peer pressure because others attribute greater social maturity to them than is warranted by their chronological age. Whatever the cause, the early maturing girl experiences difficulties in adolescence. The early onset of menarche disrupts previous social equilibrium and presents the adolescent girl with an ambiguous, novel and uncertain event to which she must now respond (Caspi et al., 1993).

Clearly, puberty is a time when an individual goes through bodily changes that influence and effect all areas of socialization. About 20% of all young girls will be early maturers (Alsaker, 1995), which means society is faced with a large group of young women who may not possess the resources necessary to adapt to one of the major developmental stages of life. The impact of this crisis is severe, since decisions made at this stage of life have far reaching effects into adulthood.

The discussion thus far suggests that the pubertal transition, especially the timing, may have a disruptive

influence on the emotional well being of girls. A corollary of this prediction is that because of the lack of consolidated adaptive and coping skills, early maturing females may be more vulnerable to challenges in interpersonal, peer, and family circumstances in their lives. Early maturing girls, with a briefer prelude to the pubertal change than their peers, have had less time to acquire, integrate, and consolidate the adaptive and coping skills deemed necessary to confront new tasks in adolescence (Petersen & Crockett, 1985). It has been suggested that early maturing girls are not cognitively mature enough to deal effectively with the new pressures placed upon them, and as a result exhibit poor decision making skills and impulse control (Ge et al., 1996).

Different explanations are offered to explain why early maturing girls are more likely to develop behavioral and emotional disorders than their on-time and late maturing peers. First, early maturing girls do not have appropriate mature models to identify with, while those who mature later have had these models for years. Early maturing adolescent females are on their own to struggle with appropriate ways of behaving, while later maturing adolescents can use those who matured earlier as a reference group.

Early maturing females are unprepared for the biological changes that are happening to them, while late maturing females are usually better informed and ready for the changes. Those who mature early have to deal with bodily changes both outward and inward, before they may be cognitively ready. Later maturers have an extended period of time to develop cognitively before the bodily changes occur. Early maturing females must also deal with their changing body image. Compared to their same aged peer group, they are taller and heavier. This image, which is contradictory to the slender stereotypical woman, alters these youths' frame of reference. They feel like outcasts among girls of their own age and begin to associate with older peers.

Magnusson, Stattin, and Allen (1985) found that early maturing girls, when compared to on-time and late maturing girls, were more likely to engage in norm-breaking activities when they associated with older peers. These young women must also contend with the way they are treated by the opposite sex. Their physical appearance increases their vulnerability to sexual pressures by older males (Ge et al., 1996). As girls mature they become more sexualized and this can lead to disturbances in family relationships. A father may be unprepared to deal with his

little girl developing breasts and the body of a woman. His own feelings of arousal, fear or disgust may greatly influence the way he responds to his daughter. Self-reports indicate that the fathers of early maturing females are more distant and irritable (Ge et al., 1996). Mothers may have an equally difficult time with an early blooming daughter, but for different reasons. A mother may become jealous of her daughter's maturing body, physical attractiveness, and youth, or she may become angry and fearful that her daughter will be viewed as a potential sex partner. The deteriorating relationship between the child and her parents has been shown to be a persistent event that does not get better over time (Painkoff & Brooks-Gunn, 1991). This can make the transition even more difficult, because the adolescent feels alienated from the family unit and will thus rely more heavily on advice and assurance from peers with limited life experience.

Numerous studies have indicated that early maturing girls are more likely to engage in sexual behaviors (Alsaker, 1995). It has been demonstrated that the younger the girl the more negatively she classifies her relationship with the opposite sex (Alsaker, 1995). This may very well be the result of a lack of socialization process concerning proper romantic and sexual

relationships. Although sexual behavior of early maturing girls may seem inappropriate for her chronological age, the behaviors can be viewed as appropriate for her maturational age. This does not mean that this behavior should be overlooked, because several studies have indicated that early maturing females often dated, had intercourse, married, and left school earlier than their on-time and late maturing peers (Phinney, Jensen, Olsen, & Cundick, 1990).

Probably the most salient reason early maturing girls face more difficulty is that outward changes influence peers, family and society to treat them differently. For example, parents of early maturing females are more likely to be unprepared and inadequate in dealing with this change, while, parents of later maturers have had sufficient time to prepare and react before maturation starts. Peer relationships change significantly as well. On-time and later maturing girls are more likely to reject and ridicule the early maturing girl because of their own feelings of jealousy, uncertainty and inadequacy. Early maturers then seek out older peers to interact with since they are more likely to fit in and be accepted.

Accompanying problems with her reference group, the early developing female has a poor self image. This

development can lead to eating problems, which can lead to life threatening disorders such as bulimia and anorexia nervosa. Numerous studies have shown that early maturing girls are at risk for eating disorders. For instance, Smolak et al. (1993) demonstrated that early maturation coupled with age inappropriate dating, significantly increased the chances of developing an eating disorder. These young girls also demonstrated high levels of dissatisfaction with their bodies and their weight.

As an early maturing girl's body becomes more womanly, she will be treated as older than her chronological age which puts her at risk for engaging in more adult-like behavior before she is emotionally ready. The early maturing female is more likely than those who mature later to receive attention from older adolescent males. Unfortunately, these young but physically developed females are not cognitively or emotionally prepared to deal with the older male adolescent. The early maturing female often begins to identify with an older crowd and begins seeking intimacy from peers in her of their deteriorating parental relationship. This in part helps explain why early maturing girls engage in a greater number of sexual activities than their on-time or late maturing peers (Phinney et al., 1990). Phinney et al.

(1990) found that the younger the girl was at the onset of coitus, the earlier she experienced menarche. Phinney et al. (1990) conclude that early introduction into sexualized behaviors is primarily a result of the social pressures placed upon these early maturing teens.

In addition to problems dealing with their newly emerging sexuality, early maturing girls are at risk for higher rates of alcohol, and other drug usage. Young, physically mature girls begin using marijuana, alcohol and cigarettes at a comparably younger age than their on-time peers (Alsaker, 1996). There has been limited research as to whether these behaviors prevail into adulthood, but even if short-lived, this deviant lifestyle can put the early adolescent at risk at a crucial time. Adolescence is a time when one must make critical decisions about the future.

Problem Focus

The hypothesis governing this research is that early maturing females are more likely to develop behavioral problems than on-time or later maturing females. The majority of research on the subject of early menarche and the development of deviant behaviors suggests that there is a correlation between the two variables. Using the

positivist paradigm, a closed-ended questionnaire, utilizing a five-point Likert-like scale, was developed and administered to females ranging in age from 18 to 72, who were then enrolled in community college. The questionnaire was designed to assess if a correlation exists between the onset of puberty and the development of behavioral problems, and the data analysis was designed to assess any evident behavior difference. Part of the data analysis will include assessing obtained information in order to determine if there are behavioral differences amongst early maturing, on-time maturing, and late maturing females.

The questionnaire focused on six basic target behaviors: smoking, drinking alcohol, drug usage, truancy, sexual behaviors, and declining academic performance. Each of the target behaviors was defined and each participant was asked to identify age of onset and frequency of the behavior during adolescence. A comparison was made to determine if any of the three groups of women, during adolescence, demonstrated more behavioral problems and if so, at what age these identified problems began.

The open-ended section of the questionnaire was instrumental in assessing the perception that women have about their relationships during adolescence. Since much

of the research indicated that peer relationships are severely impacted, women were asked to assess their relationships with their same-sex and opposite-sex peers during adolescence. Although women were asked about their perceptions and impressions several years later, the expectation was that understanding would be generated about the value of these relationships.

