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Retrospective Comparative Analysis of the Socio-demographic Characteristics of Pregnant Abortion-minded Clients versus Pregnant non-abortion-minded Clients in a Crisis Pregnancy Center in Montgomery County, Ohio

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**Retrospective Comparative Analysis of the Socio-demographic Characteristics
of Pregnant Abortion-minded Clients versus Pregnant non-abortion-minded
Clients in a Crisis Pregnancy Center in Montgomery County, Ohio**

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Abstract

Purpose

The purpose of this study is to compare socio-demographic characteristics of pregnant abortion-minded women versus pregnant non-abortion minded women who had consulted a crisis pregnancy center in Montgomery County, Ohio. The findings will be used to help develop public health prevention programs for unintended pregnancies.

Methods

A database sample of 581 records collected by a crisis pregnancy center in t Montgomery County was used for this study. Criteria for inclusion were women obtaining a positive pregnancy test, whose pregnancy intentions were assessed as being either abortion-minded or non-abortion-minded. Socio-demographic characteristics such as age, marital status, household income, education, religious preference, race, number of previous pregnancies, number of previous live births, number of previous abortions, number of sexual partners, and age at their first sexual experience were compared to pregnancy intentions.

Results

In this study women who were more abortion-minded were single (p value = < 0.0001), black (p value = < 0.020), women with income level less than $10,000 (p value = < 0.0001), younger women (22.6 years, p value = 0.0008), women who had their first sexual encounter at a younger age (15.6 years, p value= 0.0009) and women who has a higher number of previous abortions (0.3, p value= <0.0001).

Conclusions

The study of socio-demographic factors and information about sexual behaviors is very valuable to designing public health strategies to prevent unwanted pregnancies focused on populations with specifics characteristics. More research is needed to determine why the socio-demographic characteristics identified affect pregnancy intentions in vulnerable populations.

Introduction

Pregnancy is a unique event in the reproductive life of a woman. Unfortunately, all pregnancies are not welcomed, and the circumstances surrounding a pregnancy can be overwhelming. The United States has a high rate of unintended pregnancies compared to other developed countries (Akinrinola, Susheela, & Taylor, 1999). According to the National Survey of Family Growth, in the United States half of all pregnancies are unintended. Unintended pregnancies that ended in live births are related to negative health outcomes for the mother and the child. In addition, unintended pregnancies are also related to abortion (Santelli et al., 2003).

Since 1973 abortion has been legal in the United States, and more than forty million abortions have been performed across the country. The number of total abortions reported to the Centers for Disease Control and Prevention from 49 reporting areas in the United States in the year 2002 was 854,122, and the rate of abortion per 1000 live births was 246. According to the Ohio Department of Health in the state of Ohio there were 32,280 abortions in the year 2003 and 1709 abortions were reported in Montgomery County. Although the Centers for Disease Control and Prevention in the United States reported that abortion rates have decreased over the last 15 years, several studies have addressed the issue that the decline in the abortion rate has been not the same in certain subgroups of women. Current research is looking for any connection between unintended pregnancies, poor outcomes, and the influence of socioeconomic factors.

In order to identify risk factors in women with unintended pregnancies, this study will compare the socio-demographic characteristics of pregnant women who tested positive for pregnancy in a crisis pregnancy center in Montgomery County, Ohio. The results of this study will identify

demographics of women who are at risk for unintended pregnancies. This will help policy

makers to develop public health prevention programs for unintended pregnancies.

Purpose

The purpose of this study is to compare socio-demographic characteristics of pregnant abortion-

minded women versus pregnant non-abortion minded women consulting a crisis pregnancy

center in Montgomery County, Ohio. In addition, logistic regression will be used on the two

groups of pregnant women in order to predict what demographic variables are associated with

each group. The results will help to identify specific primary care interventions which may

differ from national recommendations. The findings will help to develop public health

prevention programs for unintended pregnancies in Dayton, Ohio.

Research Questions

1. What socio-demographic characteristics are associated with abortion-minded clients and
    non-abortion-minded clients at ENLC?

2. Are there differences between centers of attention (Dayton vs. Kettering) of abortion-
    minded clients compared with non-abortion-minded clients at ENLC?

3. Are there differences between the marital statuses of the abortion-minded clients
    compared with the non-abortion-minded clients at ENLC?

4. Are there differences between the races of the abortion-minded clients compared with the
    non-abortion-minded clients at ENLC?

5. Are there differences between household incomes of the abortion-minded clients
    compared with the non-abortion-minded clients at ENLC?

6. Are there differences between religious preferences of the abortion-minded clients compared with the non-abortion-minded clients at ENLC?

7. Are there differences between the levels of education of the abortion-minded clients compared with the non-abortion-minded clients at ENLC?

8. Are there differences between the ages of abortion-minded clients compared with non-abortion-minded clients at ENLC

9. Are there differences between ages of first sexual experience of the abortion-minded clients compared with the non-abortion-minded clients at ENLC?

10. Are there differences between numbers of previous live births of the abortion-minded clients compared with the non-abortion-minded clients at ENLC?

11. Are there differences between numbers of previous abortions of the abortion-minded clients compared with the non-abortion-minded clients at ENLC?

12. Are there differences between numbers of sexual partners of the abortion-minded clients compared with the non-abortion-minded clients at ENLC?

Literature Review

There is nothing more exciting for a woman than realizing that a miracle can grow inside of her body. Unfortunately, not all pregnancies are welcomed with the same excitement. Some pregnancies will come unintended, unwanted, or mistimed, and understanding pregnancy intentions has been the subject of national surveys, and past and present research.

The first fertility population survey, the Indianapolis study, was done in the United States in 1941 looking for intentions and behaviors related to pregnancy and fertility (Santelli et al., 2003). Later, in 1965, the National Fertility Survey made distinctions between unwanted and

mistimed pregnancies, and these distinctions were incorporated in the National Survey of Family Growth (NSFG). The NSFG conducted by the National Center for Health Statistics, is one of the most important sources of data about unintended pregnancy in the United States. According to the NSFG 60% of unintended pregnancies are mistimed, and 40% are unwanted. Unintended pregnancies are reported as mistimed if they occur earlier than desired, and as unwanted if they occur when no children were desired (Santelli et al., 2003).

Even though the number of unintended pregnancies has declined from 57% to 49% between 1987 and 1994 (Henshaw, 1998), identifying factors related to unintended pregnancies is very important in public health, because mistimed and unwanted pregnancies have been associated with poor child and mother health outcomes. The Pregnancy Risk Assessment Monitoring System (PRAMS) is a surveillance system to monitor maternal behaviors during and after pregnancy. According to the report of PRAMS, women with unintended pregnancies resulting in a live birth are more likely to have poor outcomes due to unhealthy behaviors. Hellerstedt and Pirie (1998) described the association between pregnancy intentions and prenatal behaviors. They found that women who had either unintended or mistimed pregnancies reported more smoking, drinking alcohol, caffeine use, and non-adherence to the use of vitamins, compared with women who reported intended pregnancies. Kost, Landry, and Darroch (1988) conducted a study to predict maternal behaviors during pregnancy in relation with the intention or non-intention of the pregnancy. They concluded that women with unintended pregnancies were less likely to seek prenatal care, or adopt a healthy lifestyle. Pulley, Klerman, Tang, and Baker (2002) conducted a study to determine the relationship between mistimed pregnancies and maternal characteristics and behaviors. This research was based on information collected by the NSFG in

1995. The authors of this study found that mistimed pregnancy was frequent among younger, never married, poor black women.

Additionally, it is important to consider that many mistimed or unwanted pregnancies end in abortion. Abortion has been the cause of death of more than forty million human beings in the last 30 years in the United States. According to the last NSFG (2002), 36% of the pregnancies in the United States were unintended and half of the unintended pregnancies ended in abortion. The number of total abortions reported to the Centers for Disease Control and Prevention from 49 reporting areas in the United States in 2002 was 854,122 and the rate of abortion per 1000 live births was 246. According to the Ohio Department of Health in the state of Ohio there were 32,280 abortions in 2003 and 1709 abortions were reported in the Montgomery County.

Although the Centers for Disease Control and Prevention in the United States reported that abortion rates have decreased over the last 15 years, several studies have addressed the issue that the decline in the abortion rate has been not similar in certain subgroups of women. Jones, Darroch, and Henshaw (2002) conducted a study to identify socioeconomic characteristics of women obtaining abortions to determine in which groups the abortion rate has been stable and in which groups it has increased. They examined several independent variables through a questionnaire selecting hospitals and facilities that performed abortions during 1996. The independent variables analyzed included, age, marital status, state of cohabitation, number of live births, residence, poverty status, medical coverage, race/ethnicity, education, and religion. Results of this study indicated higher abortion rates for women between 18-29 years old, unmarried women, black or Hispanic women, and poor women. These results indicate that the

abortion rate has declined specifically for white women and women with higher income. Although the existing literature about abortion is extensive, the findings about the factors that influence a woman to obtain abortions are not consistent.

