FAMILY INFLUENCES ON RISKY SEXUAL BEHAVIORS, PREGNANCY, AND

ABORTION DECISIONS IN SWISS ADOLESCENTS

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THESIS ABSTRACT

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Teenage pregnancy remains a social problem. In 1997, almost 15 million adolescents gave birth (Whan, Nissen & Ahlberg, 2005). Although Switzerland has a relatively low teenage pregnancy rate (5.2 births per 1,000 youth ages 15-19 are reported; United Nations, 2004), the negative personal and social consequences subsequently remain the same for all youth who become pregnant. Based on a national probability sample of Swiss youth, the current study examined the salience of family structure and the parent-adolescent relationship for risky sexual behaviors, pregnancy, and abortion decisions. It was expected that adolescents from single parent families with relatively lower quality parent adolescent relationships would be at greatest risk for engaging in risky sexual behaviors, for becoming pregnant, and most likely to seek an abortion.

Participants for this study were a randomly selected national probability sample of $N = 8740$ Swiss adolescent males and females, ages 16 to 20 (Jeannin et al., 2005). Only

n = 4,014 female youth were included for the current analyses; of these, n = 119 (3%) reported pregnancy and 56.3% of pregnant teens reported an abortion. The study also tested a number of known correlates and covariates, including SES, language region (German, French and Italian) immigration status (native Swiss, 1st generation and 2nd generation immigrants), and whether youth completed a sexual education curriculum. Data analyses included correlations, oneway ANOVAs, and multiple or logistic regression analyses.

Findings provided mixed support for the salience of family structure and the parent-adolescent relationship quality across the three dependent measures. Both family structure and the family process measure were important predictors of risky sexual behaviors. However, only family structure predicted teenage pregnancy. In fact, adolescents from single parent homes were four times more likely to report a pregnancy than adolescents from two parent homes. Finally, neither family structure nor family process was a significant predictor of the abortion decision. Additional interesting findings were made based on the analysis of covariates. Second generation and 1st generation immigrant youth were more likely to report a pregnancy compared to native Swiss youth (OR=3.3, OR=1.9); however, pregnancy risk for the two groups did not differ. On abortion decisions, youth from the French speaking region were 3.7 times more likely to seek an abortion than adolescents from the German speaking one. Also, 1st generation immigrant youth were 3.6 times more likely than native Swiss youth to seek an abortion. No difference was found between youth from the two immigrant groups. Findings are discussed in terms of implications for Swiss youth, but also for youth growing in other similar industrialized countries.

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I. INTRODUCTION

The issue of adolescent pregnancy remains a serious concern today. It is one of the most cited social problems, especially in the United States, which has one of the highest teenage pregnancy rates among developed nations (United Nations, 2004). Although a few studies and national databases have provided evidence that the number of adolescent pregnancies was declining (Alan Guttmacher Institute, 2006; Moore, Papillo, Williams, Jager, & Jones, 1999; Santelli, Abma, Ventura, Lindberg, Morrow, Anderson, Lyss, & Hamilton, 2004), the most recent national figures, for the first time in 14 years, indicate that teenage pregnancy in the US is on the rise. More specifically, the rate increased by 3 percent, from 40.5 births per 1,000 women aged 15-19 in 2004 to 43.9 births per 1,000 women aged 15-19 in 2006 (CDC, 2007). Teenage pregnancy also remains a social problem globally, where in 1997 for example, almost 15 million adolescents gave birth (Whan, Nissen & Ahlberg, 2005). Other developed countries also have high rates of teenage pregnancy, including France, England, and Georgia. On the other end of the spectrum, some enjoy particularly low rates of teenage pregnancy, such as Switzerland, where only 5.2 births per 1,000 youth ages 15-19 are reported (United Nations, 2004).

Nevertheless, the negative personal and social consequences discussed subsequently remain the same for all youth who become pregnant. Thus, one pressing question that continues to only be partially answered is how teenage pregnancy can be

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effectively prevented? What places an adolescent at greater risk for teenage pregnancy in comparison to a peer? Based on a national probability sample of Swiss youth, the current study attempts to address these questions by examining known family predictors of risky sexual behaviors, of pregnancy, and of abortion decisions. Findings from this work will have implications for teens in other developed countries, similar to Switzerland.

Previous work has clearly identified the importance for teens to engage in some level of sexual exploration, as a developmental function and as part of their development of a sexual identity, despite the risks for pregnancy, and possible abortions (Crockett, Raffaelli, & Moilanen, 2003). This includes sexual fantasies, masturbation, "making out," and sexual intercourse. Of course these behaviors are also associated with some level of risk as they can result in sexually transmitted infections or pregnancy. Huebner and Howell (2003) define risky sexual behavior as not using a condom or as having sexual intercourse with multiple partners. The age of initiation of sexual intercourse can also be considered risky sexual behavior, particularly if it occurs before the age of 15, because these youth are simply not ready emotionally or physically to deal with the potential consequences of these behaviors. Researchers have identified numerous negative consequences of risky sexual behaviors which include sexually transmitted infections (STIs), an increased risk of cervical cancer, pelvic inflammatory disease, compromised future fertility, low educational attainment, greater social isolation, compromised economic future, and higher rates of premarital or unwanted pregnancy (e.g., Harvey & Spigne, 1995; Perry & Jessor, 1985; Rodgers, 1999; Seidman & Rieder, 1994; Santelli, Lowry, Brener & Robin, 2000).

Premarital or unwanted teenage pregnancy may be one of the most serious consequences of risky sexual behavior, since it has many and profound negative consequences. These include lower education and occupational attainment, mental and physical health problems, decreased social support and networking, increased risk for abuse or neglect of the child, poorer psychological functioning, lower rates of school completion, additional non-marital births, unstable employment, and lower marital stability in later marriages (e.g., Coleman, 2006; Ellis, Bates, Dodge, Fergusson, Horwood, Pettit, & Woodward, 2003; Zabi, Hirsch, & Emerson, 1989). Teenage pregnancy is also associated with a number of burdens on society including welfare dependency, lower levels of education, and mental health issues associated with poverty (e.g., Colletta, 1983; Little & Ranlkin, 2001; Kelpinger, Lunbberg, & Plotnick, 1995). Children of teenage mothers also tend to be disadvantaged for a number of reasons. They have an increased risk for developmental delays, emotional problems, learning problems, delinquency as well as adolescent drug and alcohol problems (e.g., Brooks-Gunn, Guo, & Furstenberg, 1995; Fergusson & Woodard, 1999).

Compounding these negative consequences associated with adolescent pregnancy, especially if unplanned, youth must decide whether to keep the baby, carry the baby to term and place it up for adoption, or terminate the pregnancy by abortion. These are profound decisions, even for adults. They must be made at the same time when youth are struggling to find their own identity, to develop a sense of self, and to develop an educational and career orientation; therefore, adolescents are incapable of making "good" decisions about this emotionally charged issue. "Regardless of age, a girl's transition into motherhood can be described as a significant rite of passage and entry in adulthood. The

age when a girl becomes pregnant is crucial, and becoming a teenage mother interrupts the course of her life" (Whan, Nissen & Ahlberg, 2005, p. 592).

Why Switzerland?

Switzerland is one of the most "successful" countries when it comes to managing adolescent sexuality, compared to other countries, including the United States (Michaud, 2003). This is also largely reflected in adolescent pregnancy rates as previously described. Interestingly, Switzerland's adolescent pregnancy rates are much lower than the ones in the US, about 5.2 per 1,000 adolescents versus 41.1 per 1,000 adolescents; however, there appear to be no dramatic differences in national statistics on adolescent sexual behaviors. For example, about half (46%) of 15-19 year olds in the US report having had sexual intercourse (Abma, Matinez, Mosher & Dawson, 2004), compared to 50% of Swiss youth (Narring, Wydler, & Michaud, 2000). In the US, most adolescents report having used contraceptives at last intercourse (83% of females and 91% of males; Abma et al., 2004), much like Swiss adolescent (92.6%; Narring, et al., 2000). From these statistics, it is apparent that Swiss adolescents' sexual behaviors are no different than those of US adolescents but pregnancy rates differ dramatically. What accounts for these differences?

Some of these factors may include the sexual education youth enjoy in Switzerland. Switzerland has a long history of school based sexual education programs, and contraceptives are widely available (Narring, Michaud, & Sharma, 1996). Researchers have identified the 1987 National Stop Aids campaign which widely promoted condom use as key in understanding lower pregnancy risks. This campaign included posters, sexual education in school, increased availability of condoms, exhibits

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during large sporting and musical events. It continues to be evaluated annually by

surveys, which have provided evidence that the campaign is working. For instance, these

surveys have provided evidence that there was a decrease in new HIV cases, a decline

from 2000 in 1990 to only about 500 in the year 2000. Young people are simply more

likely to use condoms. This is also supported by condom sales figures which have

increased from 6.6 million in 1987 to 17 million in 2001. No changes have been noted in

the number of adolescents who become sexually active, pregnant or in abortion rates

(Michaud, 2003).

Although Swiss youth enjoy good sexual education and perhaps therefore lower

adolescent pregnancy rates in comparison to US adolescents, little is known about Swiss

adolescent abortion rates. These rates are not reported because of strict abortion laws.

When comparing US adolescent abortion rates (29.2 per 1,000 adolescent females) to

other Western European countries close to Switzerland (Germany, 3.6 per 1,000 women

aged 15-19 & Netherlands, 4.0 per 1,000 women aged 15-19), the rates are quite different

(Singh & Darroch, 2000). However, in one study based on Swiss youth, of the 85

adolescents who reported a pregnancy, 80% also reported an abortion (Narring, Michaud,

& Sharma, 1996). Thus it is important to understand more about adolescent abortion

decisions and rates of abortions among youth in Switzerland.

To better understand and help decrease adolescent pregnancy rates, we must first

identify which risk factors are associated with adolescent pregnancy, and by implication,

with adolescent sexual activity or risky sexual behaviors. Thus, using a nationally

representative sample from Switzerland, the current study examined how family factors,

namely the structure of the family and the quality of the parent adolescent relationship,

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influenced risky sexual behaviors, adolescent pregnancy risk and abortion decisions. Since adolescent abortion statistics are not publicly reported, more needs to be known about the fate of pregnancy decisions. It is expected that adolescents from single parent families with relatively lower quality of parent adolescent relationships will be more likely to engage in risky sexual behaviors, become pregnant, and seek an abortion.

The following sections will review relevant literature for the current study. First, the theoretical framework of social control theory will be examined to highlight the influences of the family on adolescent risky sexual behavior, pregnancy, and abortion decisions. This will be followed by empirical tests of the theory. Next a review of the family influences on risky sexual behavior, a proxy for pregnancy risk, will be examined, followed by family influences on pregnancy. Since there are no known studies that have considered the influences of the family on abortion decisions, several other influences will be examined to review relevant work.

II. LITERATURE REVIEW

There exists no single theory that address risky sexual behaviors, adolescent pregnancy or the fate of pregnancy decisions (Woodard, Fergusson, & Horwood, 2001). Thus, it is important to consider theoretical frameworks that address variability in problem behaviors that also lead to or include adolescent pregnancy. One such effort is social control theory developed by Travis Hirschi (1969). Although Hirschi did not develop the theory to address teenage sexuality, the theory addresses deviance or norm-violating conduct, and thus also has direct implications for adolescent sexual behaviors. (see also Problem Behavior Theory by (Jessor & Jessor, 1977) .