The quality of the parental relationship with the adolescent girl was also investigated. Since the research thus far indicates that parental relationship with the early maturing female is strained, open-ended questions were asked to evaluate if this occurred. The research also indicates that early maturing teens will alter their reference group to older peers, and thus, this was assessed using the open-ended style questionnaire. This information was analyzed to determine whether trends and patterns would emerge.

Open-ended questions at the end of the survey allowed participants to expand on their relationships with same-sex and opposite-sex peers, as well as parents. This information was analyzed to determine whether significant trends and patterns would emerge.

Adult females were studied so that an assessment could be made about the short-term and long-term effects

on the timing of puberty. Much of the research on this topic to date has focused on females as they were experiencing the changes incident to adolescence; however, the purpose of this research is to expand the hypothesis and determine if timing of puberty affects females into their adult years. By surveying females who have already passed through puberty, this study examined the long-term outcomes of timing. It is expected that adolescents, as a normative part of development, will have some psychological and behavioral difficulties during their pubertal maturation. This research analyzed whether the effects of timing of puberty are short-lived or long-lasting.

Understanding how the timing of puberty is related to behavioral problems is important for the social work profession. Since much of social work involves families and children, it is essential to appreciate how puberty, a particularly stressful time for teen girls, affects the entire family. Preventive action can be taken with at-risk teen girls if social workers are educated about the impact of timing of puberty. If, in fact, this research were to conclude that early puberty is detrimental to adolescent girls, it would suggest that social workers be educated to intervene effectively. Exploration of methods for helping

assist early maturing girls through the adolescent process is warranted, and education is needed to enlighten families, peers, and mental health workers about this difficult transition period.

Because adolescence is a developmental stage characterized by social, cognitive, and biological changes, the ability to complete this stage successfully has a profound effect on healthy mental development. As noted earlier, research shows that females who mature early are more susceptible to psychological disorders. These young women have lower self-esteem and higher rates of depression than their on-time and late maturing peers (Ge et al., 1996). There is some evidence that these psychological disorders persist into late adolescence and into early adulthood (Ge et. al., 1996). This manifestation of psychological stress should be of concern to the social work profession. In order to treat these disorders, it is important that clinicians be aware that the early maturing female population is at risk.

Social workers need to be cognizant about this group of early maturing females, which has been widely ignored in terms of scientific research. Scant research is conducted on girls in general, but even less on the normative transition from childhood to adolescence called

puberty. Early maturers are at risk girls, influenced by a society that undervalues women and promotes ambiguous and highly sexualized roles for adult women. These girls come to the attention of social workers for many reasons and in many settings. Social workers need to recognize the social pressures that these early maturing adolescents must deal with, and must be prepared to intervene and offer solutions.

Clearly, systems theory promotes the idea that these girls are a part of a larger system of family, peers, school, community and society. On a family level, early maturing girls develop more psychological disorders and have lower self-esteem which certainly impacts relationships within the family unit. These girls are a part of the educational system and seem to perform more poorly than their and older maturing peers. Peer relationships suffer, as these girls are often ostracized by friends and seek out older cohorts. Research has shown that having older peers leads to engaging in risky behavior at earlier ages.

Delinquent behavior is also a problem social workers face in their practice. The community suffers as these at-risk girls are not only victimized by society, but also create social problems. Early maturation is related to early sexual behavior, which promotes concerns of teen

pregnancy, AIDS, date rape and sexually transmitted diseases. Early maturers more frequently engage in cigarette smoking and drinking alcohol. These behaviors are associated with greater risk behaviors such as chronic drug usage, drunk driving, and domestic abuse. Eating disorders continue to plague young girls who suffer from serious health concerns and in extreme cases death.

Social workers must address these problems from both a micro and a macro perspective to ensure change. Since timing of puberty itself cannot be changed, the focus needs to be on education young women, their families and society about this developmental transition. Young girls should be taught about the socialization process of adolescence through the educational system, the media, community centers, and counseling. Young girls must have clearer role models to emulate and clearer messages about the process of puberty. Much of society's message to girls about puberty is that it is shameful, bad and dirty. Much of the socialization process is still left to parents, yet many parents seem ill equipped themselves to relate to their changing and maturing child. Parents also need to be educated about the effects of early puberty to help their daughters through this major life event. Fathers, who seem to have the most difficulty adapting to an early

blossoming daughter, need special consideration to sort through their mixed emotions.

Social workers who work in the educational arena can help teachers to understand the risks faced by early maturing girls and can help these educators respond appropriately to the emotional changes inherent in early maturation. Teachers need to be willing to discuss the transition of puberty and provide adequate role models to both boys and girls about this transitional period.

Social workers who work in the medical field need to educate medical personnel as well. Doctors and nurses come in contact with maturing girls and are often given the responsibility to educate these adolescents about their bodies, especially if parents have not. Physicians may not understand the importance of the timing of puberty in girls and the psychological risks; therefore, they may not disseminate information or be unaware of the danger signs. Physicians and nurses should be ever cognizant to screen for eating disorders, drug use, cigarette smoking, early sexual activity, and alcohol usage in this population.

Special attention should be given to this topic in the social work curriculum so that future social workers will be aware of the unique concerns of this population of girls. In the social work profession, regardless of the

setting, workers can devise strategies to help educate and support girls entering puberty preparing them for the biological, emotional, and cognitive changes that occur before psychopathology develops.

CHAPTER TWO

LITERATURE REVIEW

The majority of the literature on early maturing females provides support for one of four hypotheses: the stressful change hypothesis, the off-time hypothesis, the early timing hypothesis, or the synchronous events hypothesis. These four hypotheses provide the framework for much of the research conducted on this topic.

The stressful change hypothesis proposes that girls who are experiencing the pubertal transition will manifest higher levels of distress than pre- or post-pubertal girls (Ge et al., 1996). This hypothesis is based on the premise that the event of puberty manifests new psychological problems and requires social adoption. This hypothesis assumes that change is stressful; therefore girls should experience the most amount of stress at the onset of menarche or shortly thereafter.

The off-time hypothesis predicts that girls who mature earlier or later than their peers will present a greater number of psychological and behavioral problems than their on-time reference group (Ge et al., 1996). This hypothesis, a derivative of the deviance hypothesis, maintains that any departure from the normally scheduled

timing of life's events puts one at risk. As a result, both early maturing and late maturing girls should show an increased risk for emotional and behavioral problems.

On the other hand, the early timing hypothesis stipulates that girls who mature early would manifest emotional and behavioral problems (Ge et al., 1996). The basis for this hypothesis is rooted in developmental theory which contends that developmental tasks of childhood are chronologically ordered. When a child physically matures ahead of this time line, the child may not have had enough time to transition from childhood to adolescence. The early maturing child would have had a shorter time period in which to acquire, integrate, and consolidate the coping and defense mechanisms necessary to adjust to the demands of adolescence successfully (Dorn, Crockett, & Peterson, 1998; Ge et al., 1996; Peterson & Crockett, 1985).

The fourth hypothesis is the synchronous events framework. This model, proposed by Smolak et al. (1993), suggests that the difficulties experienced by early maturing girls is not only a result of the off-time nature of the event, but also the combined stress of synchronous events. This hypothesis is based on the premise that early maturing girls also experience environmental changes that

are independent of their maturational status, and these events contribute greatly to the development of psychological disorders and behavior problems.