A recent study done by Finer and Henshaw (2006) focused on determining disparities rates not only of women seeking abortion, but also in women facing unintended pregnancies. The authors found that in 2001 the rate of unintended pregnancy was 51 per 1000 women aged 15-44 years. Although the proportion of unintended pregnancies ending in abortion in the years between 1994 and 2001 declined from 54% to 48% respectively, among poor women the rate of unintended pregnancy increased by 29% compared with a 20% decline in women above 200% of poverty level. Also, the authors found that disparities in unintended pregnancies between college students and women with lower educational levels increased between the years 1994 and 2001. The authors explained that this finding can be related to less availability of contraceptive methods and greater rates of method failure reported in disadvantaged women.

Another study analyzing the cost of unintended pregnancies revealed that in women with income below the federal poverty level, 75% of all pregnancies were unintended. For women earning between 100-200% of the poverty level, the percentage of unintended pregnancies fell to 60%, and in women with income higher than 200% of the poverty level, only 45% of the total pregnancies were unintended (James, 2006).

Around the world, female reproductive preferences and behaviors differ depending on demographic and socio-cultural factors (Akinrinola et al., 1999). A large study including more

than 50 developed and developing countries found that in rural areas women married at younger ages and had more children than their counterparts in urban areas with more access to education. In most countries, women in the mid-childbearing years are obtaining more abortions. In general the abortion rates around the world show a "u" inverted shape with extremes being younger and older woman less susceptible to abortion. It is interesting that in some regions of the world such as Eastern Europe and Asia the proportion of abortions among adolescents is lower than in America and Canada. Government support for sexuality education in schools, family assistance, and massive media campaigns to prevent unwanted pregnancies in Europe can explain these differences (Alford and Feijo, 2000). Unmarried pregnant women obtain more abortions compared with pregnant married women and more than 50% of abortions are by women who have at least one child (Akinrinola et al., 1999).

Barrett, Peacock, and Victor (1998) completed a study in England to compare socio-demographic characteristics, behavior, and attitudes of women who had had an abortion and women who had not. Factors such as lifestyle, sexual behavior, and attitude were included in this study, along with socio-demographic characteristics. This particular study is interesting because it found different findings compared with previous research in this area. For example, the authors found that social class was not related with abortion. In the analysis by race/ethnicity, the authors found that black and Asian women had a higher number of abortions compared with the white population in the study. Another unexpected finding was that Asian women who underwent abortion were older, married, and already had children. Some explanations the authors propose for this behavior in Asian women are related with the desire to maintain family size, gender selection, and lack of appropriate contraceptive methods. The former results are different from

previous studies undertaken in the United States in which younger disadvantaged women obtained more abortions. Sexual behavior and how it relates to abortion was also analyzed in this study. Women who initiated sexual activity at younger ages and those who had more than 10 partners were exposed to a higher risk of unintended pregnancies and abortion. Other health behaviors analyzed were: visiting a sexual transmitted disease clinic in the past, IV drug use, and smoking. All of these factors were related to an increase in the rate of abortion.

Sihvo, Bajos, Ducot, and Kaminski (2003) studied the impact of socioeconomic factors in the decision to have an abortion in France with phone surveys. They found that the impact of financial and reproductive factors were not the same in women at different stages in life. Besides limitations in this study due to recall bias, the authors found that younger single women were more prone to abort when they were students and had a higher educational level. Older women preferred abortion when the desired number of children was already achieved, when the pregnancy did not fit their work situation, and when they were facing an unstable relationship with their partners. Again in this study, financial factors were not correlated with the decision of having an abortion.

Understanding the socio-demographic characteristics, fertility behaviors, and intentions for pregnancy in women is critical for policy development in public health. One of the goals of the initiative to improve health in the United States in the next decade (Healthy People 2010) is to decrease unintended pregnancies from 49% to 30%. Although important data is obtained from the NSFG about unintended pregnancies, this information is inconsistent with other national surveys. Current research about pregnancy intentions is extensive, but due to the complexity of

the factors surrounding this aspect of human life, more research is needed to determine characteristics of women in need for more education to prevent unwanted pregnancies.

The purpose of this study is to determine what socio-demographic characteristics of pregnant women are associated with unintended pregnancies in a crisis pregnancy center in Montgomery County, Ohio. Second, this study will compare if these characteristics are different in abortion minded vs. non abortion minded women. The results of this study will help to define what demographic groups of women are in need of specific primary care interventions in order to prevent unwanted pregnancies.

Methods and Procedures

Overview of Pregnancy Center and Data Collection

The present study was done at Elizabeth's New Life Center (ENLC). This crisis pregnancy center has five locations in Ohio. ENLC offers free and confidential pregnancy tests, information for pregnancy decisions, limited ultrasounds, referral for prenatal care, life skills classes, material assistance, men's ministry, and post abortion recovery. Most of the clients who receive the services at ENLC are of low socio-economic status.

Information obtained at ENLC from the client information sheet was used. For the purpose of this study, all client information sheets had been completed between September 2004 and July 2006. The client information sheet is an instrument used by ENLC to register socio-demographic information for clients when they come to the center for a free pregnancy test or material assistance. When a client visits a woman's center to obtain a free pregnancy test, for

example, a client information sheet is provided. The client fills in personal information such as name, address, phone number, age, date of birth, and number of children in the household. Also, clients are asked for socio-demographic information such as: marital status, household income, education, insurance, religious preference, ethnicity, and referral source. Other sets of questions included in the client information sheet are: intention for current pregnancy, medical information, and reproductive health history. A copy of the client information sheet is included in the Appendix. Data for this study was abstracted from the database containing the client information data.

The study began after IRB approval in September of 2006 and ended in November 2006. The target population was females obtaining positive pregnancy tests at a crisis pregnancy center (ENLC) in Montgomery County, Ohio between September 2004 and July 2006. The criteria for inclusion in the study were women who:

1. Visited Elizabeth's New Life Center between September 2004 and July 2006

2. Had a positive pregnancy test at the time the data was collected

3. Completed the client information sheet

4. Were assessed as either intending to have an abortion (abortion-minded) or intending to carry to term (non-abortion-minded)

The criteria for exclusion in the study were:

1. Incomplete client information sheet

2. Negative pregnancy test

3. Women who were assessed as being neither abortion-minded nor non-abortion-minded, but rather were abortion-vulnerable (not certain to carry to term, but not certain to have an abortion either)

The following data were extracted from the database: Intention for the pregnancy, center location, age, marital status, household income, education, religious preference, race, number of previous pregnancies, number of previous live births, number of previous abortions, number of sexual partners, and age at their first sexual experience. Data extraction was completed using a standardized Excel form. No names, addresses, phone numbers, or personal identifiers were taken from the database.

Sample

The number of subjects calculated to achieve power in the statistical analysis was 600. After repeated records were eliminated the total number of subjects was reduced to 581.

Variables The dependent variable was the intention for the current pregnancy (Table 1).

- Abortion-minded

- Non-abortion-minded

Independent variables, definition and level of measurement are presented in Table 2.

Table 1 Dependent Variables

Variable	Constitutive definition	Operational definition	Level of measurement
Abortion-minded	Client states her plan or intention to have an abortion and/or is seeking information regarding how to obtain an abortion. For example, asking questions such as, "How much does an abortion cost?" "Can you give me a referral for an abortion?" "Do you do abortions here?" An abortion is scheduled, regardless of how tentative the client seems.	Qualified clinic personnel (i.e., the center director) reviews the client chart and consultant's notes and makes an assessment as to the participant's likeliness to abort.	Categorical Yes No
Non-abortion-minded	This woman does not meet criteria for abortion-minded and has decided to carry the pregnancy to term.	Qualified clinic personnel (i.e., the center director) reviews the client chart and consultant's notes and makes an assessment as to the participant's likeliness to carry to term.	Categorical Yes No

Table 2 Independent Variables

Variable	Constitutive definition	Operational definition	Level of measurement
Center	Center location	Staff reporting center location	Categorical Dayton Kettering
Marital status	Marital status at time of data collection	Participant's self reporting of marital status	Categorical Single/ engaged Separated/ Divorced Married Widowed Living together
Race	Ethnic character, background, or affiliation	Participant's self reporting of ethnicity	Categorical Biracial Black Hispanic White Other (Native Americans, Asian)

Variable	Constitutive definition	Operational definition	Level of measurement
Household income	Household income at time of data collection	Participant's self reporting of Household income	Categorical $0 (Including Living with parents, and between jobs) $1- 10,000 (Including welfare or SSI) $10-20,000 $20-40,000 Over $ 40,000
Education	Education at time of data collection	Participant's self reporting of Education	Categorical In junior high In high School Dropped out of high? school Graduated from HS /GED In college Attended some college in the past College graduate Other
Religious preference	Religious preference at time of data collection	Participant's self reporting of Religious preference	Categorical Catholic Protestant (Baptist) None Other (Jewish, Muslim, other)
Age	Age at time of data collection	Participant's self reporting of age	Continuous 15-40
Number of previous live births	Number of previous live births at time of data collection	Participant's self reporting of number of previous live births	Continuous 0 1 2 3 4 >4
Number of sexual partners	A sexual partner is a person with whom one engages in sex acts.	Participants self reporting of number of sexual partners	Continuous 0 1 2 3 4 >4
Age first sexual experience	Age first sexual experience at time of data collection	Participants self reporting of age at first sexual experience	Continuous 15-40

Independent Variables

Analysis

Categorical variables were analyzed using the statistical program SPSS for Windows version 10.

The percentage of clients grouped by pregnancy intentions (dependent variable) and socio-demographic characteristics (independent variables) was determined to address the first research question: What socio-demographic characteristics are associated with abortion-minded clients and non-abortion-minded clients at ENLC?