Social Control Theory

Social control theory departs from most theoretical frameworks that consider problem behaviors as it does not try to understand why individuals choose to engage in them, but rather why people conform to conventional society and do not engage in them. Hirschi suggests that human beings are all naturally capable of engaging in norm violating conduct, and that "motivation" to engage in non-conventional behavior is unimportant. The theory identifies early socialization as key in developing conventionality, namely the formation of bonds with the family, school, or church. When these bonds are broken or weakened, non-conforming or norm-violating conduct is the result. The theory identifies four key elements part of this bond, namely attachment, commitment, involvement, and beliefs. When the bond is strong, individuals are less

likely to engage in the problem behaviors, such as risky sexual behaviors (e.g., Wiatrowski, Griswold & Roberts, 1981). In the following sections, each element of the bond, attachment, convention, involvement and belief, will be further explored. This is followed by empirical tests of social control theory that will focus on problem behavior in general and a few studies focusing on risky sexual behaviors.

Attachment develops through the relationship with parents or caregivers early in a child's life. If an adolescent has strong bonds with parents, with school teachers, or with their peers they are less likely to engage in problem behaviors. Also parents and caregivers can serve role models and teach their children how to engage in socially acceptable behaviors. Hirschi suggests that if an individual is unable to form this bond, they will also be unlikely to form a bond with anyone else. The absence of these initial bonds leads children down a path of non conformity including perhaps risky sexual behaviors. The bond between the parent and the adolescent, serves as a protective factor against problem behaviors. Intimate communication between the parents and the adolescent can be also considered as an indicator of attachment; it is also an indicator of good overall relationships between parents and adolescents. In fact, Hirschi suggests that when adolescents are able to discuss personal information with their parents, they will be less likely to engage in problem behaviors, because the parents psychological presence in the adolescent is strengthened (Hirschi, 1969). This has been supported by studies which have found that if adolescents are able to talk about sex to their parents, they are less likely to engage in risky sexual behaviors (e.g., Furstenberg, Herceg-Baron, Shea, & Webb, 1984, Newcomer & Udry, 1985).

Because social control theory emphasizes the importance of attachment or the quality of the relationship to the parents, absence of one of the parents could also impact the attachment. Several studies have found that when fathers are absent from the home, daughters are at a greater risk for pregnancy (Hogan & Kitagawa, 1985, Mclanhan, 1999, Ellis, Bates, Dodge, Fergusson, Horwood, Pettit, & Woodward, 2003, Quinlan, 2003). Studies have also found that adolescents from single parent homes are more likely to be sexually active than those from two parent homes (Flewelling & Bauman, 1990; Newcomer & Udry, 1998; Upchurch, Aneshensel, Sucoff, Storms, 1998; Whitbeck Yoder, Hoyt, & Conger, 1999) because of missing or inadequate supervision in single parent homes and missing role models.

In conclusion, social control theory proposes that if an adolescent has a strong emotional attachment to their parents and a high quality relationship with their parents, they will be less likely to engage in problem behaviors. Thus, this also implies that they will also have a decreased risk of engaging in risky sexual behaviors, a decreased risk for a pregnancy or an abortion. Related to this, adolescents living in two parent families may also be less likely to engage in risky sexual behaviors, less likely to become pregnant, and less likely to seek an abortion and have a decreased chance of pregnancy. Two parents may simply be better suited to properly supervise the adolescent (Hirschi, 1969).

The second part of the bond is commitment. Some people will not break rules because they fear the consequences of their actions. If an individual invests time and energy in a particular type of activity, like working hard for school to be able to attend college or holding down a job, they must also consider the costs of engaging in problem behaviors. When an individual has ambitions, they are committed to conventional

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society; thus, they are committed to conformity (Hirschi, 1969). This investment to conventional society is placed at risk if the adolescent engages in problem behaviors. Adolescents with goals may less likely to engage in risky sexual behaviors because of the risks to their future, since risky sexual behaviors can lead to pregnancy. On the other hand, if the adolescent is not invested in conventional goals, they will be more likely to engage in risky sexual behaviors because the consequences are not as salient to them.

A third part of this bond to conventional society is involvement in conventional activities. This refers to the involvement in conventional activities that lead to success and status. Future goals and objectives as well as quality of the conventional activities are important in preventing problem behaviors according to Hirschi. The idea is that if the person is absorbed in conventional society, they will be less likely to engage in deviant behaviors. Thus, homework, family activities, and other structured activities act as protective factors against deviant behaviors. Some studies have provided empirical support for this. For example, one study found that the adolescents were less likely to engage in sexual behaviors when they took part in extracurricular activities (Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2007).

The final part of the bond is belief. If an individual does not believe in the rules of society, they are less likely to follow these rules and they will be more likely to break the rules. Also the deviant actually may rationalize the behavior in their mind, so they hold the ability to violate the rule, but also keep the belief in it. The rationalization happens before the actual act. If they feel like there is nothing wrong with their behavior, they are free to commit the deviant act (Hircshi, 1969). The act of having sex is not breaking a

rule of society, but if younger adolescent engages in risky sexual behavior this can be considered as violating a norm of society.

In conclusion, social control theory hypothesizes four elements of this bond that effectively deters adolescents from engaging in norm violating conduct, but also in risky sexual behavior. All of these elements are essential, but attachment to parents may be the most important; without attachment, adolescents are less likely to be involved, committed or believe in conventional activities and therefore more likely to engage in problem behaviors, including risky sexual behaviors (Hirschi, 1969). The next section will examine the empirical tests of social control theory. Because few empirical tests informed by social control theory exist about risky sexual behavior, pregnancy risk or abortion decisions, general tests of problem behaviors will first be examined. This is followed by a review of a small number of empirical tests of the predictors of risky sexual behaviors.

Empirical Tests of Social Control Theory

Hirschi identified several areas that affect the socialization of adolescents, but it seems that parents play the most important role. Attachment to the family affects how the other socialization agents namely the school, teachers, or friends influence the adolescents. Studies have used social control theory as a framework to predict a variety of problem behaviors, including using drugs, stealing, selling drugs, running away from home, and drinking. Of these studies, single parenthood or being from "broken homes" is used frequently as a risk factor for problem behaviors. Thus for the purpose of this review, several studies using social control theory framework to predict other problem behaviors will be examined first. These studies focus on family structure or living in a

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broken home and the attachment to parents as predictors of problem behaviors. For example, Wade and Brannigan (1998) found a connection between family structure and delinquency using social control theory as the theoretical framework. The data used for the study was from the 1993 Ontario Student Drug Survey. The sample used for analysis included 1,725 students. They found that children from two parent homes were less likely to engage in problem behaviors than those from non-intact families. However family structure only explained 1.5% of the variance. When family attachment was added to the model, it proved to be the most important predictor of problem behaviors as it accounted for 11.4% of the variance. These finding illustrated the importance of the parent-adolescent relationship in preventing the adolescent from engaging in problem behavior (Wade & Brannigan, 1998).

Kierkus and Baer (2002) also used data from the 1993 and 1995 Addiction Research Foundation Ontario Student Drug Survey as the data source. The sample included 1,891 students. Results indicated the children from non-intact families were less likely to be attached to their parents than those from two parent homes. The results also showed that family structure was a significant predictor of eleven of the sixteen delinquency measures. Across all measures, at least one of the three non-intact family types had contributed to youth having a higher probability of engaging in delinquent behaviors in comparison to youth from two parent homes. From the results it appears that children from two parent homes will have a better chance of learning adult behaviors and will have less of a chance of engaging in problem behaviors (Kierkus, & Baer, 2002).

To study how problems in the family were related to delinquency, Gove and Cutchfield (1982) used a random sample from Chicago. The data used for this study was

original collected as of a part housing study. The total sample for this study included 620 families with children and was similar to the general population of Chicago. Family structure, single, two parent home, parental characteristic, household characteristics and parent child relationship were used to predict delinquency.

Most of the children in single parent homes were African American (78%) and these families were generally lower socioeconomic status. Broken homes or single parent families, poor marital interaction, lack of parental control, physical punishment and poor parent child interactions were correlated with delinquency. The results show that single family homes had more children who engage in delinquent behaviors than youth from two parent homes. In single parent homes, 41% of males and 23% of females engaged in some type of delinquent behavior. In two parent homes only 20% of boys engaged in delinquent behaviors and 19% of girls. Thus children from single parent homes were more likely to engage in problem behaviors (Gove & Cutchfield, 1982).

 Empirical Test of Social Control Theory –Risky Sexual Behavior

There are a few studies that have used social control theory as a framework to understand how parents influence risky sexual behavior. Sokol-Katz (1997) used a sample from South Florida Youth Development Project which included 596 females and 599 males. The results indicated that only family structure had an indirect effect on deviance. This was likely due to the fact that family structure was related to family relationships which had a direct effect on the deviance measures.

Barnes, Hoffman, Welte, Farrell, and Dintcheff (2007) used social control theory as a framework to study predictors of substance use, delinquency and sexual activity. This study tested how time use predicted problem behaviors; peer time and family time

were two of these predictors. The sample included 606 adolescents from upstate Western New York. The dependent measures included, drinking five or more drinks at one time, cigarette smoking, illicit drug use, self reports of seventeen delinquent acts, and sexual activity. The sexual activity measure assessed the number youth reported having had sexual intercourse in the past twelve months and as well as the lifetime number of partners. As predicted, the more time the adolescent spent with the family, the less likely all three behaviors occurred including sexual behaviors. Time spent with family was one of the most consistent predictors across all problem behaviors. Time spent with peers was a risk factor for problem behaviors. Thus the authors found that family time was an important protective factor for substance use, delinquency and sexual activity.

Siebenbruner, Zimmer-Gembeck, Egeland, (2007) also used social control theory to understand risky sexual behaviors. The participants of the longitudinal study were 167 first born girls of mothers living in poverty in Minneapolis. Most of the girls in the study were Caucasian. Participants were assigned to three groups for data analysis purposes and included "sexual abstainers" (adolescents who had not had intercourse by 16), "low risk takers" (adolescents who had five or fewer partners by sixteen and always used some type of contraceptives; the average age of first sexual intercourse for this group was 14.5.), and "high risk takers" (adolescent who had a six of more partners and inconsistent used of contraceptives; the average age of sexual intercourse for the high risk group was 13). Family variables tested as predictors included maternal demographic information, emotional climate in the home, adolescent-parent interaction, the quality of the family relationship, and the amount of parental supervision.

The results indicated that sexual abstainers had mothers who had higher educational attainment than low risk takers. Low risk takers had less family conflict than high risk takers. Positive family relationships (supervision and parent-child closeness) were found to be protective factors for early sexual activity and lower risky sexual behavior; negative relationships in the family were associated with earlier sexual activity and less contraceptive use. These results are consistent with what social control theorists would predict (Siebenbruner et al., 2007).

Little and Rankin (2001) used a representative sample of 953 eighth graders throughout an Upstate New York county to test why adolescents engage in early sexual activity; again, they used social control theory as a guiding conceptual framework. Family structure, parental influences, SES, and peer influences were used as predictors of earlier sexual activity. Data were collected in two waves, namely in 1996 and 1998. A large number of adolescents were from single parent homes. Most of the variables in the study were significantly related to having sex. Living in a two parent homes and SES were significant for the Wave 1, but they are not significant Wave 2. How their mother felt about them having sex was one of the strongest predictors. Family structure and perceived norms were significant predictors of earlier sexual activity.

These studies indicate that family structure and the parent child relationship are key constructs in predicting problem behaviors and risky sexual behaviors. Most of these studies indicated that family structure influenced the adolescent indirectly through family attachment.

Conclusion of Social Control Theory

Social control theory is a useful conceptual framework in the explanation of adolescent risky sexual behavior, adolescent pregnancy, and abortion decisions. It identifies key predictors of risky sexual behavior. Social control theory does not ask the question why do adolescents engage in risky sexual behavior, but rather why don't adolescents engage in risky sexual behavior. Parental attachment or the quality of the parent-adolescent relationship is key in the prediction of risky sexual behaviors and of the likelihood of adolescent pregnancy. In addition, it examined family structure as an indirect contributor to the quality of these relationships.