Ge et al. (1996) compared the stressful change, off-time, and early timing hypotheses and found that early pubertal onset predicted greater psychological distress. Psychological distress was measured by self and parental reporting on anxiety and depression scales, the Adolescent Psychiatric Distress Scale and a somatization scale. On all scales, the early maturers and their parents reported more anxiety, depression, stress and somatization.

While the study conducted by Ge et al. (1996) was a useful one, it has serious flaws. First, only girls in rural Iowa were asked to participate, thus limiting the generalizability of the results. Second, to be a participant in the study the girls needed to be currently attending seventh grade, be living with both biological parents, and have one sibling within 4 years of their age. These requirements severely limited the sample pool, and may have created a bias in the final results. For example, much of the research shows early maturing girls, in fact, are often truant from school. The Ge et al. study would not have included this population, creating a significant slanting of the results.

Smolak et al. (1993) studied early adolescent girls and the prevalence of eating problems. They believed that early maturation was not sufficient criteria for the development of eating disorders. Their study showed that early maturing girls did not show more eating problems. However, they did demonstrate that the transition from elementary to middle school had a negative impact on the behaviors of the children. Furthermore, they showed that the number of early maturers with eating disorders greatly increased when the pubertal adolescent began dating.

Graber, Brooks-Gunn, Paikoff, & Warren (1994) demonstrated, through an eight-year study of adolescent girls, that early maturing girls were at higher risk than their later maturing peers for the development of chronic eating disorders. This study provided support for the early timing hypothesis in that the early maturing adolescent had significantly higher rates of prevailing eating disturbances than their on-time or later maturing peers.

A study conducted by Swarr and Richards (1996) on the effects of pubertal development, timing and parental relations on eating disorders also concluded that early maturing girls were at higher risk of developing eating disorders. However, the study also demonstrated that the

increased risk for the development of eating disorders could be offset by positive parental relationships. Early pubertal females whose perception of the parental bond was positive were at no greater risk for developing eating disorders than the general population. This research suggests that early puberty combined with negative parental interaction places these adolescents at greater risk.

There are some significant flaws with the Swarr and Richards study, however. First, of the students asked to participate, 28% refused. No testing was conducted to see if this group was significantly different from the 62% who did participate. Since almost one third of the sample population did not want to participate, a bias in the results may have occurred. Further, the method used to assess participant experiences with their parents was very subjective. Subjects carried a pager for one week and completed self-reports about their daily activities, moods and companionship when they were signaled by their pagers. This is highly subjective and dependent completely on the honesty of the participant. No other corroboration was used to determine the accuracy and truthfulness of the responses. The study also used subjective questions to determine the adolescent girls' perception of closeness to

their parents and their peers. Questions such as, "Does your mother/father understand what you are really like" were used. These questions are subjective in nature, and again, rely on the honesty and perception of the teen.

Painkoof and Brooks-Gunn (1991) conducted a study on the parent child relationship during puberty and found that it is characterized by an increased amount of conflict. Their study offered data suggesting that conflict increases in general, but the early developing female is at highest risk factor for the development of problems with the parental figure. Research by Lackovic-Gergin, Dekovic, and Opacic (1994) supported the findings of Painkoff and Brooks-Gunn (1991). They found that as girls became increasingly physically mature, the parental relationship contained less intimacy and more punitiveness. Lackovic-Gergin et al. (1994) suggested that early maturing girls may demonstrate greater problems because the parental relationship declines earlier in the child's life. This weakened bond and lack of nurturance decreases the child's self-esteem and, as a result, the child turns to the opposite sex and to deviant behaviors to fill the void.

Further research examined the changing relationship between the adolescent female and her parents. Hill,

Holmbeck, Marlow, Green, and Lynch (1985) studied the relationship of girls and their parents after the onset of menarche. They found that in most instances the changes in the parental relationship were temporary; however, their study indicated that when menarche occurs early the effects may persist. They pointed out that the fathers of early maturing females have significantly less interaction with their daughters after menarche. For these girls, the mother-child relationship is characterized by an increased amount of hostility and power struggles. For early maturing girls these relationship problems continued for a longer period of time after menarche than for on-time and late maturing females.

A concern with the Hill et al. (1985) study is that it used a biased sample. Each participant had to be currently in seventh grade, live with both biological parents, and be the older child. This specific population limits the generalizability and may distort the actual results. Another consideration is that only 50% of the families in the sample agreed to participate. No follow-up research was conducted to determine if the 50% who declined were significantly different from those who agreed to take part in the study.

Adolescence is a period when the family relationship changes and the child begins to place more value on the relationship with peers. A study conducted by Gavin and Furman (1989) showed that early maturing adolescents have a high number of antagonistic relationships with their peers. Female adolescents reported that they were bothered by these negative interactions. Numerous studies on the effects of early maturation have demonstrated that these females feel as if they are no longer a part of their same age group (Blyth, Simmons, & Zakin, 1985). The majority of the research suggests that this occurs because the early pubertal females are now taller and heavier than their peers; therefore they develop body image problems and seek a different reference group, older adolescents (Blyth et al., 1985). Blyth et al. also noted that in the sample of 225 female early adolescents they studied, the younger maturing females were significantly heavier at menarche than their later maturing peers, which seemed to contribute to the difficulties they had adjusting to their new roles.

In addition to having a more negative body image and associating with an older crowd, early maturing girls were found to be truant, smoke, use drugs, drink, and ignore parents' prohibitions significantly more often than later

maturing girls (Magnusson, Stattin, & Allen, 1995). Magnusson et al. demonstrated that there appeared to be no correlation between delinquent behaviors during adolescence and behaviors of adulthood; therefore the research suggests early maturing females grow out of this early pattern of norm breaking. What Magnusson et al. did find was that early maturing girls had more negative attitudes towards school and were rated more unfavorably by their teachers. Magnusson et al. pursued this matter further, and looked at adult educational levels. It was discovered that early maturing girls were significantly less likely to enter any form of higher education. This finding continued to be seen even after the authors controlled for intelligence and educational status of the parents.

While the Magnusson et al. (1995) study is a good one, certain considerations exist. The girls in this study were Swedish living in Sweden. This cultural specificity may dramatically influence the ability to generalize these results to American girls. Another factor to consider is that the girls in this study were going through puberty in 1965. Problems can arise when comparing past and present cohorts. Clearly, cultural values and norms for young girls have changed dramatically in the last 30 years and

must be considered when interpreting the findings of Magnusson et al.

Caspi et al. (1993) demonstrated in their study of girls in two different school settings, one all female and the other co-ed, that the early maturing females in the co-ed environment were significantly more likely to engage in delinquent behaviors than either later maturing girls in the co-ed environment or girls in the all female school environment. These researchers provided support for the stressful occurrence hypothesis. They demonstrated that on-time and late maturing girls in a co-ed setting caught up with early maturing girls' delinquency shortly after menarche. They concluded that environmental factors include the likelihood that a child will begin displaying deviant behaviors, and early maturation alone could not account for the increases in problematic behaviors.

The study by Caspi et al. (1993) suggested multiple factors for the development of delinquent behaviors. They used female students at an all girls' school to show that in certain environments the timing of puberty does not have an effect on the behaviors of adolescent females. The early maturing girls from the all girls' school did not show an increase in delinquent behaviors, unlike the early maturing females from the co-ed school. The researchers

suggest that there are environmental factors that contribute quite heavily to the behavioral outcome of adolescent females, although they did note that in certain environments the early maturing adolescent female was likely to engage in age inappropriate behaviors.