Chi-square analysis was performed to address the research questions regarding the relationship between categorical independent variables (center, marital status, race, income, educational level, and religion) and the dependent binary variable (abortion-minded clients vs. non- abortion-minded clients).

By marital status, the client information sheet used at ENLC to collect data has seven categories: single, engaged, separated, divorced, married, widowed, and living together. For this study only four categories were considered. Single and engaged women were grouped into one category. Also divorced and separated women were grouped into one category. The five categories used for the statistical analysis were single, married, divorced, widowed and living together. For the statistical analysis first a chi-square test was done to compare single vs. married clients' abortion vulnerability. In order to increase the power of the analysis, the abortion vulnerability of single women were compared to that of women in all other marital categories.

The independent variable of race was grouped into five categories: biracial, black, Hispanic, White, and other (Native American, Asian, others). To increase the power of the analysis for

race, comparisons between blacks and other races were performed. Abortion vulnerability was also compared between white clients and other races.

To determine differences between abortion-minded clients and non-abortion-minded clients by income, two analyses were performed. First, the eight categories of household income levels used in the client information sheet at ENLC were grouped into five categories. Living with parents, $0 income, and between jobs was grouped into one category: $0 income. Clients who reported welfare or SSI were included in the 0-10,000 income category. Incomes from $1 to $10,000, income from $10,000 to $20,000, income from $20,000 to $40,000, and income greater than $40,000 were other categories included in the statistical analysis.

The second analysis by household income levels was performed grouping all clients in two categories; clients who reported income less than $10,000 and clients who reported income greater than $10,000.

By educational level two analyses were performed. First, eight categories were taken into account: in junior high, in high school, dropped of school, HS/GED graduate, in college, some college in the past, college graduate, and other.

Educational level was also compared, grouping clients in two categories: clients with some college and clients with no college.

SPSS for Windows version 10 software was also used to perform independent sample T tests. This test was done to address the research question regarding differences between continuous variables (age at the time of service, age at the first sexual encounter, number of sexual partners, total number of previous pregnancies, number of live births, and number of previous abortions) and the dependent binary variable (abortion-minded versus non-abortion-minded).

A separate multivariate logistic regression model was run in the SAS statistical software. Variables selected for inclusion were those statistically significant in the bivariate analysis. Logistic regression was performed to determine which independent variables that had two or more categories were associated with the dependent binary variable abortion-minded clients vs. non-abortion-minded clients.

Possible Benefits

Comparison of demographic characteristics of abortion-minded clients versus non-abortion-minded clients will help public health policymakers and family planning providers to determine vulnerable groups, and it will help to establish interventions to reduce the personal and social burdens associated with unwanted pregnancy.

Possible Harms

No possible harm has been identified from this study. Individual subject's privacy was protected because no names, addresses, phone numbers or personal identifiers were taken from the database at ENLC. If for any reason a hard copy of the files was required to collect information for this study, the following plan describes how personal identifiers were protected. The files

were maintained in their original locked file cabinet at ENLC. The files were reviewed in the

office where they are maintained, and no files were taken out of the office. No copies of client

files were made or used.

Results

A total of 581 client information sheets registered in ENLC's data base were used for the various

analyses in this study. Of these 581 information sheets, more than half of the clients were non-

abortion-minded clients. The total percentage of non- abortion-minded clients was 66.3% and the

total percentage of abortion-minded clients was 33.7%.

Descriptive analysis with percentages distribution and results are presented below. Table 3

summarizes the results of the chi square analysis for each of the independent categorical

variables: center, marital status, race, household income, religion and educational level.

**Table 3** Chi-square Analysis: Pregnancy Intentions and Independent Variables.

Independent Variables	Pregnancy Intentions		P Value
	Abortion-minded	**Non-abortion-minded**	
Center			
Dayton	43.9%	56.1%	<0.0001
Kettering	27.9%	72.1%	
Marital Status			
Single	45.0%	54.9%	
Married	4.64%	95.3%	
Divorced	42.3%	57.69%	<0.0001
Widowed	33.3%	66.6%	
Living together	23.5%	76.4%	
Marital Status			
Single	96.1%	59.4%	<0.0001
Married	3.9%	40.6%	
Marital Status			
Single	88.3%	54.8%	<0.0001
All other marital status categories	11.7%	45.2%	

| Independent Variables	Pregnancy Intentions		P Value
	Abortion-minded	Non-abortion-minded	
Race	40%	60%	
Biracial	52%	48%	0.020
Black	7.1%	92.8%	
Hispanics	20.9%	79%	
White	30.7%	69.2%	
Other			
Race			
Black	65.4%	34.6%	<0.0001
White	31.6%	68.4%	
Race			
Black	59.7%	28.1%	<0.0001
All other races	40.3%	71.9%	
Race			
White	31.6%	60.8%	<0.0001
All other races	68.4%	39.2%	
Household Income			
$0	43.5%	56.5%	
$1-$10,000	36.8%	63.2%	
$10,0000- $20,000	18.1%	81.9%	<0.0001
$20,0000-$40,000	17.6%	82.4%	
> $40,000	0%	100%	
Unknown	50%	50%	
Household Income			
<$10,000	84.7%	61.9%	<0.0001
>$10,000	15.3%	38.1%	
Religion			
Catholic	20%	80%	
Protestant	37.4%	62.5%	
None	34.9%	65.0%	0.9593
Other	31.7%	68.2%	
Unknown	20%	80%	
Education			
In junior High	100%	0%	
In High School	56.5%	43.2%	
Dropped	25.7%	74.2%	
HS/GED	29.3%	70.7%	
In College	44.1%	55.9%	0.0829
Some college	21.9%	78.1%	
College graduate	22.4%	77.6%	
Other	38.1%	61.9%	
Education			
College	62.2%	57.1%	0.255
No college	37.8%	42.9%	

Chi square analysis

Center

Two centers were used to gather data: one in Kettering, Ohio and the other in Dayton, Ohio. The Kettering center accounted for 63.5% of the total number of clients (spacing problem) while the Dayton center had 36.5 of total clients. (Figure 1)
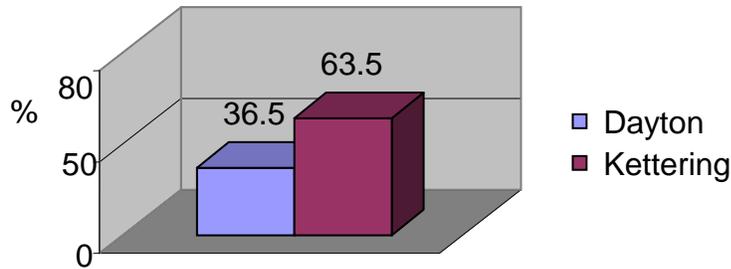
Figure 1 Percentage of clients by Center

In the analysis of center by localization (Dayton vs. Kettering) there were significant differences (P value <0.0001) between abortion minded and non- abortion-minded clients. The Dayton location has about twice abortion-minded clients (43%) compared to Kettering (27.9%) (Table 1, Figure 2)
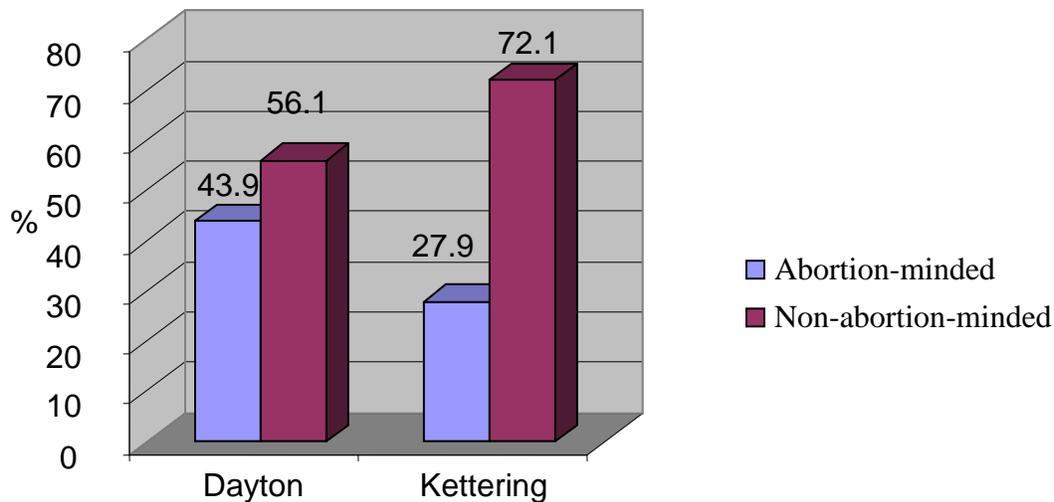
Figure 2 Pregnancy Intentions by Center (Dayton vs. Kettering)

(P value <0.0001)

