Title
Adolescent mothers

Author
Koshar, Jeanette Haight

Publication Date
1996

Peer reviewed|Thesis/dissertation

Adolescent Mothers: Intention to Continue in High School

by

Jeanette Haight Koshar

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Nursing

in the

GRADUATE DIVISION

of the

UNIVERSITY OF CALIFORNIA

San Francisco

Dedicated to my mother and father

Jean and Bob Haight

and to my daughters

Sarah and Erica

Acknowledgments

I would like to acknowledge the contribution that the 101 adolescents who participated in this study made to increasing the knowledge of this phenomenon. Their candid responses were needed and appreciated. I would like to thank the seven teachers who work with these adolescents. They each have a unique style of interacting with new mothers, but share a common commitment to these new families. They trusted me as a researcher and treated me as a colleague. I also appreciate that the seven school districts allowed me to use their academic institutions with a minimum of bureaucratic obstacles. I would like to thank two outstanding nurses, Dr. Gay Goss and Ms. Nancy Johnson, for securing research sites and collecting data for me.

My dissertation committee contained a superb group of professionals. I would like to thank my committee for their time, support, and scholarly input. Dr. Kathryn Lee, my advisor and chairperson, knew when to push me, support me, tell me, or allow me to struggle on my own. She not only taught me how to do research, but allowed me to do it. I will never meet a finer researcher, role model, and forthright individual.

Dr. Diana Taylor shares the same intense interest in women's health care as I do. She would continually question me about my assumptions which at the time was frustrating, but was a much needed part of the

process. She taught me that being an expert clinician and an expert researcher are not mutually exclusive endeavors.

Dr. Susan Millstein, a psychologist in the Department of Adolescent Medicine, is a scholar for whom I have extreme respect. She introduced me to the Theory of Planned Behavior, allowed me to work with her on a research project, and was always willing to share her knowledge. She has an incredible understanding of adolescent behavior. Her comprehension of the use of theory to guide research is remarkable.

I will always be indebted to Dr. Ramona Mercer who participated in my qualifying examinations. Dr. Mercer's combination of intelligence and graciousness allows students to actualize their potential. I have known Dr. Mercer for half of my lifetime and I owe who I am as a professional to her. She is a true mentor and it is always a privilege to have her attention.

No one could make it through the rigors of a doctoral program without fellow students who become friends. The unconditional support will never be forgotten. They made this process of intellectual pursuit less lonely. I would especially like to thank Keeta Lewis for her empathy, understanding, and support. This new friendship will remain a significant part of my life.

My family members remain the most important people in my life. My mother and father, Bob and Jean Haight, raised me to be willing to take the challenging, albeit more difficult path in life. They had faith in my abilities when I didn't have it in myself. They not only encouraged me, but cared for

my children when I was at school. My two daughters, Sarah and Erica, deserve this doctoral degree as much as I do. Sarah's wit and compassion will never be forgotten. Erica's enthusiasm and reminders to "not get my name on the board" when I left for school are also a part of the memories of this experience. I would like to thank Alan for encouraging me to start on this academic journey.

Lastly, I thank the UCSF Alumni for the Century Club Award for Doctoral Student Research and the American Nurses' Foundation for their Grant which financially supported this research study. Not only did I need the money, but I appreciated their confidence in me as a new researcher. It is my wish that the knowledge I continue to gain as a researcher will be useful for effective interventions to keep adolescent mothers in school.

ABSTRACT

Adolescent Mothers: Intention

to Continue in High School

Jeanette Haight Koshar

The purpose of this study was to identify factors which influenced an adolescent mother's decision to continue in high school after the birth of her child. This research study was composed of two phases. The first phase was the development and pilot testing of a written questionnaire that operationalized the constructs of the Theory of Planned Behavior. This questionnaire was used in the second phase of the study with pregnant adolescents to describe the correlates of the outcome, continuation in school.

In the first phase of the study, a convenience sample of 48 adolescent mothers was interviewed using an open-ended questionnaire to elicit salient beliefs about the positive and negative consequences of going to school. In the second phase of the study, a convenience sample of 53 pregnant adolescents enrolled in seven different teen parent programs participated in the study. This phase was a prospective cohort study. The adolescents were interviewed and answered the questionnaire during their last six weeks of pregnancy and were interviewed again between the sixth and eighth week postpartum. The outcome variable was the percentage of time the adolescent returned to school from the fourth to the sixth week postpartum.

Findings from this study indicated that attitude, perceived control, and social norms predicted the intention to continue in school and intention predicted the behavior, continuation in school. The demographic variables: grade point average, previously dropping out of school, and age/grade lag did not predict dropping out of school. The results of this study provide a preliminary understanding about the factors that influence an adolescent mother's continuation in school and the role advanced practice nurses could assume to encourage adolescent mothers to complete their high school educations.

Jeanette Haight Koshar, RN, NP, MSN
Candidate

Kathryn A. Lee, RN, PhD
Chairperson

Table of Contents

List of Tables

List of Figures

CHAPTER ONE

THE STUDY PROBLEM

Purpose

The purpose of this study was to identify factors which influenced an adolescent mother's decision to continue in high school after the birth of her child. The information obtained in this analytic study served two purposes. The first purpose was to understand the determinants of adolescent mothers' intentions to continue in school after the birth of their children. These determinants were based on the concepts of the Theory of Planned Behavior (Ajzen, 1985). The second purpose was to develop and then test the validity and reliability of a new questionnaire, Feelings About School.

Significance

Over 400,000 babies are born to adolescent mothers each year in the United States. Although teenagers having babies is not a new phenomenon, in the past it was an extremely private matter for the adolescent and her family. During the last 20 years, this private problem became a public concern because of the growing awareness of the social and economic consequences for the young mother, her family, and the larger society (Brindis & Jeremy, 1988).

In 1956 only 19% of adolescent mothers were able to complete their high school education. By 1986, 56% of adolescent mothers with one child

were able to graduate from high school (Seymore, Frothingham, MacMillan & Durant, 1990). The inability to graduate from high school, for whatever reason, has long lasting effects on the health of adolescent mothers by decreasing employment opportunities and jeopardizing economic stability throughout their lives (Card & Wise, 1978; Furstenberg, 1976).

Salary comparisons between female high school graduates and dropouts are listed in Table 1.1. Other consequences of adolescent motherhood, including the behavior, to continue in high school, have been documented in many studies. Data from these studies indicate that adolescent mothers have a more difficult time continuing in school, returning to school, and successfully graduating from high school than do their non-parenting cohorts even when controlling for socioeconomic status (SES), academic ability, and motivational factors (Card & Wise, 1978; Furstenberg, Brooks-Gunn & Morgan, 1987; Hoffman, Foster & Furstenberg, 1993; Records, 1993; Trussel, 1976).

Adolescent mothers are even different from girls who become pregnant, but elect to terminate their pregnancies. Parenting adolescents tend to be of a lower socioeconomic status, non-white, and exhibit more school performance difficulties than girls who chose abortion (DeBolt, Pasley & Kruetzer, 1990).

Table 1.1 High School Graduates and Non-Graduates: Economic Comparisons (Women)

Outcomes	High School Graduates	Non-Graduates
Total: 18 to 21 year olds	80.4% plus 6% now attending	13.6%
Weekly Salary: Total:	$374.77	$284.50
African-American	$343.47	$281.30
Caucasian	$380.95	$285.97
Hispanic	$351.63	$257.03
Unemployment Rate: Total	12.8%	24.4%
African-American	25.8%	44.8%
Caucasian	10.3%	20.7%
Hispanic	19.0%	22.1%

Background

Until Title IX of the Education Amendments of 1972 was enacted in 1975, schools did not have to permit pregnant adolescents to continue their education. Now school districts must allow pregnant teens to participate in *either* regular classes or in alternative programs. However, schools do not

have to provide any childcare arrangements and finding care while attending school remains a major difficulty for many adolescent mothers (Jones, 1991).

Factors found to predict dropping out of school include an age/grade lag of two years or greater (Barrington & Hendricks, 1989), truancy and a low grade point average (Romberger, 1989) and the birth of a second child (DeBolt, Pasley & Kreutzer, 1990). The major reasons for dropping out of school given by African-American and Hispanic adolescents are poor grades and pregnancy. Marriage and dislike of school are the most commonly stated reasons by Caucasian adolescents (Earls, 1993).

There is significant evidence that many girls who become pregnant are already experiencing difficulties in school and state that education seems irrelevant to their needs (Brindis & Jeremy, 1986; Jones, 1991). Furstenberg (1976) found that 25% of the mothers were behind by at least one grade level before they conceived. Generally, adolescent mothers are never able to complete as much schooling as those students who do not become parents (Card & Wise, 1978). However, Furstenberg and colleagues (1987) reported that eventually 67% of adolescent mothers graduated, making the long term outcomes less grim.

Schools are the community institution primarily designed for socialization of adolescents (Brindis & Jeremy, 1988). A critical role of schools is to provide the education needed to obtain the skills and a diploma

required to join the mainstream of adult American society. This is even more critical for adolescents from socially and economically disadvantaged backgrounds (Spencer & Dornbusch, 1990). However the traditional educational system does not seem to be working for many low achieving students (including many adolescent mothers) who continue to have higher school failure and drop out rates than do average students (Commission on Behavioral and Social Sciences and Education, 1993).

During the teen years learning does positively influence cognitive development, although this process is much slower than during the elementary years (Entwisle, 1990). Development during these years incorporates one's ability to become a more abstract and critical thinker (Keating, 1990). Attending high school has effects on development through social interactions with peers and teachers in both informal and organized activities (Entwisle, 1990). During these interactions, one learns to work cooperatively with others. Retrospective studies have shown that adolescents who become pregnant were less likely to be involved in school based extracurricular activities than their peers and so may have missed the benefit of these interactions (Brindis & Jeremy, 1986).

Health

In a broad context, health is defined as "being able to live up to one's potential; being able to function physically, mentally, and socially" (Millstein, 1993, p. 98). There may be a connection between health promoting

behavior and staying in school (Klerman, 1993). Dropping out of school removes the adolescent from an important source of health promotion information and support. In contrast, adolescents who are not in school may have more interaction with peers who could encourage behaviors that may compromise health. There is evidence that adolescents living in poverty participate in less health promoting behavior than their counterparts. However, these results must be viewed with caution as the poorer health status of adolescents living in impoverished environments is also due to inferior housing, poor nutrition, unsafe neighborhoods, and lack of access to health care (Klerman, 1993).

Because of the potential effect going to school has on the health of the mother and her child, nurses have a role in promoting continuation in school. Both advanced practice nurses working with adolescents during their pregnancies and school nurses have the opportunity for continuous contact with these young women. These nurses can be part of the process which identifies the adolescents who are high risk for dropping out of school and in the planning and implementation of interventions.

Summary

Sociodemographic variables such as low SES, ethnicity, and previous difficulties in school have all been associated with both the increased risks of adolescent pregnancy and dropping out of school (Brindis & Jeremy, 1988). These are important variables for identifying adolescents at high risk

for pregnancy and dropping out of school, but are not easily modified by health care providers or through educational programs.

The next critical phase to move research forward in this area is to begin to understand the differences between those adolescent mothers who decide to continue in school and those who decide not to continue. For this reason, a theoretical perspective of decision-making was chosen to determine if modifiable predictors could be established for this behavior, continuing in high school.

CHAPTER TWO

THE LITERATURE REVIEW AND THE THEORETICAL FRAMEWORK

Introduction

This chapter is divided into two distinct, but related sections. In the first section, previous research which has examined the rates of high school continuation for pregnant and parenting adolescent girls is presented and critiqued. In the second section, a theoretical framework previously used to predict adolescent high risk behaviors is presented. Researchers examining the high school continuation rates of pregnant and parenting teens have not queried the adolescents about their decisions to continue in school. Conversely, decision-making models have not been used to examine the behavior, continuation in high school. Familiarity with both of these current bodies of knowledge is critical to the understanding of the phenomenon, deciding to continue in school after the birth of a child.

Literature Review

Thirteen studies were located in available journals which fulfilled the inclusion criteria of continuation in high school as either a predictor or outcome variable. Only studies which were presented with enough detail to critique the validity of the study findings were chosen.

Ten of the studies selected for review contained interventions designed to improve educational outcomes for pregnant and parenting adolescent girls. Three additional studies involved comparisons of socioeconomic variables between those adolescent mothers who continued in school and those who did not. Table 2.1 lists the 13 studies in chronological order. Table 2.2 summarizes the designs and methods used in the studies. Table 2.3 lists the predictor and outcome variables in these educational studies. Although many of the studies identified other variables of interest, those outcomes are beyond the scope of this research study and will not be evaluated.

The selected studies are critiqued individually and presented in chronological order. The comparison studies and intervention studies are presented separately. These studies are then critiqued cumulatively to evaluate their ability to advance the current understanding of the phenomenon, continuation in high school.

Comparative Studies

Three studies involved comparisons of sociodemographic variables of those adolescent mothers who continued in high school and those who did not. The classic study by Furstenberg (1976) compared the high school completion rates of 404 adolescents mothers five years after initial enrollment for prenatal care in a public clinic with 221 of their classmates. Although 70% of the mothers returned to school after childbirth, only 49%

Table 2.1 Studies Examining The Educational Outcomes for Pregnant Adolescents

Author	Year	Journal	Sample Size	Effect Size
Furstenberg	1976	Family Planning Perspectives	N=404	N/A
Colletta	1980	Journal of School Health	I(1)=25 I(2)=25 C=14	N/A
Stevens-Simon	1986	Journal of Adolescent Health	I(1)=6 I(2)=23	2.1
Elster	1987	JAMA	I=125 C=135	.43
Olds	1988	American Journal of Public Health	I(1)=94 I(2)=100 I(3)=116 C=90	.67

Continued Table 2.1 Studies Examining The Educational Outcomes for Pregnant Adolescents

Author	Year	Journal	Sample Size	Effect Size
DeBolt	1990	Journal of Adolescent Research	I=157 C=405	N/A
Horwitz	1991	Clinical Pediatrics	N=121	N/A
Seitz	1991	American Journal of Community Psychology	I(1)=47 I(2)=53	.39
Rabin	1991	Clinical Pediatrics	I=498 C=91	.90
O'Sullivan	1992	Nursing Research	I=143 C=140	.01
Setzer	1992	Journal of School Health	I=174 C=165	.30

Continued Table 2.1 Studies Examining The Educational Outcomes for Pregnant Adolescents

Author	Year	Journal	Sample Size	Effect Size
Warrick	1992	Family Planning Perspectives	I=180 C(1)=68 C(2)=156 C(3)=305 C(4)=64	.34
Jones	1994	Journal of Pediatric Health Care	I(1)=37 I(2)=71 C=108	.33

I=Intervention C=Control

Table 2.2 Educational Outcome Studies: Designs and Methods

Author	Design	Instrument	Statistical Test
Furstenberg	Longitudinal	Interview	Descriptive
	Descriptive		
Colletta	Cross-Sectional	Questionnaires	Descriptive
	Descriptive	Interview	Chi Square, Spearman
Stevens-Simon	Longitudinal	Record Review	Descriptive
	Quasi-Experimental		Fisher Exact
Elster	Longitudinal	Questionnaires	Descriptive
	Quasi-Experimental	Record Review	Chi Square, Spearman
		Observation	
Olds	Longitudinal	Interview	Descriptive
	Experimental	Record review	Regression, ANOVA
DeBolt	Cross-Sectional	Questionnaires	Descriptive
	Descriptive	Interview	Chi Square, T-Test

Continued Table 2.2 Educational Outcome Studies: Designs and Methods (continued)

Author	Design	Instrument	Statistical Test
Horwitz	Longitudinal	Questionnaires	Descriptive, Regression
	Descriptive	Interviews	T-tests, Chi Square
Seitz	Longitudinal	Interview	Descriptive, Chi Square
	Quasi-Experimental	Record Review	Spearman's Rho
Rabin	Longitudinal	Record Review	Descriptive, Chi Square
	Quasi-Experimental		
O'Sullivan	Longitudinal	Interview	Descriptive, Chi Square
	Experimental	Record Review	
Setzer	Retrospective	Record Review	Descriptive
	Quasi-Experimental		
Warrick	Longitudinal	Record Review	Descriptive, ANOVA
	Quasi-Experimental		Regression
Jones	Longitudinal	Record Review	Descriptive, Chi Square

Table 2.3 Educational Outcome Study Variables

Author	Predictor Variables	Outcome Variables
Furstenberg	Age, ethnicity, SES, living situation, subsequent pregnancy* education and occupation of parents, marital status	Graduate dropout
Colletta	Attending school, dropout, age, ethnicity, occupation of head of household	Total support*, self-esteem*, sense of control Coping style*, Stress*. No. of life problems*
Stevens-Simon	Age, ethnicity, repeat pregnancy* marital status, urban	Postpartum return to school does not return to school

* = Variables which showed significant differences between graduates or high school continuation and dropouts.

Continued Table 2.3 Educational Outcome Study Variables

Author	Predictor Variables	Outcome Variables
Elster	Intervention*, age, SES, ethnicity urban, psychological adjustment, primigravida, relationship with partner	Attending school, dropout, working, graduate
Olds	Intervention*, age, SES, ethnicity, marital status*, social support, LOC	Attending school, Not attending school
DeBolt	Age*, ethnicity, SES, GPA*, school attitude, previous school failure*, family structure, type of program*, urban or rural	Graduate Dropout

Continued Table 2.3 Educational Outcome Study Variables

Author	Predictor Variables	Outcome Variables
Horwitz	Participated more in intervention*, age, SES, ethnicity, grade at time of pregnancy*, no subsequent pregnancy*, feeling in control*, social interaction*, urban, religious	Graduate, non-graduate working, supported by by spouse
Seitz	Amount of time in intervention*, age, SES, ethnicity, previous school achievement*, primigravida, urban	Enrolled, passing grades' failing grades, vocational program, GED
Rabin	Intervention*, length of time in in intervention*, age, SES, grade at time of pregnancy, employment status	Graduate, within 6 months of graduation, GED, dropout

Continued Table 2.3 Educational Outcome Study Variables

Author	Predictor Variables	Outcome Variables
O'Sullivan	Intervention, age, SES, ethnicity, marital status, length of prenatal care, multigravida	Return to school, did not return to school
Setzer	Intervention, age, SES, ethnicity*, grade, attending a school parenting program	Graduate, attending school, non-attenders
Warrick	Intervention*, length of time in intervention*, age, SES, ethnicity*, grade at time of pregnancy*, age/grade lag, previous school failure, GPA*, living with baby's father*	Graduate, attending school, dropout
Jones	Intervention, length of time in intervention, age, SES, ethnicity*, grade, marital status	Grade level completed

of these mothers eventually graduated from high school. The major reason given for not completing was a subsequent pregnancy. A follow-up study 17 years later (Furstenberg, Brookes-Gunn, & Morgan, 1987) reinforced the links between fertility control, educational completion, and economic success. A limitation of this study was the use of a nonparenting comparison group. Since no information was provided on previous school success for either group, it is difficult to determine the risk factors that led to a pregnancy and not completing high school. However the amount of information on parenting adolescents that has been provided by this study is extremely invaluable and has yet to be replicated.

Colletta, Gregg, Hadler, Lee and Mekelburg (1980) compared psychological variables for 50 adolescent mothers who were enrolled in a regular school or a special program and 14 mothers who had dropped out of school. They reported that the mothers in school had significantly more social support, less life stresses, and higher self-esteem. There was no significant difference between groups in their sense of personal control. A limitation of this study is a threat to the validity of the results due to self selection. In this study, adolescents were chosen to participate in the program because they were more motivated to return to school and needed childcare.

DeBolt, Pasley and Kreutzer (1990) compared 405 adolescents who dropped out of 15 different Teenage Pregnancy and Parenting programs

(TAPP) with 157 adolescents who continued in these programs. The researchers reported significant differences between the two groups on age at time of first pregnancy, ethnic group, family structure, grade point average (GPA), GPA improvement, and whether or not the adolescent was enrolled in a special education program for slower learners. Although this study is limited in its generalizability to other populations, valuable information was gained about the educational abilities of these adolescent mothers and the influence of environmental characteristics on continuation in school.

Intervention Studies

Ten studies were located that compared the high school continuation rates for pregnant and parenting adolescents who were enrolled in special programs with those not participating in a specific intervention. The studies are presented chronologically.

In a prospective descriptive study, Stevens-Simon, Parsons, and Montgomery (1986), followed a convenience sample of 29 first-time teenage mothers for up to two years postpartum. The purpose of the study was to evaluate the effectiveness of a young women's clinic in preventing a second pregnancy by providing comprehensive contraceptive information and making birth control easily available. The researchers compared the recidivism rates of six adolescents who continued in school and 23 teens who dropped out of school. None of the girls in school conceived during the

two year follow-up. However, 36% of the drop-outs conceived during the follow-up period. Eighty percent of these pregnancies were planned and not a result of failure to use contraception. Eventually, 80% of the dropouts who did not conceive continued in high school. From the study results, the researchers concluded that with close follow-up, even those adolescents who had dropped out of school could effectively prevent another pregnancy.

Limitations of this study include the small sample size and the failure to report attrition and refusal rates. Information on school attendance was by self-report only. Unfortunately, the researchers did not evaluate the motivation of the participants to continue in school. The only reason addressed for not continuing in school was lack of childcare.