Physically, early maturing females are at greater risk to be preyed upon by older male adolescents simply because many do not look their age; furthermore early maturing girls often begin to identify with an older crowd and begin seeking intimacy from peers in light of their deteriorating parental relationship. Phinney et al. (1990) found that early maturing girls were more likely to engage in dating and sexual intercourse at earlier ages than their later maturing peers, and that the younger the age was at the onset of coitus, the earlier these girls experienced menarche. Phinney et al. concluded that early introductions into sexualized behaviors is primarily a result of the social pressures placed upon these teens.

Phinney et al. (1990) specifically and clearly defined dating and sexual activity, carefully distinguishing early adolescent sexual curiosity from engagement in sexual intercourse. Numerous other studies did not distinguish what was meant by sexual activity and, because of this, the results are less reliable and valid.

Given that early maturing girls have to deal with the pressure of becoming adolescents before they are psychologically ready, it is not surprising that numerous studies on the influence of early maturation have found that these early pubertal girls also suffer from high levels of psychological stress. Ge et al. (1996) showed support for the early timing hypothesis and demonstrated that early maturing girls had a higher percentage of mixed-age peer groups, higher levels of psychological distress, and increased disassociation from the family. Ge et al. also demonstrated increased levels of depression in early maturing girls and concluded that the new biological and social challenges of early adolescence, coupled with the sex-linked personality traits, created a greater risk for depression in adolescent girls than in boys.

A study prior to Ge et al. (1996) by Rierdan and Koff (1991) on depressive symptomatology among early maturing females demonstrated that post menarcheal sixth graders were significantly more depressed than their pre-menarcheal peers. In a later study, Rierdan and Koff (1997), explored the relationship between weight related aspects of body image and depression. Their results supported the view that dissatisfaction with and concern

about weight are associated with depressive symptoms in early adolescent girls.

Other research studies have tried to identify a relationship between the development of psychopathology and the timing of pubertal development. Hayward et al. (1997) studied the emergence of psychopathology in early adolescence. They discovered that there was definitely a link between early maturing girls and internalizing symptoms. Internalizing was used to cluster together feelings or signs of anxiety, depression, and body image problems. Particularly disturbing is that some of the Hayward et al. data suggest a relationship between early female maturation and the development of actual disorders. They found that these internalizing symptoms continued into high school, and girls with a history of these disorders were at slightly higher risk for developing depression, phobias, and bulimia nervosa.

The Hayward et al. (1997) study provided a great deal of valuable information about the topic. However, it is limited in that it only groups girls into two categories: early maturers and non-early maturers. Non-early maturers, in this study, could be on-time or late maturing girls. This is a serious limitation, since no findings can be gleaned about the effects of going through puberty on-time

or late. Further research needs to be conducted addressing three groups of adolescent girls, instead of two.

Graber et al. (1994) studied psychopathology and its relation to pubertal development. They concluded that early maturing girls were at the highest risk for the development of psychological disorders. Compared to later maturing girls in the Hayward et al. (1997) study, early maturing girls were at significantly greater risk for the development of major depression, substance abuse/dependence, disruptive behavior disorders, and eating disorders. The sample of early maturing girls in the study showed significantly elevated levels of depressive symptoms, behavior problems, low self-esteem, poor coping mechanisms, and less family support. Furthermore, these subjects missed more school, had higher rates of tobacco use, and higher rates of suicide attempts.

The majority of research suggest that early maturation is the predecessor to delinquent behaviors, psychological problems, and poor family relationships. A few researchers believe there is a relationship between menarche age and stress related problems; however they believe the direction of the correlation is reversed. Steinberg, in 1988, did a study of the relationship

between parent-child distance and pubertal maturation. Steinberg's research demonstrated that puberty does increase the adolescent's autonomy and parent-child conflict, which diminishes parent-child closeness. The analysis of the data however, indicated that the parent-child distance may actually accelerate pubertal maturation.

Moffitt, Caspi, Belsky, and Silva (1992) proposed that individuals who grow up under conditions of family stress experience behavioral and psychological problems, which promote earlier reproductive readiness. The researchers suggested that unfavorable social conditions, such as family conflict and father absence, can actually accelerate the rate of biological maturation in girls. Moffitt et al. found support for this hypothesis; furthermore, they indicated that the early maturing females in their study were more prone to deviant behaviors than later maturing girls. Moffitt et al. proposed that there is a relationship between early maturation and behavior problems; however, they question the direction of the correlation.

Further support for the theory that early reproductive readiness in girls may be a result of environmental stress was found by Conger et al. (1993).

This research team hypothesized that economic stress in a family could be problematic to adolescent adjustment. Their study provided support for the notion that family disruption is linked with early maturation, and this phenomenon may indeed be a biological process that accelerates physical maturity. It is proposed that accelerated maturation is a biologically adaptive mechanism that increases the child's readiness to adapt and function as an adult.

Wierson, Long, and Forehand (1993) examined a research study conducted by Belsky et al. in 1991, (as cited in Wierson et al., 1993), which suggests that environmental stress may trigger early menarche in adolescents. This is in contrast to the traditional view that menarche is biologically determined and serves as a risk factor for developing girls. The result of the Wierson et al. study showed that compared to girls from intact families, those from divorced families had an earlier onset of menarche. In addition, the research showed that higher rates of maternal conflict were also associated with the early onset on menarche. These researchers concluded that their data were not conclusive and that further research was needed to determine the direction of the correlation.

The direction of the correlation between early menarche and behavior problems has yet to be determined. Traditionally, it was believed that these early maturing females were faced with social roles and expectations they were not cognitively prepared to deal with. As a result, these children strayed from the norms and developed negative behavior patterns and poorly structured coping mechanisms. Recently, it has been proposed that environmental factors may actually accelerate the rate of physical maturation. The traditional model suggests that physical maturation precedes behavioral problems. The recently proposed models (the stressful change hypothesis, the off-time hypothesis, the early timing hypothesis, and the synchronous events hypothesis) suggest that the precursors of behavior problems, such as family economic stress or recent divorce of parents, exist before menarche, suggesting that extreme environmental stress is capable of influencing the rate of physical maturation.

Other research in this area has been mixed, depending on the location used. In other countries, where puberty is seen as a rite of passage with clear expectations and roles, early maturing girls show no difference in self-esteem when compared to later maturing peers (Wade, Thompson, Tashakkori, & Valente, 1989). However, in the

United States, where puberty is an ambiguous developmental stage, early maturers suffer from no clear expectations, no adequate role models and ultimately, lower self-esteem. It can be assumed that physical maturation has an indirect rather than a direct effect on self-esteem, as the physical changes of puberty influence the way the adolescent is viewed by, and her interactions with, her mother, father, same-sex and opposite-sex peers and society.

Research has shown that scholastic achievement is affected by pubertal timing. Dubas, Graber, and Peterson (1991) concluded that "early pubertal timing effects on scholastic under achievement are most salient in 6th, 7th and 8th grades" (p. 446). However, he pointed out that these differences lessen a bit by 12th grade. Unfortunately, early maturing girls are less likely to make it to 12th grade and graduate or to go on to college. A longitudinal study by Magnusson, et al. (1985) reported that "only 2.3% of girls who went through puberty early entered college, compared to 12% to 15% of girls with average or late pubertal development" (p. 280).