Marital Status

More than half (66%) of the total number of clients in this study were single, 26% were married, 4.5% were divorced or separated, 0.5% were widowed, and 2.9% were living together (Figure 3)
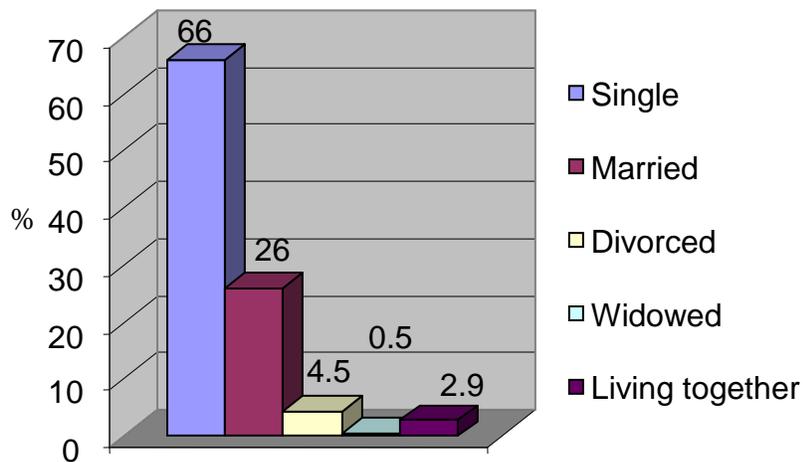
Figure 3 Percentages of Clients by Marital Status

There was a significant difference between single vs. married clients comparing pregnancy intentions (P value < 0.0001). The percentage of abortion-minded clients who were single (96%) was significantly higher than that of abortion-minded clients who were married (3.9%). (Table 1, Figure 4)
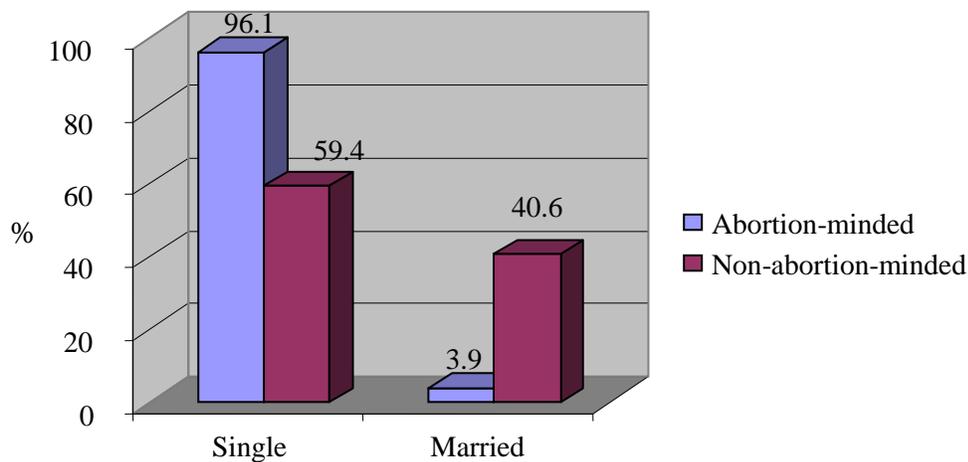
Figure 4 Pregnancy Intentions by Marital Status (Single vs. Married, P value < 0.0001)

In comparing the abortion vulnerability between single women and all the other categories of marital status, a significant difference was obtained (P value <0.0001). Eighty three percent of the abortion-minded clients were single, and 11.7% of the abortion-minded were from all other categories of marital status. (Figure 5)
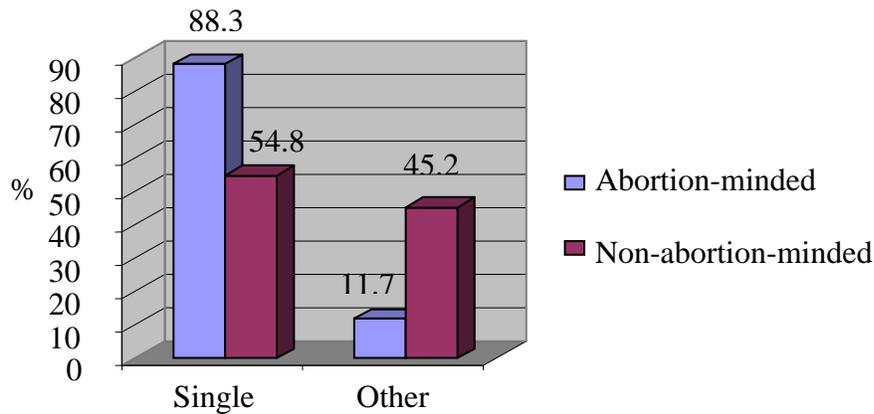
Figure 5 Pregnancy Intentions by Marital Status (Single vs. Other, P value <0.0001)

Race

By race, half of the population (50.9%) was white, 38.7% were black, 2.4% were Hispanic, 3.4% were biracial and 4.5% were from other races (including Asians and Native Americans Figure 6).
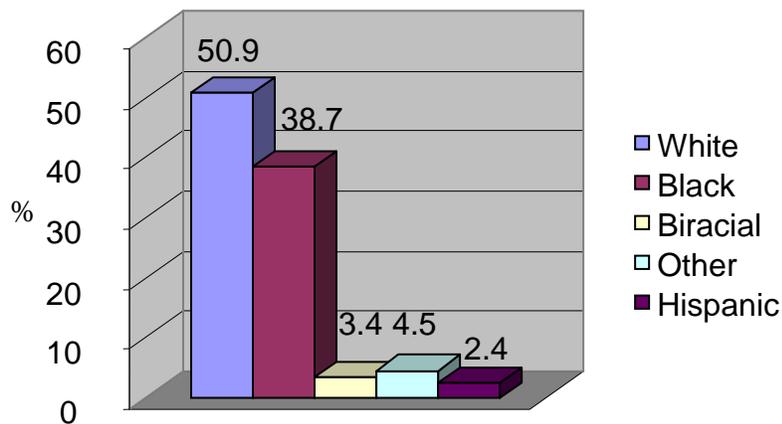
Figure 6 Percentage of clients by Race

Within race, the percentage of abortion-minded clients was higher for blacks (52%), followed by biracial women (40%), other races (30.7%), whites (20.9%), and Hispanics (7.1%).These differences were significant (Figure 7).
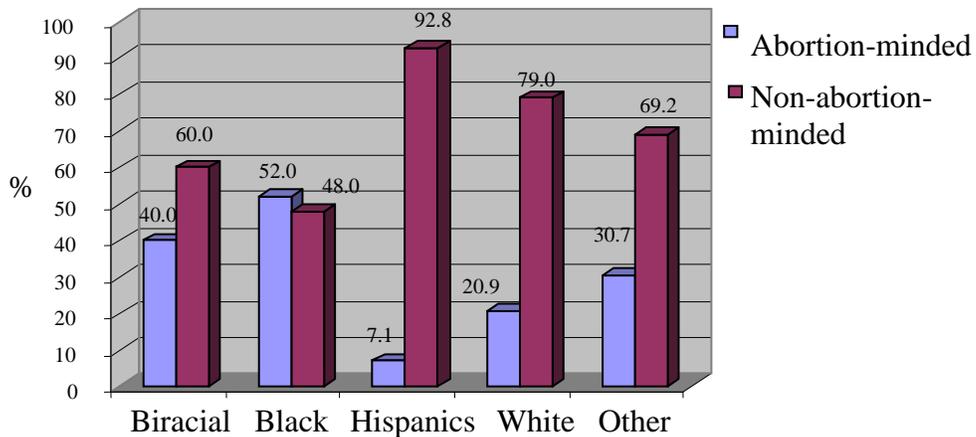

Figure 7 Pregnancy Intentions by Race (P value = 0.020)

Comparing the percentage of black and white abortion-minded clients, the percentage of black abortion-minded clients (65.4%) was almost twice the percentage of white abortion-minded clients (31.6%). These differences between the black and white populations were significant (P value< 0.0001, Figure 8).
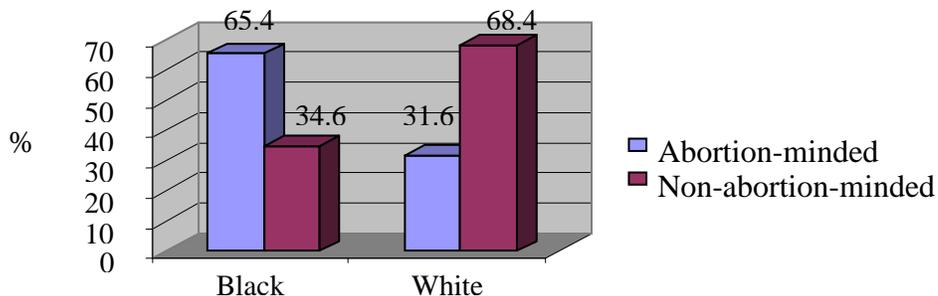
Figure 8 Pregnancy Intentions by Race (Black Vs White, P value < 0.0001)

There were significant differences comparing abortion vulnerability between blacks and all the

other races (P value < 0.0001). Significantly more black clients were abortion-minded vs. all

other races (59.7% vs. 40.3 %, Figure 9)
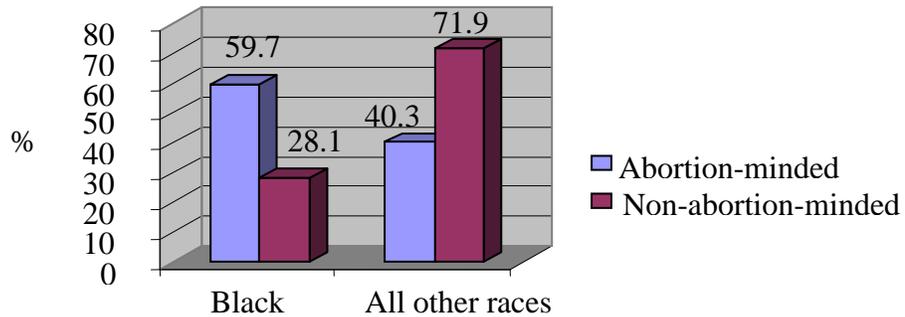
Figure 9 Abortion Vulnerability by Race (Black vs. All other races)