Empirical Work on the Etiology of RSB, Pregnancy and Abortion

Risky or unprotected sexual intercourse can be considered a proxy of adolescent pregnancy. Thus, to understand adolescent pregnancy, it is essential to first understand the risky sexual behaviors, namely engaging in sexual intercourse at an early age, having many sexual partners, and inconsistent contraceptive use (condom use). Research has shown that these behaviors are affected by individual, family, and broader contextual influences (e.g., Miller, Bayley, Chirstensen, Levitt, & Coyl, 2003). Consistent with social control theory, family factors include both family the structure of the family and the quality of the parent-adolescent relationship. When adolescents reside in single parent homes or enjoy affectively low quality parent-adolescent relationships, they are more likely to engage in the risky sexual behaviors that can lead to pregnancy. Thus, the current review of the literature will first examine a number of studies that test the effects of family influences (structure and quality of the parent-adolescent relationship) on risky sexual behaviors. This will be followed by studies that examine family influences on

adolescent pregnancy risk. Lastly, the fate of pregnancy decisions will be examined. It is

important to note that very little work done on potential family influences on abortion

decisions, and therefore, a number of studies will be reviewed that tested other constructs

salient in this decision.

 Antecedents of Risky Sexual Behaviors(RSB)

Sexual behavior during adolescence is normal, but when adolescents engage in

risky sexual behaviors, they are at a greater risk for teenage pregnancy. Numerous factors

have been examined as possible influences on risky sexual behaviors. For the most part

family structure and the relationship of parent and adolescent in that structure, influence

risky sexual behavior and adolescent pregnancy in the same matter. There has been an

increasing interest in the effects of family structure on adolescent risky sexual behavior,

focusing primarily on single parent homes. Mothers head most single parent homes, thus

fathers are absent from the home, but not necessarily from the life of adolescents,

although none of the studies take this factor into account. There are several studies which

hypothesize that family structure influences the risky sexual behavior of adolescents

(Lammers, Ireland, Resnick, & Blum, 2000; Luster, & Small, 1994;Miller, Maria,

Thom, Hill, Schvaneveldt, & Young, 1997; Miller & Bingham, 1987; Omen, Vesely, &

Aspy, 2005; Sanrelli, Lowry, Brener, & Robin, 2000; Thornton & Camburn 1987;

Whitbeck, et al., 1999; Wu & Martinson, 1993; Young, Jenson, Olsen, & Cundick, 1991).

Nearly all of the studies used a single question about family structure or parental marital

status to address the influences by family structure on risky sexual behaviors. In

addition, most studies assessed risky sexual behaviors by whether sexual intercourse had

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been experienced, the number of sexual partners, age at first intercourse, recent frequency of intercourse, condom use, and oral contraceptive use.

Most studies provided similar evidence about the effects of family structure, about residing with a single parent, usually the mother. Oman and colleagues (2002) found that adolescents residing in single parent homes were more likely to engage in risky sexual behaviors. Similarly, other work has found that this also placed youth at risk for premarital births (e.g., Miller et al., 1997; Wu & Martinson, 1993). In addition two studies also found when controlling for gender and race, adolescents from single parent homes were more sexually experienced than those in two parent homes (Miller and Bingham, 1987; Young et al., 1991).

These studies provide evidence that family structure plays an important role in adolescent risky sexual behaviors; however, this work also provides few causal explanatory mechanisms to explain this. Some studies have hypothesized that adolescents from single parent homes have more permissive attitudes about premarital sex, less parental guidance and emotional support, but also that they experience greater financial instability which might indirectly contribute to these behaviors. In addition, single parents who date also provide youth with role models characterized by relational instability; in addition, dating behavior itself is associated with less monitoring and control by the single parent. Interestingly, these studies do not discuss further why the absence of the father plays such a significant role beyond family structural characteristics. Fathers and father-adolescent relationships may play a more important role in the development of "normal" sexual conduct in youth than his simple absence, though the causal mechanisms are not fully understood based on scholarship to date.

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Antecedents for Adolescent Pregnancy

When youth engage in risky sexual behaviors, they are at a greater risk for pregnancy. It is so important to understand the factors that lead to adolescent pregnancy because there are such profound, lifelong consequences associated with this. Again, much like for risky sexual behaviors, there are a great number of etiological factors that have been studied and identified to be important for adolescent pregnancy; yet again, both family structure and the relationship of the parent- adolescent dyad seem salient. A few studies have considered father absence in particular, but very little work has been completed in this area of research (e.g., Ellis et al., 2003). For example, Woodard, Fergusson, and Horwood, (2001) sought to identify risk factors and life paths related with adolescent pregnancy. The sample for this study included 533 females from a longitudinal study of 1,265 children born in Christchurch, New Zealand. Key measures included social background, family relations, individual's characteristics, and adolescent peer relationships. Social background factors included mother's age at birth, family structure, mother's educations, and SES.

The results indicated that by age 20, 115 adolescents from this sample had been pregnant; 80 youth (69.9%) indicated that they had only been pregnant once. Most pregnancies occurred between the ages of 17 and 20. Only 5% became pregnant before the age of 17. With regard to the fate of the pregnancy decision, over have half kept their child, 9% reported a miscarriage, 36% had an abortion and only 2% placed their child up for adoption. Findings from this study show that adolescents who were raised by a single mother were 1.4 times more likely to become pregnant than those from two parent homes. Also, adolescents born to mothers who were themselves adolescent mothers were

2.3 times more likely to become pregnant. In addition, youth who resided in families with conflict were 3.1 times more likely to become pregnant. Finally, youth who reported parental change were 4.5 times more likely to be pregnant (Woodard et al., 2001).

As previously mentioned, fathers appear to be important in the lives of youth related to their decision about sexual behaviors, and researchers have started to focus more on this relationship. Still, scholarship on the effects of fathers on sexual behaviors by adolescents remains scarce. Most research in this area examines father absence and not the quality of the father-adolescent relationship. Ellis and colleagues (2003) sought to find out whether father absence was associated with early sexual activity and adolescent pregnancy. Two samples were used to study this question, one from the United States and one from New Zealand. The U.S. sample was part of the ongoing Child Development Project which collected data from families located in Nashville, Knoxville, and Bloomington (IN). Of the participating families, 281 of them had girls. The New Zealand sample was the same one as reported in the previous study; 520 female were included for data analyses.

To figure out the timing of the father's absence, household composition data were collected between the ages of 5 and 13. Girls were the placed into different groups depending on the timing of when fathers left the homes. The early father absent group included girls where fathers never lived in the home or fathers left before age five of the girl. The late father absence group included daughters who experienced father absence between the ages of 6 and 13.

Findings provided evidence that prior to controlling for covariates; adolescent pregnancy rates were seven times higher in the early absent group than in the father

present groups in both samples. After controlling for all the covariate, girls in the early father absence group had the highest rates of sexual activity and pregnancy, followed by the late father absence girls. In US sample, pregnancy rates were five times higher in the early father absence group in comparison to father never absent group. Pregnancy rates were three times higher in the New Zealand sample for early father absence girls in comparison to father never absent girls.

This study provided evidence of a strong relationship between earlier father absence and sexual experiences as well as adolescent pregnancy, although later absence of the father was also associated with risk for risky sexual behaviors and pregnancy. Thus, this study also showed that father presence was an important protective factor against risky sexual activity and pregnancy. In related work, Quinlan (2003) examined how father absence, timing or parental separation, and changes in caretaking environment affected the daughters reproductive development in a sample from the United States. The data used in this study came from the National Survey or Family Growth (NSFG) which is a longitudinal project that followed 10,847 women from 1973 to 1995.

Ninety percent of the women were from two parent homes. Most of the women from single parent homes lived with their mother (76%). Findings indicated that women who experienced parental separation were more likely to engage in first intercourse at an early age, have early first pregnancies, and experience shorter marriages. Women from single parent homes were four times more likely to have intercourse at a younger age and they were at least two and a half times more likely to be at risk for pregnancy during adolescence.

Hetherington (1972) examined the effects of father absence on personality development; this also included behaviors that affected sexual behaviors. Her samples included three groups of 24 lower and lower middle class firstborn white girls who attended a community recreation center. The results were quite different because she considered personality characteristics that affected sexual behaviors. Daughters from divorced families with absent fathers sought attention from male adults. They were more likely to spend time around their male peers in comparison to other girls. Interestingly, daughters of widows tended to stay away from where males congregate in the recreational center. Both groups were apprehensive about men and had inadequate skills in relating to men. In addition, she found family history of adolescent pregnancy was one of the strongest influences on the likelihood of adolescent pregnancy. This was consistent with previous work.

In a study based on Swiss youth, Narring Michaud, Sharma (1996) examined the characteristics of adolescents who had been pregnant. The sample was based on the Swiss Multcentre Adolescent Survey on Health conducted in 1993. The anonymous self reported cross-sectional study included a representative sample of 9,268 15-20 years olds who attended public, technical and trade schools. Only 85 adolescents reported a pregnancy. Of these adolescents, 80% had an abortion. Comparisons of sexual activity provided evidence that these behaviors did not differ by age groups, types of school, or nationality (immigrants versus non-immigrants). In addition, comparing ever pregnant and never pregnant youth among sexually experienced adolescents, social and demographic characteristics (age, SES, parents' marital status, or type of school) were similar.

As expected the sexual behavior of the pregnant and never pregnant adolescents were different. Seventy percent of the adolescents who had ever been pregnant had had regular sexual activity (defined as more than once a month) since their first sexual experience. Adolescents with four or more sexual partners were 4 times more likely to become pregnant. In addition, contraceptive use at first intercourse was less common in the group of pregnant adolescents. Eighteen percent of ever pregnant youth reported having been victims of sexual abuse. The adolescents who had been sexually abuse were twice as likely to have been pregnant compared those who had not be abused (8% vs. 4%). Adolescents living apart from parents were twice as likely to have been pregnant than adolescent who were never pregnant and lived with their parents (17% vs. 8%). In addition adolescent who had been pregnant were significantly more likely to live in the French-speaking cantons than never-pregnant adolescents (67% vs. 39%, p<.005). When looking at the multivariate analysis results, having used illicit drugs in the past month increased the probability of pregnancy by the greatest factor (odds ratio of 3.82), followed by feeling uncertain about one's future job prospects (odds ratio of 2.53), having had four or more partners (odds ratio of 2.40) and living apart from one's parents (odds ratio of 2.16).

The study identified past sexual history, contraceptive use, having used drugs during the last 30 days, living apart from parents, requiring help for life stress, and lack of confidence in one's future prospects as the most salient predictors of pregnancy. Thus, this study provided evidence that was quite consistent with other work done more recently in the United States and in New Zealand (Narring et al., 1996). In general these studies highlight how influential family (structure of the family and the quality of the

relationship) are in prevention of adolescent pregnancy. Fathers in particular are a very important protective factor.

Antecedents of Pregnancy Decisions

Most adolescents are not fully prepared to deal with parenthood. They are not cognitively, financially or emotionally ready to care for themselves, much less for another human being. Thus, many adolescent parents and their children are at risk for numerous many negative developmental outcomes (Miller & Moore, 1990). When adolescents become pregnant, they are faced with very important decisions -- to terminate the pregnancy through abortion, to place the child up for adoption or to keep the child. What differentiates youth who chose one of each of the options is unclear, and very little scholarship has been conducted on this topic (Coleman, 2006), also related to the fact that few samples exist that would allow to address this question. There appear to be numerous potential factors that influence an adolescent's pregnancy decision. Although family structure and the quality of the parent-adolescent relationships has been found to influence pregnancy risk, previous research has not considered how these constructs might influence pregnancy decisions.

Coleman (2006) compared pregnant adolescents' psychological (emotional problems, and personality) and behavioral outcomes (risk taking and desire to leave home) related to the choice of childbirth or abortion, while controlling for demographic, educational, and family variables. She used data from Waves I and II part of the Longitudinal Study of Adolescent Health (Add Health). The sample included 12,105 adolescents interviewed in their homes. The sample included 130 adolescents who reported a pregnancy, of which 65 had an abortion and 65 carried had the child to term.