CHAPTER THREE

METHODOLOGY

Purpose and Design of the Study

The purpose of this research project was to examine the relationship between age at menarche and the development of behavior problems. The research was designed to determine if there is any significance to the hypothesis that early maturing girls engage in more problematic behaviors than their on-time or later maturing peers. Adult subjects were surveyed to assess whether any problematic behaviors of adolescence continued into adulthood or if they were transitory. It is normal for children to have a stressful transition into adolescence, but this study examined whether or not adults, who are no longer in a stressful period of development, would show differences in problematic behaviors based on the timing of puberty. This study sample was also used to assess the long-term effects of the timing of puberty.

Both a positivist and post-positivist approach were used to secure data for this study. The positivist approach used a series of closed-ended questions and then compared three groups of women to determine if the timing of puberty had any relationship to onset of behavioral

problems. The questionnaire was developed by the researcher and elicited information about current age, age of menarche, and ethnicity. A series of questions was asked to assess the onset of certain behavioral problems (See Appendix A). Behavioral problems assessed included: drug use, alcohol use, and tobacco use. Relationships with same-sex peers, opposite-sex peers, and parents was also assessed, along with academic achievement. This approach, while it has some limitations, is scientifically sound for collecting this type of information.

The post-positivist approach used six open-ended questions to gather qualitative data about the perceptions subjects had concerning their relationships with peers and parents before, during and after puberty. This information is vital to understanding the effects of timing on puberty, yet these questions can not be quantified. The open-ended question method allowed subjects to discuss their perceptions about their relationships during adolescence openly, without having to quantify it. This approach appropriate for generating rich, detailed information.

The hypothesis governing this study is that early maturing girls have more behavioral problems than their on-time or later maturing peers; they have more

problematic relationships with same-sex peers, opposite-sex peers and their parents; and they perform more poorly in the academic setting.

Participants

One hundred and fifty three women ranging in age from 18 to 72 (mean = 26.7; the oldest participant at age 72 was an outlier, otherwise the age range would have been 18 to 35) were chosen from psychology and sociology classes at Chaffey Community College and Riverside Community College. While the participants themselves were not chosen randomly, their classes were. Each of the available classes was placed in a computer randomization program, and a list of randomly chosen classes was generated. All women who were in attendance on the day of the study were included as participants.

This sample was selected for two reasons. First, it was assumed that community college students are more diverse than those students attending universities, since universities have more strict admissions criteria and exclude certain populations of people. Second, this sample was selected because of the convenience of accessibility. The researcher could easily contact this population with

assurances that high numbers would participate in the research project.

Data Collection and Instrument

Each subject was given a questionnaire to fill out in a confidential manner, and participation in the study was voluntary. The questionnaire was created by the researcher using questions from previous research on this subject (See Appendix B); reliability and validity testing are described below. Onset menarche was used to determine the timing of puberty. Based on these results, the women were assigned to one of three groups: early maturers were considered those whose onset of menarche was at age 12 years 4 months or earlier, on-time maturers were considered those whose onset of menarche was between the ages of 12 years 5 months and 13 years 5 months and, late maturers were defined as those whose onset of menarche was after the age of 13 years 5 months.

Instrument

Since no standardized questionnaire exists at this time to address all of the information of interest in this research project, the researcher developed her own series of questions; however some questions were derived from previous research on this subject. The first part of the

questionnaire asked for socio-demographic information, while the second part addressed deviant behaviors. Deviant behaviors were measured by asking the participants a variety of questions related to smoking, drug usage, alcohol usage, problems at school, and problems with parents. Since these questions were developed by the researcher, an extensive pre-testing procedure was used to determine that the questions were both valid and reliable.

The third part of the questionnaire consisted of open-ended questions that were used to ascertain the quality of relationships the participants had with their peers and their parents before, during and after menarche. The questions were divided into four categories. The first set of questions asked the participants to discuss their perceptions of their relationships with same-sex peers, a second set addressed their perceptions of their relationships with opposite-sex peers, a third set of questions asked about their perceptions of their relationships with their mothers, and a fourth asked about their perceptions of their relationships with their fathers.

The questionnaire was pre-tested using a random sample of college age women currently enrolled in California State University at San Bernardino and at

Riverside Community College. This randomly chosen group was given the developed questionnaire four times over a two-month period. The questionnaire was deemed reliable since there was a high correlation on all four tests.

A randomly chosen sample of fifteen women was asked to participate in a focus group on the validity of the questionnaire. Each question was discussed and assessed on several factors, including understandability, readability, biases, appropriateness of the wording of the questions, and appropriate use of the Likert-like-type scale. Several questions were rewritten and some questions were deleted because based on the suggestions by the focus group.

There are several limitations when researchers develop their own testing tool. In this instance, reliability and validity were compromised, because extensive pre-testing, with large groups of people in a wide variety of settings, was not feasible. Questions may be poorly worded or biased, and this may not be realized until the test has been used for an extensive period of time. Certain important questions may not be asked, and again, this may not come to light until the testing tool has been used extensively. Another limitation in this study is that the test was only developed in English. Subjects who were unfamiliar with the subtle nuances of

the English language may have incorrectly responded to certain questions, and those who did not speak English did not participate in the survey.

The strength of this tool is its ability to address only questions pertinent to this research project. It was pre-tested extensively to remove as much ambiguity as possible, thereby creating an effective questionnaire.

Each question in the questionnaire was coded and then divided into one of three groups: early, on-time, or late maturation. Anova tests were run on each quantitative question to determine any significant differences in responses between the three groups. Chi-square analysis were used to determine if any significant patterns emerged with regard to ethnicity or age of the participants.

Limitation of the Study

Like all research designs this study, too, has its limitations. The first concerned the participants in the study the sample size. Since only 153 participants were used, the sample size was too small to generate complete confidence with the results. The findings in this study are not generalizable to women who live outside of the San Bernardino county area, or to women who are not enrolled in community college.

This study only used women who were enrolled in psychology or sociology courses at the time of administration of the questionnaire, which may have created a bias. Women who have enrolled in social science disciplines may be different from women in college who have enrolled in other subjects. Because of this, the generalizability of this study is limited.

Retrospective studies always pose special concerns. The women in this study were asked to remember the onset of puberty several years after it occurred. Some women may not have accurately remembered the exact onset and may have guessed, others may have been embarrassed to admit the truth, and still others may have answered in the socially desirable way. Because some of the questions asked were sensitive in nature, participants may have been reluctant to answer truthfully. The questionnaire was confidential and this may have eliminated some of these problems, however, the complete accuracy of the responses is still uncertain.

A methodological problem is the Likert-like-type scale. This research design used a five point Likert-like-type scale in an attempt to reduce ambiguity; however the reality is that the middle range of a Likert-like-type scale is a gray area. People tend to

cluster their responses in the center domain of these scales. When results of this type are analyzed they can be inaccurate, because what is 'sometimes' to one person may be 'fairly often' to another. This study has attempted to reduce such ambiguity by using more concrete measures, such as actual numbers.

A further limitation is that puberty is a subjective occurrence. While this study has used onset of menarche in terms of age, this is not completely accurate. Breast size, pubic hair development, and height and weight gain are all additional signs of puberty that are clearly more visible. The term "on-time" in regard to puberty varies across cultures. African-American women have an earlier onset of puberty than do Caucasians, although only one age range has been identified as "on-time."

Issues such as social class, family structure, culture, and religion were not addressed in this study, although they may play a crucial role in the development of behavioral and emotional problems in teen girls. These factors may also influence the onset of puberty in some way. For example, girls growing up in impoverished environments may be slower to develop and mature. Because these important variables were not considered, the findings are limited.