(P value < 0.0001)

Significant differences were seen comparing abortion vulnerability between white clients and

other races (P value < 0.0001). The percentage of white abortion-minded clients was lower
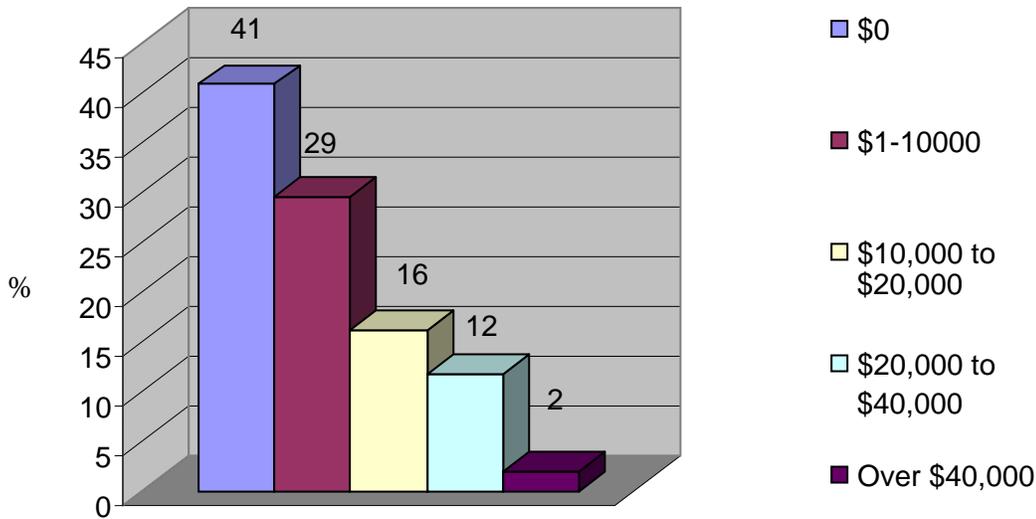
(31%) than all other races (68.4 %, Figure 10).
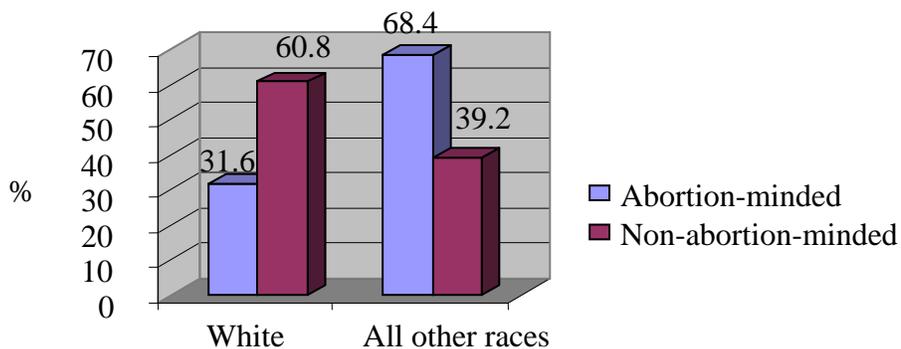
Figure 10 Pregnancy Intentions by Race (White vs. All other races)
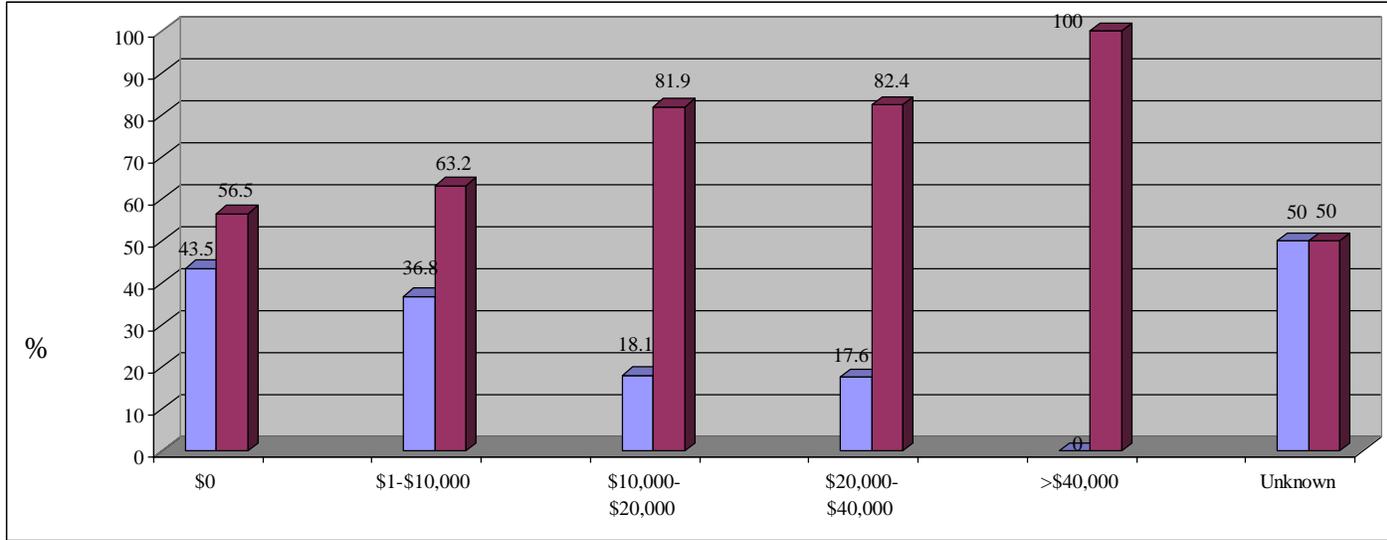
(P value < 0.0001)

Household Income

By income, 41% of the clients had $0 income, 29% had income $ 1 to $10,000, 16% had income

from $10,000 to 20,000, 12% had income from $20,000 to $40,000, and only 2 % had income

over $40,000. (Figure 11)

**Figure 11** Percentages of Clients by Household Income

There were significant differences in the analysis of pregnancy intentions and the different

groups of clients by household income (p value =<0.0001).The percentage of abortion-minded

clients with $0 income and income $0-$10,000 was greater (43.5% and 36.8%) compared to

abortion-minded clients with incomes greater than $1-$10,000 (18.1%), $10,000-

$20,000(17.6%), over $40,000 (0% , Figure 12).

**Figure 12** Pregnancy Intentions by Income Level

(P value < 0.0001).

When comparing income levels of abortion-minded vs. non-abortion-minded clients, two

categories clients were identified: clients who reported incomes of less than $10,000 and clients

who reported incomes greater than $10.000.There was a highly significant difference between

these two groups mentioned (P value= <0.0001). Eighty five percent of the abortion-minded

clients earned less than $10,000, and only 15.3% of the abortion-minded clients earned more

than $10,000. (Figure 13)
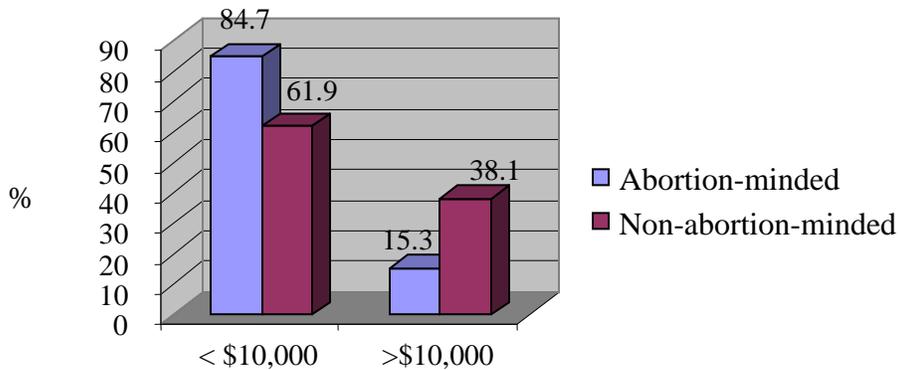
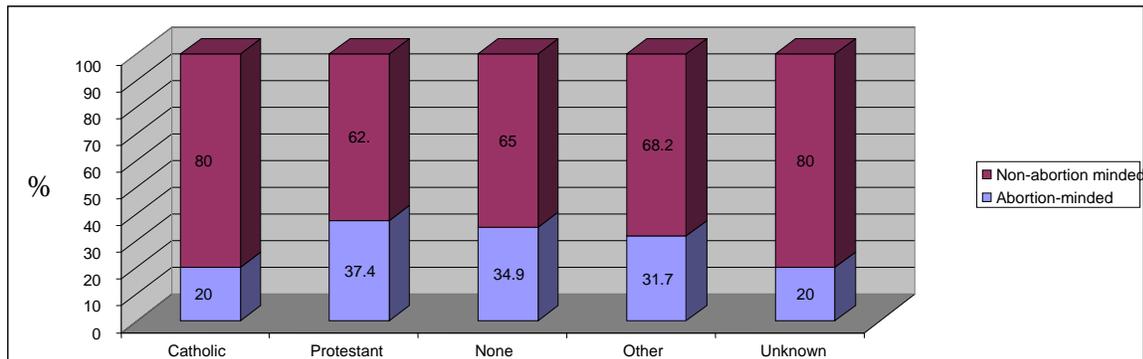**Figure 13** Pregnancy Intentions by Income (P value < 0.0001)

