

**THE ROLE OF RISK PERCEPTION IN THE PHYSICAL ACTIVITY LEVEL OF A
GROUP OF BLACK WOMEN**

by

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Objective: Research has shown that a variety of socio-demographic and health-related variables influence physical activity. In this study, we explored the role of risk perception and other variables in the physical activity level of a group of Black women.

Methods: The Healthy Black Family Project (HBFP) is an initiative set forth by the University of Pittsburgh's Center for Minority Health. The Family Health History intervention (FHH) is an aspect of the HBFP that assesses disease risk by examining family history. As part of the FHH, information is collected about participants' perceived risk for chronic disease, self-rated health, self-rated weight, and body mass index. In this study, we examined the relationship between these variables and the level of physical activity in two subgroups of Black women at baseline before the FHH intervention; one subgroup of women without disease and one subgroup of women who have at least one chronic condition (cardiovascular disease (CVD), diabetes or high blood pressure (HBP)). We then examined the change in physical activity level in both subgroups 4 weeks after the FHH intervention.

Results: In the population of women with no health conditions, there was a significant relationship between physical activity level and risk perception for disease. Women with low risk perception for CVD and diabetes tended to be physically active. In the population of women with at least one health condition, there was a significant relationship between physical activity, self-reported general health and age. Women who perceived their health as excellent/very good/good

tended to be physically active. Women over age 60 tended to be physically active and women under age 50 tended not to be physically active. There was no significant difference in the change in physical activity 4 weeks after the intervention between the two groups.

Conclusions: The data suggests that Black women affected and unaffected with chronic disease may have different health beliefs and attitudes influencing their decisions to be physically active. The public health significance of this study is that increased knowledge of possible modifiers of physical activity can aid in the implementation of appropriate interventions.

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1.0 INTRODUCTION

This project was made possible by the Center for Minority Health in the University of Pittsburgh's Graduate School of Public Health. The Center was established in 1994 and its mission is to improve the health and well being of racial and ethnic minority populations as outlined by the goals of the government initiative, Healthy People 2010.

The Healthy Black Family Project (HBFP) was initiated in 2005 by the Center for Minority Health. The major goal of this project is hypertension and diabetes prevention in predominantly Black neighborhoods in Pittsburgh, PA. The HBFP also aims to support and assist individuals looking to prevent and manage other chronic diseases. The Family Health History (FHH) intervention is one part of the HBFP where participants are interviewed by genetic counseling graduate students and provided with a health assessment based on their family history information. The participants also have the opportunity to become involved in clinical research trials through the Minority Research Recruitment Database, which is also part of the HBFP. The hope is that this information will empower individuals to take charge of their own health and that of their family and friends. [1]

The following section provides background information regarding healthcare disparities in the US, the impact of obesity and the role of physical activity as a health protective behavior, a summary of a health behavior theory and factors affecting participation in physical activity, and an analysis of information gathered from the family health histories to date. Specifically, we used

two subgroups of women from the HBFP who were affected and unaffected by chronic disease and examined the relationship between physical activity level and several variables including risk perception, self-reported health and weight, body mass index, and socio-demographic factors at a baseline point before the FHH intervention. We then examined the change in physical activity between the two subgroups over a four week time period in two ways. We examined the relationship between changes in physical activity between the two groups and examined the relationship between physical activity level and objective disease risk based on family history in the subgroup of women who were unaffected by disease.

1.1 HEALTHCARE DISPARITIES IN THE UNITED STATES

Healthcare disparities are defined as differences in the incidence, prevalence, and mortality of a disease and related adverse healthcare conditions that exist among specific population groups. These groups can be characterized by gender, age, ethnic background, or socioeconomic status. [2] Significant healthcare disparities exist between Blacks and Whites in the US population. 35 million individuals in American identify as Black, which consist of about 12% population. [3]

According to the Center for Disease Control's (CDC) Office of Minority Health and Health Disparities, life expectancy and overall health has improved for most Americans in recent years. Unfortunately, not all Americans have benefited equally. In 2005, life expectancy for White males was 76 years compared to 70 years for Black males. [4] White females had a life expectancy of 81 years compared to 77 years for Black females. [4] For all cancers, Black men have the highest incidence (590.6) and death rate (296.7) per 100,000 individuals compared to the incidence (526.2) and death rate (223.2) per 100,000 in White men. [5] A similar trend

follows for cancer in women. Despite White women having a higher incidence of cancer (410.1) compared to Black women (380.3) per 100,000 individuals, the death rate from cancer is highest in Black women (180.2) compared to White women (154.9) per 100,000 individuals. [5]