The use of open-ended questions has its limitations as well. These questions provide insight into what the respondent felt, but the interpretation of these responses is highly subjective. That is one reason this study utilized both a positivist and post-positivist paradigm. In addition, some subjects chose not to answer the open-ended questions, but did answer the closed-ended ones, which may have influenced the final results.

This raises another issue. As with any research design, no matter how objective the researcher tries to be, there is always the possibility that she will bias the results. This can occur in many ways. The questions could have been framed to elicit certain responses. Important questions may not have been asked, and bias could have occurred in interpretation of the results. Most researchers set out to find something, and this preconceived notion can easily affect the interpretation of results, especially when they are qualitative.

Procedure

The first step in gathering the data for the study was to enter produce a computer-generated randomization of all psychology and sociology classes that met at the two community colleges participating in this study. After

randomly generating a list of 10 classes, the researcher attended each of the classes and distributed the questionnaire to willing participants.

Participants were given an informed consent (See Appendix A) before actually responding to the questionnaire. They were asked to read the informed consent and to sign it with the letter "X" and to date the form. This method was chosen so respondents would not be required to identify themselves in any way. After students read the Informed Consent they were asked if they wanted to continue in the study. Those who agreed were then given a questionnaire. Each subject was given specific instructions that they were not to place their name or any other identifying information of their questionnaire, guaranteeing anonymity.

The researcher clearly read the procedures for completing the questionnaire. It was emphasized that participation in the research was strictly optional. After the questionnaires were passed out to all appropriate participants, they were given twenty minutes to complete it. No participant needed more time. After participants completed the questionnaire, they placed it in a box located at the back of the classroom. This method of collection was designed to assure students that their

questionnaire was anonymous and was not collected in any specific order.

Due to the sensitive nature of this undertaking, confidentiality and anonymity are crucial. It is also essential that no subject was harmed in any way by participating in this research endeavor. Anonymity was ensured in several ways. Each questionnaire was identical, with no identifying marks, numbering, or writing. Subjects were assured that questionnaires were identical and could not be recognized. The procedure for collecting the questionnaires was also designed to ensure confidentiality. A large box was placed at the back of the classroom, and when students finished their questionnaire, they placed their results in the box. They had control of placing their survey in the box in any order.

After respondents completed their questionnaire, they were given a Debriefing Statement (See Appendix C). The statement contained the purpose of the study and how completed results of the study could be obtained. It included details about what the researcher plans to do with the data collected and how the questionnaire will be disposed of upon the completion of the project. It also contained phone numbers of professionals who may be

contacted if the subject was distressed in any way by participating in this project.

Data Analysis

The data were collected and each questionnaire was thoroughly reviewed. If a questionnaire was not complete, it was discarded. All closed-ended questions were coded and entered into a computer program designed to calculate statistical analysis for social science research.

The closed-ended questions were analyzed according to age of menarche onset, and three groups were defined: early, on-time, and late. Each of these groups was then compared on each of the quantitative questions to determine if there were any significant differences in the rates of deviant behaviors and the onset of puberty. Relationships among two variables were assessed using one-way analysis of variance (Anova).

The Anova analysis was also used to determine relationships between age of onset of puberty and problematic relationships with peers and parents, as well as changes in academic success. Chi square analyses were used to determine differences in ethnic patterns and patterns related to the age of the participant at the time of completion of the survey.

Answers to the qualitative questions were read by the researcher. Responses that were illegible or incomplete were discarded. All other responses were carefully reviewed and analyzed to assess if any significant patterns emerged or additional insight was added to this study.

CHAPTER FOUR

RESULTS

The sample population was 153 females who were currently enrolled in a lower division social science course at Chaffey College in Rancho Cucamonga, California and Riverside Community College in Riverside, California. Sixty-one participants (39.87%) were classified as early maturing females, fifty-four participants (35.29%) were classified as on-time maturers, and thirty-eight participants (24.84%) were classified as late maturing females (Table 1).

Table 1.

Breakdown of Timing Puberty

Timing of Puberty	Number	Percentage
Early	61	39.87%
On-Time	54	35.29%
Late	38	24.84%

In this sample, sixty-six participants (43.14%) were Latina/Hispanic/Chicana, fifty-two participants (33.99%) were Caucasian, twelve participants (7.84%) were African-American, ten participants (6.54%) were Asian, one participant (.6%) was Native American, eleven participants

(7.19%) were of mixed descent, and one participant (.6%) identified herself as "other" (See Table 2).

Table 2.

Ethnicity of Participants

Ethnicity	Number	Percentage
Latino/Hispanic	66	43.14%
Caucasian	52	33.99%
African-American	12	7.84%
Asian	10	6.54%
Native American	1	.6%
Mixed	11	7.19%
Other	1	.6%

Participants were classified as early, on-time, or late maturers based on the age of menarche. Those who reached menarche before 12.5 years were classified as early maturers, those who reached menarche after 13.5 years were classified as late maturers, and those who reached menarche between the ages of 12.5 and 13.5 were classified as on-time maturers.

A series of one-way Anovas (early, on-time, and late) was performed to compare the timing of puberty on a variety of variables. Two Anovas yielded significant

results. Participants who reached puberty earlier were more likely to have friends who were older than they were ($p = .03$) [See Table 3].

Table 3.

Analysis of Variance Comparing Timing of Puberty and Age of Friends

	Sum of Squares	df	Mean Square	F	Sig.
AGELFRND	8.262	2	4.131	3.593	.030
Between Groups	172.457	150	1.150		
Within Groups	180.719	152			
Total					

Another significant Anova finding showed that early pubertal participants were more likely to have engaged in alcohol use during their elementary school years ($p = .05$) [See Table 4].

Table 4.

Analysis of Variance Comparing Timing of Puberty and Alcohol Use

	Sum of Squares	df	Mean Square	F	Sig.
ELEMALC	1.278	2	.639	2.985	.054
Between Groups	32.108	150	.214		
Within Groups					
Total	33.386	152			

A Chi-square analysis was conducted to determine whether there were any significant differences in timing of puberty and ethnicity of the participant, but no significant findings were realized. A Chi-square analysis was also conducted to determine if there were any significant patterns in the age of the participant now and the timing of puberty, and again, no significant findings were discovered.

The open-ended questions were analyzed to determine if any interesting patterns or trends emerged. The early puberty group did show some interesting trends in their written responses. Generally, females who had good relationships with same-sex peers during elementary school, and middle school, also had good relationships

with them during and after puberty. They often reported that same-sex peers looked up to them for information and advice about the pubertal process. Relationships with opposite-sex peers showed a similar pattern, however some females reported that their relationship with males improved after puberty, since males paid more attention to them than their on-time or later maturing friends.

Some females reported that going through puberty was a negative experience because they were teased and picked on, they felt alone and unprepared for the sudden changes taking place in their body, they felt awkward and uncoordinated, they felt overweight and had poor body image and they felt forced to grow up too fast. However, some females reported that going through puberty early was a positive experience because they felt in control of their body, they felt older and more grown up, they were looked at as role models among their peers, and they received extra positive attention.

Interestingly, when asked what they attributed any emotional or behavioral problems they suffered from during adolescence to, most respondents stated it was the quality of their familial relationships. Females who had emotional and behavioral problems often reported it was because they were not close to their parents, their parents had

divorced, their father was not actively involved in their life, their parents were overly controlling and authoritarian or they had a stepfather who they did not get along with.