Stevens-Simon and colleagues (1986) addressed the difficult dilemma of the cause-and-effect relationship between school failure and pregnancy. Even with a small sample, the results of this study showed a relationship between recidivism and continuation in school.

Elster, Lamb, Tavare and Ralson (1987) conducted a study to evaluate the effectiveness of a prenatal and postpartum program for adolescent mothers and their children on school dropout rates and attainment of a job. This longitudinal, quasi-experimental study included 125 adolescents in the intervention and 135 mothers not involved in any special intervention. Those adolescents participating in the intervention had a statistically significant greater success rate of continuation in high school than the adolescents in

the control group. Limitations of this study include reactivity, as many of the adolescents either self referred to the program or were referred by community agencies. Attrition rates over the two years were similar for both groups. The participants in the control group were never queried about interventions they may have pursued on their own. Motivation to continue in school was not addressed.

A randomized, longitudinal clinical trial was conducted by Olds, Henderson, Tatelbaum and Chamberlin (1988) to evaluate the effects of three intervention programs on educational attainment and subsequent pregnancy rates during a two-year period. They used an intervention with nurses who were educated to assist young mothers in finding appropriate school and childcare arrangements. The intervention was successful in improving the high school continuation rates when comparing the control group with the group receiving the most indepth intervention. However, similar comparisons were not made with the other two groups receiving some intervention. Therefore which individual aspects of the intervention were found to be helpful was not identified.

Strengths of this study include randomization into four groups, interviewers blinded to group membership of participants, and the low attrition rate in all the groups. Limitations include contamination. The girls in the study may very well have know each other and discussed interventions

with each other. Additionally, the same nurses provided interventions for two of the groups.

A consequential finding in this study was that many individuals who dropped out of the intervention group reportedly did so because the nurses had provided them with so much help that the new mothers felt more capable to proceed independently. The adolescents reported higher levels of social support in the nurse-treatment groups. Reasons for these important findings were not hypothesized and may be an important part of future interventions. Horwitz, Klerman, Kuo and Jekel (1991) conducted a 20 year follow-up of 121 adolescents who had attended a comprehensive pregnancy program as teenagers. Remarkably, 81% of the participants were located. A finding of this study was that those adolescents who had participated more intensely in the intervention were more likely to have graduated from high school.

A strength of this study is the recognition by the researchers that confounding variables, such as previous school attendance and subsequent pregnancies, could affect success rates and were controlled for in this study. Horwitz and colleagues (1991) describe interesting comparisons between the effects of isolation and depression on long term success, but a rationale for these comparisons was not proposed. How interventions may affect long term outcomes was also not discussed.

The positive effect of the length of time the adolescents participated in the intervention and their success in school was also reported by Seitz, Apfel and Rosenbaum (1991). In this study, 106 girls participated in an educational program for teenage mothers. The length of participation was determined by school interruption due to summer vacation. A strength of this study design was the selection process for the study. Participants were chosen from the waiting list so the threat of self selection was decreased. The attrition rate was not addressed. Additionally, the interview took at least one hour to complete, which may have affected the validity of the responses due to boredom and response set bias. Conclusions of this study must be viewed with caution. The researchers stated that 51% of the failing students were educationally successful once they entered the program. What was not addressed was that academic standards in the regular high school may have been more rigorous than those requirements in the special program.

Rabin, Seltzer and Pollack (1991) implemented a study with 498 pregnant and parenting girls using a comprehensive, interdisciplinary clinic as the intervention. The control group included 91 teens from a local teen mother clinic. The researchers found a statistically significant difference in high school completion rates between the intervention and control groups. A limitation of this study includes potential selection bias. The authors did not address either the selection process or refusal rates. It was also difficult to

evaluate the effective components for participants of this program because the intervention was modified each year. Additionally the outcomes were evaluated only for those mothers who regularly attended both clinics and thus generalization of their results is limited.

In a randomized trial, O'Sullivan and Jacobsen (1992) compared school attendance rates between two programs for adolescent mothers and their infants. The researchers enrolled 143 mothers in the experimental group and 140 mothers in the comparison group. There was no significant difference in the return to school rates between groups. Unfortunately, O'Sullivan and Jacobsen (1992) did not include a specific intervention in their program that would encourage return to school. In essence, they were measuring an outcome for which there was no intervention. Other limitations to this study include a refusal rate of 18% and an attrition rate of 29%.

Setzer and Smith (1992) conducted a retrospective study comparing the rate of high school continuation between those mothers receiving comprehensive prenatal and postpartum care at either a school-based clinic (n = 174) or community-based clinic (n = 165). Initially adolescents attending the school- based clinic were more likely to be attending school. However, during the pregnancy and postpartum periods, the rates of continuation for the two health care facilities converged. Interestingly, a subgroup of adolescents also attending a special pregnant and parenting program had a higher continuation rate regardless of clinic site. Because the pregnant teens

weren't randomized to these programs, the teens attending each program were quite different on demographic variable (ethnicity, marital status, age/ grade lag, and number of previous pregnancies). The statistical significance of these differences was not reported.

Determining the elements within educational programs that are most beneficial for high school continuation was the purpose of the comprehensive study by Warrick, Christianson, Walruff and Cook (1993). In this longitudinal study, the researchers compared high school continuation rates for 789 pregnant and parenting teens enrolled in five different school programs. The two components within the programs found to aid in the success of students were case management and day care. The researchers had the foresight to also examine environmental factors influencing continuation in school. They reported that those teens who were married or living with their boyfriends had higher school dropout rates. Consequently, those teens with a greater family support were more likely to continue in school. This finding was especially true for the Hispanic teens.

A limitation to this study is that the participants self selected into programs. Students who chose a more comprehensive program may be more motivated to continue in school. Also the researchers introduced unreliable implementation of the intervention by converting one of its model programs over to another program which was reporting higher retention rates.

Jones and Mondy (1994) conducted a retrospective study comparing subsequent graduation from high school according to participation in one of three programs which provided varying amounts of prenatal and postpartum care. A total of 216 adolescents were enrolled in either a school-based program, a special pregnancy program, or in a comparison group. After five years there was no difference in the graduation rates among the three programs. As with the O'Sullivan and Jacobsen study (1992), the interventions had no components that would encourage continuation in school, which is a detrimental oversight. Another limitation of the study is only 69% of the school records of the participants could be located to determine graduation rates.

Summary of Intervention Studies

Most of these studies support the value of interventions to improve the chances for continuation in high school when mothers chose to participate in the offered program. The results of these studies were combined and an effect size was calculated. Only the study by Horwitz et al, 1991 was not included because a comparison group was not used in that study. An effect size provides a common metric to quantify how different the two groups of participants are with respect to the dependent variable (Polit & Hungler, 1991). For the 2,801 participants in these nine studies, the average effect size for staying in school due to an intervention was .640. However, since effect size is not dependent on sample size, a weighted

effect size was used to analyze these data. The weighted effect size for these nine studies was .496 or .5 standard deviation units. This effect size can be interpreted to mean that the average adolescent participating in an educational intervention is 69% more likely to continue in school than an adolescent not taking part in the specified intervention. Although these calculations do not account for the variation in the quality of these studies, computing this effect size reinforces the efficacy of interventions to keep adolescent mothers in school.

Conclusions

It can generally be concluded from these studies that adolescent mothers who participate in educational interventions are more likely to continue in high school than those adolescents who do not participate. The reasons for this success is less clear. It is possible that adolescents who self select into these programs have school success because of sociodemographic variables such as ethnicity, age, previous school success, and cognitive capability. The three comparative studies do provide support for personal and social differences between adolescents who drop out of school and those who continue.

It is also unclear which components of the interventions are the most successful in encouraging continuation in high school. Only in the study by Warrick et al (1992) was there an attempt to identify the most helpful elements of an intervention (day care and case management). Interestingly,

the provision of childcare was rarely mentioned as a benefit for the students in other studies although this service is frequently identified by teen mothers as a major contribution to being able to continue in school (Brindis & Jeremy, 1988).

These interventions are monetarily costly and labor intensive. Identifying the components of programs the adolescents find most helpful has the potential of providing more effective and inexpensive programs. This inclusion would be an important part of further research.

Theoretical Framework

Understanding the effective components of interventions should be guided by theory. Establishing a theoretical framework from these studies would provide the logical rationale for the connection between demographic, personal and environmental variables which are expected to influence continuation in school. Adolescent mothers struggle with complex interactions between their cognitive, biological, and psychosocial development. These multivariate associations require theoretical coherence to guide both the interventions and evaluation of outcomes. Without building a framework for the rationale for interventions and systematic evaluations of outcomes, programs will continue to be implemented with little understanding of how they work or the duration of their effectiveness (Koniak-Griffin, 1991).

A critical phase needed to move research forward in this area is to begin to understand the differences between those adolescent mothers who choose to continue in school and those who choose not to continue. Decision-making models have not been used to account for differences in the adolescent mother's behavior, continuation in school.

The purpose of this section is to discuss perspectives which have been used to evaluate adolescent decision-making specifically related to both contraceptive choices and continuation in school. The presentation of both developmental theory and decision-making theory provide the rationale for the importance of understanding the decision-making process of adolescents. A decision-making framework that incorporates a developmental perspective is described.

Developmental Theories

An understanding of adolescent cognitive and psychosocial development is needed as a background to assess decision-making abilities. Although they do not directly address decision-making, cognitive and psychosocial theories serve as the beginnings of much of the current understanding of adolescent behavior. A brief description of the works of Piaget, Elkind and Erikson is presented.

Cognitive Development

Piaget's work on cognition has contributed to the understanding of human development (Muuss, 1988). He described a schemata of cognitive

skills, including the concrete operational and formal operational stages, which are the stages applicable to adolescent development and decision-making. A concrete operational adolescent is beginning to develop logical thinking, but is unable to think abstractly. During the formal operations stage, the adolescent can reflect on her own thinking and is able to generate possibilities which are both hypothetical and real (Miller, 1989). The cognitive skills available to adolescents in these two stages are quite different and these differences influence how decisions are made.

Another construct formulated by Piaget which directly affects decision-making is the concept of future orientation within the stages of concrete operational and formal operations. According to Piaget, the adolescent mother will make decisions based on her perceptions of the future. The adolescent's inability to be future-oriented is cited as a reason for dropping out of school as well as for being sexually active (Furby & Beyth-Marom, 1990).

Cognitive development is also influenced by the adolescent's egocentrism as described by Elkind (Muuss, 1988). Decision-making behavior reflecting Elkind's cognitive perspective incorporates both self-consciousness and the degree to which an adolescent is willing to reveal various facets of herself to those in her immediate environment. Elkind's concepts of "personal fable" and "imaginary audience" apply to decisions made by adolescent mothers.

Psychosocial Development

The second theoretical perspective for evaluating decision-making is psychosocial development based on Erikson's Theory of Identity Development. According to Erikson, acquiring the skills of a competent decision maker becomes a part of one's identity. In the context of decision-making, identity formation relates to one's unique combination of values, attitudes, beliefs, and behaviors. During this stage, one's ability to form a strong personal identity, but with enough diffusion to allow for later changes, will affect the quality of decisions made (Miller, 1989).

Erikson was also aware of the influences of society and culture on one's identity development. Since social development influences decision-making, the adolescent's environment should not be overlooked as a source of decision-making influence (Keating, 1990).

Summary of Two Developmental Theories

The components of adolescent development affecting decision-making have briefly been described. The adolescent's cognitive stage of development and her psychosocial development are certainly relevant, contributory perspectives influencing her decision-making. As cognitive changes occur, adolescents are better able to reflect on their behavior and its long term consequences. Within the psychosocial realm, adolescents begin forming a more complex conceptualization of themselves in

combination with the pressures society begins placing on them to prepare for an adult role in society (Crockett & Petersen, 1993).

These developmental theories do not comprehensively account for decisions made by adolescents, but serve as the basis for establishing the need for a developmental decision-making framework. They provide a basis for understanding how adolescents make decisions as determined by their cognitive and psychosocial development.

Decision-Making Theory

The purpose of decision-making theory is to understand the processes used when making decisions about future behavior. The first concept of decision-making theory addresses how the adolescent uses the information available to her to make a decision based on her own beliefs within the context of her present environment. Secondly, it is important to make the distinction that this information is used to understand the process of decision-making and should not be used to judge the quality of the decisions made.

The Process of Decision-Making

Decisions are quite individualized because they are based on personal values, individual perceptions, developmental stage, cultural differences, and personality type (Langer & Warheit, 1992). Internal and external pressures from self, peers, parents, other adults, and the media all affect the

individual's understanding of alternatives available when making critical decisions (Keating, 1990).

To understand how the adolescent uses the information available to her to make a decision, it is important to understand the steps involved in decision-making. This list is from Furby and Beyth-Marom (1990), but the steps given in most decision-making texts are quite similar. These steps include: (a) identifying the possible options available, (b) identify the consequences that may follow from each of the options, (c) evaluate the desirability of each of these consequences, (d) assess the likelihood of these consequences, and (e) make a decision based on the above information.

When an adolescent identifies options available, she evaluates the characteristics of her final choice and considers the salient factors of other options generated. Sometimes there are only two options: go to school or do not go to school. At other times there are numerous options: which of many kinds of contraceptives to use.

Process Oriented Decision-Making Models

In the previous section, steps followed by the adolescent when making a choice were outlined. Decision-making models have applied the decision-making theory concepts in research studies. These models assume that the behavior being studied is guided by the individual's perceptions of the consequences, both cost and benefit, of taking or not taking a certain action (Adler, Kegeles, Irwin & Wibbelman, 1990). Static models typically

look for a single prediction rule of a health behavior. However, process models are used by researchers interested in the different steps of decision-making. How these steps influence the final decision rule are of importance for both predicting and understanding behavior.

There are two basic process models used to study how choices are made. One perspective is a normative model which describes the process that people should follow to have the best chance of maximizing their well-being based on their beliefs and values (Furby & Beyth-Marom, 1990). The second perspective is a behavioral model which examines how individuals actually do make decisions (Fischoff, 1988). Research using this model focuses on how people identify their options, the consequences, and the desirability and likelihood of those consequences. Both models use the same steps. The normative model describes what people should be doing. The behavioral model analyzes what they actually do (Furby & Beyth-Marom, 1990).

Both types of decision models have been tested and are used to account for the variance in contraceptive behavior among adolescents. They are used to predict the likelihood of an action by a specific individual or by individuals within a group (Weinstein, 1993). The models are designed to explain variance in the behavior, not to predict what percentage of the population will participate in a specific behavior. Four models have been used in predicting and understanding health behaviors. These models are the

Health Belief Model (HBM), Theory of Reasoned Action (TRA), Protection Motivation Theory, and the Subjective Expected Utility Theory. The HBM and the TRA have been used more extensively than the other models for studying adolescents and their contraceptive behaviors. These two models will be examined and contrasted in the following discussion. Although the context of this study is continuation in school, examples of these decision-making models will focus on contraceptive behavior because of their previous use in predicting this behavior.

The Health Belief Model

The Health Belief Model (HBM) uses a normative framework to understand why people fail to engage in preventative health care behaviors. The HBM was developed in the 1950s by the United States Public Health Service and assumes the main motivation for behavior is hazard reduction (Weinstein, 1993). Assumptions of this model are that behavioral changes result from knowledge related to health risks when the person believes that: (a) She is threatened by a certain health risk either because of personal susceptibility or because of the severity of the risk, (b) A risk reducing action will produce greater benefit than cost, and (c) Environmental cues are present to stimulate a decision to reduce health risks (Langer & Warheit, 1992).

The HBM has been used in several studies as a basis for examining the use of contraceptives for pregnancy prevention and susceptibility to

pregnancy (Blum & Resnick, 1982; Eisen, Zellerman & McAlister, 1990; Keith, McCreary, Collins, Smith & Bernstein, 1991; Sachs, 1985; White, 1984). Generally, the perception of barriers to health action has been the most influential predictor of using contraception. Perceived susceptibility to pregnancy was a significant predictor of contraceptive use in only one study (White, 1984). It must be noted that three of these studies were not longitudinal (Blum & Resnick, 1982; Sachs, 1985; White, 1984) and so are not a valid test of the process inherent in the HBM.

The Theory of Reasoned Action

The Theory of Reasoned Action (TRA) was developed in the 1970s by Ajzen and Fishbein as a model designed to predict and explain behavioral intentions and behavioral actions (Jorgensen & Sonstegard, 1984). The premise of this model is that a person's behavior is best predicted by her intention to engage in a given action (see Figure 2.1).

The assumptions of TRA as stated by Ajzen and Fishbein (1980) are (a) People behave in a rational manner, (b) A person's intentions to perform a behavior is dependent upon a personal attitude towards the behavior and social norms, (c) People take account of available information and implicitly or explicitly consider the implications of their actions, (d) Barring unforeseen events, people are expected to act in accordance with their intentions, (e) Intentions change over time such that the longer the time interval, the greater the likelihood unforeseen events will produce changes in intentions,

and (f) The accuracy of the prediction of behavior will be an inverse function of the time interval between measurement of intention and observation of the behavior.

In this model, intention to perform a behavior is the key factor in the decision-making process. Intention has two separate components. The first, attitude, is composed of outcome evaluations of a behavior and the strength of the belief about performing that behavior. An outcome evaluation is the adolescent's belief about how good or bad an outcome would be for her. The strength of that belief determines the strength of her intention to perform that behavior.

As an example, if an adolescent is considering continuing in school, she will have certain salient beliefs about school such as how good or bad it is that she does her homework. She must then evaluate how likely is she will do her homework. The two factors are multiplied together and then all her attitudes about attending school are added together.

The second determinant of intention is social norms and is also based on two components. The first is the adolescent's belief that those people most important to her think she should or should not perform a behavior. The second is her motivation to comply with those beliefs. For example, she must evaluate how strongly she thinks her mother would want her to go to school and how motivated she is to comply with her wishes. These are also

multiplied together and then the products of all her social norms about school attendance are added together.

Intention to continue in school would be predicted by the combined attitude and subjective normative scores. Those adolescents with both positive attitudes and strong social norms would be predicted to continue in school. Those with negative attitudes and low social norms would be predicted to drop out of school. Correlations between attitude and intention, and social norms and intention are also performed. The correlations predict how much of the variance in intention is explained by either attitudes or subjective norms.

Self-efficacy was not a variable originally included in the TRA. In this model, behaviors are under the volitional control of the individual (Madden, Ellen & Ajzen, 1992). Obviously many behaviors, including continuing in school, are not under the complete control of an adolescent. The Theory of Planned Behavior (TPB) proposed by Ajzen (1985) expanded the TRA to include both perceived control and actual behavioral control. These additions strengthen this model (see Figure 2.2). The name, TRA, often continues to be used in the current literature with the understanding that it may contain these additions.