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Unexpectedly, Coleman found that none of the demographic or educational variables were related to the pregnancy decision. The only significant predictors associated with a higher probability of choosing to carry the child to term were low risk taking behavior and no desire to leave home. Those that choose to have an abortion were more likely to engage in risk taking behaviors, frequent marijuana use, cigarette use or alcohol use. Part of the reason for these findings may be related to the fact that the survey asked youth to rate whether they had unwanted pregnancies (Coleman, 2006).

Felton, Parsons and Hassell (1998) compared matched pairs of adolescent with a history of abortions with never-pregnant adolescents on measures of health-promoting behaviors, self image, problem solving appraisal, and contraceptive use at first and most recent sexual intercourse. The sample for this study was part of a larger study of adolescents from three family planning clinics in South Carolina. The adolescents used to match were between 16 and 19 years old, not currently pregnant, not ever given birth, never married, and completed ninth grade. Adolescents completed self-report questionnaires. Twenty-six never-pregnant adolescents were matched with 26 youth who had an abortion; the samples were matched on age, race, educational level, and Medicaid status (eligible or ineligible). Fifty eight percent of the sample was African American, 35% were white, and 7% were Hispanic. Only 21% lived with both parents, 54% lived with mother only, 4% with father only and 12% with grandparents. Findings provided evidence that groups were quite similar in health promoting behaviors, personal solving appraisal, self-image, age of first intercourse, and contraceptive use. The average age of first intercourse in both groups was 14.6 years, lower than the national average of 16 years. Only 27% of adolescents with a history of abortions and 35% of never pregnant

adolescents used contraceptives during their first intercourse; in addition, only 44% of both groups used contraceptive for their last intercourse. Since self report behavior was used the results may not reflect the actual behaviors. Also all the adolescent were obtaining family planning services, which limits the generalizablility of the findings (Felton, Parsons, & Hassell, 1998).

In another study, Tomal (2000) examined the relationships between religiosity, parental involvement laws, and teen abortion rates. The study considered county-level abortion rates for adolescents between the ages of 15 and 19. Of 50 States, only 18 states reported abortion rates by county. Thus, the final sample included 1,024 counties from 18 states. Over 40% were from counties located in the South. Regression models controlling for public assistance, unemployment, income, population density, racial makeup, and the percentage of married couple families were considered in the study. Average abortion rates were significantly lower in counties with parental involvement laws. Interestingly, membership levels in religious organizations were found to be negatively associated with teen abortion rates. Restrictive public funding, unemployment, and percentage married couple families were each negatively associated with teenage abortion rates.

Evans (2001) also studied both direct and indirect influences by family members, partners, and friends on an adolescent's decision to terminate or continue a pregnancy. She used the Young Women's Pregnancy Survey conducted in 1998 which included 1,324 Australian adolescent women. Most young women part of the abortion group, lived with their family at the time of conception (74%), whereas only 48% of the motherhood group (carried baby to term) lived with their family. In both groups, 25% of the adolescents were Catholic; 44% of the motherhood group and 36% of the abortion group

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indicated that they were members of another Christian denomination. Finally, 27% of the motherhood group and 38% of the abortion group did not attend church.

The results indicated that adolescents who had mother that had children before the age of 20 had reduced odds (.04) of choosing to have an abortion and if the mother had an abortion they had increased odds (2.1) of choosing an abortion. Sixty-one percent of the abortion group and 81% of the motherhood group said they had no direct influences on their decisions. Among adolescent that chose abortion and indicated that there were direct influences, 34% said their partner influenced their decision, 14% indicated that their mothers influenced their decision and 6% said their fathers influenced their decision. More women in the motherhood group reported having a sister who experienced an adolescent pregnancy (17% vs. 10%) and 53% of adolescent in both groups reported having a friend who had a baby. Thus, these findings indicate that most adolescent fate of pregnancy decisions are influenced by indirect or normative influences. Family members or friends do influence the adolescents' fate of pregnancy decision indirectly. For those that had direct influences, it was the partner of the adolescent that had the more influence on their fate of pregnancy decision (Evans, 2001).

Again since a Swiss sample is used in this study it would be interesting to know a little more about abortion in this country. Switzerland's abortion law was one of the oldest in history. Until very recently, six years ago to be precise, the Swiss law that was in effect dated back to 1937 restricting abortions. Simply put, the law held that women having an abortion and the physicians performing them can face up to five years in prison. Abortions were in effect legal if a woman's life was in danger, though a second opinion by a physician was necessary to make this determination (Addor, Narring, &

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Michaud, 2003). Only in 2002 did Switzerland vote and put into effect laws that decriminalized abortions during the first twelve weeks of pregnancy. It is also important to note that even before the law went into effect, abortions were "common" practice and thus laws prohibiting them were ignored (BBC News, 2002).

Narring, Roulet, Addor and Michaud, (2002) examined adolescent and young adult abortion request statistics between 1990-1998 in the Canton of Vaud in the French speaking part of Switzerland, in order to understand socio-demographic characteristics of young women who sought an abortion. For their study, the authors used numbers of abortion requests from second opinion physician questionnaires on the women who sought an abortion about issues related to rather than actual abortions because these latter numbers are so unreliable. Part of the reason why the numbers are so unreliable is related to the history of abortions and their legality in Switzerland.

Adolescents between the ages of 14 and 19 accounted for 8.5% of all abortions in the Canton Vaud; this percentage has remained largely stable over time. Abortion rates were higher for non-Swiss, immigrant women in the 18 to 19 and the 20 to 24 age groups. Over time, the authors found a slight decrease in abortion rates for Swiss young adults between the ages of 20 to 24; they also found a slight increase for non-Swiss adolescents in the 18 to 19 age group. The most often stated reason for the abortion was psychosocial (94%) in all age groups. Some of these psychosocial reasons included the capacity to take the responsibility of the parental role, its interaction with psychological development, the risk of family instability and issues of confidentiality versus a discussion with parents. Other reasons included maternal or fetal disease (4.3%), psychiatric illness (2.8%), or rape (0.5%). Results of contraceptive use indicated that the

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physician coded, "no contraception" and "condom" simultaneously and include 30% of the adolescents and "no contraception" and "pill" were also simultaneously and this include 17% of the adolescents. This may have been coded this way because the use of these types of contraceptive was not constant. Interestingly, reported condom use was the highest in the 18 to 19 age group (Narring, et al., 2002).

Addor, Narring, and Michaud, (2003) also analyzed the same data set of second opinion physician rated questionnaires on the women who sought an abortion about issues related to socioeconomic status, contraceptive use, and previous abortions. But this sample included women aged 14- 49 in the cannon of Vaud between 1990 and 1999. Because the sample also included 1999, there is a slight variation in the sample compared to the previous study mentioned. There were 1,400 abortion requests per year in Vaud. The rate for adolescents was 5.9 per thousand youth. No significant variation was found over the 10 year period, but there was a slight decrease between 1992 and 1995/1996; there were also slight upwards trends in 1998/1999.

When considering contraceptive use for all women, most (63%) reported no use of contraceptives at the time of conception. For those that used contraceptives, the most reported method was the condom (36%), followed by the pill (17%). There was not a great deal of variation due to age for most contraceptives expect for condom use, which was reported by almost half of the adolescents, but only by 16% of women aged 45 and over. Swiss women significantly used condoms more frequently than foreigners (44% vs. 30%, p <0.001). Twenty five percent of all women had a previous abortion. Significantly more foreigners than Swiss women had experienced previous abortions (25.1% vs. 18.6%, p<0.001). The most common reason for seeking an abortion was mostly

psychosocial and there was not much variation due to age, except for psychiatric illness (adolescents 1%, and between 35 and 39 years, 5%) and maternal somatic disease (adolescents 0.8%, at 40 and over, 4.8%; Addor et al., 2003).

To examine outcomes of pregnant adolescents who chose abortions or to carry the child to term, Fergusson, Boden, and Horwood, (2007) examined life course trajectories and developmental outcomes of women who sought an abortion and those that carried their babies to term. The same data set from Christchurch, New Zealand was used, where a cohort of 1,265 children born in 1977 were followed until the age of 25. They focused on 492 females who had complete data. Of these, 125 reported at least one pregnancy by the age 21, for a total of 175 pregnancies. Of these, 55% had the baby, 31% had an abortion, and 14% experienced a miscarriage. Women were classified into three groups, namely, abortion before age 21 (48 women), delivered the baby before 21 (77 women), and never became pregnant (367 women). Ten different measures were used in the study that assessed educational, economic and partnership developmental outcomes. Women, who had an abortion, had significantly better outcomes than those who carried their baby to term. Women who elected to have an abortion were more likely to graduate from college, were less likely to be on welfare, and had a lower chance of experiencing partner violence. Most adolescents who had an abortion came from educationally and economically advantaged backgrounds. Thus adolescent who had an abortion rather than carrying the child to term actually had better life outcomes.

The literature to date documents the pressing need for additional scholarship on what influences pregnancy decisions in adolescents. Pregnant adolescents typically choose to keep their child when they live at home, participate in risk taking behaviors

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(Colemen, 2006) and when they are religious, (Evans, 2001; Tomal, 2000); they also have family history of adolescent pregnancy (Evans, 2001). More adolescents choose to have an abortion when they live with their family of origin (Evans, 2001). Some of the reasons for having an abortion included psychosocial, maternal or fetal disease, psychiatric illness, and rape (Narring et al., 2002).

These studies highlight why there is a need for more research on pregnancy decisions, because it has been found, that adolescents fare better when they have an abortion rather than carrying the child to term (Fergusson et al., 2007). In addition the studies using a Swiss sample indicate the lack of data of abortions in Switzerland especially among adolescents and in cantons other than Vaud. Also these studies only focus on some of the reasons why individuals will have an abortion rather than who or what influences the decisions to have an abortion. Adolescents only make up a small portion of abortion requests, but it still important to understand more about abortion for all adolescents in Switzerland. There may be a low adolescent pregnancy and abortion rates in Switzerland, but there is still room for improvement.

Coming to the decisions about continuing or discontinuing an unintended pregnancy is very difficult for a woman at any age, but during adolescence this decision is exacerbated by more challenges due to their developmental limitations and the pressure by others (Colemen, 2006); the opinions and influences of the partner, the peers, and the family can further complicate this decision making process (Narring et al., 2002). Therefore, the current study seeks to test three sets of interrelated questions on the etiology of risky sexual behavior, pregnancy, and abortion decisions. One of the unique feature of the study includes the fact that a Swiss national probability sample is used

which means that main findings will be generalizable not only Switzerland, but also to other western cultures.

III. RESEARCH QUESTIONS/HYPOTHESES

1. To what extent does family structure affect parent-adolescent relationships?

It is predicted that adolescents from two parent homes will report higher quality relationships with parents.

2. To what extent do family structure and/or the quality of the parent-adolescent dyad affect the likelihood of adolescents engaging in risky sexual behaviors?

   a. It is expected that adolescents from two parent home will be less likely to engage in risky sexual behaviors in comparison to their peers.

   b. It is expected that adolescents who report a higher quality parent-adolescent relationship will be less likely to engage in risky sexual behaviors.

   c. It is expected that adolescents from two parent home who also report a high quality parent-adolescent relationship will be less likely to engage in risky sexual behavior.

3. To what extent do family structure and/or the quality of the parent-adolescent dyad affect the adolescent chance of pregnancy?

   a. It is expected that adolescents from a two parent home will be less likely to become pregnant.

   b. It is expected that adolescents with a higher quality of the parent child relationship with have a decreased chance of pregnancy.

   c. It is expected that adolescents from a two parent home who also report a

higher quality parent-adolescent relationship will be less likely to have been

pregnant.