Another trend which emerged was that Hispanic, Latina and Chicano females who went through puberty earlier, had more negative experiences than other ethnicity groups, they reported primarily because they were unprepared for menstruation and puberty was not discussed in the home

Patterns that emerged with on-time maturing females also showed that if relationships with same-sex peers was positive during elementary and middle school, they were positive after puberty as well. Overall, this group also had positive relationships with opposite-sex peers and many reported they had better relationships with males after puberty because they were given more attention.

On-time maturers, for the most part, reported puberty was a positive experience and they knew what to expect in terms of biological changes in their body, although many reported they were not prepared for the depression and moodiness that sometimes accompanied puberty. Females who had older sisters seemed have the most positive attitudes about their puberty because they were well prepared and knew what to expect. Shy females seemed to have the

hardest time with puberty because they felt like social outcasts and were insecure.

The on-time maturer was also more likely to attributed any problems she had during adolescence to a poor relationship with her parents. The adolescents relationship with her father seemed to be particular important, and several females reported having a difficult time with puberty because they had an absent father, or he changed and became more distant after she went through puberty.

Some later maturing females reported that they had little difficulty going thorough puberty later than their peers. They stated that they had a fear of getting their period and were happy that they the onset of menarche was delayed. Interestingly, many of the later maturing participants reported negative feelings about their delayed menarche. They reported that they received very little attention from males, that females pressured them to get their period, they felt out of sync with their friends, they were socially isolated, and they worried about their weight and had poor body images. In this group, many more participants feared the thought of puberty. This group also attributed any emotional and behavioral problems to family relationship, especially out

of touch and emotionally distant mothers. These respondents did not seem to have such negative issues with their fathers as the other two groups.

Because so few significant results were found in this research, it is difficult to say with certainty which of the four hypotheses best explains why puberty is so difficult for early maturing females, however the qualitative data seem to indicate that the early timing hypothesis fits best. Many early maturing females who answered the open-ended questions about puberty, reported that their difficulties stemmed from being viewed differently by family and peers and feeling ostracized from group norms.

CHAPTER FOUR
DISCUSSION AND CONCLUSION

Discussion

The issue of concern here is whether the timing of puberty plays a role in the development of social and behavioral problems in females. Although many variables were tested, only two significant findings occurred. Early maturing girls, when compared to on-time and late maturing girls, were more likely to have older friends, and early maturing girls were more likely to experiment with alcohol use during their elementary school years than their later maturing peers.

One limitation of this study is the sample population used. Since all of the participants were currently enrolled in community college at the time they completed the survey, they are not necessarily representative of the entire female population. Students enrolled in college may be more successful and emotionally healthy than peers who are not enrolled in college. Therefore the population surveyed may have had fewer social and behavioral problems in general regardless of the timing of their puberty. The social and behavioral problems that they may have experienced due to the timing of their puberty may not

have been as severe as their peers who are not currently taking college courses. This sampling bias would help to explain why more significant results were not found. The sampling bias may also explain why findings of the timing of puberty and ethnicity were significantly different from those found in the literature. In the general population, African-American girls traditionally go through puberty one to two years earlier than their Caucasian peers, but those results were not reflected in this sample.

Another possible explanation for the lack of significant findings may be that participants were queried about past events. Although the mean age of the participant was 26.7, many of the participants were over the age of thirty, and were being asked to recall information about their personal history that occurred many years ago. Since most of the participants are enrolled in college and appear to be doing well, they may have inaccurate memories about negative or painful events that occurred in their life many years before. As people become more successful in life, their memories for negative past events may be tainted.

A third consideration is that the sample population consisted of volunteer students from an Introduction to Psychology course at Chaffey College and Riverside

Community College. The Instructor of the class was the researcher distributing the survey to students. Students may have been less accurate in their negative responses knowing that their Instructor was responsible for reading the survey results.

A fourth consideration is the size of the sample. Initially 169 participants filled out a questionnaire, yet 16 questionnaires were discarded because they were incomplete. This sample size was too small and too specific to represent the overall experiences of females going through menarche. The limited sample size might help explain why no significant correlation was found for ethnicity and timing of menarche. The literature clearly discusses the trends of certain ethnic groups going through puberty earlier than others. Yet, this sample size was too small to find any significant results, and some ethnic group were very under represented.

The small sample size might help explain why no clear generational trends were identified either. During the last several decades females have been going through puberty earlier and earlier. The average of menarche in the 1900's was 17 years old, and in this decade it is 12.5 years old. Even though six participants were over the age of 45, no clear patterns emerged as to the timing of their

puberty. However, the oldest participant, who was 76 years old had the second latest onset of menarche at 16 years, 2 months of age.

Conclusion

The results of the present study offer some implications for the social work practice and the study of developmental issues in females. This study should be replicated again using a larger sample size and participants from different populations. It would be important to include participants who are not currently enrolled in college at the time they answer the survey.

A larger pool of participants from different ethnic backgrounds should be used so that further examination can take place to determine the correlation between ethnicity and timing of puberty. This research study contained too few Native Americans and participants of mixed ethnicities to be able to draw conclusions about ethnic trends for these groups.

Although two significant findings were noted, it is important to investigate how life span cycles might help explain these results. Further research questions should focus on the long-term effects of the timing of puberty

and if, perhaps, any negative effects so strongly associated with early puberty diminish as the female ages.

Puberty continues to be a major developmental life cycle for females in our society. Social workers must continue to focus on the implications of the timing of puberty in part to reduce the immediate negative effects associated with the early onset of this change. Social workers must continue to investigate the variables that make early puberty such a socially and behaviorally negative experience for many girls. The secular trend of puberty indicates that females continue to enter puberty younger and younger with each passing decade, therefore social workers must understand what these implications are for the early maturing girl, her peers, her parents, her teachers, and society.

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APPENDIX A
INFORMED CONSENT

INFORMED CONSENT

The study in which you are about to participate is designed to investigate the relationship between early menarche and the onset of deviant behaviors. This study is being conducted by Angela Sadowski under the supervision of Dr. Morley Glicken, professor of Social Work at California State University, San Bernardino. This study has been approved by the Social Work Department Sub-Committee of the Institutional Review Board of California State University, San Bernardino. The University requires that you give your consent before participating in a research study.

In this study you will fill out a survey. All of the surveys are identical and there are no distinguishing marks on the surveys. The researcher will supply all the participants with black ink pens so that all questionnaires appear similar. You will then be asked to place your questionnaire in a box at the back of the classroom in whatever order you choose. These measures are taken to ensure your confidentiality. The study will take approximately 20 minutes to complete.

Please be assured that any information you provide will be held in strict confidence by the researcher. At no time will your name be reported along with your responses. All the data will be reported in group form only. At the study's conclusion you may receive a report of the results.

The risks to you of participating in this study are minimal. At the conclusion of the study all the questionnaires will be shredded by a paper shredder and disposed of.

If you have any questions about this study, or would like a report of its results, please contact Dr. Morely Glicken at (909) 880-5557.

Please understand that your participation in this research is completely voluntary and you are free to withdraw at any time during this study without penalty.

By placing an "X" mark in the space below you agree to the following statement:

"I acknowledge that I have been informed of, and understand, the nature and purpose of this study, and I freely consent to participate".

Give your consent to participate by making a mark of "X" here: _____

Today's Date: _____

APPENDIX B
QUESTIONNAIRE

QUESTIONNAIRE

Dear Participant:

I would like to thank you in advance for your participation in this study. I believe puberty is a very meaningful time in any adolescent's life. It is important to understand more about the onset of menarche and its relationship to social and emotional issues. The answers you provide are a very important part of understanding the pubertal experience. I encourage you to be open and honest when answering the questions. Thank you for your help.