Blacks also suffer disproportionately from other chronic disease. The prevalence of hypertension in US Blacks is among the highest in the world, with 41% of adults affected compared to 28% of White adults. [6] When broken down by gender, about 44.4% of Black men and 43.9% of Black women suffer from hypertension, compared to 34.1% of White men and 30.3% of White women. Diabetes also has a higher prevalence in the Black population, affecting 14.9% of men and 13.1% of women compared to 5.8% of White men and 6.1% of White women. [6] It is also the 5th leading cause of death in the Black community, accounting for over 12,000 deaths in 2005. [7] Diabetes made up 4.4% of total deaths in Blacks compared to 2.8% of Whites, in whom the disease was the 7th leading cause of death. [7] Cardiovascular disease remains the number one cause of death in both Blacks and Whites, however, 45.9% of Black men and women are affected compared to 37.8% of White men and 33.3% of White women. [6]

The reasons for the existence of healthcare disparities in the US are unclear at this point despite determined efforts on the part of many researchers to study this issue. In their chapter “Understanding and Reducing Socioeconomic and Racial/Ethnic Disparities in Health,” House and Williams attribute the poorer health status of Blacks compared to Whites to disadvantages in socioeconomic and racial status. [8] In support of this idea, studies have suggested a correlation between income level, employment, stroke incidence, [9] and poor self-reported health [10] among Blacks when compared to White Americans. Income level and employment, among other factors such as education level, are indicators of socioeconomic status in the US population. Despite this widely accepted argument for the role of socio-economic status in healthcare

disparities, studies have shown that Blacks continue to have poorer self-reported health, even at higher levels of income and occupational prestige. [10] Differences in physicians treating Black patients versus White patients, including inadequacies in training and lack of board certification, may lead to less access to quality healthcare. [10] In addition, there have been numerous reports linking feelings of discrimination with poorer health in the form of chronic illness, disability status, and increased blood pressure. [11] Thomas and Quinn describe a complex web of causation for healthcare disparities including poverty, racism, and the political, social and economic environment. [1] They also summarize the effect of residential racial segregation on healthcare disparities. Although presently illegal, the effect of purposeful attempts from the past to segregate Black and White residents within most US cities continues to affect access to care in the present day. The concentration of Blacks in urban poverty facilitates the creation of unequal access to quality healthcare facilities, supplies of nutritious food, and quality education. [1] In these ways, many factors including socio-economic variables, discrimination, disadvantaged racial status, and unequal access to care may lead to healthcare disparities.

1.2 PHYSICAL ACTIVITY IN THE US

1.2.1 Physical activity and obesity

According to the CDC, more than one third of US adults is obese. [12] This amounts to about 34% of individuals over age 20 and includes 72 million people. [13] Body mass index (BMI) is one method used to determine an individuals' total body fat using a correlation of weight and height. An overweight individual is defined by a BMI of 25-29 kg/m², while an obese individual

is defined by a BMI of greater than or equal to 30 kg/m², which is about 30 pounds overweight. [14] Recent studies have shown that disparities exist in the prevalence of obesity in the US, with 35.7% of Blacks being obese compared to 23.7% of Whites. [15]

Health consequences of obesity include many chronic diseases such as heart disease, type 2 diabetes, cancer, high blood pressure, high cholesterol, and respiratory problems, among other conditions. [12] Weight management can significantly decrease one’s risk for chronic disease and can be achieved through proper diet and exercise. [14] Additionally, evidence suggests that the adoption of healthy lifestyle behaviors including diet and exercise can reduce the risk of chronic disease, even in the absence of an appreciable reduction in weight. [16]

Physical activity as recommended by the CDC is defined as 30 minutes of moderate physical activity at least five days per week or 20 minutes of vigorous physical activity at least three days per week. According to the Behavioral Risk Factor Surveillance System, in 2007 only 48% of adults in the US attained the recommended amount of physical activity, and 13% of adults were inactive. [17] Furthermore, according to the same study, only 40% of Blacks attained the recommended amount of physical activity compared to 51% of Whites. Blacks were also more likely to be inactive, with 19% of Blacks engaging in 10 minutes or less of vigorous or moderate physical activity compared to 10% of Whites being inactive. [17] Gender disparities also exist for physical activity and are summarized in table 1. [17]