4. To what extent do family structure and/or the quality of the parent-adolescent dyad affect adolescent abortion decisions?

   a. It is expected that adolescents from a two parent homes will be less likely to have an abortion if they become pregnant.

   b. It is expected that adolescents with poor parent child relationships will be more likely to have an abortion.

   c. It is expected that adolescents from two parent homes and report a higher quality parent-adolescent relationship will be less likely to have an abortion.

Known correlates of risky sexual behaviors, adolescent pregnancy, and abortion decisions will be used as statistical controls in data analyses. These include immigration status (1st or 2nd generation immigrant versus native Swiss), language region, SES, and sexual education status.

IV. METHOD

Participants

The participants for this study were a randomly selected national sample which included adolescent males and females aged 16 to 20 in Switzerland. The data used for the current study were from the Swiss Multicenter Adolescent Survey on Health project. In 2002, the SMASH questionnaire was used to gather information about the adolescents of Switzerland. This questionnaire built on the original 1992 SMASH survey and was updated from research about adolescent health in the last decade. The SMASH is a self-administered anonymous survey of 565 items that were pre-coded and closed. The main topics in this survey were health determinants,(socio-economic background, current education track, family structure, peer and family relationships, activities, physical and risk-taking) health status(how ones views their own health, well being and self image, health needs, physical and mental health, disabilities and illnesses, abuse) health behavior(sexual activities, contraception, pregnancy, substance use, eating disorders, violent or law breaking behaviors, suicidal thoughts and activities) and health care utilization(awareness and use of medical and health services, medication use) (Jeannin, Narring, Tschumper, Bonivento, Addora, Bütikofer, Surisa, Diserensa, Alsaker, Mellea, & Michaud, 2005).

The SMASH survey was first written in French and then translated into German and Italian. Each language version survey was first pre-tested in a class of students attending college and a class of apprentices. The students completed the survey and then discussed the interest and relevance of topics, the wording of questions and other problem encountered in answering the questions. From these discussions, modifications were made to the final version.

All 26 cantons in Switzerland were invited to participate in this survey for a moderate fee, but only 19 agreed. The 19 cantons made up 80% of the country's population and covered three of four official languages. All the high schools and vocational training schools in the 19 cantons were involved in the two stage cluster sampling process, but private school were not included. Classes were included if they had at least six students, the students were in the age range of interest (16-20) and the class qualified as known course. There were a total of 1,319 classes that did not meet these requirements. All the students from each selected class were included. There were a total of 13,758 classes and included 215,693 students. A multi-cluster sample was formed from a list that included stratification criteria about the canton: Type of school (n=2) or apprenticeship (n=9), year of study (up to 4), language (n=3) and number of each gender (n=2). A random cluster sample was drawn without replacements. Six hundred classes were drawn with a total of 10,679 students.

About 116 classes did not participate. Some of the reasons were proximity of exams, the lack of common courses for the whole class and refusal of school director. Seventy-nine classes were replaced in the same school and 23 classes were replaced in another school and 14 classes were not replaced. In the end there were 586 classes that

participated with 8,740 completed questionnaires. There were only 16 individuals that refused to partake in the survey. There was a 99.8% return rate. The final sample included was 8,740 (4,014 girls and 4,726 boys).

Procedures

The school authorities in each canton were in agreement of the survey and the time required (90 minutes). When the schools were selected, each school director organized the best times to give the survey with relevant teachers. The survey was given to the participants between the months of April 2002 to June 2002 during class time by trained health professionals outside of the school/training center system if the teacher was absent.

Measures

The SMASH survey included 565 questions; the current study focuses on a subset of questions relevant for the hypotheses. Several control variables will be used to remove potentially confounding influences in the relationships tested. These include having SES, language region of the country, (German, French and Italian) immigration status (native Swiss, 1st generation and 2nd generation immigrants), and having completed sexual education.

Sex. The sex of the adolescents was measured by a single question: "What is your sex?" Youth responded with by selecting 1=female or 2=male.

Age. An adolescent's age was measured by a single question, where he/she provided the age in whole years.

Socioeconomic status (SES). SES was measured by a single item which assessed the main caregiver's educational attainment. Youth rated the following question: "Which

education level did your parent (father or mother), step-parent (step-mom or step dad) or boyfriend or girlfriend of your parent achieve and with which you spent most of time?" Youth selected one of the following choices: 1=never went to school, in Switzerland or abroad; 2=mandatory education (i.e., 9 years) or a few years of education; 3=apprenticeship (9 years, plus 3 or 4 years apprenticeship training; 4=business school or technical school; 5=university or college; and 6=I don't know. For the purpose of data analyses, response 6 was recoded into a system missing value. If youth answered for mother and father, a mean score was computed.

Language Region. Language region was coded based on the information provided by the adolescent about which canton they resided in. Switzerland has 26 cantons and 3 main language regions (1=German speaking, 2=French speaking, and 3= Italian speaking; it is important to note that a 4th region exists, but was not included in the original study). This variable was coded into two dummy constructs (Language Region 1 and Language Region 2) representing the three categories. Language region1 is coded for youth from the Italian speaking region and language region 2 is coded for the French speaking region; in both cases, youth from German speaking region were used as the reference group.

Immigrant status. Immigrant status was assessed by two questions, namely "What is the origin of your parents (County/Region)?" Youth responded by selecting one of the following: 1=Switzerland, 2=Italy, 3=Germany, 4=France, 5=Austria, 6=Portugal, 7=Spain, 8=Turkey, 9=Yugoslavia, 10=Croatia, 11=Macedonia, 12=Other Western European Country, 13=Other Eastern European Country, 14=Near East Middle East, 15=Africa, 16=Asia, 17=South/Central America, and 18=North America/Australia. The

second question was "Were you born in Switzerland?" Youth responded either 1=yes or 2=no. If the youth's parents were from a different county/region and youth were born outside Switzerland, they were coded as 1st generation immigrants; otherwise, they were coded as 2nd generation immigrant youth. Immigration status was coded by two dummy constructs (immigration 1 and immigration 2) representing the three categories, namely 1st generation immigrants, 2nd generation immigrants, and native Swiss youth. Immigration status 1 represents 2nd generation immigrants versus native Swiss youth, while immigration status 2 represents 1st generation immigrants versus native Swiss adolescents.

Sexual education. Sexual education was assessed by a single question: "Was Sex discussed in school?" Youth responded by selecting either 0=no or 1=yes.

Family structure. Family structure was assessed by the following items: "What is your parent's present situation?" Youth responded with one of the following: 1=they are still together, 2=they are divorced, 3=father is dead, 4=mother is dead, 5=both are dead, or 6= other situation. For the purpose of data analyses, responses were recoded into 1= two parent home and 2= other. The other group included mostly single parent homes.

Relationship with parents (family process). The parent-adolescent relationship quality was assessed with six questions rated on a 4-point Likert-type scale: 1=applies, 2=somewhat applies 3=somewhat does not apply 4=does not apply. Youth were asked: "Here are the opinions of you about their parents. How are these applicable to you?" 1. My parents accept me the way I am (see Appendix for the complete scale). The questions were averaged to compute a measure of parent-adolescent relationship quality.

Risky sexual behaviors. To assess risky sexual behavior, four items were used. The questions were as follows. "How old were you when you had your first sexual intercourse? Did you use condoms at first intercourse? Did you use condoms at last intercourse?" The response options were 1=yes or 0=no. How many sexual partners? The youth gave the number of partners. If an adolescent reported having sex before age 15, had more than 3 sexual partners, did not use condoms at first intercourse, or did not use condoms at last intercourse, they received a score of 1 for each item. The items were then summed to compute an overall index of risky sexual behaviors; it ranged 0 (no risky sexual behaviors) to 4 (high levels of risky sexual behaviors).

Pregnancy: To assess whether an adolescent female had been pregnant, they responded to the following question: "Have you ever been pregnant?" Response options included 1=yes or 0=no.

Abortion decision: To assess the fate of the pregnancy decision, youth rated a single question: "If yes, (to the pregnancy question), please select one of the following: 1=did you have the child, 2=did you have a miscarriage, or 3=did you have an aborti

V. RESULTS

The current study investigated the effects of family structure and the parent child relationship (family process) on their daughter's risky sexual behavior, pregnancy risk and fate of pregnancy decision in a sample of Swiss adolescents. For the purpose of this analysis, only the females from the sample will be included. Cross-tabulations were used to investigate the number of pregnancies and abortion by SES, language region, immigration status, sexual education status, and family structure. To measure the relationship between family structure and family process, an oneway ANOVA was conducted, where the means of family process were compared by family structure. To examine whether family structure and family process predicted adolescent risky sexual behaviors, three multiple regressions (family structure on risky sexual behavior, family process on risky sexual behavior, and family structure and family process on risky sexual behavior) were conducted. Finally, because both pregnancy and the fate of pregnancy decisions were dichotomous variables, logistic regressions were used to examine the relationships between family structure, family process, and pregnancy risk, but also between family structure, family process, and the fate of the pregnancy decision. SES, language region (German, French and Italian), immigration status(native Swiss and 1st and 2nd generation immigrants), and sexual education status were used as covariates in each regression analysis. What follows is the description of the results of these analyses.

Demographic Information

        Demographic information for the sample can be seen in Table 1. There were 4,014 females included in the sample. The mean age for the adolescents was 17.20 years. Most adolescents (50%) came from a home where parents attended compulsory education (9 or 10 years) and completed an apprenticeship. This could be considered "middle class." A majority of the adolescents (69.5%) resided in the German speaking region, were Swiss native (60.7%), and had enjoyed sexual education (89%). About 73% of the adolescents lived in a two parent home, while only 26% came from single parent homes. The majority of the adolescents (43.3%) scored a 0 on the risky sexual behavior index, indicating that they did not participate in any risky sexual behaviors. Twenty percent scored in the low range, 22% scored in the middle range, 11% scored in the middle to high range, and only about 3% scored in the high risk range. Of the females in the sample, only 119 (3% of 4,014) had been pregnant. Of the females that indicated having a pregnancy, 56.3% reported having sought out an abortion. Thus, the majority of youth were from two parent, middle class families of Swiss origin (as opposed to immigrants), located in the German speaking region of the country, that they enjoyed sexual education, and that they did not engage in much risky sexual behaviors or that they had been pregnant. Descriptive statistics of the family process construct are presented in Table 2; these include means, standard deviations, and measures of skew. The measure was reliable (alpha = .84).

Table 1
Demographic Information

		N	%
Gender	Female	4,014	100
Age	Mean Age (years)	17.20	
SES	No Education	37	1
	Compulsory Education	866	22.5
	Compulsory and Apprenticeship	1,923	50
	Business or Tech School	664	17.3
	University	350	9.1
Language Region	German	2730	69.5
	French	940	23.9
	Italian	258	6.6
Immigration Status	Native Swiss	2437	60.7
	2nd Generation Immigrant	1031	25.7
	1st Generation Immigrant	413	10.3
	Other or No Info	134	3.3
Sexual Education	Yes	3,572	89
	No	395	9.8
	NR	48	1.2
Family Structure	Two Parents	2,961	73.8
	Other(Single parent)	1,053	26.2
Risky Sexual Behaviors	0 (No Risk)	1,738	43.3
	1 (Low Risk)	813	20.2
	2 (Medium Risk)	902	22.5
	3 (Medium to High Risk)	451	11.2
	4 (High Risk)	111	2.8
Pregnancy Status	Yes	119	4.0
	No	2,221	90.3
Abortion Decision	Yes	67	56.7
	No	51	43.3

Table 2

Descriptive Statistics for Family Process Measure

Variable	N	Mean	SD	Skew
Total Scale	3,337	20.82	2.76	-.60
Acceptance	3,863	3.58	.60	-1.20
Communication	3,499	3.07	.78	-.13
Understanding	3,748	3.21	.70	-.34
Trust Parents	3,840	3.59	.60	-1.19
Notice	3,768	3.35	.68	-.60
Parental Trust	3,833	3.57	.61	-1.12

Table 3

Correlations between Main Study Constructs and Covariates

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Age											
2. SES	-.03										
3. Language Region 1	.004	-.04*									
4. Language Region 2	.09**	.012	-.15**								
5. Immigration Status 1	-.02	-.15**	.07**	.09**							
6. Immigration Status 2	-.01	.01	.10**	.09**	-.21**						
7. Sexual Education	.06**	.07**	.009	-09**	-.01	.005					
8. Family Structure	.02	.03*	.01	.07**	-.02	.11**	-.02				
9. Family Process	-.01	-.06**	-.03	-.06**	-.03	.12**	-.03	-.03			
10. Risky Sex	.13**	-.01	.02	.08**	-.04*	.001	.004	.19**	.03		
11. Pregnancy	.12**	.05**	.03	.05*	.07**	.05**	-.04	.14**	.13**	.20**	
12. Fate of Pregnancy	-.16	.06	.14	.20*	.01	.30**	.004	-.11	.05	.07	———

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

Language Region 1 is coded for youth from the Italian speaking part, while Language Region 2 for the French speaking part; in both cases, youth from the German speaking part of the country are used as a reference group. Immigration Status 1 is coded for 2nd generation immigrant youth, while Immigration Status 2 means for 1st generation immigrant youth; native Swiss youth are the reference group.