Religion

In the analysis by religion, the majority of the subjects was Protestant (46%); followed by no

religion (22%), other religion (21.2%), and Catholics (10.3 % Figure 14).
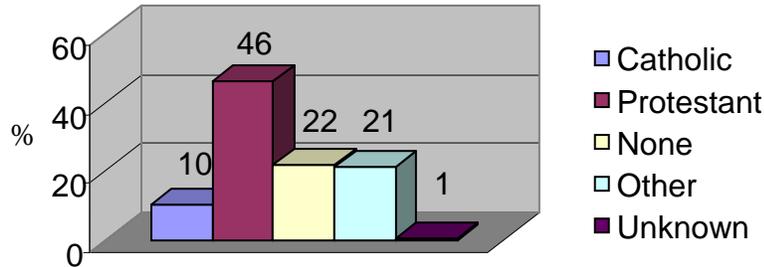
Figure 14 Percentages of Clients by Religion

In the analysis by religious affiliation, Protestants represented a higher percentage of abortion-

minded clients (38%), compared to abortion-minded Catholics (20%), none religion (34.9), and

other religion (31.7%). Although there were numerical differences between religion and

pregnancy intentions, religious affiliation did not have an impact on abortion vulnerability (P
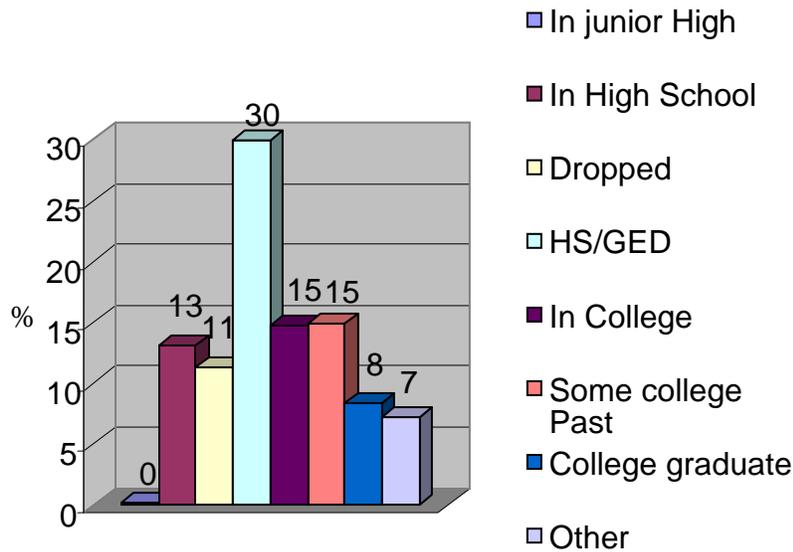
value =0.95, Figure 15)

Figure 15 Pregnancy Intentions by Religious affiliation

(P value = 0.95)

Educational Level

By educational level, 30% of the subjects had high school education, 38% had attended some college or had graduated from college, and 13% were still in high school. (Figure 16)

Figure 16 Percentages of Clients by Education

By educational level, clients in high school represented a higher percentage (56.6%) of abortion minded clients compared to other educational levels but no significant differences were found in the analysis of the eight categories (p value= 0.08). In the analysis of the variable educational level grouping clients in two categories, college level did not have an effect on pregnancy intentions (P value = 0.255, Figure 17).
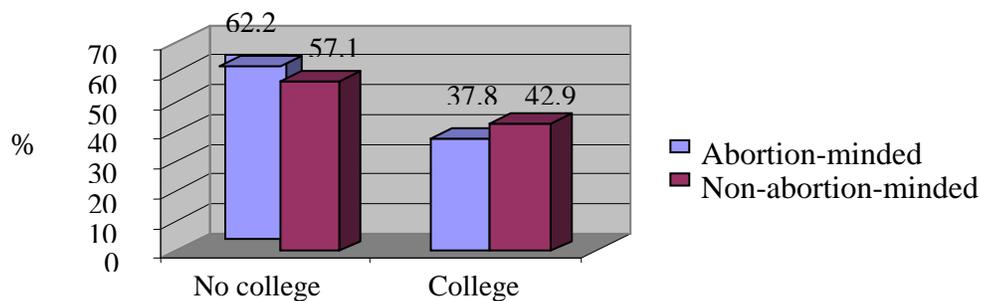
Figure 17 Pregnancy Intentions by Educational Level (P value = 0.255)

Descriptive analysis of the continuous variables and results of the independent samples T test are presented in table 4.

The mean age at the time of service for all clients was 23.7 years, with a standard deviation of 5.3 years. The mean age at the first sexual experience was 15.9 years, with a standard deviation of 2.44 years. The mean number of sexual partners was 5.03, with a standard deviation of 4.5. The mean number of live births was 0.9, with a standard deviation of 1.2. The mean number of previous abortions was 0.2, with a standard deviation of 0.5.

The independent samples T test, demonstrated significant differences between the two groups: abortion-minded clients and non- abortion-minded clients. The results of independent samples T test for the continuous variables are presented in Table 4.

Table 4 Independent Samples T Test

CONTINUOUS VARIABLE	ABORTION VULNERABILITY	NUMBER	MEAN	SD	SEM	P VALUE
Age at the time of service	Abortion-minded clients	196	22.6	5.1	0.36	0.0008
	Non- abortion-minded clients	385	24.2	5.3	0.27	
Age at first sexual encounter	Abortion-minded clients	191	15.44	1.86	0.13	0.0009
	Non- abortion-minded clients	364	16.16	2.66	0.13	
Number of sexual partners	Abortion-minded clients	166	5.41	4.36	0.33	0.18
	Non- abortion-minded clients	337	4.84	4.59	0.25	
Total number of pregnancies	Abortion-minded clients	196	1.53	1.58	0.11	0.54
	Non- abortion-minded clients	385	1.44	1.64	0.08	
Number of live births	Abortion-minded clients	196	1.01	1.18	0.08	0.60
	Non- abortion-minded clients	385	0.95	1.27	0.06	
Number of previous abortions	Abortion-minded clients	196	0.33	0.56	0.04	<0.0001
	Non- abortion-minded clients	385	0.15	0.47	0.02	

Age at the Time of Service

Abortion-minded clients were significantly younger compared to non-abortion-minded clients (p value= 0.0008).   The mean age for abortion-minded clients was 22.6 years (SD= 5.1) and the mean age for non-abortion-minded clients was 24.2 years (SD=5.3) (Figure 18)

Age

ABM: Abortion-minded   NAM: Non- abortion-minded
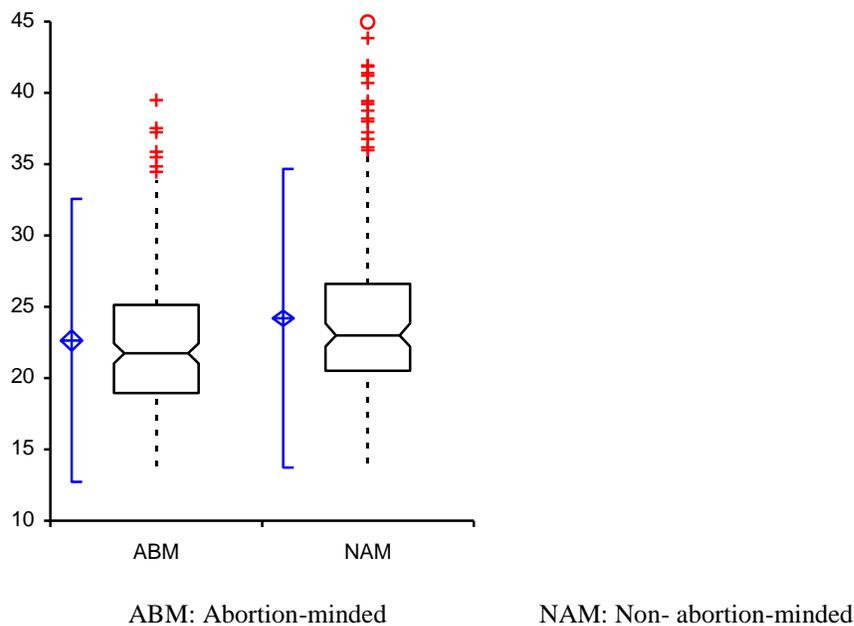
Figure 18 Ages at the Time of Service vs. Pregnancy Intentions

Age at First Sexual Encounter

In the analysis by age at first sexual encounter, 26 cases were excluded due to missing values. The age at first sexual encounter was significantly different for abortion-minded clients vs. non-abortion-minded clients (p value= 0.0009). Abortion-minded clients had their first sexual encounter sooner (mean 15.4 years, SD =1.8) compared to non- abortion-minded clients who had their first sexual encounter later (mean 16.1 years, SD= 2.6, Figure 19).