Angela Sadowski, M.A.

DIRECTIONS: This questionnaire will be used solely for the purpose of this research study. Please complete the survey accurately and completely. Your participation is greatly appreciated. It is your right to refuse to answer specific questions or to complete the questionnaire.

For questions that contain choices, please select the one that most closely corresponds to your experiences and feelings. Some of the questions contain black spaces. Please fill the response that is most accurate for you.

1. What is your age now in months and years

_____ years _____ months

2. How old were you when your first began menstruating, in years and months

_____ years _____ months

3. Which category best describes your ethnicity

_____ African-American

_____ Caucasian

_____ Asian

_____ Latino/Hispanic/Chicano

_____ Native American

_____ Mixed

_____ Other (Please specify) _____

4. How would you best describe your relationship with your mother before puberty began?

- Very Good
- Good
- OK, sometimes good, sometimes not so good
- Poor
- Very Poor
- Does not apply

5. How would you best describe your relationship with your father before puberty began?

- Very Good
- Good
- OK, sometimes good, sometimes not so good
- Poor
- Very Poor
- Does not apply

6. How would you best describe your relationship with your mother after you began your menstrual cycle?

- Very Good
- Good
- OK, sometimes good, sometimes not so good
- Poor
- Very Poor
- Does not apply

7. How would you best describe your relationship with your father after you began your menstrual cycle?

- Very Good
- Good
- OK, sometimes good, sometimes not so good
- Poor
- Very Poor
- Does not apply

8. If you used alcohol, how old were you when you first used alcohol? _____

9a. If you used alcohol, on average, how often did you use alcohol during elementary school years (up to 6th grade)?

- Never
- Less than once a month
- Once a month
- Two or three times per month
- Once a week
- More than once a week

9b. If you used alcohol, on average, how often did you use alcohol during middle school years (7th and 8th grade)?

- Never
- Less than once a month
- Once a month
- Two or three times per month
- Once a week
- More than once a week

9c. If you used alcohol, on average, how often did you use alcohol during high school years (9th to 12th grade)?

- Never
- Less than once a month
- Once a month
- Two or three times per month
- Once a week
- More than once a week

10. If you have ever used marijuana, how old were you when you first used marijuana? _____

10a. If you used marijuana, on average, how often did you use alcohol during elementary school years (up to 6th grade)?

- Never
- Less than once a month
- Once a month
- Two or three times per month
- Once a week
- More than once a week

10b. If you used marijuana, on average, how often did you use alcohol during middle school years (7th and 8th grade)?

- Never
- Less than once a month
- Once a month
- Two or three times per month
- Once a week
- More than once a week

10c. If you used marijuana, on average, how often did you use alcohol during high school years (9th to 12th grade)?

- Never
- Less than once a month
- Once a month
- Two or three times per month
- Once a week
- More than once a week

11. Did you use any other drugs (non-prescription) during elementary school years?

- Yes
- No

11a. If your answer was YES, Please list the type of drug(s):

11b. On average, how often did you use these drugs?

- Less than once a month
- Once a month
- Two or three times a month
- Once a week
- More than once a week

12. Did you use any other drugs (non-prescription) during middle school years?

- Yes
- No

12a. If your answer was YES, Please list the type of drug(s):

12b. On average, how often did you use these drugs?

- Less than once a month
 Once a month
 Two or three times a month
 Once a week
 More than once a week

13. Did you use any other drugs (non-prescription) during high school years?

- Yes
 No

13a. If your answer was YES, Please list the type of drug(s):

13b. On average, how often did you use these drugs?

- Less than once a month
 Once a month
 Two or three times a month
 Once a week
 More than once a week

14a. Please mark the answer that best describes the ages of your friends during elementary school.

- younger than me by at least 6 months
 same age as myself
 some friends of the same age, some friends younger
 some friends of the same age, some friends older
 mostly older than me by at least 6 months
 all my friends were older

14b. Please mark the answer that best describes the ages of your friends during middle school.

- younger than me by at least 6 months
- same age as myself
- some friends of the same age, some friends younger
- some friends of the same age, some friends older
- mostly older than me by at least 6 months
- all my friends were older

14c. Please mark the answer that best describes the ages of your friends during high school.

- younger than me by at least 6 months
- same age as myself
- some friends of the same age, some friends younger
- some friends of the same age, some friends older
- mostly older than me by at least 6 months
- all my friends were older

15a. Which of the following best describes the gender of your friends during elementary school.

- All Female
- Mostly Female
- Half Female, Half Male
- Mostly Male
- All Male

15b. Which of the following best describes the gender of your friends during middle school.

- All Female
- Mostly Female
- Half Female, Half Male
- Mostly Male
- All Male

15c. Which of the following best describes the gender of your friends during high school.

- All Female
- Mostly Female
- Half Female, Half Male
- Mostly Male
- All Male

16a. What were your average grades during elementary school?

- All F's
- F's and D's
- D's and C's
- C's and B's
- B's and A's
- All A's

16b. What were your average grades during middle school?

- All F's
- F's and D's
- D's and C's
- C's and B's
- B's and A's
- All A's

16c. What were your average grades during high school?

- All F's
- F's and D's
- D's and C's
- C's and B's
- B's and A's
- All A's

The following questions are open-ended. Please do your best to answer honestly and accurately. One or two sentences is all that is required for each answer.

17. How would you describe your relationship with female peers during elementary school? For example, were your peer relations good, did you fight a lot?

18. How would you describe your relationship with female peers during middle school? For example, were your peer relations good, did you fight a lot?

19. How would you describe your relationship with female peers during high school? For example, were your peer relations good, did you fight a lot?

20. How would you describe your relationship with male peers during elementary school? For example, were your peer relations good, did you fight a lot?

21. How would you describe your relationship with male peers during middle school? For example, were your peer relations good, did you fight a lot?

22. How would you describe your relationship with male peers during high school? For example, were your peer relations good, did you fight a lot?

23. Sometimes young women have difficulties related to the onset of puberty that are very unique to them. Please share any problems or difficulties you experienced as a result of the onset of puberty.

24. If the onset of puberty seemed later or earlier than your peers, do you think this had any effect, either positive or negative on you? If so, please explain.

25. Lots of times, young women have social or emotional problems during adolescence. If you experienced any social or emotional problems during your adolescence, what do you attribute this to?

THANK YOU VERY MUCH FOR YOUR PARTICIPATION.

APPENDIX C
DEBRIEFING STATEMENT

DEBRIEFING STATEMENT

This piece of research was conducted by Angela Sadowski under the supervision of Dr. Morley Glicker, Professor of Social Work at California State University San Bernardino. The purpose of this study was to find out if there was a correlation between early menarche and the onset of deviant behaviors. The study was approved by the Instructional Review Board at California Sate University, San Bernardino.

After this study is complete all questionnaires will be disposed of in a manner that is accepted for confidential documents. The documents will be shredded by a paper shredder, and then sealed in a bag and disposed of. The surveys will not be used for any other purpose other than the completion of this graduate level research project.

As a participant in this research study you are entitled to the results. If you are interested in obtaining the results of this study you need to contact the University after June 1999. Please phone Dr. Glicker at 909-880-5557 if you would like a copy of the results.

If any of the questions asked in this survey or any aspect of this research caused you any emotional stress you might want to contact a local family service agency or community health agency in your area. You can find the number for you local agencies by calling 800-564-8956 or you can telephone the social work department at California State University, San Bernardino.

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