The adolescent's decisions will be influenced by both her beliefs about the amount of control she perceives she has over the desired behavior as well as her actual control over the behavior. The more resources and

Figure 2.1 The Theory of Reasoned Action

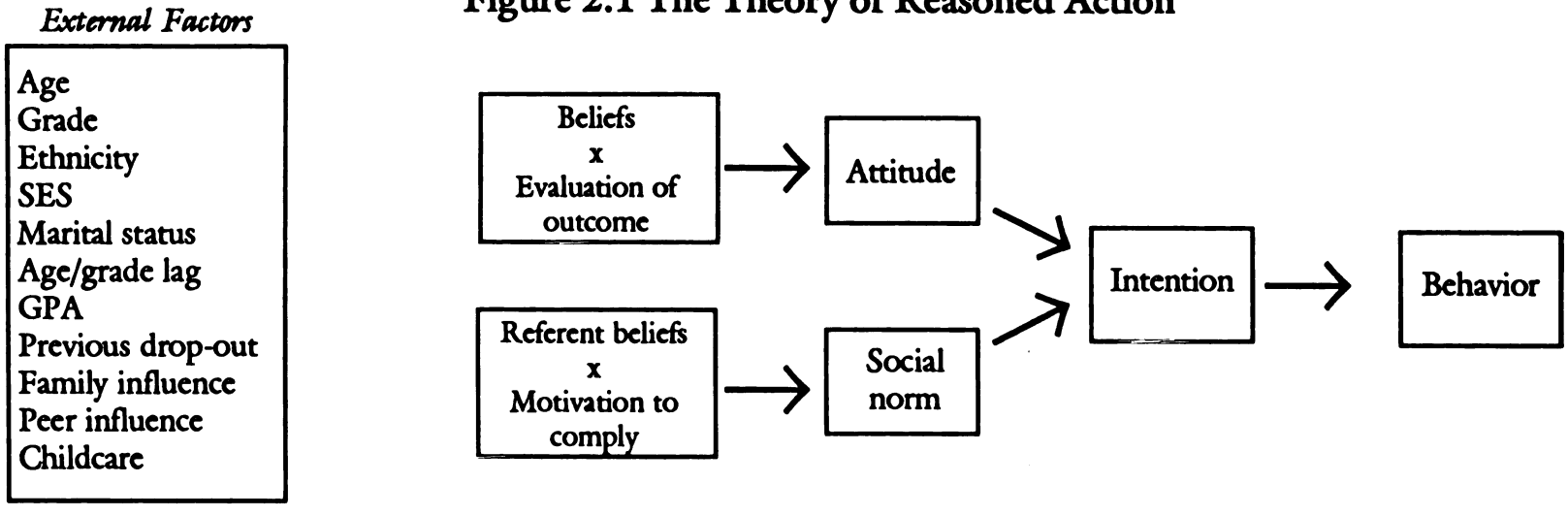
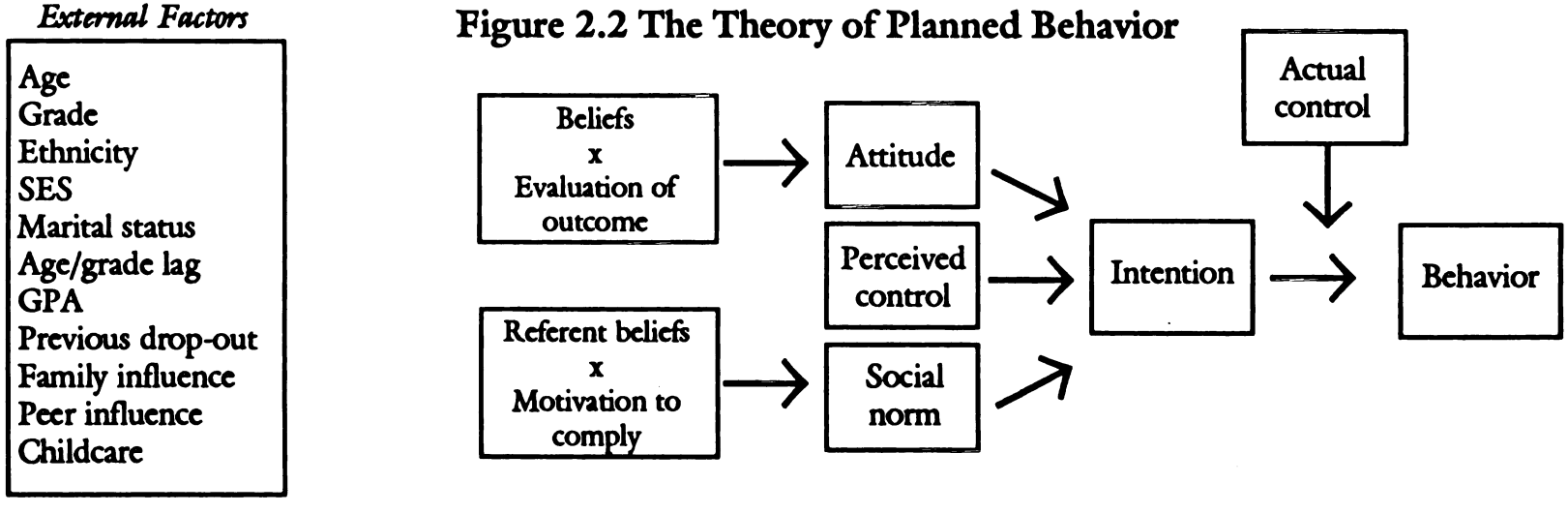


Figure 2.2 The Theory of Planned Behavior



opportunities she feels she possesses, the greater her behavioral control should be (Madden et al, 1992). For example, if the adolescent believes she has the ability to get to school each day and she actually has transportation to get to school, then the prediction of both her intentions to perform the behavior and the actual performance of the behavior would be high. This is an important addition to this model because even if the adolescent has favorable attitudes and subjective norms, her intention to perform the behavior may be low if she feels she has little control over the behavior.

Comparison of Decision-Making Models

A comparison of the HBM and the TPB suggests that the latter includes constructs which can be used to understand and predict adolescent behavior more completely than do the constructs in the HBM. The prediction rule for the HBM only contains beliefs about what might happen if a particular behavior were to be enacted. The TPB asks about a similar behavior, but also what would happen if the behavior did not occur (Weinstein, 1993). Therefore, the HBM is missing half of a very salient question. For example, studies have shown that adolescents using contraception and adolescents not using contraception are quite aware that pregnancy will occur if contraceptives are not used. The difference between these two groups occurs when asked the negative consequences of using contraceptives (one's parents will find out, they are messy, they do not work, they cause weight gain, they cost too much money).

Compared to the HBM, the TPB contains a wider range of consequences of a current behavior and consequences of not performing that behavior. The HBM focuses only on health consequences whereas the TPB includes social and economic consequences. Additionally, this list of consequences in the TPB is not created a priori, but is generated during pilot research when participants are asked about the consequences they foresee (Weinstein, 1993).

The TPB also differs from the HBM because it explicitly incorporates a subjective normative component into the model (Weinstein, 1993). People do tend to incorporate their own attitudes and subjective norms when making a decision about performing a particular behavior (Eagly & Chaikin, 1993). Both peers and family are important influences on an adolescent's decisions (Mann et al, 1989). This missing component is a serious constraint when using the HBM as a basis for studying adolescent decision-making.

Critique of The Theory of Planned Behavior

Several longitudinal studies have been conducted using the TPB to both predict and understand contraceptive use by adolescents (Adler et al, 1990; Boldero, Moore & Rosenthal, 1992; Gilbert, Bauman & Udry, 1986; Jorgensen & Sonstegard, 1984; Weisman et al, 1991). In these studies, significant relationships have been found between both the attitudes and the subjective norms of using a contraceptive method and the intention to

perform that behavior. In these studies, intention to perform the behavior was also positively correlated with the behavioral action of using a contraceptive method.

A meta-analysis of the TPB (Eagly & Chaiken, 1993) revealed that, when the model was used correctly, behaviors could be predicted with correlation coefficients of at least .50. Studies of adolescent behavior generally revealed lower correlations, ranging from .23 to .35. This difference may be partially explained by the developmental influences on adolescent decision-making. By not including the developmental perspective in this model, difficulty in understanding and predicting adolescent behavior may be created.

The TPB contains concepts which have been shown to be useful for both understanding and predicting human behavior. Empirical studies have validated the usefulness of this model to increase our understanding of how attitudes and subjective norms influence intentions to perform an identified behavior. However, as with any model, the TPB is not without its limitations. This theory has been criticized for not including sociodemographic characteristics, personality characteristics, and prior behavior in the model as these variables have been shown to enhance behavioral predictions in many social science studies (Eagly & Chaikin, 1993). These factors are considered variables outside the model because their relevancy is reflected by the influence these variables have on the

individual's attitudes and social norms (Ajzen, 1985). Although many studies using the TRA include these demographic variables in the analysis of predicting behavior, it is important to distinguish between the role of these variables and the role of attitude and social norms when planning interventions (Carter, 1990).

Attitudes and social norms can be targets for interventions, while variables such as age, ethnicity, previous behaviors, family background, and personality characteristics are not easy to modify. Although these variables are not very amenable to interventions, they may be useful for initial identification of adolescent mothers who are at high risk for dropping out of school.

A Developmental Decision-Making Framework

To understand how decisions are made, it is important to consider both the adolescent's development and the general process of decision-making. Combining developmental theory and decision-making theory into a developmental decision-making framework provides a basis for the increased understanding of an adolescent's decision-making within the context of her environment. Effective decision-making is a higher order process based on numerous cognitive abilities (Furby & Beyth-Marom, 1990). Cognitive and psychosocial development all impact the types of decisions the adolescent will make (Worrell & Danner, 1989) as will previous life experiences (Strauss & Clarke, 1991). The decisions adolescents make are influenced by

developmental stages because they affect the awareness of possible risks, consideration of present and future consequences, and the likelihood that adolescents will seek out the advice of competent adults and peers within their social setting (Crockett & Petersen, 1993).

Adolescents are making decisions during a time of physiologic and cognitive changes within the context of a social environment which is also in rapid change (Langer & Warheit, 1992). The developmental tasks negotiated by adolescents are not accomplished in isolation, but are influenced by their environmental context. In concert with the adolescent's developmental progression, her environment influences the diversity of options available to her by the values, goals, pressures, and diversions she must contend with when making decisions (Worrell & Danner, 1989). The adolescent's family, peers, school, and community provide both opportunities and barriers to effective decision-making (Perry, Kelder & Komro, 1993). While the adolescent attempts to adjust to changes within herself and within her environment, decisions are being made daily.

The need for a developmental decision-making framework is based on the limitations of our understanding of the competence of adolescent as decision-makers. Both the adolescent's attitudes and the influences of the environment have been identified as being important constructs of this framework. Further development of this framework would provide a sound basis for empirical studies of the components of the decision-making process

and a rationale for designing and implementing decision-making interventions (Furby & Beyth-Marom, 1990).

The Theory of Planned Behavior and Educational Outcomes

Based on this previous discussion, the TPB would be a useful model for predicting and understanding adolescent mothers' intentions to continue in school. There are similarities between decision-making for contraceptive use and for continuing in school. As with contraceptive use, attending classes requires a repeated decision every day in contrast to a decision that only needs to be made once. Using a contraceptive method and going to school are both social behaviors requiring interaction with others. They are also behaviors not under volitional control because they require outside resources to perform the behavior.

The TRA has been used in many areas to predict a wide variety of social behaviors such as weight loss, planning a pregnancy, alcohol consumption, and consumer purchasing behaviors. However, only one study has used the TRA to predict educational outcomes. Fisher (1983) queried 712 tenth grade students and reported that both the attitudes and social norms were determinants of intention to continue in school. In this study, students' decisions to stay in school were influenced more by their attitudes than by their social norms. This was a cross-sectional study and the actual behavior of continuation in school was not studied. As this study was

conducted before the TPB was introduced, it does not contain the component of behavioral control.

Most of the studies on high school dropouts use only demographic and descriptive data to compare high school graduates, non-graduates, and school dropouts. In a review article, Rumberger (1987) cites reasons for dropping out of school that include poor school performance, a dislike of school, being expelled, the need for a job, pregnancy, and marriage. IQ scores, test scores, grade point averages, absenteeism, and family background have been shown to predict differences between those who drop out of school and those who persist and stay in school (Barrington & Hendricks, 1989). A study of pregnant and parenting adolescents had similar findings (DeBolt, Pasley & Kreutzer, 1990). Other researchers reported significant differences in participation in extracurricular activities between students staying in school and those dropping out (Ekstrom, Goertz, Pollack & Rock, 1986). Although these studies describe important differences between these groups, they give us little understanding of the influences on the intentions to either continue in school or to drop out.

TPB Within a Developmental Framework

To improve the understanding of adolescent mother's decision-making about her decisions to continue in school or to stay at home, a developmental decision-making framework using the TPB model is proposed and appears in Figure 2.3. This Expanded Theory of Planned Behavior

framework provides a more complete understanding of adolescent decision-making than does a decision-making theory or a developmental perspective alone. The developmental stage of the adolescent mother will directly impact her attitudes, social norms, and perceived control about her intention to perform a behavior and her understanding of her actual control over the behavior itself. For example, the cognitive stage of formal operations will impact her attitude, the amount of perceived control, and the actual control she has over the behavior of continuing in school. If an adolescent mother perceives she has complete control over her childcare plans when she returns to school, but actually has no childcare (actual control) then she may be exhibiting a lack of future- oriented thinking.

An adolescent's sense of identity would affect social norms and both perceived and actual control over behaviors. One's development within the social and cultural context would impact beliefs about continuing in school. If the adolescent mother has obtained more education than any other female in her family, her subjective norms would negatively influence her intention to continue in school.

Although the cognitive and psychosocial developmental stages would not be evaluated directly, understanding that they serve as the framework within which decisions are made is important. For example, when talking with adolescents, an interviewer can obtain information about developmental stages (Mercer, 1983). From clinical experience, an adolescent's general

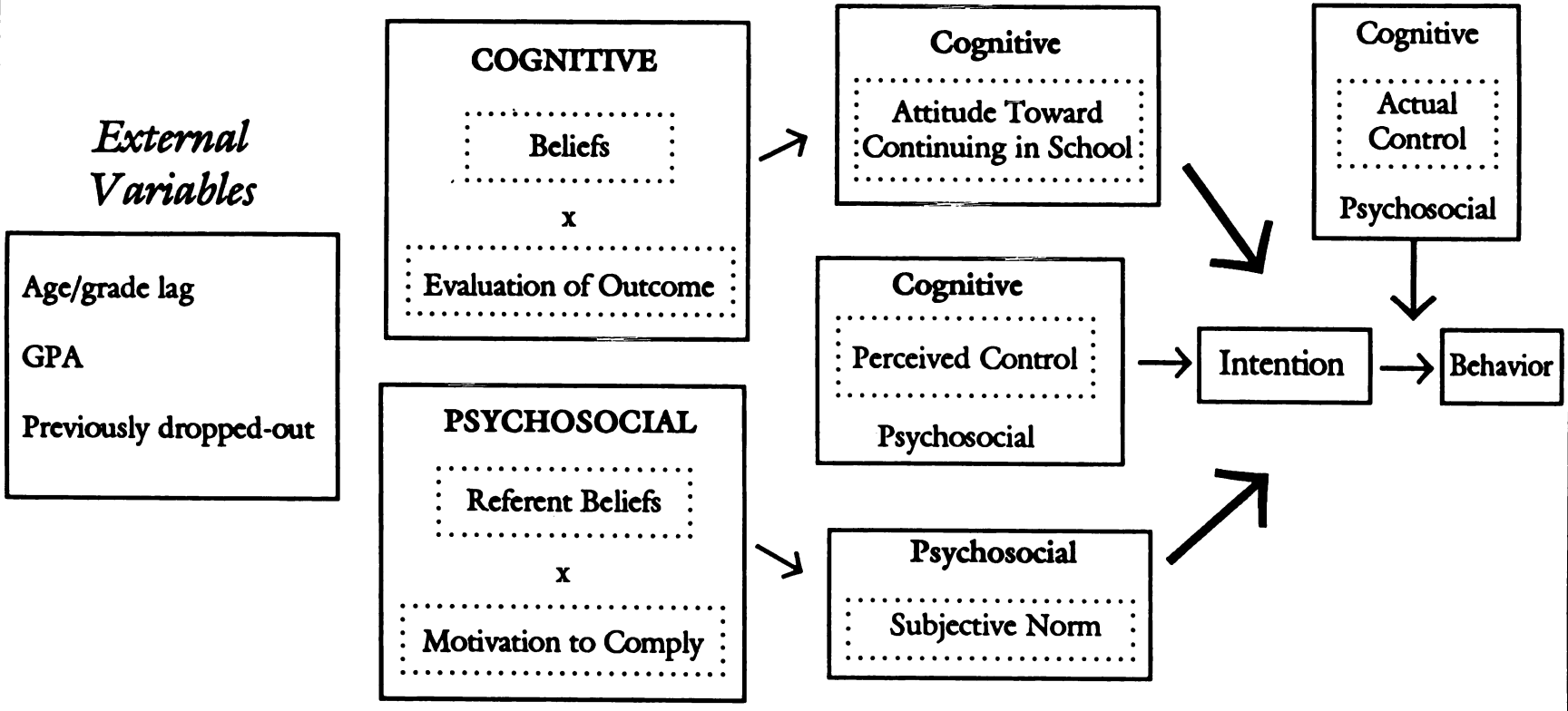


Figure 2.3 Expanded Theory of Planned Behavior

interest in the questions being asked and the amount of eye contact she initiates reflect her cognitive and psychosocial stages. Other researchers have had similar experiences during interviews with adolescent mothers (Mercer, 1983; Strauss & Clarke, 1991).

Using the Expanded TPB would have the salient components that allow a researcher, health care provider, or teacher to establish empirically based relationships between constructs which affect the adolescent mother's intention to continue in school. This model has value for studying the adolescent mother because it contains information about her own attitudes, her subjective norms, her perceived control, and her intention to continue in school.

This model also assesses her actual control over a behavior which impacts the relationship between intention to perform a behavior and the actual performance of the behavior. It is not enough to predict who will graduate from high school and who will choose not to graduate. To impact change, researchers need to understand how decisions are made. The adolescent mother's attitudes and subjective norms about the consequences of continuing in school influence the decisions she makes today and those decisions will affect the number of economic, educational, and social choices available to her in the future.

CHAPTER THREE

METHODOLOGY

Introduction

The focus of this methodology chapter is to substantiate the validity and reliability of this study. This research study was composed of two phases. The first was the development and pilot testing of a written questionnaire that operationalized the constructs of the Theory of Planned Behavior (TPB). There were previously no published instruments on decision-making about continuing in high school that had been developed for any student population. This questionnaire was then used in Phase II with pregnant adolescents to describe the correlates of the outcome, continuation in high school, and to understand factors which determine a pregnant teen's return to school after the birth of her child.

In this chapter, the aims of the study and the hypotheses are delineated. The research designs of both Phase I and II are discussed in detail. The rationale for the study design, participant selection, data collection methods, instruments, and methods of data analyses are examined. The design and methodology of Phase I and Phase II are discussed sequentially.

Study Aims

Aim 1: To describe the relationship between the TPB constructs (attitude, subjective norms, perceived control, intention and actual control) and the adolescent mother's behavior, continuation in high school.

Aim 2: To determine the extent to which the TPB constructs are useful in predicting the adolescent mother's behavior, continuation in school.

Hypotheses

The hypotheses are based on the constructs of the TRA (Theory of Reasoned Action), TPB, and the Expanded TPB.

1) The three TPB constructs: attitude, perceived control, and social norm will predict intention to continue in school.

2) Intention to continue in school will predict the behavior, continuing in school between four and six weeks postpartum.

3) The TPB constructs: attitude, perceived control, social norm, and intention will significantly predict the behavior, continuation in school.

4) The TPB Model will account for significantly more variance in behavior than does the TRA Model.

5) The Expanded TPB Model will predict a significant amount of the variance in the behavior, school attendance.

6) The TPB constructs: attitude, perceived control, social norm, and intention will predict more of the variance in behavior than do the

demographic variables: GPA, age/grade lag, and a previous history of dropping out of school.

Phase I

Research Design

Adolescent mothers were interviewed by phone or in person using a set of open-ended, semi-structured interview questions. Data from these interviews were used to develop the questionnaire used in Phase II of this study.

Participant Selection

A convenience sample of adolescent mothers continuing in school and those who had dropped out of school were selected to participate. The participants were from six of the cities used in Phase II. Mothers of one child who delivered her baby within the last six months, was currently in 10th or 11th grade or was when she dropped out, spoke English, and was African-American, Caucasian or Hispanic were included. Adolescents currently in school were recruited through teen parent programs. Mothers not currently in school were recruited through previous contact with the schools, contact with other teen mothers, and health care professionals. Mothers in school received school credit for their participation. Adolescents who had dropped out of school received five dollars.

Demographic information such as age, grade level, SES, ethnicity, marital status, and current living situation were obtained by self report to

confirm that the individuals interviewed generally represented the target population. Additionally, the risk factors for dropping out of school and adolescent pregnancy previously identified in the literature were also obtained. The instrument used to collect this demographic information appears in Appendix A (Mothers Not in School Questionnaire Development Interview and Mothers in School Questionnaire Development Interview).

Human Subjects Protection

The interviewer discussed the purpose of the study, the confidentiality of the interview, explained that declining to participate would in no way affect services the adolescent or her family might be receiving, and answered any questions about the interview process. Written consent was obtained from the participant before the interview began (see Appendix B). Consent forms were written at a fifth grade reading level to assure the adolescents understood the content within the form. Signed consent forms were kept in the researcher's personal possession and separate from the interview forms. Participants were not asked their names and there was no identifying information on the interview forms. Consent by a parent or guardian was deemed not necessary by the participating schools and the risks to participants were minimal. Human subject approval was granted by the Committee on Human Research (CHR) at the University of California, San Francisco (UCSF). Risks to participants were minimal. The adolescents were not asked to travel to the interview location.

Data Collection: Questionnaire Development

A fixed response questionnaire based on the constructs of the TPB was developed and pilot tested. The open-ended interview questions used to elicit responses were also based on the constructs of the TPB (see Appendix A: Mothers in School Semi-Structured Interview and Mothers No in School Semi-Structured Interview). A free listing technique was used. The mothers were asked about their beliefs about the positive and negative consequences of continuing in school and not continuing in school, their beliefs about who their significant referents were and if the participant thought those individuals wanted them to continue in school, how motivated she thought she was to comply with those individuals' wishes, and control over continuing in school and not continuing in school.

Following the TPB model, a set of beliefs which are salient to a given population is established by eliciting beliefs from a representative sample of the population. The beliefs most frequently mentioned are the modal salient beliefs for that population. Ajzen and Fishbein (1980) determined that modal beliefs should contain 75% of the total number of beliefs elicited.

Table 3.1 includes one of the lists of beliefs elicited from both the mothers in school and is included as an example of the technique used to establish salient beliefs. Similar lists for all the belief categories were developed for both the mothers who were in school and those who had dropped out. Each lists contained the question being asked, the beliefs

The Good Things About School

Adolescents in School

Salient beliefs elicited: 126 75%: 95

Get a diploma/ to graduate	9
Continue education	7
Go to college	5
Finish education	5
Talk to Friends	12
Social Life	6
Talk to other pg. moms	3
Talk to teachers	1
Mentors	1
Celebrate birthday	1
Make something of myself	8
Be a role model	6
Have a future for my child	4
Teach my child something	2
No quit	1
Takes guts	1
Get a better job/ a good job	10
Support yourself	2
Get a career	1
Provide for baby	1
Don't depend on govt.	1
Don't depend on others	1
Total:	91

Learning	8	Not just at home	3
Get smarter	3	Get away from baby	4
Find job resources	3	Get out of trouble	2
Independent pace	1	Keep me going	1
Day care	6	Child spends time with others	2
Hate working	1		

elicited, the frequency for each belief, and the 75% inclusion criterion point. An indepth analysis was done of individual responses to assure that every respondent (both in school and out of school) was represented in these modal beliefs and that similar responses were not counted as being different. For example, if respondents listed a positive consequence of being in school as graduating from high school, getting an education or going to college, these were categorized into one variable (getting an education). However, it was determined that the response, "learning new things," was not the same response and so was included separately. These decisions were made after reviewing all the raw data extensively. Two other researchers familiar with this theoretical model were asked to critique these categories and with revisions did agree with the final consequence statements.