Age

ABM: Abortion-minded   NAM: Non- abortion-minded
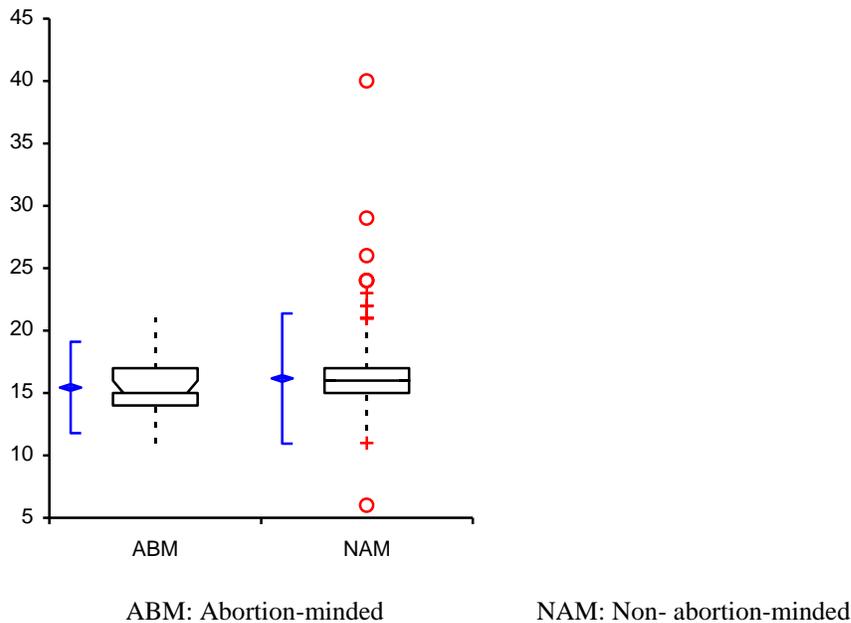
Figure 19 Ages at the First Sexual Experience vs. Pregnancy Intentions

Number of Sexual Partners

In the analysis by number of sexual partners, 78 cases were excluded due to missing values.

Abortion-minded clients had more sexual partners (mean 5.42, SD=4.3) than non-abortion-

minded clients (mean= 4.82, SD=4.5), but the difference was not significant (p value = 0.18,

Table 7)

Total Number of Pregnancies

Although abortion-minded clients had a greater number of previous pregnancies (mean= 1.5,

SD=1.5) compared to non- abortion-minded clients (mean= 1.4, SD=1.6) the difference was not

significant (p value= 0.54, Table 7).

Number of Live Births

Abortion-minded clients had greater number of live births (mean= 1.015, SD=1.01) compared to non-abortion-minded clients (mean= 0.95, SD= 1.2), but the difference was not significant (p value= 0.60).

Number of Previous Abortions

The difference between the numbers of previous abortions in abortion-minded clients and that of non-abortion-minded clients was highly significant (p value= <0.0001). Abortion-minded clients had more previous abortions (mean = 0.3, SD=0.5) compared to non-abortion-minded clients (mean = 0.1, SD=0.4, Table 7, Figure 20)

Number previous abortions

ABM: Abortion-minded   NAM: Non- abortion-minded
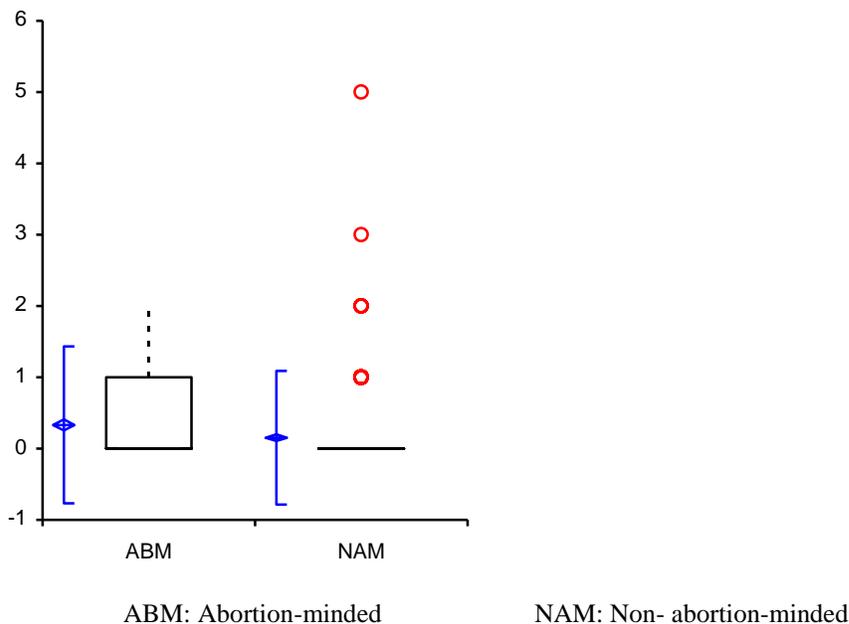
Figure 20 Numbers of Previous Abortions vs. Pregnancy Intentions

Multivariate Analysis

Logistic regression was performed to determine which independent variables that had two or more categories are associated with the dependent binary variable: abortion-minded clients vs. non-abortion-minded clients. The odds ratios for independent variables are summarized for each variable in Table 5.

Table 5 SAS System LOGISTIC Procedure (Odds Ratio Estimates)

Effect	Point Estimate	95% Wald Confidence Limits	
Age at the time of service	1.026	0.959 to	1.098
Age of first sexual experience	0.949	0.843 to	1.069
Number of sexual partners	0.953	0.902 to	1.006
Number of previous pregnancies	1.337	0.892 to	2.004
Number of previous live births	0.655	0.411 to	1.044
Number of previous abortions	0.426	0.229 to	0.794
Center (Kettering vs. Dayton)	1.700	0.995 to	2.904
Marital status (Married vs. Single)	10.693	4.258 to	26.855
Race (White vs. Black)	2.383	1.362 to	4.169

Odds Ratio Estimates

The odds ratio for marital status (married versus single) was 10.6. This means that the odds of being abortion-minded are about 10 times higher for single clients.

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The odds ratio for race, comparing black clients to white clients, was 2.3. This means that black clients are 2.3 times more likely to be abortion-minded than white clients.

The odds ratio for center location was 1.7. This means that clients at the Dayton center are 1.7 times more abortion-minded than the clients at the Kettering center.

The odds ratio for the number of previous abortions was 0.4. This means that clients with more previous abortions are 0.4 times more abortion-minded than the clients with less previous abortions.

Discussion

The analysis of the data collected in a crisis pregnancy center helped determine what socio-demographic characteristics were associated with pregnancy intentions in abortion-minded clients and non-abortion-minded clients. ENLC collects detailed information on socio-demographic characteristics, reproductive health history, and the intentions for the current pregnancy for pregnant women. This information has some advantages over information collected in national surveys. One advantage is that the PRAMS and NSFG surveys collect data on women two or more months postpartum, which allows for greater recall bias than the ENLC survey, which collects information at the time of pregnancy. Another advantage is that pregnancy intentions are determined at ENLC through an assessment done by qualified clinical personal once the woman gets the pregnancy test. This allows determining pregnancy intentions more accurately than surveys mailed or conducted over the phone.

Although more than half of the clients in this study visited ENLC in Kettering, women visiting ENLC in Dayton were more abortion-minded. This finding could be influenced by the fact that clients classified as abortion-vulnerable were excluded from the study, and due to differences in population characteristics between the two centers. The Dayton center attracts more black clients than Kettering because of the geographical localization.

Marital status is a socio-demographic factor related to pregnancy intentions. In the United States married women had the lowest rates of abortion (Barrett, Peacock, & Victor, 1998, D'Angelo, Gilbert, Rochat, Santelli, & Herold 2001). In this study significant differences between abortion-minded clients and non- abortion-minded clients were determined. Single clients represented a significantly higher percentage of abortion-minded clients. The odds ratio calculated by marital status indicated that the odds of a single woman to be abortion-minded were 10 times more compared to married women. These findings suggest that a life-long committed relationship could influence the intentions for carrying a pregnancy to term or terminating a pregnancy through abortion.

Henshaw (1998) found using data collected in the NSFG, that unintended pregnancy was highest in black and Hispanic women. Similar to the previous finding, in this study black clients were more likely to be abortion-minded clients compared to white clients, and also compared to clients from other races, including Hispanics. Black clients were 2.3 times more likely to be abortion minded in the odds ratio analyses. One limitation with this analysis is that the Hispanic population represented a small percentage (2.4 %) of the population in this study. Hispanic clients are not familiar with the services at ENLC and conclusions about the association between

socio-demographic characteristics and pregnancy intentions in this population cannot be drawn with the small population sample in this study.

Disparities in the income level have been related with pregnancy intentions. Poor women have unintended births five times more than women with higher incomes (Jones, Darroch, & Henshaw, 2002). In this study the proportion of abortion-minded clients with household incomes under $10,000 was higher than those with an income greater than $10,000. Various limitations need to be taken into account with this finding. First, the majority of the population that uses the services at ENLC is from a low-income level. Another limitation with this finding was the lack of information about how many members were in the women's household. For this reason category by poverty level could not be estimated. Additionally, the information gathered by ENLC included categories such as: lives with parents, welfare/SSI, and between jobs. In order to perform the statistical analysis, it was assumed that clients living with parents and clients between jobs could be classified as $0 income, and clients in welfare/SSI could be classified under $1-$10,000 household income.