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Correlations

In an initial step to test the study hypotheses, correlations between the main variables of interest and covariates were computed. This information is presented in Table 3. Family structure was positively correlated with SES (r = .03, *p*<.05), language region 2 (r =.07, *p*<.01), immigration status 2 (r =.11, *p*<.01), risky sexual behaviors (r = .19, *p*<.01), and pregnancy (r =.14, *p*<.01). Family process was negatively correlated with SES (r =-.06, *p*<.01), language region 2 (r =-.06, *p*<.01), and immigration status 2 (r=.12, *p*<.01). Risky sexual behavior was only positively correlated with age (r =.13, *p*<.01), language region 2 (r = .08, *p*<.01), and family structure (r =.19, *p*<.01). Pregnancy was positively associated with age (r =.12, *p*<.01), SES (r=.12, *p*<.01) language region 2, (r =.05, *p*<.01) immigration status 1 (r =.05, *p*<.01), immigration status 2 (r=.07, *p*<.01), sexual education (r =.05, *p*<.01), family structure (r=.14, *p*<.01), and risky sexual behavior (r =.20, *p*<.01). Fate of pregnancy was only positively associated with language region 2 (r =.20, *p*<.05) and immigration status 2 (r =.30, *p*<.01).

Unexpectedly, it was found that family structure was more consistently associated with other variables than the family process measure. Family process was only negatively related to three of the covariates and none of the variables of interest. Pregnancy was positively related to almost all the variables except for the family process and fate of pregnancy. In addition fate of pregnant decision was not related to any of the variables of interest and only two of the covariates Language Region 2 and Immigration Status 2

Cross-tabulations

Cross-tabulations were completed to investigate the number of pregnancies and abortions by levels of SES, by language region, by immigration status, by sexual

education status, and by family structure. This information can be found in Table 4. The results indicated that the majority (51%) of pregnant adolescents were from "middle class SES" homes. Also the majority (57.6%) of pregnant adolescent who sought abortion were from "middle class SES" homes. Most (64%) of previously pregnant adolescents lived in the German language region. However, there was a similar amount of abortions in both the German and French language regions (42.4%, 43.9%). The majority (36.1%) of once pregnant adolescent and adolescents who sought abortions (33%) were native Swiss youth. Also, most (58%) of these adolescents previously pregnant adolescents were from other types of homes (mostly single parent). In addition adolescents from single parent homes were more likely to have an abortion (52.9%).

The results of the pregnancy cross-tabulations indicated there were statistically significant differences between the expected and observed values for each of the background variables, with the exception of sexual education. Findings from the cross-tabulations on abortion indicated that there were two significant associations, namely by language region and by immigration status. Based on these preliminary analyses, it appeared that youth were more likely to have experienced a pregnancy if they were from middle class families, resided in the German speaking region of the country (French region for abortions), if they were native Swiss youth as compared to immigrants, and if they were from other, non-two-parent homes.

Table 4

Cross-tabulations for pregnancy and abortion

Variable		Pregnant (N =119)		X^2	Abortion (N=67)		X^2
		N	%		N	%	
SES	1(No Education)	3	2	19.2*	2	3.2	10.1
	2(Compulsory Education)	24	21		16	24.4	
	3(Compulsory and Apprenticeship)	64	51		30	57.6	
	4(Business or Tech School)	11	10		8	12.7	
	5(University)	9	8		7	11.1	
Language Region	German	64	55.2	7.8*	28	42.4	9.3**
	French	41	35.3		29	43.9	
	Italian	11	9.5		9	13.6	
Immigration Status	Swiss	51	42.9	24.1**	20	29.9	13.8**
	2nd Generation Immigrant	43	36.1		33	49.3	
	1st Generation Immigrant	22	18.5		12	17.9	
	Other or No Info	3	2.5		2	2.0	
Sexual Education	Yes	100	84.7	.04	9	13.4	4.2
	No	16	13.6		57	85.1	
Family Structure	Two Parents	50	42	42.5**	32	47.1	1.4
	Other (Single parent)	69	58		36	52.9	

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Oneway ANOVA

Hypothesis 1

An oneway ANOVA was used to compare the mean of the parent-adolescent relationship quality by family structure. No significant differences (F=3.6, p=.058) were found between youth from two parent homes versus youth from single parent homes (M = 20.8, SD = 2.7 versus M = 20.6 SD = 2.8). However, the relationship clearly indicated a trend, where 2517 adolescents in two parent homes reported a slightly higher level of relationship quality. Thus, hypothesis 1 was not supported.

Regressions

Regression analyses were completed to examine the relationships between risky sexual behaviors, and family structure, risky sexual behaviors, and family process. Covariates, SES, language region, immigration status and sexual education, were include in the analyses as controls. For the purpose of analyses, language region was computed into two dummy constructs (Language Region 1 and Language Region 2) representing the three categories. Language Region1 is coded for youth from the Italian speaking region and Language Region 2 is coded for the French speaking region; for both cases, youth from German speaking region were used as a reference group. In addition immigration status was coded into two dummy constructs (immigration 1 and immigration 2) representing the three categories. Immigration Status 1 is coded for 2nd generation immigrant youth, while Immigration Status 2 is coded for 1st generation immigrant youth; native Swiss youth are the reference group for both variables. Four models were tested in the analyses. Table 5 contains the results of these models. The first

Table 5

Linear Regression Models Predicting Risky Sexual Behavior with covariates

Variable	Model 1			Model 2			Model 3			Model 4		
	b	SE	β	b	SE	β	b	SE	β	b	SE	β
Covariates												
SES	-.03	.02	-.01	-.03	.02	-.02	-.02	.02	-.01	-.02	.02	-.018
Language Region 1	.17	.08	.04*	.16	.08	.03*	.06	.09	.01	.06	.08	.01
Language Region 2	.24	.05	.09**	.21	.05	.08**	.27	.05	.10**	.24	.05	.09**
Immigration Status 1	-.26	.06	-.06**	-.24	.07	-.06**	-.24	.07	-.06**	-.23	.07	-.06**
Immigration Status 2	-.06	.05	-.07	-.10	.05	-.04	-.10	.05	-.04*	-.15	.05	-.05*
Sexual Education	-.002	.06	.00	.03	.06	.009	.01	.06	.005	.002	.06	.001
Family Structure				.49	.05	.17**				.48	.04	.18**
Family Process							.15	.008	.03*	.02	.007	.001*
Model R^2		.009			.01			.01			.04	

b**p<.01, *p<.05; SE is of b. Language Region 1 is coded for youth from the Italian speaking part, while Language Region 2 for the French speaking part; in both cases, youth from the German speaking part of the country are used as a reference group. Immigration Status 1 is coded for 2nd generation immigrant youth, while Immigration Status 2 means for 1st generation immigrant youth; native Swiss youth are the reference group.

model predicted risky sexual behaviors, while also considering the effects by background variables or covariates. The second model added family structure. The third model added the family process scale, while the fourth and final model included both family structure and family process, along with the covariates.

Hypothesis 2

Family structure was included in the second model without family process. This model accounted for 1% of the variance in predicting risky sexual behavior. Family structure was statistically significant, where adolescents from single parent homes were more likely to participate in risky sexual behaviors than adolescents from two parent homes. Thus hypothesis 2a was supported. Family process was added to the third model and family structure was not included. This model also accounted for 1% of the variance in predicting risky sexual behaviors. The quality of the parent-adolescent relationship quality measure (family process) was statistically significant. Adolescents who reported lower levels of quality were more likely to engage in risky sexual behaviors than those who reported higher quality. Thus, hypothesis 2b was supported.

The final model included both the family structure variable and the parent-adolescent relationship quality measure (family process). With both variables in the model, the variance explained increased to 4%. Both family structure and family process were statistically significant. Adolescents who were from two parent homes and enjoyed higher quality parent-adolescent relationships were less likely to engage in risky sexual behaviors. Thus hypothesis 2c was supported.

When examining the covariates, a number of additional interesting findings were made. For the model with only family structure, adolescents from Italian speaking region

and adolescents in the French speaking region were significantly different from the adolescents in German speaking region on risky sexual behaviors index ; in addition, 2nd generation immigrant youth significantly different from native Swiss adolescents. Adolescents from Italian and French speaking regions engaged in more risky sexual behaviors than adolescents from the German speaking region, and native Swiss youth engaged in more risky sexual behaviors than 2nd generation immigrant youth. However, once the family process measure was added into the model, only youth from the French speaking region were more likely to engage in risky sexual behaviors than adolescents from the German speaking region; in addition, native Swiss adolescents engaged in more risky sexual behavior than both 2nd and 1st generation immigrant adolescents. SES and sexual education were not statistically significant in any of the four models. In conclusion, results indicated that when both family structure and family process were both included in the model, the greatest amount of variance was explained. Thus hypothesis 2c was most supported.

Logistic Regressions

To examine factors that influence adolescent pregnancy and abortion several logistic regressions were completed. The family influences of pregnancy were first examined. Covariates, SES, language region, immigration status and sexual education, were include in the analyses as controls. Four models were tested in these analyses. Table 6 presents the results of all the models which include odds ratios and 95% confidence intervals. The first model predicted pregnancy with the covariates.

The second added family structure. The third model added the family process scale, while the fourth and final model included both family structure and family process along with the covariates.

Hypothesis 3

Family structure was included to the second model. This model accounted for 9% of the variance (Pseudo variance) in predicting pregnancy. Adolescents from single parent homes were over three times more likely to be pregnant (OR=3.3) as compared to adolescents from two parent homes. As a result hypothesis 3a was supported.

For the third model, only family process was added. This model accounted for 5% of the variance (pseudo variance) in predicting pregnancy. Unexpectedly, family process was not statistically significant, and thus hypothesis 3b was not supported. For the fourth and final model, both family structure and family were included. This model explained 10% of the variance (pseudo variance) in predicting pregnancy. Family structure was significant again. Adolescents from single parent homes were four times more likely to be pregnant than adolescents from two parent homes (OR=4.0). However, family process was not significant, and thus hypothesis 3c was only partially support.