The Questionnaire

The questionnaire, Feelings About School: A Questionnaire for Pregnant Teens, in its final form is located in Appendix C . The first page briefly explained the purpose of the study and contained three sample questions to assure the participant understood how the questionnaire was to be completed. The questionnaire is divided into six parts. Each part corresponds to a concept within the TPB and will be described separately. For reference, the model is located in Figure 2.3.

Part 1 and Part 4 contain the 22 modal beliefs about the positives and negatives about continuing in school and make up the Attitude construct of

the model. Part 1 is asking about the belief strength of the 22 modal beliefs and Part 4 is eliciting the participant's opinion about the evaluation of the outcome. The belief strength and outcome evaluation for each belief are multiplied together. These products are then added together for an Attitude Score. Part Three contains General Attitude questions about staying in school.

Part 2 contains the questions pertaining to the Social Norm variable in the TPB model. The determinants of the social norm were the pregnant adolescent's belief that the referent thought she should or should not continue in school and how motivated she was to comply with each of her referents. A referent was defined as an individual the adolescent identified as influencing her decision about continuing in school. The Social Norm variable was then calculated by multiplying together each belief by the motivation to comply and then these were added together for a mean Social Norm Score. The product of the first two questions in Part 2 reflects a general normative belief.

Part 5 of the questionnaire contains the specific questions which refer to the pregnant adolescent's Intention to continue in school after she has her baby. The Intention Score was determined by calculating the mean of the two responses.

Part 6 pertains to the Perceived Control variable in the TPB model. The first two questions are general questions about behavioral control. The

remaining seven questions represent responses elicited from the adolescent mothers when they were asked what got in their way of returning to school. The Perceived Control was obtained by calculating the mean of those seven items. The General Perceived Control score was the calculated mean of those two questions.

The adolescent's perceptions of actual control were obtained during the postpartum phone interview. The questionnaire used during that interview is located in Appendix C. The Actual Control was obtained by calculating the mean of those nine items.

Validity and Reliability: The questionnaire has content validity because the questions came from the responses obtained from the adolescent mothers during the Phase I interviews. To assure that only salient beliefs were elicited, clarification of questions was given if needed, but no probes were used. Since the questions asked were based on the concepts of the TPB, construct validity was also established. Face validity was confirmed by two researchers familiar with the theory concepts. The questionnaire was also pilot tested with a representative sample of eight adolescent mothers who evaluated the content of the questions for clarity and meaning. Criterion validity will be established after the completion of the study by comparing attitude with the cumulative grade point average (GPA), previous history of dropping out of school and any age/grade lag as these measure similar constructs.

As mentioned previously, a concern of the researcher was the effect cognitive development had on an adolescent's ability to perceive events in the future (including the birth of a child) and therefore influence the relationship between intention and behavior. An exhaustive search of the literature and interviews with child development specialists were conducted in an effort to locate an instrument which measured cognitive development. The only valid instruments available were extremely lengthy and were a part of other developmental tests. Since measuring cognitive development would not be feasible, it was decided to include adolescents 15 years or older in this study to control for the effect of cognitive development. Students also needed to be in at least the tenth grade for the same reason. To control for the effect that immediate graduation might have on the relationship between intention and behavior, it was decided to only include 12th graders who had too many unfulfilled credits to be able to graduate by June 1996.

To minimize recall bias, it was initially decided an adolescent participating in Phase I would have delivered her child within the previous six months. However, due to the difficulty in locating mothers who had dropped out of school, this criterion was expanded to 24 months. There was no difference in either the quality or quantity of the answers given by mothers who had children older than six months of age. There was also no difference in the types of responses given by the African-American, Hispanic or

Caucasian mothers. It was therefore determined the information could be used collectively in one questionnaire.

Also, the social desirability of providing the "right" answer was minimized by using individual rather than group interviews with careful, non-judgmental phrasing and ordering of the questions, by guaranteeing the confidentiality of responses, and by creating a permissive, non-judgmental atmosphere during the interview process. Interviews were either conducted in a private room at the school site or in a private location in the home away from other family members. These interview techniques minimized the adolescent's need to defend her behavior of either continuing in school or dropping out.

All of the current students were interviewed in person. For the convenience of the participants, seven of the 16 teens out of school were interviewed by phone. As adolescents frequently use the telephone as a method of communication, the information obtained in this manner was determined to be reliable. There was no difference in the quality or quantity of data received from either the face-to-face or telephone interviews.

Phase II

Research Design

Phase II was a prospective cohort study. The time period of this study for each adolescent ranged between the six weeks before the expected delivery date to eight weeks postpartum.

Participant Selection

A convenience sample of pregnant adolescents currently attending pregnancy and parenting high school programs were asked to participate in the study. The inclusion criteria were: 1) currently attending a high school teen parent program, 2) not raising other children, 3) currently in the tenth, eleventh or twelfth grades (if graduation before June 1996 was not anticipated), 4) ages 15 to 18, 5) African-American, Caucasian, or Mexican-American, 6) English speaking, 7) a delivery date between September 1995 and February 1996, and 8) plans to keep her infant.

Adolescents consenting to participate were given school credit at six of the school sites. Because one school administrator did not agree to this compensation, it was not offered to the students at that site.

Human Subjects Protection

The interviewer discussed the purpose of the study, the confidentiality of the interview and questionnaire, explained that declining to participate would in no way affect services the adolescent or her family might be receiving, and answered any questions about the study process. It was also explained to the adolescent that any information on the interview form, such as the age of the father or who they were living with, was confidential and would not be given to government agencies providing these adolescents with monetary support. Written consent was obtained from the participants before the interview began. Consent forms were written at the

5th grade reading level to assure the adolescents understood the content within the form (see Appendix D). A copy of the consent form was offered to each participant.

Risks to participants were minimal. Human subject approval was granted by the Committee on Human Research (CHR) at the University of California, San Francisco (UCSF). Confidentiality was maintained through the use of a numbering system. Only the number appeared on the interview forms and questionnaire. Signed consent forms were kept in the researcher's personal possession and separate from the interview forms and the questionnaires. Consent by a parent or guardian was deemed not necessary by the participating schools.

Sites

A convenience sample of seven sites in Northern California was chosen. The sites were selected because they all contained special teen parent programs. Sites were selected which served Hispanic, African American, and Caucasian populations. The diversity of urban, suburban and rural settings was also considered. All sites served pregnant and parenting students who were 13 to 19 years old. However, students older than 19 were allowed to continue in the programs if they were demonstrating academic progress.

Teachers and administers were approached and asked to participate in the study. Both the purpose and logistics of the study were explained.

Letters of support from each school site were obtained. No sites declined to participate in the study.

These schools had established programs that had been in existence between 18 and 25 years. The philosophies of these programs were consistent. Teachers described the goals of their programs as obtaining a high school diploma, teaching useful life skills, providing structured content in child development and parenting techniques, increasing self-esteem, and providing positive role models. Although there was some flexibility in requirements for school attendance, all sites encouraged the adolescents mother to return to school by two weeks postpartum. A brief description of each site follows.

Site 1, located in an urban area, had a teen parent program included in a continuation high school. The ethnic make-up included approximately 20% African-American, 40% Hispanic and 40% Hispanic students.The pregnant teens were in classes with other students on the campus. Much of the work was done independently and therefore there was flexibility in the hours of school attendance. All students participated in parenting classes, but the pregnant teens were required to attend additional classes and to work in the on-campus childcare center. The school can accommodate 30 pregnant teens. There was no waiting list for either the school or the day care center.

Site 2 was located on a continuation high school campus in a suburban city. The ethnic background of these students included 30%

African-American, 40% Caucasian and 30% Hispanic. Pregnant students had the option of participating in classes with other students or to remain in the parenting classroom. Much school work was done independently allowing for flexible attendance. In addition to academic studies, the teen mothers were required to work in the day care setting where parenting skills were taught. This program employs one teacher for the students and another teacher in the day care center and can serve 30 students and 12 babies. There was a waiting list for day care.

Site 3 was located on a high school campus in a rural community. This school has a full time teacher and a part time aid. The ethnic make-up of this site was 60% Hispanic and 40% Caucasian. The building was physically separate from the main campus, but the pregnant teens may participate in regular high school classes. Thirty students can be accommodated. The curriculum was self-paced and students worked individually on assignments. Group discussions focused on parenting skills. There was a waiting list for teen mothers with infants.

The students care for their own infants at this site. A new mother may continue here for one semester after she has her child. She then must return to regular high school or attend a teen parent program on the continuation high school campus.

The teen parent program at Site 4 was located on the continuation high school campus in a rural community. The ethnic background of these

students was 60% Caucasian and 40% Hispanic. The pregnant students participated in the regular curriculum. This program included both teacher-presented curriculum and independent studies. The students also had one parenting class a day and participated in childcare responsibilities in the day care facility. This program can accommodate 20 teens and 12 children up to age three. There was a waiting list for teen mothers with young children.

The program at Site 5 was situated on a continuation high school campus in an urban community. The ethnic background of these students was 60% African-American, 20% Caucasian and 20% Hispanic. This program had two sessions and accommodated 55 students and 20 children up to age two. There were three teachers in the classrooms and one teacher and an aide in the day care center. The pregnant students did not attend classes with other students and much of the work was done independently, again allowing for flexible attendance. There was a waiting list for the day care center.

Site 6 was also located on an urban continuation high school campus. This program accommodated 60 students and 35 babies. The ethnic background of these students was 60% Hispanic and 40% Caucasian. The students participated in classes with other students on campus. Any student could be involved in the Family Learning Program, but this was a requirement for the pregnant teens. There was less independent work in these classes than at the other sites, but still included flexibility in school

attendance requirements. The parenting students also spent time working in the childcare center. There was a waiting list for the day care center which could accommodate children to age five.

Site 7 was located at a continuation high school in a large farming community. The ethnic make-up of this school included 10% African-American, 50% Caucasian and 40% Hispanic students. The pregnant and parenting teens participated in classes separate from the other students. The curriculum incorporated both small groups for academic subjects and individualized, self-paced learning programs. There were two teachers for 40 students and 16 children were accommodated in the day care center. All the pregnant and parenting teens worked in the day care each day. Childcare was available for children to four years of age. There was a waiting list for childcare.

Data Collection

After a brief explanation of the purpose of the study, the consent form was signed. A semi-structured interview designed to elicit demographic information and the Feelings About School questionnaire were administered prenatally (see Appendix E). At the six to eight week follow-up, a questionnaire (see Appendix E) containing both fixed response and open-ended questions was administered either by phone or in person. The cumulative high school Grade Point Average (GPA) was acquired from the student's cumulative record. Previous school dropout was obtained by self-

report. School attendance from the fourth to the sixth week (three weeks) postpartum period was obtained from school records.

Validity and Reliability

The conclusion validity of the results of the questionnaire could have been negatively affected if the adolescents had known a variable in the study was the number of days they returned to school postpartum. Therefore, the adolescents were told that the purpose of the study was to gain understanding about feelings about being in school both presently and after they had their babies. Although they were told in the consent form that their attendance records would be examined, they were not told that the number of days they returned to school postpartum would be specifically examined.

The effect of social desirability was minimized by the use of careful, non-judgmental phrasing and ordering of the questions both in the interview and in the written questionnaire, by guaranteeing the confidentiality of responses, and by creating a permissive, non-judgmental atmosphere during the interview process. Interviews were conducted in a private room at the school sites.

Response set bias was minimized by making the finalized questionnaire easy to answer, by counterbalancing positively and negatively worded statements on the questionnaire, and by developing sensitively worded questions. The threat of boredom was minimized by making

distinctive, short parts within the questionnaire. The questions were also spaced widely apart to give the affect of moving quickly through the questionnaire. It took no longer than 30 minutes to complete the interview and the questionnaire.

A six point Likert type scale was used in this questionnaire. In other studies using the TPB model, this scale has been shown to reliably and validly measure the identified constructs. Likert type scales have also been shown to be for adolescent participants (Hinds and Stoker, 1988). The consent form and questionnaire were written at the fifth grade reading level to increase the likelihood of comprehension.

Two additional data collectors were used in this study. Interrater reliability was established by the primary investigator demonstrating the conduction of an interview with an adolescent and administration of the questionnaire. The data collectors then each interviewed a participant and administered the questionnaire in the presence of the researcher before proceeding independently.

Reliability of the newly developed questionnaire was tested after completion of the study. Internal consistency was tested using Cronbach's alpha for the five constructs which result in seven subscales: attitude (beliefs about an outcome and evaluation of that outcome), social norm, perceived control, actual control and intention. After consultation with two researchers familiar with both the TPB and research with adolescents, it was

decided that stability of the instrument using test-retest reliability would not be conducted in this study. The reason for this decision was that the pregnant adolescents participating in the study were within six weeks of their expected delivery dates when initially tested and it would be disruptive to test them again so close to their due dates. Equivalence was not a threat to reliability because the questionnaire was only given once.

Methods of Data Analysis:

Power analysis: To determine the sample size needed to detect a statistically significant effect of the independent variables on the percentage of time the adolescent returned to school, an effect size was calculated from a compilation of previous educational studies with pregnant and parenting adolescents. The effect size comparing proportions of students and school dropouts was .496. This effect was roughly equivalent to an r of .50. The sample size needed for a two-tailed test of significance at $p < .05$ and a power of .80 was 63. With an anticipated ten percent attrition rate, 72 adolescents would need to enter into the study.

Study Variables: Demographic variables included the salient demographics: age, ethnicity, SES, marital status, family members and friends who had been adolescent mothers themselves, the current relationship with the father of the baby, the adolescent mother's highest grade completed, employment status of her parents, current living situation, working status, age/grade lag,

GPA, and pervious school attendance). These variables were previously associated with dropping out of school and/or adolescent pregnancy.

Independent variables included only the three demographic variables most commonly associated with dropping out of school (GPA, age/grade lag, and previously dropping out of school) and the TPB construct variables: attitude, social norm, perceived control, actual control, and intention. The dependent variable was operationalized as the number of days the adolescent mother spent in school during a 15-day period between four and six weeks postpartum. Since the 15 day period occasionally included school holidays, the denominator was the number of possible days the adolescent could attend.

Statistical Analysis: In this study, both descriptive and inferential statistics were used to analyze the data. The Pearson Product Moment Correlation, t-tests, and multiple regression were used to test the stated hypotheses.

CHAPTER FOUR

RESULTS

Introduction

In this chapter analyses of the results of both Phase I and Phase II are presented. The purpose of Phase I was to obtain salient beliefs about those factors which influence continuing in school after the birth of a child. For the Phase I data, an overview of the participants is presented. Differences in demographic variables between those adolescent mothers who were currently in school and those not attending school are discussed.

The main purpose of the Phase II study was to better understand the factors which determined a pregnant adolescent's return to school after the birth of her child by using the model, the Theory of Planned Behavior (TPB). The TPB uses the constructs of attitude, perceived control, social norms, intention and actual control to understand and predict social behaviors. This model has been useful in predicting other adolescent behaviors, but has been untested with pregnant teens. Another aim of this study was to compare the abilities of the Theory of Planned Behavior and the Theory of Reasoned Action (TRA), a similar model which does not contain the construct of perceived control to predict continuation in school. Additionally, a secondary purpose of Phase II was to establish reliability of the newly developed instrument, Feelings About School.

Phase I

Participants

A convenience sample of 48 adolescent mothers was selected to participate in Phase I. A total of 32 adolescents in school and 16 adolescent mothers who had dropped out of school were interviewed. Interviews of the adolescents occurred until saturation of categories was reached. Saturation occurred by the 18th interview for those mothers in school and by the 11th interview for those mothers who had dropped out of school. It was decided to continue the interviews to obtain information from adolescents living in the cities to be used in Phase II. This decision was made to assure that site dependent information was not missed.

One mother in school refused to participate as did two mothers who had dropped out. These refusal rates calculated into a 97% acceptance rate for mothers in school and an 89% acceptance rate for those who had dropped out.

All of the interviews with the current students were conducted in person. By request of the adolescent, seven of the 16 adolescents (44%) who had dropped out were interviewed by phone. There was no difference in the quality or quantity of data received either in person or by phone. All of the adolescents interviewed by phone returned their consent forms so the researcher was able to use all the data collected.

The demographic variables were obtained to determine if the adolescents in this sample were representative of parenting teens in other studies. The demographic information for those in school and those who dropped out of school is presented in Table 4.1. There was no difference in ethnicity between groups. Marital status between the two groups was similar. In this study, receiving MediCal and/or AFDC (Aid to Families with Dependent Children) was used to represent socioeconomic status (SES). There were no significant differences between groups for these two variables. However, there was a statistically significant difference between the groups in the number of mothers living with the father of the baby (FOB), her family or his family with more of the students living with their families of origin. There was no significant difference between the groups in maintaining a relationship with the father of the baby (FOB). The adolescent's father's employment status was not different between the two groups.

The remaining variables in Table 4.1 are demographics identified in previous research as being associated with dropping out of school or teen pregnancy: the girl's mother's educational level and employment status. Both of these variable were significantly different between groups. There was no difference between groups for the teen's present employment status.

Table 4.1 Phase I Demographic Variables (percentages) (N=48)

Variables	In-School (N=32) 64%	Out-of-School (N=16) 32%	Chi Square	p-value
Ethnicity:			.45	.80
African-American	17	13		
Caucasian	28	38		
Hispanic	56	50		
Marital:			1.65	.44
Single	81	88		
Married	9	13		
Engaged	9	0		
MediCal	66	56	.40	.53
AFDC	28	50	2.23	.14
Living situation:			18.34	.01
Her family	75	38		
FOB	13	63		
His family	6	0.0		

Table 4.1 continued. Phase I Demographic Variables (percentages)

(N=48)

Variables	In-School (N=32) 64%	Out-of-School (N=16) 32%	Chi Square	p-value
Currently with FOB	63	75	.75	.39
Father Employed	77	62	7.65	.11
Mother a H.S. graduate	83	33	12.0	<.01
Mother employed	74	21	11.56	.02
Knows teen mothers	81	100	12.00	.04
No childcare	3	19	13.33	<.01
Planned pregnancy	30	50	1.79	.18
Using birth control	100	44	15.94	<.01

Another risk factor for teen pregnancy is having friends or family members who also had a child during adolescence. For the participants in Phase I, there was a significant difference in the number of other teen mothers known by participants in each group.

A lack of childcare was a common reason given by teen mothers for not continuing in school and there was a significant difference for the mothers in school and the drop-outs. There were other differences in childcare arrangements between the two groups. For the student group, 47% received help with childcare from her family and 22% received help from the baby's father's family. For the group who had dropped out, 44% reported having childcare help from her family and 47% reported help from the baby's father's family. None of the mothers who had dropped out received childcare help from friends, whereas 13% of the students did. Some (13%) of the students stated they had a variety of childcare options, while none of the mothers out of school reported this arrangement.

There was no significant difference between groups in the planning of the previous pregnancy. However, there was a significant difference between the two groups in use of birth control at the time of the interview.

Table 4.2 presents group data for additional demographic variables of the adolescents in Phase 1.The age difference (in years) between the two groups was significantly different with the students being younger than the drop-outs. This difference was in part influenced by the significant difference in age/grade lag. An age/grade lag has been defined as the difference in months between the student's age and the grade they would be expected to be in at that age. Additionally, there was a significant difference in the self-

report of not receiving passing grades in school which was an indication of difficulty in school.

Table 4.2 Phase 1 Demographic Variables (means ± standard deviations) (N=48)

Variable	In-School (mean ±SD) (N=32)	Out-of-School (mean ± SD) (N=16)	t-test	p-value
Age	16.84±1.3	17.7±1.4	2.44	.02
Age/grade Lag	2.2 ±1.4	9.3±4.3	11.3	<.01
Child's age	9.5±6.8	7.2±4.5	1.95	.05
Age difference for mother and FOB	2.9±2.9	4.4±2.7	1.57	.50

In the group of mothers returning to school, the average return time to school after the birth of the baby was five weeks. The range was two to 16 weeks with 63% of the mothers returning by seven weeks. For the mothers not in school, the mean amount of time since dropping out was 11 months with a range of 4 to 24 months. There was no significant difference in the mean age of the children (in months) between the two groups. The average

age for this sample was 8.6 months with a range between one and 24 months. There was no differences between groups in the age difference in years between the mother and the baby's father. The mean age of the baby's father for the students was 20 years and 21 years for the drop-outs.

Although these demographics provided valuable descriptive information, the purpose of Phase I was not to identify statistically significant differences between variables, but to obtain salient beliefs needed for the development of the questionnaire, Feelings About School. For that reason, data collection ended after the 48 mothers were interviewed.