Table 1 Physical activity levels in Blacks, Whites, men, and women in 2007

	Attain Recommended Amount of Physical Activity	Not Physically Active
White Males	53.5	10.4
White Females	50.1	11.2
Black Males	45.3	17.2
Black Females	36.3	21.9

1.2.2 Predictors of physical activity

Various studies have examined potential predictors of physical activity, and common themes have emerged. Socio-demographic variables have been shown to be related to physical activity or inactivity. Individuals with a higher education attainment have been shown to be more likely to be physically active, as have individuals with higher income levels. [18] Demographic information including age, race, and gender have also been shown to be associated with different levels of physical activity. [19] Older age is typically associated with physical inactivity, while younger individuals tend to be physically active, but this finding is less consistent across studies. Women tend to be less physically active compared to men, and minorities tend to be less physically active compared to Whites. [19]

Speck and Harrell provide a review of various factors that have been shown to predict physical activity level in women. [20] In addition to confirming the aforementioned pattern of socio-demographic factors related to physical activity, they describe several other predictors. Self-efficacy has been widely studied and is typically associated with increased levels of physical activity in most populations. Defined as the belief of an individual that they are capable of performing a specific behavior, self efficacy appears to be necessary for behavior change, particularly at the start of the change. Closely related to self efficacy, outcome expectations, or the ability to predict the likelihood of a particular outcome, can also predict physical activity. Individuals who are able to see then long term benefit of physical activity are more likely to be physically active. Social factors such as increased support from family and friends and fewer perceived barriers to exercising have been associated with increased physical activity, particularly in women.

1.3 HEALTH BEHAVIOR THEORY

A theory is a systematic way of understanding events or situations by using a set of concepts, definitions, or propositions that explain these events or situations by illustrating the relationships between variables. [21] Theories can be used to investigate the “hows,” “whats,” and “whys” of addressing various health problems. In this way, health behavior theories guide the search for why individuals do or do not engage in certain health behaviors.[21]

The Health Belief Model (HBM) is a health behavior theory that was developed in the 1950s to explain low participation in programs to prevent and detect disease. In his study, Hochbaum concluded that health behavior is determined by personal beliefs or perceptions about a disease and the strategies available to decrease its occurrence. [22] The HBM now involves six constructs that influence people’s decisions about whether to take action to prevent, screen for, and control disease: [21]

Perceived susceptibility: Individuals are ready to act if they believe they are susceptible to a condition

Perceived severity: Individuals are ready to act if they believe a condition has serious consequences

Perceived benefits: Individuals are ready to act if they believe taking action would reduce their susceptibility to a condition or its severity

Perceived barriers: Individuals are ready to act if they believe the costs of taking action are outweighed by the benefits

Cue to action: Individuals are ready to act if they are exposed to factors that prompt action

Self-efficacy: Individuals are ready to act if they are confident in their ability to successfully perform an action

Thus, according to the HBM, individuals who participate in health-promoting activities likely share these common characteristics. Conversely, individuals who do not possess these characteristics are likely not to engage in health-promoting behavior. One aspect of the FHH in the HBFP is a baseline assessment of participants' risk perception for various chronic diseases before the family history intervention takes place. Subsequent to the health assessment based on family history information, participants are again assessed for their risk perception. A goal of the FHH is to correct misperceptions of disease in participants and raise awareness of the role of family history as a risk factor for disease. As defined by the HBM, it is the hope that increased risk perception for chronic disease will empower these participants to take charge of their health by participating in health protective behaviors such as physical activity and maintaining a healthy diet.

Based on the HBM and the FHH intervention, the following question was raised regarding individuals in the HBFP population: why are some people physically active and others not? This study aims to examine the relationship between risk perception, socio-demographic variables, self-reported weight, self-reported health, BMI and self-reported physical activity in Black women from the HBFP population. We have two hypotheses. One, that individuals who are physically active have a higher risk perception for disease and two, individuals who are physically active think they are at a higher risk for disease compared to individuals their same age.