Again, a number of interesting findings were made related to the background variables. High SES youth were less likely (OR=.64) to ever report a pregnancy compared to adolescents from lower SES families. Both 2nd and 1st generation immigrant adolescents were more likely (OR=3.3; OR=1.9) to report a pregnancy compared to native Swiss adolescents. Additional analyses were used to investigate differences between 1st generation and 2nd generation immigrant youth. No difference was found. Neither sexual education status, nor language region 1 or 2 were statistically significant

Table 6

Logistic Regression Models Predicting Pregnancy

Variable	Model 1		Model 2		Model 3		Model 4	
	b(SE)	OR(CI)	b(SE)	OR(CI)	b(SE)	OR(CI)	b(SE)	OR(CI)
Covariates								
SES	-.28 (.12)	.75* (.75-1.2)	-.29 (.12)	.75** (.60-94)	-.41 (.14)	.67* (.50-.88)	-.44 (.31)	.64** (.48-.85)
Language Region 1	.40 (.36)	1.4 (.73-3.0)	.30 (.37)	1.3 (.67-2.6)	.15 (.44)	1.2 (.50-2.7)	.05 (.45)	1.1 (.43-2.5)
Language Region 2	.38 (.22)	1.4 (.95-2.2)	.32 (.23)	1.4 (.89-2.1)	.03 (.26)	1.0 (.62-1.7)	-.10 (.27)	.90 (.54-1.5)
Immigration Status 1	.91 (.30)	2.4** (1.4-4.5)	.94 (.30)	2.5** (1.4-4.6)	1.10 (.34)	2.9** (1.5-5.7)	1.2 (.65)	3.3** (1.7-6.6)
Immigration Status 2	.67 (.23)	1.9** (1.2-3.1)	.56 (.23)	1.8* (1.1-2.7)	.74 (.26)	2.1** (1.3-3.4)	.65 (.26)	1.9* (1.1-3.2)
Sex Education	-.37 (.26)	.69 (.41-1.2)	-.40 (.27)	.67 (.40-1.1)	-.28 (.31)	.76 (.42-1.4)	-.33 (.31)	.72 (.40-1.3)
Family Structure			1.18 (.20)	3.3** (2.1-4.9)			1.40 (.23)	4.0** (.48-.85)
Family Process					.02 (.04)	1.0 (.94-1.1)	.02 (.04)	1.0
Pseudo R^2		.04		.09		.05		.10

**p<.01, *p<.05; SE is of b. Language Region 1 is coded for youth from the Italian speaking part, while Language Region 2 for the French speaking part; in both cases, youth from the German speaking part of the country are used as a reference group. Immigration Status 1 is coded for 2nd generation immigrant youth, while Immigration Status 2 means for 1st generation immigrant youth; native Swiss youth are the reference group.

in any of the models. The results indicated that the model with both family structure and family process accounted for the most variance in pregnancy, even though family process was not significant. Thus, it appears that family process may interact with family structure in explaining pregnancy. However, when this interaction was included in the model, it was not significant. In all models, only the covariates, SES, immigration status 2 (1st generation immigrants versus native Swiss) and immigrant status 1 (2nd generation immigrants versus native Swiss) were statistically significant.

Hypothesis 4

Logistic regressions were also used to test hypotheses related to abortion decisions. The first model only included to predict abortion decisions, the second added family structure, while the third replaced family structure with family process. The fourth and final model included the covariates, family structure, and family process. Table 6 presents the results of all the models which include odds ratio and the 95% confidence interval.

The effect by family structure was tested in the second model. This model accounted for 24% of the variance (pseudo variance) in predicting the abortion decision. Family structure was not significant, and thus hypothesis 4a was not supported. The effect by family process was tested in third model. This model accounted for 33% of the variance in predicting abortion. However, family process was not statistically significant. As a result, hypothesis 4b was not supported. The final model included both family structure and family process. This model accounted for 33% of the variance in predicting

Table 7

Logistic Regression Models Predicting Abortion

Variable	Model 1		Model 2		Model 3		Model 4	
Covariates	b(SE)	OR(CI)	b(SE)	OR(CI)	b(SE)	OR(CI)	b (SE)	OR(CI)
SES	.21(.27)	1.2 (.72-2.1)	.19 (.26)	1.2 (.72-2.1)	.19 (.34)	1.2 (.59-2.4)	.23 (.36)	1.3 (.61-2.5)
Language Region 1	1.3 (.84)	3.7 (71-19.2)	1.34 (.84)	3.8 (.74-19.9)	2.37 (1.3)	10.7 (.77-146.0)	2.6 (1.37)	13.5 (.92-198.8)
Language Region 2	1.1 (.49)	2.9*(1.1-7.5)	.99 (.50)	2.7* (1.0-7.1)	1.36 (.63)	3.9* (1.1-13.5)	1.3 (.64)	3.7* (1.1-13.0)
Immigration Status 1	.12(.62)	1.1 (.33-3.8)	.09 (.62)	1.1 (.32-3.7)	-.10 (.75)	.90 (1.1-14.1)	-.22 (.75)	.81 (.18-3.5)
Immigration Status 2	1.4 (.51)	4.0*(.1.5-11.0)	1.40 (.51)	4.1** (1.5-11.1)	1.37 (.65)	4.0* (.21-4.0)	1.3 (.66)	3.6* (1.0-13.1)
Sex Education	-.25(.55)	.78(.27-2.3)	-.22 (.45)	.80 (.27-2.4)	-1.0 (.67)	.37 (.10-1.4)	-.98 (.69)	.37 (.61-2.6)
Family Structure			-.40 (.45)	.67 (.28-1.6)			-.57 (.55)	.56 (.19-17)
Family Process					.005(.10)	1.0 (.83-1.2)	.01 (.10)	1.01 (.83-1.2)
Pseudo R^2	.23		.24		.33		.35	

**p<.01, *p<.05; SE is of b. Language Region 1 is coded for youth from the Italian speaking part, while
Language Region 2 for the French speaking part; in both cases, youth from the German speaking part of the
country are used as a reference group. Immigration Status 1 is coded for 2nd generation immigrant youth,
while Immigration Status 2 means for 1st generation immigrant youth; native Swiss youth are the reference
group.

an abortion. Again, both family structure and family process was not significant. Thus, hypothesis 4c was not supported.

Even though the variables of interest were not significant in any of the models, two covariates were. With family structure in the model, adolescents from the French speaking region were 2.7 times more likely to seek an abortion than adolescents from the German speaking region. The odds increased to 3.7 in the final model that included both family structure and family process. The only other covariate that was significant was Immigration 2; 1st generation immigrants were 3.6 times more likely than native Swiss youth to seek an abortion. Additional analyses were used to investigate differences between 1st generation and 2nd generation immigrant youth. No difference was found.

In conclusion, the results indicated that none of the hypothesized variables were significant in predicting abortion. This may be due to the small sample size used to investigate abortion and thus low statistical power. If there was a larger sample, the family variables may have reached significance. Nevertheless, some interesting findings were made when considering significant covariates, including language region 2, (French versus German speaking region), and immigration status 2 (1st generation immigrants versus native Swiss) However, several of the covariates were unrelated to the abortion decision. These included SES, immigrant status 1, (2nd generation immigrants versus native Swiss) language region 1 (Italian versus German speaking region), and sexual education.

VI. DISCUSSION

Adolescence is a time of self exploration, when individuals discover who they are and who they want to become. One of the most essential aspects of adolescent development is the exploration of their sexuality. There is certain amount of sexual exploration that is natural; however, when adolescents engage in risky sexual behaviors (sexual intercourse at an early age, having many sexual partners, and inconsistent contraceptive use (condom use), they place themselves at greater risk for sexually transmitted infections or more importantly, pregnancy.

Adolescent pregnancy is a social problem with many negative consequences. These consequences affect not only the individual, but also society. Select consequences include lower education and occupational attainment, mental and physical health problems, risk for abuse or neglect of the child, lower rates of school completion, additional non-marital births, unstable employment, and lower subsequent marital stability (e.g., Coleman, 2006; Ellis, et al. 2003; Zabi, et al., 1989). More importantly, adolescent pregnancy is a social burden due to welfare dependency and other issues associated with poverty, including mental health issues (Colletta, 1983; Little & Ranlkin, 2001; Kelpinger et al. 1995).

The United States may have the highest adolescent birth rate, but many girls are becoming pregnant worldwide; for instance, in 1997, 15 million adolescents gave birth

(Whan et. al, 2005). The current study focused on a national probability sample of Swiss youth. Although, Switzerland has one of the lowest adolescent birth rates (5.2 births per 1,000 youth aged 15-19) (United Nations, 2004), the negative personal and social consequences of pregnancy remain the same.

To further complicate issues associated with adolescent pregnancy, these youth must make an important decision regarding the life of their unborn child. They may choose to carry the child to term, place the child up for adoption or terminate the pregnancy through abortion. This is a very consequential decision even for adults, and it must be made as these youth are struggling to find their own identity. What differentiates youth who chose one of each of the options remains unclear, and very little scholarship has been conducted on this topic (Coleman, 2006). Furthermore, few large enough samples exist that would allow a thorough study of questions related to pregnancy and abortion decisions. In addition, there is only small amount of literature regarding abortion general, but also in Switzerland (Addor et al., 2003; Narring et al., 2002). Switzerland only recently legalized abortions in 2002. In addition, little is known about abortion decisions. Since abortion remains a taboo subject, essentially no literature can inform how or whether family influences affect adolescent abortion decisions. Also few studies exist that have examined how family structure and family processes influence adolescent pregnancy (cf., Ellis et. al, 2003; Fergusson & Horwood, 2001; Quinlan, 2003; Woodard et al., 2001). Therefore, it seems important to develop an understanding about how the family influences, affect pregnancy risk and abortion decisions. Findings from such work have the ability to inform future prevention and intervention efforts.

Using a nationally representative Swiss sample, the current study sought to examine how family structure and the quality of the parent-adolescent relationship (family process) influenced adolescent risky sexual behaviors, pregnancy risk, and abortion decisions. Previous work has indicated that family structure effects are mostly mediated through the parent-adolescent relationship (Kierkus & Baer 2002; Sokol-Katz, 1997; Wade & Brannigan, 1998), and therefore, few direct effects would be expected in models that included both constructs. Nevertheless, the current study tested the associations between family structure and the parent-adolescent relationship and three dependent measures, namely risky sexual behaviors, pregnancy risk, and abortion decisions. The focus of the study was on adolescent females, since the majority of research on adolescent pregnancy does not focus on male partners (Ellis et al. 2003; Fergusson & Horwood, 2001; Narring et al., 1996). The sample included n = 4,014 female adolescents. Only n = 119 (3%) female adolescents reported a previous pregnancy. Of these, n = 67 (56.3%) reported an abortion.

Main Findings

The results indicated that both family structure and family process (parent-adolescent relationship) were significant predictors of risky sexual behaviors. This was found with a consideration of key covariates, namely SES, language region, immigration status, and sexual education status. Adolescents from single parent homes were more likely to engage in risky sexual behaviors than youth from two parent homes. In addition, adolescents who reported lower levels of family process were more likely to engage in risky sexual behaviors. When these factors were added to the predictive model separately, only a small amount of variance was explained in risky sexual behaviors (1% each).

However, when added together, they accounted for 4% of the variance in risky sexual behaviors. Thus, adolescents from single parent homes also characterized by lower quality parent-adolescent relationships were more likely to have engaged in risky sexual behaviors than adolescents from two parent homes characterized by higher quality parent-adolescent relationships. When examining the effects by covariates, a number of interesting findings were made. In the final model that included both family structure and the family process measure, adolescents from the French speaking region were more likely to engage in risky sexual behaviors than adolescents from the German speaking region. In addition, native Swiss adolescents were more likely to engage in risky sexual behaviors than both 2nd and 1st generation immigrant youth.

Second, some unexpected findings were made in the analyses predicting pregnancy risk. Family process was not significant in any of the models; this was contrary to what was expected. However, family structure was significant. Adolescents from single parent homes were about four times more likely to report a pregnancy compared to adolescents from two parent homes. Again, some interesting findings were made when examining the effects by covariates and background variables. Adolescents from higher SES families were .64 times less likely to report a pregnancy compared to adolescents from lower SES families. These youth may have better access to contraceptives in comparison to lower SES adolescents. However, 2nd generation immigrant youth were 3.3 times more likely to report a pregnancy compared to native Swiss youth. Similarly, 1st generation immigrant youth were 1.9 times more likely to report a pregnancy compared to native Swiss adolescents. However, immigrant youth did not differ in their pregnancy risk. These findings suggest that some of the observed

differences may be related to cultural differences between immigrant and Swiss youth; it also suggests that immigrants may have less access to contraceptives or that they are simply less likely to access and use contraceptives, particularly because native Swiss adolescents reported higher levels of risky sexual behaviors than immigrant youth. It is also possible that the sexual education classes are more successful in reaching native Swiss youth. In essence, despite higher risk, native Swiss youth are more successful in protecting themselves against pregnancy.