The Questionnaire, Feelings About School

As discussed in Chapter 3, the beliefs elicited from the open-ended questions in Phase I were used to develop the questionnaire, Feelings About School, utilized in Phase II of this study. After indepth analysis of the adolescent responses, 22 items were identified for the attitude subscale (belief strength multiplied by evaluation), seven items for the social norm subscale (referent's beliefs multiplied by the motivation to comply), nine items for both the perceived and actual control subscales, and two items for the intention subscale. The behavior, continuing in school, was operationalized as the percentage of time the adolescent returned to school for a three week period of time between four and six weeks postpartum. Validity was established as described in Chapter 3.

The internal consistency reliability for the individual constructs within the questionnaire was established using Cronbach's Alpha. Reliability assessments were obtained for perceived control, actual control, attitude (and its subscales: evaluation and belief strength), and social norm. These data are presented in Table 4.3.

Table 4.3 Internal Consistency Reliability of The Feelings About School Questionnaire Subscales

Subscales:	Items	Cronbach's Alpha Coefficient
Perceived Control	7	.84
Actual Control	9	.79
Attitude	22	.50
Evaluation	22	.72
Belief Strength	22	.24
Social Norm	7	.81
Referent's Beliefs	7	.67
Motivation to Comply	7	.81
Intention	2	.89

The Cronbach's alpha for all the subscales except attitude and belief strength indicate internal consistency reliability. Belief strength in the TPB measured an individual's belief about how likely it was a consequence of the behavior would occur. For example, a typical evaluation of a belief might be that having to do homework is "kind of bad". To measure the strength of that belief, the probability of doing homework is assessed. One student who decided doing homework was "kind of bad" could determine it was very unlikely she would do homework while another student with the same evaluation would decide it was very likely she would do homework. By its nature then, it is understandable why the internal consistency of attitude scale would be low because the belief strength subscale is a multiplier in the calculation of that scale.

Phase II: Model Development

The analysis of the Phase II prospective data is divided into four sections. The first section describes the demographics of the 53 participants in this study. In the second section, the bivariate correlations between construct variables are described.The third section includes a brief review of the theory constructs and describes the theoretical models hypothesized to predict the behavior, continuation in school. In the fourth section, the six hypotheses were tested and the results presented.

Section 1: Participant Demographics

Phase II was conducted over seven months. A total of 53 adolescents

participated in the study at seven sites. An additional site was added to the sites in Phase I to increase the number of potential participants. Both the sites and the participants were convenience samples. There was only one adolescent approached who refused to participate. This corresponded to a refusal rate of 2%. Three adolescents (6%) participated in the initial interview, but were not continued in the study because two experienced fetal demises and one adolescent was diagnosed with lymphoma immediately after delivery. Adolescents were initially screened to assure they met the inclusion criteria. In addition to tenth and eleventh graders, it was decided to also include 8th, 9th and 12th grades with the acknowledgment that their data would be analyzed separately to determine if there were differences in school attendance rates because of their grade levels.

Table 4.4 lists the descriptive statistics for the Phase II adolescents. All of the African-American and Caucasian women spoke English only. For the Hispanic students, 87% spoke only English at school and the remaining teens spoke both Spanish and English. In the home, 10% spoke only Spanish, 79% spoke only English and 10% spoke both languages.

The proxy variables, AFDC, MediCal and receiving both, were used to represent SES. For those adolescents living with their families of origin, 53% lived with their mothers, 3% lived with their fathers, 35% lived with both parents, and 9% lived with other family members.

Table 4.4 Phase II Prenatal Demographic Variables (N = 53)

Variables:		Number of Participants	Percentage of Participants
Site	1	2	4
	2	11	21
	3	13	25
	4	2	4
	5	9	17
	6	6	13
	7	10	19
Grade:			
	8	1	2
	9	7	13
	10	14	26
	11	10	19
	12	21	40
Ethnicity:			
	African-American	7	13
	Caucasian	24	45
	Hispanic	22	42

Table 4.4 continued. Phase II Prenatal Demographic Variables (N = 53)

Variables:	Number of Participants	Percentage of Participants
Married	1	2
Currently with FOB	44	83
Employed	6	11
Financial assistance:		
AFDC	15	28
MediCal	29	55
Both	12	23
Mother unemployed	18	33
Father unemployed	13	25
Whom she lived with:		
Alone	2	4
FOB	8	15
Her family	36	66
FOB's family	2	4
Foster care	5	9

Table 4.4 continued. Phase II Prenatal Demographic Variables (N=53)

Variables:	Number of Participants	Percentage of Participants
Receiving passing grades	49	93
Mother was a H.S. dropout	17	32
Knows other teen moms	42	83
Has childcare arranged	46	87

As indicated in Table 4.4, 66% of the adolescents' mothers were working. Of those women, 38% worked in clerical positions, 34% were laborers, and 19% were professionals. Interestingly, 6% of the teens knew where their mothers worked, but not their occupations. For the fathers who were working, 63% were laborers, 23% were professionals and 3% did clerical work. Ten percent of the teens knew where their fathers worked, but not their occupations. However, 17% had no contact with their fathers and did not know where they worked.

Childcare arrangements were discussed at the first interview while the student was still pregnant. For 13% of the adolescents, no childcare arrangements had been made. For those adolescents who had arranged childcare, 36% were depending completely on the school to provide this

service. For 21% of the students, the adolescent's mother was identified as the primary childcare provider as was the father's baby for 4% of the teens. The remaining 38% students named multiple sources of childcare.

The other variables listed in Table 4.4 are presented because they represent risk factors for either dropping out of school or teen pregnancy identified in previously cited research. Most of the participants knew someone else who had become a mother during adolescence. For the students, 21% knew other teenage mothers before they even conceived and 31% had family members (other than their mothers) who had been teenage parents. When the student was asked about her mother's educational level, 32% responded their mothers did not graduate from high school, 29% were high school graduates only, 26% had some college education and 13% had graduated from college. Additionally, 29% of these mothers had a child themselves as a teenager. Determining a current relationship with the baby's father was also included because this variable has been associated with dropping out of school after childbirth. The majority (83%) did have an ongoing relationship with the baby's father.

School related variables are listed in Table 4.5. A cumulative low GPA, a previous history of dropping out of school, and an age/grade lag are variables associated with dropping out of school. These variables remain the factors most commonly used to predict dropping out of school for adolescents in current research on high risk adolescent behavior. As

indicated in Table 4.5, the baby's father was older than the pregnant adolescent by an average of three years, making many of these fathers young adults rather than fellow adolescents. For one participant, the baby's father was 17 years older than she was.

Table 4.5 Demographic Variables for Phase II (Means, standard deviations and ranges)

Variables	N	Mean	SD	Range
Age	53	16.12	1.21	13 to 19
GPA	39	2.04	.89	.19 to 3.8
Age/Grade Lag	53	.17	.43	0-3 years
Grade	53	10.8	1.16	8-12
FOB/Mother's Age Difference	52	3.17	3.11	0-17 years

In Table 4.6, postpartum variables associated with not continuing in school are listed. The maternal complications included C-Section (n=4), preeclampsia (n=2), sepsis (n=1) and hemorrhage (n= 5). Newborn complications included prematurity (n=1), respiratory difficulties (n= 2), congenital anomalies (n=1), broken clavicle (n=1), and sepsis (n=3).

Table 4.6 Phase II Postpartum Demographic Variables (N = 50)

Variables	Number of Participants	Percentage of Participants
Birth control:		
none	15	32
abstaining	6	13
OCs	8	20
DepoProvera	13	28
Condoms	3	7
Breast feeding	16	30
Mother had complications	12	22
Baby had complications	8	15

A comparison was also done using demographic variables that might influence the behavior, school attendance, to determine if results needed to be analyzed separately. These variables are listed in Table 4.7. Minority ethnicity, low SES, ages 15 to 16, grade level 10 and 11, and failing grades have all been associated with not continuing in school after the birth of a child. Site was included to determine if there were differences in pregnancy and parenting programs that would account for continuing in school.

ANOVA was used to determine if there were differences in school attendance rates by the demographic characteristics of these participants. As presented in Table 4.7 there were no differences by group. Two sites had only two adolescents each who participated in the study. These data were reanalyzed without those two sites and there was still no difference between sites ($p = .09$).

Originally it was decided 12th graders would not be included because it was assumed they were close to graduation and that factor might affect the validity of the responses. However, many of the 12th graders needed a large number of credits to graduate and this deficit would keep them from graduating on time. A comparison was then made between those adolescents who had enough credits to graduate within three months of delivery ($n = 6$) as this eminent graduation could affect return to school rates. There was no difference in continuation in school rates between the students who had enough credits to graduate and those who did not ($X2 = .06$, $p = .70$).

In the study design, only tenth and eleventh graders were to be included. Students in lower grades were to be excluded because of potential differences in developmental levels which might effect future orientation. Twelfth graders were to be excluded because of their possible close proximity to graduation. Because these additional grade levels were included,

statistical comparisons of their mean scores on attitude, perceived control, social norm, intention, and behavior were conducted.

Table 4.7 Relationship of Demographic Variables to School Attendance (N = 53)

Variables	df	F-value	p-value
Site	6,46	1.76	.13
Ethnicity	2,50	.05	.95
SES	3,51	.35	.80
Age	6,46	.69	.65
Grade	4,48	.26	.61
GPA	3,33	.44	.66

For eighth and ninth graders (n = 8) and twelfth graders (n = 21), the only significant difference between the two groups was in the attitude subscale (p = .03) with the twelfth graders scoring higher meaning they had stronger and more positive attitudes about school. When comparing eighth and ninth graders with tenth and eleventh graders, there was a significant difference in the behavior, school attendance (p = .03). The students in the lower grades (n = 8) had a mean attendance rate of 53% and the tenth and

eleventh graders (n = 20) had a mean attendance rate of 48%. There were no differences in the mean scores between the tenth and eleventh graders and the twelfth graders. This difference in school attendance between the eighth-ninth grade students and the tenth-eleventh graders was a limitation in analyzing these data. With a larger sample size, controlling for grade level may be indicated.

Section 2: Construct Correlations

Bivariate correlation coefficients were used to analyze relationships between variables and are discussed throughout this chapter and in the following discussion chapter. Table 4.8 presents a correlation matrix for the constructs of the TPB and Table 4.9 includes the correlations for the most common demographic variables used to predict dropping out of school.

For the TPB constructs, significant correlations were 1) School attendance and intention, 2) School attendance and actual control, 3) School attendance and social norm, 4) Perceived control and intention, 5) Perceived control and actual control, 6) Perceived control and social norm, and 7) Intention and actual control.

Table 4.8 Correlation Matrix and p-values (in parentheses) Among The TPB Variables

	Attitude	Perceived Control	Social Norms	Intention	Actual Control
School Attendance	.06	.25	.29	.33	.50
	(.67)	(.09)	(.04)	(.01)	(.00)
Attitude		.10	.00	.31	.06
		(.52)	(.99)	(.03)	(.69)
Perceived Control			.28	.38	.50
			(.05)	(.00)	(.00)
Social Norms				.22	.11
				(.10)	(.45)
Intention					.46
					(.00)

Table 4.9 presents the correlation matrix for school attendance and the demographic variables that had been previously used in studies to predict school drop-out. Age/grade lag was operationalized as the difference in years between the age and grade level of the adolescent (zero to three years difference). Having previously dropped out of school was measured in increments of six months (never, one to six months, seven to twelve months, and 13 to 18 months).

Table 4.9 Correlations (Pearson r) and p-values (in parentheses) Among the Demographics and School Attendance (n = 53)

	GPA	Age/Grade Lag	Length of time Dropped Out
School Attendance	-.14	-.09	-.10
	(.41)	(.54)	(.47)
GPA		-.36	-.10
		(.03)	(.57)
Age/Grade Lag			.36
			(.01)

None of the demographic variables was significantly correlated with postpartum school attendance in this study. However age/grade lag and a lower GPA were significantly correlated, as were age/grade lag and length of time previously dropped out.

Section 3: Hypothesized Models

In Phase II, as prescribed by the TPB, descriptive statistics, correlations, and multiple regression were used to examine the relationship of demographic variables, the TPB variables: attitude, social norm, perceived control, intention, and actual control, and the TRA variables: attitude, subjective norm, and intention and the subsequent behavior, continuing in school. Attitude was composed of the evaluation of a belief and the perception of how likely it was that it would occur if the behavior of interest was performed. Social norm was composed of the adolescent's perceptions of the beliefs of significant referents and her motivation to comply to those referent's wishes. Perceived control measured how much control the adolescent thought she would have over the behavior occurring or not occurring. Intention measured the adolescent's plans to return to school after the birth of her child. Actual control also measured the perception of control the adolescent felt she had over the behavior, but was a measurement taken at the time the behavior occurred.

The descriptive statistics for these constructs are listed in Table 4.10. Information on three adolescents was missing for actual control because

they could not be interviewed during the postpartum period. Their school attendance rates were available so they were included in the study. Although scores were skewed towards the high end of each scale, the scores had good variation around the means. The ranges listed are the absolute ranges for each construct.

Table 4.10 Descriptive Statistics for TPB Variables (means, standard deviations, and absolute ranges).

Variables	N	Mean	SD	Absolute Range
Attitude	53	10.60	2.20	-18 to 18
Perceived Control	53	4.70	.77	1 to 6
Social Norm	53	23.72	5.10	1 to 36
Intention	53	5.13	.95	1 to 6
Actual Control	50	4.50	.75	1 to 6
School Attendance (% days)	53	52	35	0% to 100%

Three decision-making models that have been hypothesized to understand and predict behavior are presented in the chronological order of their development. As a brief review, the TRA, (Figure 4.1) was developed by Ajzen in late 1960s to understand the beliefs influencing actions and to predict social behavior. The TPB (Figure 4.2) evolved from the TRA to understand and predict behavior not under volitional control of an individual. The TPB was modified in the mid-1980s to include the construct, actual control (Figure 4.3). Although, theoretically, the construct of actual control could be useful in predicting behavior, the effects of this variable and its interaction with intention on predicting behavior is presently not well understood. This theoretical framework is referred to as the Expanded TPB by this researcher. The Expanded TPB in this study also contains the influence of cognitive and psychosocial development as discussed in Chapter 2 and presented in Figure 2.3 (page 49).

Section 4: Hypotheses Testing

Six hypotheses were tested in this study to predict the behavior, continuation in school. The first three hypotheses were based on the hypothesized model, The TPB, in Figure 4.2. The first hypothesis examined the relationship between intention and attitude, perceived control, and social norm. These variables were measured cross-sectionally. The second hypothesis was based on the relationship between intention and the behavior, continuation in school. Behavior was measured prospectively.

Figure 4.1 The Theory of Reasoned Action

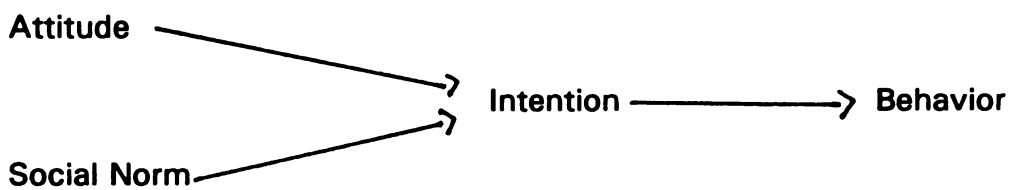


Figure 4.2. The Theory of Planned Behavior

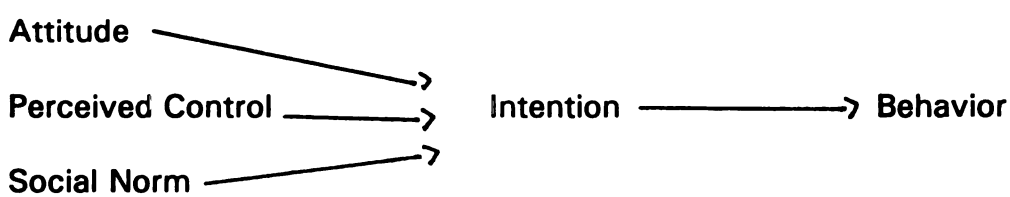
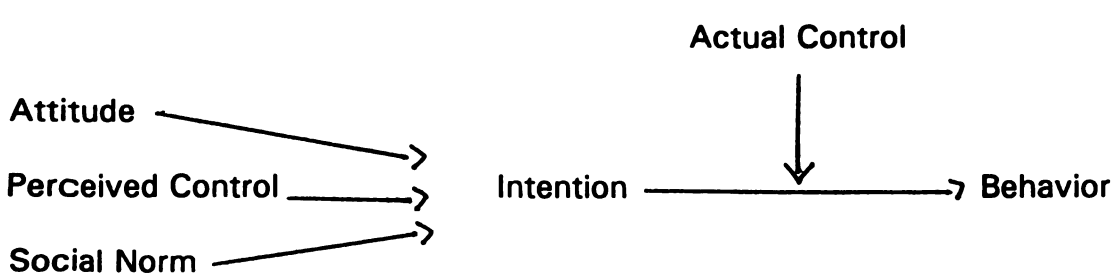


Figure 4.3. The Expanded Theory of Planned Behavior



The third hypothesis was based on the entire model's ability to predict the behavior, continuing in school. These analyses are consistent with those used in most other studies on the TRA and TPB. Hypothesis four compared the ability of the TPB (Figure 4.2) to the TRA (Figure 4.1) in predicting the behavior, continuation in school. Hypothesis five, based on the Expanded TPB, is represented in Figure 4.3 and includes the variable, actual control. Hypothesis six tested the assumption that the TPB is more useful for predicting continuing in school than are the demographics used in other studies to predict dropping out of school.

Hypothesis One: The three TPB constructs: attitude, perceived control, and social norm will predict intention to continue in school (Figure 4.2).

To test this hypothesis, a multiple regression was conducted. The results from this analysis are shown in Table 4.11. In this analysis, the variables: attitude, perceived control, and social norm were entered simultaneously into the equation to predict intention.

The TPB constructs: attitude, perceived control, and social norm accounted for 23% of the variance in intention and was significant ($p = .005$). As evidenced by the squared semi-partials, attitude uniquely explained 7% of the variance in intention, perceived control uniquely explained 8% of the variance in intention, and social norm uniquely explained 2% of the variance in intention. These results indicated that 17% of the variance in intention was uniquely accounted for by these three TPB

constructs. In this model, the remaining 5% of the variance in intention was accounted for by shared variance (23% minus 17%). This hypothesis was supported.

Table 4.11 The Ability of the TPB Constructs to Predict Intention: Results From the Regression Analysis (N=53)

Independent Variables:	Beta	Squared Semi-partial	R2	R	F-Value	p-value
Attitude	.28	.07	_	_	_	.03
Perceived Control	.31	.08	_	_	_	.02
Social Norm	.14	.02	_	_	_	.29
[Full Model]	_	_	.23	.48	4.9	.005

Hypothesis Two: Intention to continue in school will predict the behavior, continuing in school between four and six weeks postpartum (Figure 4.2).

To test this hypothesis a correlation was performed and was presented in Table 4.8. The correlation between intention and behavior was significant ($r=.33$, $p=.01$) and indicated that 11% of the variance in behavior (percentage of days in school) was accounted for by intention. This hypothesis was supported.

Hypothesis Three: The TPB constructs: attitude, perceived control, social norm, and intention will significantly predict the behavior, continuation in school (Figure 4.2).

To test this hypothesis, a multiple regression was conducted. The results from this analysis are presented in Table 4.12. In this analysis, the variables: attitude, perceived control, social norm, and intention were entered simultaneously into the equation to predict the behavior, school attendance. These results indicated that the TPB constructs explained 17% of the variance in school attendance ($p = .06$).

Table 4.12 The Ability of the TPB Model to Predict School Attendance: Results From the Regression Analysis (N = 53)

Independent Variables:	Beta	Squared Semi-partial	R2	R	F-Value	p-value
Attitude	- .03	.00	_	_	_	.83
Perceived Control	.07	.00	_	_	_	.62
Social Norm	.20	.04	_	_	_	.15
Intention	.27	.06	_	_	_	.07
[Full Model]	_	_	.17	.41	2.38	.06

As evidenced by the squared semi-partials, neither attitude or perceived control uniquely explained any of the variance in the behavior, social norm uniquely explained 4% of the variance in the behavior, and intention uniquely explained 6% of the variance in intention. These results indicated that 10% of the variance in the behavior, school attendance, was uniquely accounted for by two of the four TPB constructs. In this model, 7% of the variance in behavior was shared variance (17% minus 10%).

The results of the analysis of the equation in Table 4.12 failed to support this hypothesis at the stated alpha level of .05. With a larger sample size, sufficient power may be available to support the hypothesis.

Hypothesis Four: The TPB Model will account for significantly more variance in behavior than does the TRA Model (Figure 4.2 vs. Figure 4.1).

To test this hypothesis, a hierarchical regression was conducted. The results from this analysis are presented in Table 4.13. In step 1 of the equation, the TRA constructs were entered simultaneously into the equation to predict the behavior, school attendance. As stated previously, the TRA does not contain the variable, perceived control, because an assumption of the theory is that behavior is under an individual's complete control. In step 2 of the equation, the TPB construct, perceived control, was entered into the equation to predict the behavior, school attendance.