Although the percentage of abortion minded clients was higher for Protestants compared to Catholics and other religions, no significant differences were found between abortion-minded clients and non-abortion-minded clients with regards to religious preference. One limitation comparing religious preferences and pregnancy intentions in this study was the fact that Protestants represent a higher percentage of the general population compared to other religions in the area. In addition, conflicting results have been obtained looking at the association between religious affiliation and pregnancy intentions in previous research. For example, a study

completed in the Unites States showed that abortion rate was lower in Protestants compared to Catholics, but studies in other countries revealed higher abortion rates in Muslims and other religious affiliations (Akinrinola et al., 1999).

The educational level attained by a woman has been found to influence pregnancy intentions. Jones et al. (2002) found that women in high school had a rate of unintended pregnancies four times higher than college graduates. In this study, there were numerical differences between abortion-minded clients in high school compared to other educational levels. Although clients with high school education represented a higher percentage of abortion minded clients, no significant statistical differences in the educational level between abortion-minded clients vs. non- abortion-minded clients were found. It is important to consider that in this study the number of clients with college level were few compared to other categories of educational levels.

Differences between the ages of abortion-minded clients and non-abortion-minded clients were significant in this study. According to the literature, in 2001 the pregnancy rate was higher in women between 20 and 24 years (Jones et al., 2002). In addition Jones et al. (2002) found that women between the ages of 20 and 24 had a higher abortion rate. In this study the mean age at the time of service was 23.7 years and the proportion of abortion-minded clients was highest among younger women (22.6 years) compared to non-abortion-minded clients (24.5 years) According to these results in the population attending ENLC in the Dayton, Ohio area unintended pregnancies occur more frequently between women around 20 to 24 years.

Although previous studies have looked at the relationship between the reproductive health history, number of previous pregnancies, and pregnancy intentions, few studies have examined the association between previous abortions and pregnancy intentions. Adelson, Frommer, and Weisberg (1995) analyzed a survey in New South Wales, of women aged 25-39 years seeking for abortion. More than a half of the target population in that survey had had previous abortions. In this study abortion-minded clients had significantly more previous abortions compared with the non-abortion-minded clients at ENLC. Clients with more previous abortions were 0.4 times more abortion-minded than the clients with less previous abortions in the odds ratio calculation.

D'Angelo, Gilbert, Rochat, Santelli, and Herold (2001) in their study analyzing data from PRAMS, found that women with three or more children were over four times more likely to report an unwanted pregnancy. Although in this study it was found that abortion-minded clients had more previous pregnancies compared with the non-abortion-minded clients, the results were not significant.

Sexual behaviors have been related to the likelihood for a woman to obtain an abortion. Barrett et al. (1998) found that if a woman started to have sex at a young age, the more sexual partners she would have and the more likely she would choose abortion when becoming pregnant. Although in this study non significant associations were found between the number of sexual partners and pregnancy intentions there was a numerical difference with abortion-minded clients having higher number of sexual partners (5.4 partners) than non- abortion-minded clients (4.8 partners), Additionally abortion-minded clients were significantly younger than non- abortion-minded clients at the age of their first sexual encounter. These findings suggested the need to

implement public health interventions based in chastity education and sexual integrity in youth to prevent unwanted pregnancies and abortion.

In summary, this study of the population that consults a crisis pregnancy center in Montgomery County, Ohio, demonstrated that socio-demographic factors determined in past research such as marital status, income, educational level, race, and age strongly influence pregnancy intentions. In this study younger, single, black, poor, women with low educational level were more abortion-minded. These results are similar to studies using data collected in National surveys such as PRAMS and NSFG evaluating women with unintended pregnancies (Table 6).

Table 6 Summary of significant trends of variables associated with pregnancy intentions

	Pregnancy intentions	
Independent variables	**Abortion-minded**	**Non-abortion- minded**
Center	Dayton	Kettering
Marital Status	Single	Married
Race	Black	Other races
Household Income	Less than $10,000	More than $10,000
Age	22.6	24.2
Age first sexual encounter	15.4	16.1
Number of previous abortions	0.33	0.15

Although socio-demographic characteristics and their relationship to pregnancy intentions are collected on a regular basis in the United States, associations between sexual behaviors such as

number of sexual partners, age at the first sexual encounter, number of previous abortions, and pregnancy intentions have not been reported.

Considering the fact that unwanted pregnancies occur in women from many backgrounds, the study of socio- demographic factors and information about sexual behaviors is very valuable to design public health strategies to prevent unwanted pregnancies focused on populations with specifics characteristics. More research is needed to determine the influence of socio-demographic characteristics affecting in the pregnancy intentions in populations underrepresented in this study.

References

Adelson, P. L., Frommer, M. S., & Weisberg, E. (1995). A survey of women seeking termination

of pregnancy in new south wales. *The Medical Journal of Australia, 163*(8), 419-422.

Akinrinola, B., Susheela, S., & Taylor, H. (1999). Characteristics of women who obtain induced

abortion: A worldwide review. [Characteristics of Women Who Obtain Induced Abortion:

A Worldwide Review] *International Family Planning Perspectives, 25*(2), 68-77.

Alford, S., & Feijoo, A. (2006). *Adolescent sexual health in Europe and U.S.- why the*

difference? Retrieved 11/07, 2006, from

http://www.advocatesforyouth.org/PUBLICATIONS/factsheet/fsest.htm

Barrett, M., Peacock, J., & Victor, C. (1998). Are women who have abortions different from

those who do not? A secondary analysis of the 1990 national survey of sexual attitudes and

lifestyles. [Are women who have abortions different from those who do not? A secondary

analysis of the 1990 national survey of sexual attitudes and lifestyles] *Public Health,*

112(3), 157-163.

Centers for Disease Control and Prevention. (2005). *Pregnancy risk assessment monitoring*

system (PRAMS): PRAMS and unintended pregnancy. Retrieved 07/21, 2006, from

http://www.cdc.gov.ezproxy.libraries.wright.edu:2048/prams/UP.htm

D'Angelo, D. V., Gilbert, B. C., Rochat, R. W., Santelli, J. S., & Herold, J. M. (2004). Differences between mistimed and unwanted pregnancies among women who have live births. *Perspectives on Sexual and Reproductive Health, 36*(5), 192-197.

Finer, L. B., & Henshaw, S. K. (2006). Disparities in rates of unintended pregnancy in the united states, 1994 and 2001. *Perspect.Sex.Reprod.Health., 38*(2), 90-96.

Hamilton, B. E., & Ventura, S. J. (2006). Fertility and abortion rates in the united states, 1960-2002. *International Journal of Andrology, 29*(1), 34-45.

Hellerstedt, W. L., & Pirie, P. L. (1998). Differences in preconceptional and prenatal behaviors in women with intended and unintended pregnancies. *American Journal of Public Health, 88*(4; 4), 663-666.

Henshaw, S. K. (1998). Unintended pregnancy in the united states. *Family Planning Perspectives, 30*(1), 24-9, 46.

James, D. (2006). The costs of unintended pregnancy. *Managed Care Interface, 19 Suppl A*, 11-14.

Jones, R. K., Darroch, J. E., & Henshaw, S. K. (2002). Patterns in the socioeconomic characteristics of women obtaining abortions in 2000-2001. *Perspect.Sex.Reprod.Health., 34*(5), 226-235.

Kost, K., Landry, D. J., & Darroch, J. E. (1998). Predicting maternal behaviors during pregnancy: Does intention status matter? *Family Planning Perspectives, 30*(2), 79-88.

Ohio Department of Health. (2006). *Induced abortions, Ohio - 2003 .* Retrieved 08/01, 2006, from http://www.odh.ohio.gov/healthStats/vitalstats/2003/03abor1.aspx

Pulley, L., Klerman, L. V., Tang, H., & Baker, B. A. (2002). The extent of pregnancy mistiming and its association with maternal characteristics and behaviors and pregnancy outcomes. *Perspect.Sex.Reprod.Health., 34*(4), 206-211.

Santelli, J., Rochat, R., Hatfield-Timajchy, K., Gilbert, B. C., Curtis, K., & Cabral, R., et al. (2003). The measurement and meaning of unintended pregnancy. *Perspect.Sex.Reprod.Health., 35*(2), 94-101.

Sihvo, S., Bajos, N., Ducot, B., & Kaminski, M. (2003). Women's life cycle and abortion decision in unintended pregnancies. *Journal of Epidemiology and Community Health, 57*(8), 601-605.

Strauss, L., Herndon, J., Chang, J., Parker, W., Bowens, S. & Berg, C. (2002). *MMWR surveillance summaries 2005.* Retrieved 08/01, 2006, from http://www.cdc.gov.ezproxy.libraries.wright.edu:2048/mmwr/preview/mmwrhtml/ss5407a1.htm

U.S. Department of Health and Human Services. (2000). *Healthy people 2010. 2nd ed. with understanding and improving health and objectives for improving health. 2 vols.*

washington, DC: U.S. government printing office, 2000. Retrieved 07/21, 2006, from

http://www.healthypeople.gov/document/html/volume1/09family.htm