Third, neither family structure nor the family process measure was significant in predicting abortion decisions. These findings further illustrate why abortion decisions are not completely understood and why there is very little informative information in the published literature. Again, some interesting findings emerged when considering the effects by covariates and background variables. Adolescents from the French speaking region were 3.7 times more likely to seek an abortion than adolescents from the German speaking region. In addition, 1st generation immigrants were 3.6 times more likely than native Swiss youth to seek an abortion. No difference was found between 2nd generation immigrant youth and native Swiss youth or between the two immigrant groups.

Previous Research

When considering correlates of risky sexual behaviors, a number of similar findings emerged from the current effort vis-à-vis previous work. Youth who enjoyed affectively positive family relations with their parents were less likely to engage in risky sexual behaviors. This finding was consistent with previous work (Little and Rankin, 2001; Siebenbruner et al., 2007; Sokol-Katz, 1997). These youth likely spend more time with their family, something, Barnes and colleagues (2007) also found in previous work.

The more time an adolescent spends with family members, the less likely they are to engage in risky sexual behaviors. In addition, if a positive relationship with parents exists, then adolescents may spend more time with the family. In turn, if adolescents spend more time with the family, they also have fewer opportunities to engage in risky sexual behaviors.

Consistent with previous work, adolescents who resided in single parent homes were more likely to engage in risky sexual behaviors than adolescents from two parent homes (Flewelling & Bauman, 1990; Newcomer & Udry, 1998; Oman et al., 2002; Upchurch et al., 1998; Whitbeck et al., 1999).Consistent with predictions by social control theory (Hirschi, 1969), two parents may simply be better suited to effectively supervise youth, and thus provide fewer opportunities to engage in risky sexual behaviors; of course this would also decrease the risk of a pregnancy.

When considering the current findings related to pregnancy, a number of parallels emerge with previous work. Youth who resided in single parent homes were 4 times more likely to report a pregnancy than youth from two parent homes. Quinlan (2003) also found that adolescents from single parent homes were at least 2.5 times more likely to report a pregnancy. Likewise, after controlling for covariates, Ellis and colleagues (2003) found that adolescents from homes where the father was absent were five times more likely in the US and 3 times more likely in New Zealand to report a pregnancy in comparison to adolescents from two parent homes. It is important to note that both samples in this latter effort were convenience samples, and thus findings cannot be generalized. This stands in contrast to the current effort which is based on a national probability sample.

Some important differences from previous work were also found. The current study found no evidence that a positive parent-adolescent relationship was associated with adolescent reports of pregnancy. Previous work has found effects; for example, one study found that adolescents who resided in families characterized by low quality parent-adolescent relationships or high conflict were 3.1 times more likely to report a pregnancy compared to other youth (Woodard et al., 2001). Of course the findings in the current effort may also be simply related to a rather narrow measure of family process which tapped into the affective quality and which did not address issues related to discipline, control, or conflict.

There appears to be no previous work that has examined the effects by family factors on adolescent abortion decisions, and thus no proper comparison to previous research is possible. When considering the total number of abortions, the current study provided very similar information as previous research on Swiss youth (e.g., Narring et al., 1996). While the current study provides evidence that a little over half of pregnant teens sought an abortion, Narring and colleagues (1996) reported that 80% of the pregnant Swiss youth had an abortion. However, a study from New Zealand found that only 36% of the pregnant adolescents had an abortion (Woodard et al., 2001). When considering the effects by covariates and background variables in the current study, they were quite similar to previous work completed on Swiss youth. First generation immigrant youth were 3.6 times more likely than native Swiss youth to seek an abortion. Narring and colleagues (2002) also concluded that abortion rates were higher for non-Swiss, immigrant women in the 18 to 19 and the 20 to 24 age groups compared to native

Swiss women. Addor and colleagues (2003) also found that significantly more foreigners than Swiss women had experienced previous abortions (25.1% vs. 18.6%, $p < 0.001$).

The Importance of the Family Revisited

Several previous studies have provided evidence that family structure functioned indirectly through the parent-adolescent relationship (family process) on adolescent risky sexual behaviors and pregnancy risk (Hirschi, 1969; Kierkus & Baer 2002; Sokol-Katz, 1997; Wade & Brannigan, 1998). Thus, in effects, family process was more salient and more proximal in the prediction of risky sexual behaviors and pregnancy risk. However, the current study did not find the same effects. In fact, both family structure and family process were independently predictive of risky sexual behaviors, but only explained a very modest amount of variance (1% each). The final model in this study did not suggest that family structure only had an indirect effect through family process on risky sexual behaviors. Rather, the results indicated when an adolescent lives in a single parent home and they have relatively lower levels of family process (i.e., communication and trust) the adolescent was at a greater risk for engaging in risky sexual behaviors.

However, only family structure was a significant predictor of pregnancy. This inconsistency with previous work may have been related to the fact that previous studies assessed family conflict as opposed to a general affective quality in the parent-adolescent relationship quality. In fact, Woodard et al. (2001) found that youth who resided in families characterized by high levels of conflict were 3.1 times more likely to report a pregnancy; in addition, adolescents from single mother homes were only 1.4 times more likely to report a pregnancy. In the current study, the family process measure was not

related to pregnancy, and youth from single parent homes were 4 times more likely to report a pregnancy.

Limitations

Despite the fact that the current study is based on a national probability sample, a unique strength, a number of limitations require some discussion. First of all, only $n = 119$ (3%) adolescents reported a previous pregnancy. Thus, the sample used to examine questions related to pregnancy and abortion decisions was comparatively small. This may have contributed to the fact that the family process measure was not statistically significant in predicting pregnancy, and why both the family process measure and family structure were non-significant in predicting abortion decisions. Another issue is that the study only included a very narrow measure of family process, namely the affective quality of the parent-adolescent relationship as perceived by youth. This also means that a number of other aspects of the parent-adolescent relationship were not measured or tested. For instance, it did not include measures of parental discipline, control or monitoring. Future work must include and more fully consider the full breadth of the parent-adolescent relationship. Finally, the current study was based exclusively on adolescent self reports; this may have introduced biases related to under- or over-reporting, and thus, the findings may have been influenced by this. Nevertheless, this seems balanced by the fact that the sample is nationally representative and thus allows for generalizations for Swiss youth.

Implications for Practice

The current study found that family structure was a powerful predictor of pregnancy; thus, it appears that pregnancy prevention efforts need to focus on adolescents

in single parent homes. Single parent may not be able to inadequately supervise the

adolescent, and thus these adolescents have more opportunities to engage in risky sexual

behaviors which place them at risk for pregnancy. It may be helpful to have general

parent education programs for single parents to learn to serve as better role models and

teach their children how to engage in socially acceptable behaviors (Hirschi, 1969). In

addition, the findings could also suggest that single parents are less skilled relationally,

which in turn affects their effectiveness as a parent.

A number of interesting findings were made for immigrant youth and for youth

from different language regions. One implications is young women may have quite

different attitudes toward sexuality, pregnancy, and abortion decisions, influenced by

their family of origin, their culture, or even the region in which they reside in

Switzerland. Immigrant youth may be less familiar with or have less access to

contraception which may explain why 1st and 2nd generation immigrant youth were more

likely to report a pregnancy than native Swiss youth. It is also possible in the latter case

that these young women in the French speaking region had greater access to family

planning services compared to youth from the German speaking region. In addition there

may be regional differences related to the social stigma attached to having an abortion.

Conclusion

No matter how many times an adolescent is told to abstain from sex, many will

make their own decision and engage sexual activities. When they are uneducated about

sex, they have a greater chance of engaging in risky sexual behaviors and becoming

pregnant. Adolescent risky sexual behavior and pregnancy is a growing problem in the

United States which costs the people of this country millions each year. In fact, most

recently, for the first time in over a decade, rates of teenage pregnancy markedly

increased (CDC, 2007). Perhaps the United States could take a cue from Switzerland and

actually teach adolescents medically accurate information about ways to protect

themselves from sexually transmitted disease and unwanted pregnancies, rather than

simply preaching abstinence. There appears to be an air of openness about sexuality and

sexual education is comprehensive in Switzerland; despite the former, rates of adolescent

sexual activity do not seem affected. In actuality, these facts seem to have contributed to

increased condoms use and decreased numbers of pregnancies over time. This is very

apparent since that over half of the adolescents in the study had engaged in sexual

intercourse, but only a small proportion (119 of 4,014 or 3%) reported a pregnancy.

What is important to note is that this rate of sexual activity is essentially identical to ones

reported of youth in the United States (50%, Abma et al. 2004); however, these

adolescents enjoy the highest birth rate and pregnancy rate in developed countries (Alan

Guttmacher Institute,2000). Of course, Switzerland is a very different country than the

US; however, the problems related to the sexual awakening of teens seem to be about the

same as these that are triggered by universal biological changes and mechanisms, across

different cultures and countries around the world. What seems to differentiate the

experience is how society prepares youth to deal with these changes. Based on this, it

seems that much work remains to be done in this area, particularly in the United States.

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Demographics

1. "What is your gender?"
    1. Female   2. Male

2. "What is your age?"
   Year   Month

3. "What is the origin of your parents (County/Region)"
    1. Switzerland   10. Croatia
    2. Italy   11. Macedonia
    3. Germany   12. Other Western European Country
    4. France   13. Other Eastern European Country
    5. Austria   14. Near East Middle East
    6. Portugal   15. Africa
    7. Spain   16. Asia
    8. Turkey   17. South/Central America
    9. Yugoslavia 18. North America/Australia

4. "Were you born in Switzerland?"
    1. Yes   2. No.

5. "In which canton do you live?"
    1. French 2. German 3. Italian

6. "Which education level did your parent (father or mother), step-parent (step-mom or step dad) or boyfriend or girlfriend of your parent achieve and with which you spent most of time?"

   Mother/Step mother/girlfriend of father
   1. never went to school, in Swiss or aboard
   2. mandatory (9 years) or a few years
   3. apprenticeship (9 years + ¾ years apprenticeship)
   4. business school or technical school
   5. university or college
   6. I don't know.

Father/Step father/boyfriend of mother
    1. never went to school, in Swiss or aboard
    2. mandatory (9 years) or a few years
    3. apprenticeship (9 years + 3/4years apprenticeship)
    4. business school or technical school
    5. university or college
    6. I don't know.
7. "Was sex discussed in your school?"
    1. Yes   2. No

8. "What is your parent's present situation?"
    1. They are still together
    2. They are divorced
    3. Father is dead
    4. Mother is dead
    5. Both are dead
    6. Other situations

9. "Here are the opinions of you about their parents. How are these applicable to you?"
    1=applies 2=applies somewhat 3=somewhat does not apply 4=does not apply

    1. My parents accept me the way I am
    2. I tell my parents about my problems and difficulties
    3. My parents understand me
    4. I trust my parents
    5. My parents can tell when I am sad
    6. My parents trust me

10. "How old were you at first sexual intercourse?"
    Year

11. Did you use condoms at first intercourse?"
    1. Yes   2. No

12. "Did you use condoms at last intercourse?"
    1. Yes   2.No

13. "How many sexual partners total?"
    Number of partners

14. "Have you already been pregnant?"
    1. Yes   2.No

14a. If yes
      1. Did you have the child?
      2. Did you have a miscarriage?
      3. Did you have an abortion?