Table 4.13 A Comparison of the TPB Model's and the TRA Model's Ability to Predict School Attendance: Results From the Regression Analysis (N=53)

Independent Variables:	Beta	R2 Change	R	F-Value	p-value
Step 1 of the equation:					
Attitude	-.03	_	_	_	.83
Social Norm	.22	_	_	_	.11
Intention	.30	_	_	_	.04
[End of Step 1]	_	.16	.40	3.13	.03
Step 2 of the equation:					
Perceived Control	.07	_	_	-	.62
[End of Step 2: Full Model]	_	.17	.41	2.38	.06

These results indicate that the TRA constructs accounted for 16% of the variance in school attendance and was statistically significant (p=.03). Controlling for attitude, social norm, and intention, perceived control explained less than 1% of the additional variance in school attendance and was not statistically significant (p=.62). The full model accounted for 17%

of the variance in school attendance and approached significance ($p = .06$).

These results are consistent with the results in Hypothesis 3. As indicated in Table 4.12, perceived control accounted for no unique variance in school attendance. Perceived control did not predict school attendance and this hypothesis was not supported.

Hypothesis Five: The Expanded TPB Model will predict a significant amount of the variance in the behavior, school attendance (Figure 4.3).

To test this hypothesis, a hierarchical regression was conducted. The results from this analysis are presented in Table 4.14. In this analysis, the variables: attitude, perceived control, social norm, and intention were entered simultaneously into the first step of the equation to predict behavior. These constructs accounted for 17% of the variance in the behavior, school attendance and approached statistical significance ($p = .06$). In the second step, actual control was added to the equation and after controlling for attitude, perceived control, social norm, and intention accounted for an additional 13% of the variance in school attendance. This result was significant ($p < .01$). In the third step, the interaction between actual control and intention (actual control multiplied by intention), was added to the equation. Controlling for the previously entered variables, this interaction did not account for any additional variance in school attendance ($p = .71$).

Table 4.14 The Ability of The Expanded TPB to Predict School Attendance: Results From the Regression Analysis (N = 53)

Independent Variables:	Beta	Squared Semi-partial	R2 Change	R	F	p-value
		[End of Step 3]				
Step 1 of the equation:						
Attitude	-.03	.00	_	_	_	.83
Perceived Control	.07	.01	_	_	_	.62
Social Norm	.20	.05	_	_	_	.15
Intention	.27	.00	_	_	_	.07
[End of Step 1]	_	_	.17	.41	2.38	.06
Step 2 of the equation						
Actual Control	.46	.02	.13	_	9.11	<.01
[End of Step 2]	_	_	.30	.55	4.05	<.01

Table 4.14 continued. The Ability of The Expanded TPB to Predict School Attendance: Results From the Regression Analysis (N=53)

Independent Variables:	Beta	Squared Semi-partial [End of Step 3]	R2 Change	R	F	p-value
Step 3 of the equation						
Interaction: Intention*Actual Control	.16	.00	.00	_	.14	.71
[End of Step 3: Full Model]	_	_	.30	.55	3.33	<.01

The Expanded TPB explained 30% of the variance in school attendance and was statistically significant ($p<.01$). To determine the percentage of unique and shared variance for these Expanded TPB constructs, the squared semi-partials were calculated at the end of step 3 when all the variables had been entered into the equation. As evidenced by the squared semi-partials, in this equation neither attitude, intention, or the interaction, intention*actual control, accounted for any unique variance in school attendance. Perceived control uniquely explained 1% of the variance in school attendance, social norm uniquely explained 5% of the variance in

school attendance, and actual control explained 2% of the variance in school attendance. These results indicated that 8% of the variance in school attendance was uniquely accounted for by the Expanded TPB constructs. Therefore, 22% of the variance was shared variance (30% minus 8%), or the amount of variance the TPB constructs shared with actual control. This hypothesis was supported.

Hypothesis Six: The TPB constructs: attitude, perceived control, social norm and intention will predict more of the variance in behavior than do the demographic variables: GPA, age/grade lag, and a previous history of dropping out of school.

This hypothesis was tested by determining the significance of the difference between two correlation coefficients for the same sample of individuals (Ferguson, 1976). A t-test was performed to determine the difference in predicting school attendance between the demographic variables and the TPB constructs. The full model correlation for the demographic variables is reported in Table 4.15 ($r = .18$) and the correlation for the TPB is in Table 4.12 ($r = .41$). The result of this analysis was $t = 1.999$ ($df = 51$, $p > .05$). A significant t-test would be $t = 2.007$ ($df = 51$, $p = .05$), so the difference in correlations was not significant at the stated alpha level. With a larger sample size, statistical significance might have been achieved. This hypothesis was not supported.

Table 4.15 The Ability of the Demographic Variables to Predict School Attendance. Results From the Regression Analysis (N=53)

Independent Variables:	Beta	Squared Semi-partial	R2	R	F	p-value
GPA	-.16	.01				.28
Age/Grade Lag	-.11	.02				.48
Previous Time Dropped Out	-.16	.00				.62
[Full Model]			.04	.18	.61	.61

These results indicated that the demographic variables used in previous studies to predict dropping out of school accounted for 4% of the variance in the behavior, school attendance, and was not significant ($p = .61$). These variables uniquely accounted for 3% of the variance in the behavior and 1% of the variance was shared variance (4%-3%).

Summary of Tested Hypotheses

These tested hypotheses supported that together, attitude, perceived control, and social norm predicted intention, that intention predicted behavior, that the set of TRA constructs predicted behavior, and that the set

of variables in Expanded TPB predicted behavior. The TPB did not predict behavior at the predetermined alpha level of $p = .05$, but did approach significance. The TPB constructs accounted for 17% of the variance in behavior compared to 4% for GPA, previously dropping out of school, and an age/grade lag. Lack of power due to small sample size resulted in no statistically significant findings for this hypotheses.

These findings indicated that an examination of the relationship among the constructs in each of the three theories (TRA, TPB, and Expanded TPB) is needed to determine if further refinement of these theories would be useful in predicting and understanding the phenomenon of adolescent mothers' continuation in high school. Specifically the concepts of shared variance, multicollinearity, the use of multiple regression to analyze the data, and sample size are discussed.

Analysis of shared variance was done by evaluating the results of the correlation matrix in Table 4.8 and by examining unique variance using the squared semi-partials in Tables 4.12, and 4.14, and 4.15. In the correlation matrix in Table 4.8, a preliminary understanding of the relationships between variables was established. The correlations between the TPB constructs indicated that except for attitude and social norm, there was some correlation between variables. As the highest correlation was .50, there was no indication of multicollinearity between the constructs. By squaring the correlations, it was determined that attitude predicted less than one percent

of the variance in school attendance, perceived control predicted 6% of the variance, social norms predicted 8% of the variance, intention predicted 11% of the variance, and actual control predicted 25% of the variance in school attendance. For the demographic variables (Table 4.9), GPA predicted 2% of the variance in school attendance, length of time of previous school drop-out and an age/grade lag each predicted 1% of the variance in school attendance. A limitation of bivariate correlations is that all the variance is credited to just the independent variable in each correlation.

To determine the amount of unique variance explained by each variable, squared semi-partials were used. The results for the TPB were presented in Table 4.12, the results for the Expanded TPB appeared in Table 4.14, and the results for the demographic variables was reported in Table 4.15. It is apparent that the amount of unique variance explained by the variables was different than the amount of variance explained by these constructs presented in the correlation matrix in Table 4.8. For example, in the correlation matrix, social norm predicted 8% of the variance in school attendance, but only uniquely contributed 4% of the variance in behavior.

When examining these data, the predicted theoretical relationship among the variables must be considered. For example, intention explained 11% of the variance in school attendance, but as presented in Table 4.12, uniquely explained 6% of the variance in school attendance. In the TPB, it

is hypothesized that the relationship between the behavior and attitude, perceived control, and social norm is determined only by the relationship between those three constructs and intention. Therefore this difference in unique variance and shared variance is theoretically supported.

The amount of shared variance may indicate a problem with multicollinearity among the TRA, TPB, and Expanded TPB constructs. With multicollinearity, there is over lapping information among independent variables making it difficult to separate the effects of the independent variables. The value of one independent variable not only affects the dependent variable, but also influences the value of the other independent variables and makes interpreting regression coefficients problematic.

In these study results, the correlation matrix in Table 4.8 did not indicate a problem with multicollinearity since none of the correlations were greater than .50. Two other ways to determine multicollinearity are to examine the standard error of the regression equation and the standard error of the beta coefficients. The standard errors for the regression equations ranged from .31 to .34. The standard errors for the construct beta coefficients ranged from .01 to .07. These values do not indicate a problem with multicollinearity.

A difficulty in interpreting the study findings resulted from the small sample size in relationship to the number of variables. The adjusted R2

accounts for the number of independent variables given the sample size. For example, in the TRA multiple regression equation (three independent variables), the R2 was .16 and the adjusted R2 was .11. In the Expanded TPB which contained six independent variables, the R2 was .30 and the adjusted R2 dropped to .21. These results indicate a larger sample size is needed for further understanding and testing of these theoretical models.

Multiple regression in this study was used to determine the ability of demographic variables, the TRA, the TPB, and the Expanded TPB to predict continuation in school. These multiple regression equations did not allow for the examination of the complex relationships between independent variables and only determined the direct effects of these variables on behavior. Other statistical procedures will be required to assist in these analyses.

CHAPTER FIVE

DISCUSSION

Introduction

Chapter 5 includes five sections which incorporate discussion of the relevance of this study. In the first section, the interpretation of the study findings is discussed. This section includes a brief discussion of Phase I and a more

in-depth interpretation of the results from Phase II. The purpose of this discussion is to understand the relationships among the theory of planned behavior (TPB) and the theory of reasoned action (TRA) constructs, particularly within the context of adolescent development. Evaluation of the study, including its strengths and limitations, is presented. Next, the significance of the study is discussed followed by areas for future research. Lastly, the importance to nurses of being involved in the designing of interventions for teen mothers is proposed.

Meaning of Findings

Phase I

Demographic Variables

The purpose of collecting demographic variables for the Phase I adolescents was to determine if they represented typical parenting adolescents in California. These adolescents generally represented the

demographics of other adolescent mothers in California (Brindis & Jeremy, 1988). They are more likely to be non-Caucasian, poor, living with their families of origin, single, not working, and having parents more likely to be unemployed.

Questionnaire Development

In Phase 1, 48 adolescents were interviewed using open ended questions based on the constructs of the TPB. While the actual interviews were progressing, some general patterns began to emerge. These themes were related more to the adolescent's affect as she was quickly listing salient beliefs. For the adolescent mothers who were continuing in school, there was a sense of altruism and planning for the future. They were going to "be somebody" for their babies. There was a degree of enthusiasm in their voices. For those adolescents who had dropped out of school, there was more of a sense of unhappiness. The adolescents would spontaneously reveal "I'm going to go back to school. I know I need to," however there was a hollowness in their words. They generally did not want to leave their child to go to school, even if "leaving" meant the childcare center next to the classroom. Their feelings seemed to be that no one else would do as good a job as they could caring for their child .

Differences between the groups were readily apparent. For example, the group of adolescents in school said that "a good thing" about being in school was that they would graduate, while the mothers who had dropped

out talked about "learning new things." The obvious difference was the ability to be future oriented. This finding is certainly supported in the literature (Mercer, 1990) and reflects Piaget's concept of future orientation (Muuss, 1988). Commonalities between groups centered on "living for my baby," and the stresses of motherhood. This finding was consistent with the literature on most first-time mothers (Mercer, 1986). These themes pervaded many aspects of how the adolescent lived her life including school, the need for a job, and interpersonal relationships.

The process of personally collecting and analyzing the data not only added a richness to understanding these adolescent mothers, but was essential to the development of a relevant and useful questionnaire. After the interviews and analysis of the data were completed, five categories of data emerged. These categories centered around themes of graduating and learning, employment and a future life, the daily tasks required to go to school and care for a child, the relationship with the child, and psychosocial aspects of living.

Phase II

Demographic Variables

In reviewing the demographics of the 53 participants in Phase II, several relevant findings require discussion. The adolescents in this study generally represented pregnant adolescents in California. Currently, 15% of pregnant adolescents are African-American, 35% are Caucasian, and 44%

are Hispanic (Brindis & Jeremy, 1988). This breakdown is similar to those of the participants in Phase II. Twenty-three percent of the mothers in this study lived in poverty, which is less than the 45% reported in California (Brindis & Jeremy, 1988). The number of married adolescents was less in this study (2%) than that reported for the state of California (10%) .

Current research has identified common variables among adolescent who drop out of school. These include a low GPA, age/grade lag, having previously dropped out of school for a period of time, and behavioral difficulties (Barrington & Hendricks, 1989). In this study, the three variables, GPA, previous school dropout and age grade lag (Table 4.16) predicted only 4% of the variance in whether students continued in school and was not statistically significant. However, this is generally a group of poorer performing students as reflected by the mean cumulative GPA of 2.04. Therefore, this variable contributes little to our understanding of continuation in school. School behavior was only measured directly with the variable, trouble in school (in the attitude subscale), and did not correlate with school attendance ($r = .10$). Two other variables commonly used to describe school dropouts are low SES and minority ethnicity (Dryfoos, 1990). Again in this study, neither of these variables were predictive of continuing in school.

The TPB Model

Although demographic variables are commonly used to explain the behavior, dropping out of school, the number of possible demographic

variables to predict this behavior is limitless. These variables are also not consistent in predicting school failure. The benefit of using TPB constructs is that they include a single set of variables that mediate between demographic variables and behavior (Ajzen & Fishbein, 1980). The purpose of this discussion is to evaluate the usefulness of the TRA, the TPB, and the Expanded TPB to understand and predict continuation in high school for a pregnant adolescent after she has given birth to her child. Although the TRA and the TPB have been effective in predicting other adolescent behaviors, they may not be useful as theoretical perspectives for this phenomenon. This discussion focuses on the question: Do the results of this study establish a need for further testing and development of this model and should interventions based on the theory constructs be implemented?.

A purpose of model development is to determine how the theory constructs influence behavior (Weinstein, 1993). The first three study hypotheses were based on the analysis of the TPB constructs and their abilities to predict behavior. An assumption of the TPB is that attitude, perceived control, and social norm have an effect on behavior, but only when mediated through intention.

Hypothesis 1 examined the relationship between intention and the three independent constructs (attitude, perceived control, and social norm). Although the equation was significant ($p = .005$), further examination of the constructs's contributions requires explanation. In this hypothesis, the

relationship between variables was cross-sectional, not prospective. From a decision-making perspective, it is logical that one's attitude about a behavior and the amount of assumed control over that behavior would determine one's intention to perform the behavior when measured simultaneously. It would also seem logical that the adolescent's intention to return to school would depend on her perception of the support the pregnant adolescent had from those around her. However, social norm did not account for any of the variance in the intention to return to school. From the pregnant adolescent's perception, people in her environment had little effect on what she intended to do.

One explanation for what may seem an inconsistency in reasoning is rooted in the psychosocial development of adolescents as described by Erikson. A part of identify formation is achieving autonomy. These adolescents may be exhibiting that characteristic in their perceptions that those around them have little influence on their decisions. This adolescent characteristic was reflected in the mean motivational score within the social norm subscale (see Table 4.10) which corresponded to the "I maybe do want to do what others want me to do" responses on the questionnaire (see Part 2 in the questionnaire, Feelings About School). To understand the implications of social norm, researchers may also want to ask, "What does social norm mean to the adolescent?"

In the testing of Hypothesis 1, the pregnant adolescent was being asked to speculate about returning to school before actually being required to perform that behavior. In the test of Hypothesis 2, the adolescent was being asked to predict into the future. The significant positive correlation ($r = .33$) between intention and behavior indicated that 11% of the variance in behavior was predicted by intention. A TPB theorist might find this to be a small percentage of explained variance in behavior. The relationship between intention and behavior is never perfect and various events can intervene between the measurement of intention and the observation of behavior (Ajzen & Fishbein, 1980).

This interpretation may be a valid limitation in this study. The TRA and the TPB have not been used to study a behavior when a major life event, such as having a child, occurs between measuring intention and measuring behavior. The strength of the relationship between intention and behavior depends on many unanticipated factors that impede or encourage performing that behavior (Ajzen & Fishbein, 1980). As an example, during the interview which occurred between six and eight weeks postpartum, the question, "What gets in the way of going to school?" was asked. The most typical response addressed the fatigue from being up so many times at night with the newborn and the difficulty of getting the baby and the adolescent herself ready for school in the morning. Certainly having a newborn with a complication, as occurred for eight of these mothers, was an unanticipated

event which potentially could disrupt the ability to return to school. It was decided to include these adolescents in the study because seven of the eight complications were self limiting and the infants had no residual effects at four weeks of age. With the continuation of this study and a larger sample size, it may be determined that mothers with complications are indeed different from the other mothers and so their outcomes need to be analyzed separately.

Another explanation of the correlation between intention and behavior, even with the birth of a child occurring between the two variables, is that this positive correlation may be due to the high mean score for intention (see Table 4.10). When an intention is held with great confidence, unanticipated events may have less of an influence on performing the behavior than if the intention was weak (Ajzen, 1985).

Although the TPB constructs predicted intention and intention predicted behavior, in Hypothesis 3, the TPB regression equation only approached statistical significance ($p = .06$). Since these TPB constructs predicted 17% of the variance in the behavior, limited statistical power is a likely explanation for the lack of statistical significance. It is therefore interesting to examine the relationship between the construct variables. An assumption of the TPB is that attitude, perceived control, and social norm affect behavior only because of their effect on intention. For attitude, that

assumption may be correct. Attitude was significantly correlated with intention ($r = .31$), but not with school attendance ($r = .06$).

For the relationships between social norm and intention and social norm and behavior, the assumption that the effect of social norm on behavior is mediated through intention only may not be valid. The correlation between social norm and intention was nonexistent ($r < .01$), but social norm and school attendance were correlated ($r = .29$). The effect of psychosocial development on social norm and intention and behavior may contribute to understanding the reason for the significant correlation between social norm and behavior and its insignificant correlation with intention. Pregnant adolescents may not consider what others want them to do when stating an intention, but comply with what others want them to do when performing a behavior. The positive correlation between social norm and school attendance may be reflecting the dependency on other people when actually performing that behavior. This finding may also be a possible explanation for the significantly higher return to school rate for the eighth and ninth graders than for the adolescent mothers in the tenth and eleventh grades. These younger students may depend more on those around them to remain in school than students in higher grades.

In Hypothesis 4, the TRA significantly ($p = .03$) predicted school attendance and the TPB construct, perceived control, was not a significant predictor of the behavior ($p = .62$). This finding was also reported in a study

predicting condom use in adolescents (Boldero, Moore & Rosenthal, 1992). In the only other study using the TPB, the researchers reported perceived control did predict oral contraceptive use in adolescents (Jaccard, Helbig, Wan, Gutman & Kritz-Silverstein, 1992).

Based only on statistical significance, it might seem logical to further develop and test the TRA and discontinue development of the TPB in this study. From a theoretical and clinical perspective, this decision would be premature. Again, reiterating assumptions of both the TRA and the TPB, the effects of attitude and social norm (and perceived control in the TPB) are mediated through intention and intention is the best predictor of behavior. Therefore, the only effect perceived control may have on behavior is when it is mediated through intention. Another explanation may be that due to the developmental level of adolescents, they view returning to school as being in their complete control. This explanation is supported by the high perceived mean score of 4.7 on a scale from one to six.

From a clinical perspective, it would be confusing to believe that because an adolescent perceives she has a lot of control over returning to school postpartum that she will indeed be back after she has her child. Based on the results of this study, it would be more useful to assist these adolescents in establishing concrete plans to allow them the control needed to return to school than to assume their perceived levels of control are valid.

The effects of perceived control on behavior need further exploration. Being able to calculate the relationships among attitude, social norm, and perceived control may provide further understanding about the relationship between these variables. An assumption of the TRA and the TPB is that the variables entered in one step of the regression equation have no relationship with each other or the relationship goes both ways (Ajzen & Fishbein, 1980). This assumption may not be valid. With a larger sample size, path analysis would be a useful statistical technique to establish the relationship among these variables.

In the fifth hypothesis, the Expanded TPB with its unique construct, actual control, was used to predict school attendance. Again, actual control is a variable not fully conceptualized by Ajzen and has not been reported in any published studies. The perception of actual control depends on both the experience with a behavior and the perception of control over that behavior. During the postpartum interview these adolescents were asked about their actual control over being in school while experiencing the behavior of being a mother and a student simultaneously. Previously, they were being asked about a behavior they had never encountered.

As reported in Table 4.14, actual control significantly accounted for 13% of the variance in school attendance. Actual control significantly correlated with perceived control and intention, but not with social norm and attitude (see Table 4.8). Since actual control was measured concurrently

with behavior, its only theoretical contribution may be its validation of perceived control. The adolescents' perceptions of control were fairly accurate as evidenced by the strong correlation ($r = .50$) between perceived and actual control.

Again, it was useful to examine the perception of control from a developmental perspective. Both Piaget's concept of future orientation and Elkind's concept of "personal fable" may contribute to differences in perception of control. Control may be a matter of will power, inaccurate interpretation of the amount of control one has over a behavior, or a combination of those two factors (Ajzen, 1985). An example of the former would be those students who did get up on time in the morning to get to school even though their sleep had been disrupted during the night. Inaccurate interpretation of the amount of control an individual has can also disrupt attempts at performing a behavior. This erroneous interpretation was true for three students who were not able to get into the school's day care as they had planned. On further questioning, the students explained they had hoped their babies could get into day care even though there were no openings in the nursery.

In the last hypothesis, GPA, previously dropping out of school, and age/ grade lag did not predict school attendance. This finding may validate previously reported data that pregnant adolescents are a group already at risk for school difficulties and these variables are not able to differentiate

between students who will persevere and those who cannot. It is also possible that the curriculum in the teen parent programs is not as rigorous as in the regular high schools and therefore poorer students were able to succeed.

Strengths and Limitations of The Study

Strengths

The study design carefully followed the theoretical framework of the TPB. In the Phase I pilot research, the participants were asked about the positive and negative consequences they saw for being in school and not being in school. Although the questions asked of them were guided by the theory, only the consequences they gave were used in the questionnaire. The questions were not based on either previous research in this population or the experiences the researcher has had with pregnant and parenting adolescents. The questionnaire was based on the perceptions of adolescents choosing to be mothers and choosing status as students. The use of the information obtained was probably the reason the TPB predicted 17% of the variance in school behavior even with a small sample size. Also operationalizing school attendance as a continuous variable rather than a dichotomous variable met the assumptions of parametric statistical analyses such as Pearson Product Moment Correlations and multiple regression.

Methods to establish validity of this newly developed instrument were discussed in Chapter 3. Questions were written in a clear and unambiguous

manner. Most students completed the questionnaire in less than 20 minutes with the longest time being 22 minutes. The only clarification students occasionally asked for pertained to the subjective norm section. Three students asked how they should respond if they had no contact with their father and two students stated one of their parents was dead. All students were instructed to answer the question if they thought at all about what that absent parent would want them to do. Two students left the question blank. There was no other incomplete data on any other questions. Another strength of this study was the small attrition rate (6%).

The prospective design of this study was also a strength. Using this design to measure intention when the adolescents are pregnant and then the behavior when it was actually occurring adds to the validity of the predictive results.

The internal consistency of the subscales in this newly developed instrument was tested with Cronbach's alpha. As reported, the reliability coefficients for the subscales were fairly high even with the limited number of items. Certainly further validity and reliability testing will need to be done with future use and refinement of this instrument.

Limitations

An obvious limitation to analyzing and interpreting the results of this study was the small sample size and the resultant lack of statistical power. In this study, many of the p-values were large. Although these insignificant

p-values may be related to the small sample size, that is an assumption that may not be made. However, in a study with a large sample size (n = 100), a beta weight of .10 would correlate to a p- value of .01. In this study, even with insignificant p-values, many of the beta weights in the multiple regression equations were greater than .10. For example, in the regression equation to predict school attendance (Table 4.12), the standardized beta weight for social norm was .20 and the squared semi-partial was .04, but the p-value was not significant (p = .15).

A larger sample size would also provide the power to determine statistical significance in more complex multiple regression analyses such as path analysis. This analysis would allow the researcher to test the TRA, TPB, and Expanded TPB models by determining the effects of the relationship among variables. Additionally, both the theory constructs' direct and indirect effects on behavior could be calculated. A larger sample size would have allowed for testing the fully mediated TPB Model.

The estimates supplied by the teachers of the number of pregnant students attending at four of the sites was not accurate. Retrospectively, when the teachers were asked about the lower number of pregnant students, most responded they just had to guess the number of pregnant students, as their records do not reflect the number of births at their sites. At three sites, teachers also explained that in their school districts, there was a new emphasis on having pregnant students stay in their own high

schools rather than attend the special teen-parent programs. The teens were then encouraged by their home schools to enroll in the Parenting Programs after they had delivered. This trend may influence both the number and type of students at each site. It may be that the more capable students remain at their present schools. Because the study only included adolescents involved in teen-parent programs, it is not possible to generalize results beyond this population.

This study was composed of adolescents from African-American, Caucasian and Hispanic backgrounds, so again generalizing results to other ethnic groups would be inappropriate at this time. Low SES has previously been associated with higher school dropout rates. Since SES was not measured directly, but through the proxy variables of public financial assistance, SES may not have been an accurately measured variable. Although effort was made to obtain complete information on every student, the previous GPA was not obtained on 26% (n = 14) of the participants and it can not be assumed their GPAs were similar to the other students with more complete records.

Every theoretical framework has its limitations. The TPB was designed to predict and understand the relationships between behavior and attitude, perceived and actual control, subjective norms and intentions. It will not predict the percentage of mothers who will return to school and results should not be interpreted as such. The TRA is also explicit in assuming that

intentions are sufficient for predicting behavior, but the TPB acknowledges that random factors occurring between the time intention and the time behavior are measured decrease the predictive ability of intention (Weinstein, 1993). As previously discussed, the birth of a child is not a random event as it will consistently occur between intention and behavior. However, the factors associated with that birth influencing return to school may be random or fixed in this population. This concept requires further exploration. It may also be possible that the TPB will always be better at predicting behavior in adults than in cognitively and psycho-socially developing adolescents.

Significance of The Study

The contribution this study makes to current knowledge is that it provides a preliminary level of understanding about the factors that influence an adolescent mother's continuation in school after the birth of a child. The results of this study both supported previous research and contributed to our understanding of this phenomenon. The demographic variables: GPA, having previously dropped out of school, and an age/grade lag did not significantly correlate with school attendance. Low SES and minority ethnicity were not predictive of continuation in school, a finding contradictory to previous research on general adolescent drop-out rates. Although this result may be an aberration of this study or this sample, the results are certainly hopeful as we can do little about a person's ethnic background or current low SES.

Ajzen and Fishbein (1980) state that as we gain understanding about behavior by tracing its determinants back to the underlying beliefs, we can influence behavior by changing a sufficient number of the beliefs. How people in the community apply this information will be important in influencing the high school graduation rates of parenting adolescents.

For the adolescents in this study, social norms was insignificantly correlated with intention, but correlated with the behavior, continuing in school. From a developmental perspective, this finding supports the importance of allowing adolescents to feel they are making autonomous decisions as they work on identify formation. Since the adolescent's perception of the opinions of those around her may ultimately affect continuation in school, it would seem important for communities to develop intervention programs for their families and the fathers of their babies. An example might be a separate support group for the mothers of the new adolescent mothers. The need of a multidimensional approach proposed by Dryfoos (1990) that focuses on family, school, and community may be useful in building prevention strategies.

It is important at this point, to reflect on the question, "Does this research study identify any findings that are surprising?" If only the demographic variables identified in previous studies were analyzed then the answer is "yes". For example, GPA did not predict continuation in school. From a theoretical decision-making perspective, the answer is "maybe".

Intention did predict behavior, the usual finding in other studies using the TRA or the TPB, but the construct perceived control did not predict behavior as would be expected. When decision-making is framed within the context of a developmental perspective, the answer is "no". The relationships between the theoretical constructs make sense when viewed from a developmental perspective.

Future Research

This study has provided information that contributes to the understanding of an adolescent mother's continuation in high school. To adequately test the TPB model and to assure validity and reliability of the new questionnaire, Feelings About School, a larger sample size is required. Using calculations based on a moderate effect size, an additional 40 participants are needed to obtain sufficient power for significance. Continuation of this study is an obvious priority.

If the results of future research validate the TPB model and the questionnaire, Feelings About School, then refinement and further development of the questionnaire would be indicated. It would be beneficial to have this questionnaire in a shorter format that could easily be scored by teachers, nurse practitioners and other professionals directly involved with this adolescent population. With this information, the goal would be specific interventions designed to assist these adolescents in the continuation of their educations.

During Phase I and Phase II, data were collected that would be useful for both qualitative interpretation and secondary descriptive analyses. Data collected during the interview and in the questionnaire are also available for secondary analysis. With an increased sample size, further examination of correlations between variables would be useful to increase understanding of the predictors of continuation in school.

Consent was obtained during the postpartum interviews to continue contacting the adolescents who participated in this study. The longitudinal data will also contribute to further understanding the phenomenon of adolescent parenthood.

Further model testing and development is needed to determine the usefulness of the TPB in this population as well as other subgroups of pregnant and parenting adolescents. Path analysis is a useful tool for comparing the same model in different subgroups.

Implications for Nursing

Dryfoos (1990) presents delinquency, early sexual intercourse, drug abuse, and dropping out of school as the four categories of risky behaviors in the adolescent population. The adolescents in this study have exhibited at least the behavior of early sexual intercourse and 27% of these mothers had previously dropped out of school. Adolescent parenthood is a multidimensional problem requiring comprehensive approaches. Certainly nurses have unique contributions to make that would reduce these risky

behaviors and their outcomes. Nurse practitioners and school nurses working in school based clinics are the obvious professionals to interface with these adolescents. With only 60% of the teens in this study using birth control during the postpartum period, the risk of a subsequent pregnancy is substantial and requires immediate intervention.

Nurses also need to be available as consultants to educators on the warning signs of high risk pregnancies and to encourage health promoting behaviors in pregnancy. As indicated in this study, having a baby with a complication was a significant deterrent to continuing in school. Nurses need to be advocates for quality prenatal care to reduce pregnancy risks which can result in neonatal complications.

Additionally, advanced practice nurses need to participate in multidisciplinary teams that focus on the predictors of the behavior rather than just on the behavior itself. As an example, in Phase I of this study great difficulty was encountered trying to locate the teen mothers who had dropped out of the teen parent programs. The teachers did not have access to current phone numbers, addresses, or contact people. A majority of these teenagers were located through nurse practitioners and midwives who were either providing health care for these teens or had done so in the past. These nurses had greater access to the current residence and contact people than did the school personnel. Obviously, if teachers and nurses were working

together with these teenagers, even locating them would be a simpler task for the schools.

Nurses are valued professionals for their comprehensive skills. Most programs available for this teen population can be divided into the three categories of health, education or social welfare. Some advanced practice nurses are involved in comprehensive programs that include all three categories. The involvement in multidisciplinary teams may eliminate gaps in services as well as reduce the duplication of services that occurs in other areas. This information needs to be disseminated to adolescents, their families, educators, health care providers, and social workers to collectively plan interventions useful to these young mothers.

References

Adler, N., Kegeles, S., Irwin, C., & Wibbelsman, C. (1990). Adolescent contraceptive behavior: An assessment of decision processes. The Journal of Pediatrics. 16(3), 463-471.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J Kuhn & J. Beckman (Eds.) Action goal: From cognition to behavior. (pp11-39). Berlin: Sprimger-Verlaga.

Ajzen, I & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice-Hall Inc.

Barrington, B. & Hendricks, B. (1989). Differentiating characteristics of high school graduates, dropouts, and nongraduates. Journal of Educational Research. 28(6), 309-319.

Blum, R. & Resnick, M. (1982). Adolescent sexual-decision making: Contraception, pregnancy, abortion, motherhood. Pediatric Annals. 11(10), 797-805.

Boldero, J., Moore, S., & Rosenthal, D. (1992). Intention, Context, and safe sex: Australian adolescents' responses to aids. Journal of Applied Psychology. 22(17), 1375-1397.

Brindis, C. & Jeremy, R. (1988). Adolescent pregnancy and parenting in California. San Francisco: Center for Population and Reproductive Health Policy.

DeBolt, M., Pasley, B., & Kreutzer, J. (1990). Factors affecting the probability of school dropout: A study of pregnant and parenting females. Journal of Adolescent Research. 5(2), 190-205.

Card, J. & Wise, L. (1978). Teenage mothers and teenage fathers: The impact of early childbearing on the parents' personal and professional lives. Family Planning Perspectives. 10(4), 199-205.

Carter, W. (1990). Health behavior as a rational process: Theory of reasoned action and multiattribute utility theory. In K. Glanz, F. Lewis & B. Rimer (Eds) Health behavior and health education (pp 63-91). San Francisco: Jossey-Bass.

Colletta, N., Gregg, C., Hadler, S., Lee, D., & Mekelburg, D. (1980). When Adolescent Mothers Return to School. The Journal of School Health. 50, 534-538.

Commission on Behavioral and Social Sciences and Education (1993). Losing Generations: Adolescents in High-Risk Settings (pp 1-23). Washington, D.C., National Academy Press.

Dryfoos, J. (1990).Adolescents at Risk. New York: Oxford.

Eagly, A. & Chaikin, S. (1993). The impact of attitudes on behaviors. In The psychology of attitudes (pp 155-218). San Diego, CA: Harcourt Brace Jovanovich College.

Eisen, M., Zellerman, G., & McAlister, A. (1990). Evaluating the impact of a theory-based sexuality and contraceptive education program. Family Planning Perspectives. 22(6), 261-271.

Elster, A., Lamb, M., Tavare, J., & Ralston, C. (1987). The medical and psychosocial impact of comprehensive care on adolescent pregnancy and parenthood. Journal of the American Medical Association. 258, 1187-1192.

Ekstrom, R., Goertz, M, Pollack, J., & Rock, D. (1986). Who drops out of high school and why? Findings from a national study. Teachers College Record. 87(3), 356-373.

Entwisle, D. (1990). Schools and the adolescent. In S. Feldman & G. Elliott (Eds.), At the threshold (pp 197-224). Cambridge: Harvard University.

Fisher, J. (1983, March). Dropping out of high school: An application of the theory of reasoned action. Paper presented at the annual meeting of the Southeastern Psychological Association, Atlanta, Ga.

Fischoff, B. (1988). Judgement and decision making. In R.J. Steinberg & E.E. Smith (Eds). The psychology of human thought (pp 153-187). New York: Cambridge.

Ferguson, G. (1976). Statistical analysis in psychology and education. New York: McGraw-Hill Book Company.

Furby, L. & Beyth-Marom, R. (1990). Risk taking in Adolescence: A Decision-Making Perspective. Washington, DC: Carnegie Corporation.

Furstenberg, F. (1976). The social consequences of teenage parenthood. Family Planning Perspectives. 8(4), 148-164.

Furstenberg, F., Brooks-Gunn, J., & Morgan, S. (1987). Adolescent mothers and their children in later life. Family Planning Perspectives. 19(4), 142-151.

Gilbert, M., Bauman, K., & Udry, J. (1986). A panel of subjective expected utility for adolescent sexual behavior. Journal of Applied Social Psychology. 16(8), 745-756.

Harter, S. (1990). Self and identity development. In S. Feldman & G. Elliott (Eds.) At the threshold (pp352-387). Cambridge: Harvard University.

Hinds, P. & Stoker, H. (1988). Adolescents' preferences for a scaling format: A validity issue. Journal of Pediatric Nursing. 3(6), 408-411.

Hoffman, S., Foster, E. & Furstenberg, F. (1993). Reevaluating the costs of teenage childbearing. Demography. 30(1), 1-13.

Horwitz, S., Klerman, L., Kuo, H., & Jekel, J. (1991). School-age mothers: Predictors of long-term educational and economic outcomes. Pediatrics. 87(6), 862-868.

Jaccard, J., Helbig, D., Wan, C., Gutman, M., & Kritz-Silverstein, D. (1990). Individual differences in attitude-behavior consistency: The prediction of contraceptive behavior. Journal of Applied Social Psychology. 20, 575-617.

Jones, M., & Mondy, L. (1994). Lessons for prevention and intervention in adolescent pregnancy: A five year comparison of outcomes of two programs for school-aged pregnant adolescents. Journal of Pediatric Health Care. 8, 152-159.

Jones, L. (1991). Community-based tertiary prevention with the adolescent parent and child. In S. Humenick, N. Wilkerson, & N. Paul (Eds.), Adolescent pregnancy:

Jorgensen, S. & Sonstegard, J. (1984). Predicting adolescent sexual behavior: An application and test of the Fishbein model. Journal of Marriage and The Family. 43-54.

Keating, D. (1990). Adolescent thinking. In S. Feldman & G. Elliott (Eds.), At the threshold (pp 54-90). Cambridge: Harvard University.

Keith, J., McCreary, C., Collins, K., Smith, C., & Bernstein, I. (1991). Sexual activity and contraceptive use among low-income urban black adolescent females. Adolescence. 26(104), 769-785.

Koniak-Griffin, D. (1991). Critique. In S. Humenick, N. Wilkerson, & N. Paul (Eds.), Adolescent pregnancy: Nursing perspectives on prevention (pp. 72-82). White Plains, New York: March of Dimes Birth Defect Foundation.

Klerman, L. The influence of economic factors on health related behaviors in adolescents. In S. Millstein, A. Peterson, & E. nightingale (Eds.) Promoting the health of adolescents (pp 38-57). New York: Oxford Press.

Langer, L. & Warheit, G. (1992). The pre-adult decision-making model: Linking decision-making directedness/orientation to adolescent health-related attitudes and behaviors. Adolescence. 27(108), 919-942.

Madden, T., Ellen, P., & Ajzen, I. (1992). A comparison of the theory of planned behavior and the theory of reasoned action. Personality and Social Psychology Bulletin. 18(1), 3-9.

Mann, L., Harmoni, R., & Power, C. (1989). Adolescent decision-making: The development of competence. Journal of Adolescence. 12, 265-278.

Mercer, R. (1986). First-time Motherhood. New York: Springer.

Mercer, R. (1983). Assessing and counseling teenage mothers during the perinatal period. Nursing Clinics of North America. 18(2), 293-301.

Miller, P. (1989). Theories of adolescent development. In J. Worrell & F. Danner (Eds.), The adolescent as a decision-maker(pp-13-52). New York: Academic Press.

Millstein, S. (1993). A View of Health From The Adolescent's Perspective. In S. Millstein, A. Peterson, & E. nightingale (Eds.) Promoting the health of adolescents (pp 97-118). New York: Oxford Press.

Muuss, R. (1985) Theories of adolescence. (5th Ed.). San Francisco: McGraw-Hill.

Olds, D., Henderson, C., Tatelbaum, R., & Chamberlin, R. (1988). Improving the life-course development of socially disadvantaged mothers: A randomized trial of home nurse visitation. American Journal of Public Health, 78(11), 1436-1445.

O'Sullivan, A. & Jacobson, B. (1992). A randomized trial of a health care program for first-time adolescent mothers and their infants. Nursing Research. 41(4), 210-215.

O'Sullivan, A. (1991). Tertiary prevention with adolescent mothers: Rehabilitation after the first pregnancy. In S. Humenick, N. Wilkerson, & N. Paul (Eds.), Adolescent pregnancy: Nursing perspectives on prevention (pp. 57-71). White Plains, New York: March of Dimes Birth Defect Foundation.

Perry, C., Kelder, S., Komro, K. (1993). The social world of adolescents: Families, peers, schools, and the community. In S. Millstein, A. Petersen & E. Nightingale (Eds) Promoting the health of adolescents (pp 73-96). New York: Oxford University Press.

Polit, D. & Hungler, J. (1991). Nursing research: Principles and methods (4th Ed.). Philadelphia: J. P. Lippincott.

Rabin, J., Seltzer, V., Pollack, S. (1991). The long term benefits of a comprehensive teenage pregnancy program. Clinical Pediatrics. 30(5), 305-309.

Records, K.(1993). Life events of pregnant and nonpregnant adolescents. Adolescence. 28(110), 325-338.

Rumberger, R. (1987). High school dropouts: A review of issues and evidences. Review of educational research. 57. 101-121.

Sachs, B. (1985). Contraceptive decision-making in urban, black female adolescents: Its relationship to cognitive development. International Journal of Nursing Studies. 22(2), 117-126.

Seitz, V., Apfel, N., & Rosenbaum, L. (1991). Effects of an intervention program for pregnant adolescents: Educational outcomes at two years postpartum. American Journal of Community Psychology. 19(6), 911-930.

Setzer, J., & Smith, D. (1992). Comprehensive school-based services for pregnant and parenting adolescents in West Dallas, Texas. Journal of School Health. 62(3), 97-102.

Seymore, C., Frothingham, T., MacMillan, J. & Durant, R. (1990). Child development knowledge, childrearing attitudes and social support among first and second time adolescent mothers. Journal of Adolescent Health Care. 11(4), 343-350.

Spencer, M. & Dornbusch, S. (1990). Challenges in studying minority youth. In S. Feldman & G. Elliott (Eds.), At the threshold (pp 123-146). Cambridge: Harvard university.

Stevens-Simon, C., Parsons, J., & Montgomery, C. (1986). What is the relationship between postpartum withdrawal from school and repeat pregnancy among adolescent mothers? Journal of Adolescent School Health. 7, 191-194.

Strauss, S. & Clarke, B. (1991). Decision-making patterns in adolescent mothers, Image. 23(1), 69-73.

Trussell, T. (1976). Economic consequences of teenage childbearing. Family Planning Perspectives. 8, 184-191.

Warrick, L., Christianson. J., Walruff, J., & Cook, P. (1993). Educational outcomes in teenage pregnancy and parenting programs: Results from a demonstration. Family Planning Perspectives. 25(4), 148-155.

Weinstein, N. (1993). Testing four competing theories of health-protective behavior. Health Psychology. 12(4), 324-333.

White, J. (1984). Initiating contraceptive use: How do young women decide? Pediatric Nursing. 347-352.

Weisman, C., Plichta, S., Nathanson, C., Chase, G., Ensminger, M., & Robinson, J. (1991). Adolescent women's contraceptive decision-making. Journal of Health and Social Behavior. 32, 130-144.

Worrell, J. & Danner, F. (1989). Adolescents in contemporary context. In J. Worrell & F. Danner (Eds) The adolescent as decision-maker (pp 3-12). New York: Academic Press.

Appendix A

Mothers In School

Questionnaire Development Interview

Date: Age: Grade: Ethnicity:

Language spoken: Home: School: Friends

Marital Status: S M E Delivery Date:

When returned to school: Getting passing grades? Yes No

Working: Yes No Childcare:

Who lives with: Relationship with FOB? Yes No

Age of FOB:

Where live: House Apt Other:

MediCal: Yes No AFDC: Yes No Both: Yes No

Mom's Educational level: Parent's work:

Using a contraceptive method now: Yes No

Type:

People she knows who were teen moms:

Planned pregnancy: Yes No

Mothers in School

Semi-Structured Interview

Tell me the good things about being in school:

Tell me the bad things about being in school:

Tell me the good things about not being in school:

Tell me the bad things about not being in school:

Who cared if you went to school or didn't go to school:

How much did you want to do what those people wanted you to do:

Did you think you would go to school after you had your baby:

Before you had the baby, what did you think might help going back to school:

Before you had the baby, what did you think might get in the way of going back to school:

What gets in the way of going now:

What helps you be able to go to school now:

What things about going back to school surprised you. Tell me about those things that got in the way. Tell me about those things that helped:

Mothers Not In School

Questionnaire Development Interview

Date: Age: Grade: Ethnicity:

Language spoken: Home: School: Friends

Marital Status: S M E Delivery Date:

Last time in school: Getting passing grades? Yes No

Working: Yes No Childcare:

Who lives with: Relationship with FOB? Yes No

Age of FOB:

Where live: House Apt Other:

MediCal: Yes No AFDC: Yes No Both: Yes No

Mom's Educational level: Parent's work:

Using a contraceptive method now: Yes No

Type:

People she knows who were teen moms:

Planned pregnancy: Yes No

Did you want to go to school after you had your baby:

What makes you not want to go to school:

What makes you want to go to school:

Before you had the baby what did you think might get in the way of going to school:

Before you had the baby, what did you think might help going to school:

What gets in the way of going now:

What would help you be able to go to school now:

Appendix B

University of California, San Francisco
School of Nursing

Interview Consent Form II
Teen Mothers: Do I Continue in School or Not?

Researchers: Jeanette Koshar, RN, PhD(C)
Kathryn Lee, RN, PhD, Associate Professor

Purpose and Background: I am being asked to be a part of a research study that is looking at why some teen mothers go to high school and some mothers do not go to high school.

Procedure: If I decide to be a part of this study, Jeanette will ask me some questions about myself like my age, my ethnic group, my grade in school, who I live with, about my family, and if I receive AFDC or MediCal. She will then ask me some questions about what I think the good and bad things about not going to school and going to school are. Jeanette will write down what I say. I will be interviewed at my home or in a place that is easy for me to get to. The interview will last about 15 minutes. I will get $5 in cash because of the time I spent talking to Jeanette.

Possible Risks and Discomforts: There are few risks to me. There may be some questions I do not want to answer and I do not have to answer them if I do not want to. I can stop the interview at any time.

Confidentiality: My answers to these questions will not be given to anyone. This information will only be seen by Jeanette. I will not be asked my name.

Benefits: There is no benefit to me for being in this study.

Reimbursement: I will get $5 in cash for being in this study.

Costs: It will not cost me any money to be in this study.

Questions: If I have any questions, I can ask Jeanette during the interview. I can also call the Committee on Human Research whose job it is to protect people who agree to be in research studies. I can call them at (415) 476-1814 from 8 a.m. to 5 p.m., Monday through Friday. I could also write to them at the Committee on Human Research, University of California, San Francisco, CA 94143.

Consent: I am choosing to be interviewed. Being a part of this study is voluntary. Nobody talked me into it. Even if I say I do not want to be in the study or I do not want to answer a question, services I get or my family gets will not be affected. By signing this consent form, I agree to be interviewed by Jeanette Koshar. I have been given a copy of this consent form to keep.

Signature of Participant	Date
Interviewer's Signature	Date

3/17/95

University of California, San Francisco
School of Nursing

Interview Consent Form I Napa
Teen Mothers: Do I Continue in School or Not?

Researchers: Jeanette Koshar, RN, PhD(C)
Kathryn Lee, RN, PhD, Associate Professor

Purpose and Background: I am being asked to be a part of a research study that is looking at why some teen mothers go to high school and some mothers do not go to high school.

Procedure: If I decide to be a part of this study, Jeanette will ask me some questions about myself like my age, my ethnic group, my grade in school, who I live with, about my family, and if I receive AFDC or MediCal. She will then ask me some questions about what I think the good and bad things about going to school and not going to school are. Jeanette will write down what I say. I will be interviewed at school during regular school hours. The interview will last about 15 minutes. I will get 1/2 unit of school credit because of the time I spent talking to Jeanette.

Possible Risks and Discomforts: There are few risks to me. There may be some questions I do not want to answer and I do not have to answer them if I do not want to. I can stop the interview at any time.

Confidentiality: My answers to these questions will not be given to anyone. This information will only be seen by Jeanette. I will not be asked my name.

Benefits: There is no benefit to me for being in this study.

Reimbursement: I will get 1/2 unit of school credit for being in this study.

Costs: It will not cost me any money to be in this study.

Questions: If I have any questions, I can ask Jeanette during the interview. I can also call the Committee on Human Research whose job it is to protect people who agree to be in research studies. I can call them at (415) 476-1814 from 8 a.m. to 5 p.m., Monday through Friday. I could also write to them at the Committee on Human Research, University of California, San Francisco, CA 94143.

Consent: I am choosing to be interviewed. Nobody talked me into it. Being a part of this study is voluntary. Even if I say I do not want to be in the study or I do not want to answer a question, my school grades or services I get or my family gets will not be affected. By signing this consent form, I agree to be interviewed by Jeanette Koshar. I have been given a copy of this consent form to keep.

---	---
Signature of Participant	Date
---	---
Interviewer's Signature	Date

3/17/95

Appendix C

Pregnant Mothers in School
Study Interview

Date: Age: Grade: Ethnicity:

Language Spoken: At Home: At School: With friends:

Marital Status: M S E EDC:

Ever dropped out of school: Yes No For how long:

Working: Yes No Plans for childcare:

Who lives with: Where lives: H Apt. Other

Relationship with FOB: Yes No FOB Age:

MediCal: Yes No AFDC: Yes No Both: Yes No

Mom's Educational level:

< HS HS Some college College grad

Mom's work: Dad,s work:

Plan on using Birth Control postpartum: Yes No

Type: Abstain OCs Depo Condoms Other:

People she knows who had a baby as a teenager:

Planned this pregnancy: Yes No

.....

GPA: Credits needed to graduate:

Feelings About School

A Questionnaire for Pregnant Teens

The Beginning

Thank you for taking the time to answer the questions in this questionnaire. The purpose of this questionnaire is to find out how pregnant teens feel about going to school. Since teens don't feel the same about being in school, there are no right or wrong answers to these questions. I am just asking you what you think.

There are 6 parts to this questionnaire. It will take you about 20 minutes to finish the whole thing. However, you can take as much time as you need. Circle the answer that is most like what you think. It is important that you answer every question honestly. Please don't skip any questions. Your opinion is very important to me.

Thanks,

Here are three practice questions to give you an idea how to answer these types of questions. This practice is just to make sure the directions are clear to you.

1. I will eat at McDonald's during the next week:

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

2. Eating at McDonald's during the next week is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

3. My friends think I:

Definitely Should not	Should not	Maybe Should not	Maybe Should	Should	Definitely Should

eat at McDonald's next week.

Part 1

These are some statements about things that may or may not happen if you stay in school. Just be honest and circle the answer you think fits for you. Thanks.

<u>If I stay in school, I will</u>:

1. Graduate from high school

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

2. Be less bored

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

3. Be able to talk with my friends

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

4. Have to do my homework

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

5. Have to be on a schedule

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

6. Have to do my school work

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

If I stay in school, I will:

7. Be able to provide for my child

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

8. Get an education

Very Likely	Unlikely	Kind of Unlikely	Kind of	Likely Unlikely	Very Likely

9. Get into trouble at school

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

10. Be a good role model for my child

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

11. Make something of myself

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

12. Be unhappy

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

13. Not be able to get a full time job now

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

14. Have to get up early

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

If I stay in school, I will:

15. Learn new things

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

16. Have less free time

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

17. Get a better job later

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

18. Spend less time with my baby

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

19. Have more stress in my life

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

20. Get good grades

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

21. Have a hard time being a mom and a student at the same time

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

22. Have a better life later

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

Part 2

The next group of questions is asking what you think people around you want you to do about school. This questionnaire is confidential so no one but me will know how you answer these questions. For these two questions think about everybody who is important to you.

1. Most people who are important to me think I:

Definitely Should not	Should not	Maybe Should not	Maybe Should	Should	Definitely Should

stay in school.

2. Most of the time I:

Definitely Do not	Do not	Maybe Do not	Maybe Do	Do	Definitely Do

want to do what people important to me want me to do.

The next questions are asking you about certain people you know. Please answer each one of these questions.

3. My mom thinks I:

Definitely Should not	Should not	Maybe Should not	Maybe Should	Should	Definitely Should

stay in school.

4. Most of the time I:

Definitely Do not	Do not	Maybe Do not	Maybe Do	Do	Definitely Do

want to do what my mom wants me to do.

5. My dad thinks I:

Definitely Should not	Should not	Maybe Should not	Maybe Should	Should	Definitely Should

stay in school.

6. Most of the time I:

Definitely Do not	Do not	Maybe Do not	Maybe Do	Do	Definitely Do

want to do what my dad wants me to do.

7. The rest of my family thinks I:

Definitely Should not	Should not	Maybe Should not	Maybe Should	Should	Definitely Should

stay in school.

8. Most of the time I:

Definitely Do not	Do not	Maybe Do not	Maybe Do	Do	Definitely Do

want to do what the rest of my family wants me to do.

9. My boyfriend/husband thinks I:

Definitely Should not	Should not	Maybe Should not	Maybe Should	Should	Definitely Should

stay in school.

10. Most of the time I:

Definitely Do not	Do not	Maybe Do not	Maybe Do	Do	Definitely Do

want to do what my boyfriend/husband wants me to do.

11. The family of my baby's father thinks I:

Definitely Should not	Should not	Maybe Should not	Maybe Should	Should	Definitely Should

stay in school.

12. Most of the time I:

Definitely Do not	Do not	Maybe Do not	Maybe Do	Do	Definitely Do

want to do what the family of my baby's father wants me to do.

13. My friends think I:

Definitely Should not	Should not	Maybe Should not	Maybe Should	Should	Definitely Should

stay in school.

14. Most of the time I:

Definitely Do not	Do not	Maybe Do not	Maybe Do	Do	Definitely Do

want to do what my friends want me to do.

Part 3

I want you to think about what being in school means to you. It is important that you circle the answer that fits how you feel.

1. Staying in school for me is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

2. Staying in school for me is:

Very Hard	Hard	Kind of Hard	Kind of Easy	Easy	Very Easy

3. Staying in school for me is:

Very Foolish	Foolish	Kind of Foolish	Kind of Wise	Wise	Very Wise

4. Staying in school for me is:

Not very Important	Not Important	A little Important	Kind of Important	Important	Very Important

Part 4

In this part I'm asking you to circle how good or bad it would be if these things happened for you. Remember, there are no right or wrong answers.

1. Graduating from high school is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

2. Being less bored is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

3. Talking with my friends is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

4. Doing my homework is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

5. Being on a schedule is:

6. Doing my school work is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

7. Providing for my child is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

8. Getting an education is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

9. Getting into trouble at school is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

10. Being a good role model for my child is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

11. Making something of myself is:

12. Being unhappy is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

13. Not getting a full time job now is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

14. Getting up early is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

15. Learning new things is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

16. Having less free time is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

17. Getting a better job later is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

18. Spending less time with my baby is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

19. Having more stress in my life is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

20. Getting good grades is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

21. Being a mom and a student at the same time is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

22. Having a better life later is:

Very Bad	Bad	Kind of Bad	Kind of Good	Good	Very Good

Part 5

Now you are being asked about your plans after you have your baby. Please be honest. No one will read this but me.

1. By the time my baby is 6 weeks old, I will be in school every school day.

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

2. How certain are you that you will stay in school after you have your baby?

Not very Certain	Not certain	A little Certain	Somewhat Certain	Certain	Very Certain

Part 6

This is the last part! How do you think things will go for you after you have your baby?

1. In general, how much control do you think you have over staying in school after you have your baby?

Definitely No control	Not much Control	A little Control	Some Control	Control	A lot of Control

2. In general, how hard is it going to be for you to stay in school after you have your baby?

Very Hard	Hard	Kind of Hard	Kind of Easy	Easy	Very East

Sometimes problems happen after anybody has a baby. You may or may not have these problems. Do you think these things might happen to you after you have your baby?

3. Finding childcare for my baby is:

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

4. Going to school when my baby is sick:

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

5. Having help at home is:

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

6. Having transportation to get to school is:

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

7. Getting all my school work done is:

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

8. Being motivated to stay in school is:

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

9. Working and going to school is:

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

The End
Thank you very much.

Phone Person

6-8 Week Follow-up

Interview Date:

Del Date: Days PP:

How Labor Went:

Labor Complications:
For Mom:

For Baby:

Breast Feeding: Y N

Birth Control: Y N Type:

I would like to keep in touch with you to see how things are going for you and your baby. Would that be okay with you?

Yes NO

I'll be sending you a post card that I will need you to sign and return to me. Having the signed postcard from you will give me permission to call you in the future. Otherwise I won't be able to keep in touch. I would like to see how things are going for you. However, when I call you in the future you do not have to talk with me if you do not want to.

Are you planning on moving or changing your phone number?

—

# of Days Returned to School:

Questionnaire

I would like to ask you some questions about how things have been for you since you had your baby. You may or may not be having any of these problems. I will read the question to you and then you pick the answer that is most like what you think.

1. In general, how much control do you think you have over staying in school now that you have had your baby?

Definitely No control	Not Much Control	A Little Control	Some Control	Control	A lot of Control

2. In general, how hard has it been for you to stay in school since you have had your baby?

Very Hard	Hard	Kind of Hard	Kind of Easy	Easy	Very Easy

3. I have been able to find childcare for my baby:

Never	Almost Never	Sometimes	Often	Almost Always

4. I have been able to go to school when my baby is sick:

Never	Almost Never	Sometimes	Often	Almost Always

5. I have had help at home:

Never	Almost Never	Sometimes	Often	Almost Always

6. I have had transportation to school:

Never	Almost Never	Sometimes	Often	Almost Always

7. I have been able to get all my school work done:

Never	Almost Never	Sometimes	Often	Almost Always	Always

8. I gave been motivated to stay in school:

Never	Almost Never	Sometimes	Often	Almost Always	Always

9. I have been working and going to school:

Never	Almost Never	Sometimes	Often	Almost Always	Always

The next questions are about your plans to stay in school.

1. By the time my baby is 3 months old, I will be in school every school day.

Very Unlikely	Unlikely	Kind of Unlikely	Kind of Likely	Likely	Very Likely

2. How certain are you that you will stay in school after your baby is 3 months old?

Not very Certain	Not Certain	A little Certain	Somewhat Certain	Certain	Very Certain

I would just like to ask you a few general questions:

Where are you living now?

How are things going with the FOB?

How are things going with your family?

How are things going with friends?

Have you been back to school? **Yes** **No**

How are things going with the teachers?

How are things going with the other students?

What's been good since you have had your baby?

What's been bad since you have had your baby?

Anything else?

Appendix D

University of California, San Francisco
School of Nursing

Study Consent Form Napa
Teen Mothers: Do I Continue in School or Not?

Researchers: Jeanette Koshar, RN, PhD(C)
Kathryn Lee, RN, PhD, Associate Professor

Purpose and Background: I am being asked to be a part of a research study that is looking at why some teen mothers go to high school and some mothers do not go to high school.

Procedure: If I decide to be a part of this study, I will be interviewed and will fill out a questionnaire during regular school hours. Jeanette will ask me some questions about myself like my age, my ethnic group, my grade in school, who I live with, about my family, and if I receive AFDC or MediCal. Jeanette will write down what I say. I will then fill out the questionnaire. It will take about 30 minutes to talk to Jeanette and to fill out the questionnaire. Jeanette will also be writing down some information from my school folder like school grades and test scores. I will get 1/2 unit of school credit because of the time I spent talking to Jeanette and answering the questionnaire.

Possible Risks and Discomforts: There are few risks to me. There may be some questions I do not want to answer and I do not have to answer them if I do not want to. I can stop the interview at any time.

Confidentiality: My answers to the interview questions, my answers on the questionnaire, and the information from my school folder will not be given to anyone. This information will only be seen by Jeanette. My name will not be on the paper Jeanette uses during the interview. My name will not be on the questionnaire. My name will not be on the paper Jeanette uses when she writes down information from my school records.

3/17/95

Benefits: There is no benefit to me for being in this study.

Reimbursement: I will get 1/2 unit of school credit for being in this study.

Costs: It will not cost me any money to be in this study.

Questions: If I have any questions, I can ask Jeanette during the interview. I can also call the Committee on Human Research whose job it is to protect people who agree to be in research studies. I can call them at (415) 476-1814 from 8 a.m. to 5 p.m., Monday through Friday. I could also write to them at the Committee on Human Research, University of California, San Francisco, CA 94143.

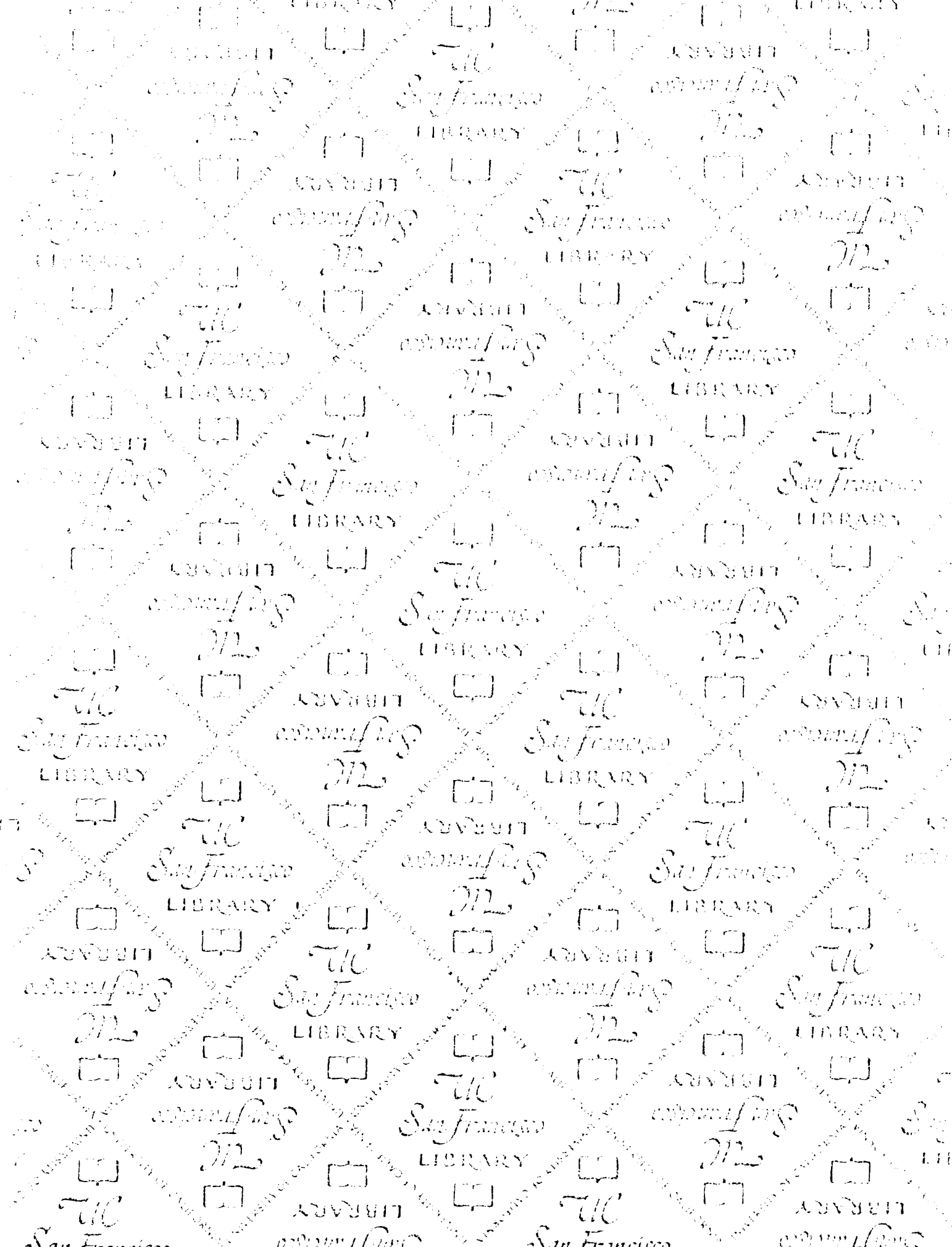
Consent: I am choosing to be interviewed, to fill out the questionnaire, and to have my school folder looked at. Being in this study is voluntary. Nobody talked me into it. Even if I say I do not want to be in the study or I do not want to answer a question, my school grades or services I get or my family gets will not be affected. By signing this consent form, I agree to be interviewed by Jeanette Koshar, to fill out the questionnaire, and to have my school folder looked at. I have been given a copy of this consent form to keep.

---------- ----------

Signature of Participant Date

---------- ----------

Interviewer's Signature Date


The San Francisco
LIBRARY