2.0 METHODS

2.1 THE HEALTHY BLACK FAMILY PROJECT

The HBFP was initiated in 2005 by the Center for Minority Health. The major goal of this project is hypertension and diabetes prevention in predominantly Black neighborhoods in Pittsburgh, PA. HBFP also aims to support and assist individuals looking to prevent and manage other chronic diseases. The Family Health History (FHH) is a HBFP intervention where participants are interviewed by a genetic counseling student and provided with a disease risk assessment based on their family history information. The participants also have the opportunity to become involved in clinical research trials through the Minority Research Recruitment Database, which is also part of the HBFP. The hope is that this information will empower individuals to take charge of their own health and that of their family and friends.

The Family Health History is conducted at the Kingsley Center, a community center located in the neighborhood of East Liberty in Pittsburgh, PA. Health coaches working with the HBFP provide the genetic counseling graduate students with a call list of individuals who are interested in joining the program or who have just recently become members. The students contact these individuals, explain the purpose and procedures of the Family Health History intervention, and ask if they would like to participate. If they agree, then a mutually agreeable time is established and the student and participant meet at the Kingsley.

The FHH involves three surveys and a health assessment using the participant's family health history. Before the surveys are administered, consent is obtained following standards as outlined by the Institutional Review Board of the University of Pittsburgh (see Appendix A). Upon consent, a presurvey is administered, followed by a family health history analysis and risk assessment performed by the genetic counseling graduate student. A postsurvey is administered at the end the FHH session. Four weeks after the session, the participant is contacted via telephone for a follow-up survey.

2.2 SURVEYS

Presurvey

The presurvey was designed to collect self-reported information about demographics, health habits, body image, risk perception, and physical activity level (see Appendix B).

The presurvey was administered at the beginning of the session after consent was obtained. Demographic information in the survey included age, race, income, education, and health insurance status. Questions regarding health habits such as self-reported health status, weight, and smoking habits were included in the survey. Using pictorial images, participants answered questions regarding personal body image and the body images of their peers and fellow community members. Questions regarding risk perception for chronic disease included personal risk perception, risk perception compared to individuals their same age, risk perception for men vs. women, and risk perception regarding environmental factors and family history. Physical activity level was measured by the self-reported length of time a participant has been engaged in regular physical activity as defined by the national recommendation.

Postsurvey

The postsurvey was designed to collect information regarding changes in risk perception as a result of the FHH intervention, opinions on research, and information seeking behavior (see Appendix C).

Because the post survey was partially designed to collect information about changes in risk perception for chronic disease, similar questions to the presurvey regarding personal risk perception, risk perception compared to individuals of the same age, risk perception for men vs. women, and risk perception regarding environmental factors and family history were repeated. Questions regarding opinions on medical research including research involving humans, attitudes toward participation in research, and benefits of research were also asked. Questions regarding information seeking behavior, sources of information and frequency of information seeking were also included in the postsurvey.

Follow-up Survey

The follow-up survey was designed to collect self-reported information about changes in relationships with healthcare professionals and family members, physical activity levels, behavior changes, and information seeking behavior (see Appendix D).

The post survey was administered four weeks after the Family Health History session through a telephone interview. Questions about actions and changes in behavior following the FHH included whether or not participants shared their family history with family members, friends, or healthcare professionals and the outcome of sharing the information. Physical activity level was measured the same way as in the presurvey by self-reported length of time a participant has been engaged in regular physical activity as defined by the national recommendation.

Questions regarding motivation to increase knowledge about health conditions in the family and methods of obtaining that knowledge were also included.

2.3 FAMILY HEALTH HISTORY ANALYSIS

A genetic counseling graduate student obtained a three generation family health history from each participant, as was reported to them. The goal of the family health history was to gather information about the health of the participant and their family members. This information included current age or age of death, health conditions, and the age of diagnosis of the conditions for first and second degree relatives including offspring, brothers and sisters, parents, aunts and uncles, and grandparents of the participant. All health conditions were noted on the family health history, with special attention made to chronic diseases including Alzheimer's disease, cancer, high blood pressure, diabetes mellitus, and cardiovascular disease.

Once the family health history was recorded, the genetic counseling student was able to provide a risk assessment for each chronic disease based on the information provided. Using guidelines from Scheuner et al [23] (Figure 1) each participant was identified as average, moderate, or high risk for the chronic diseases mentioned above.

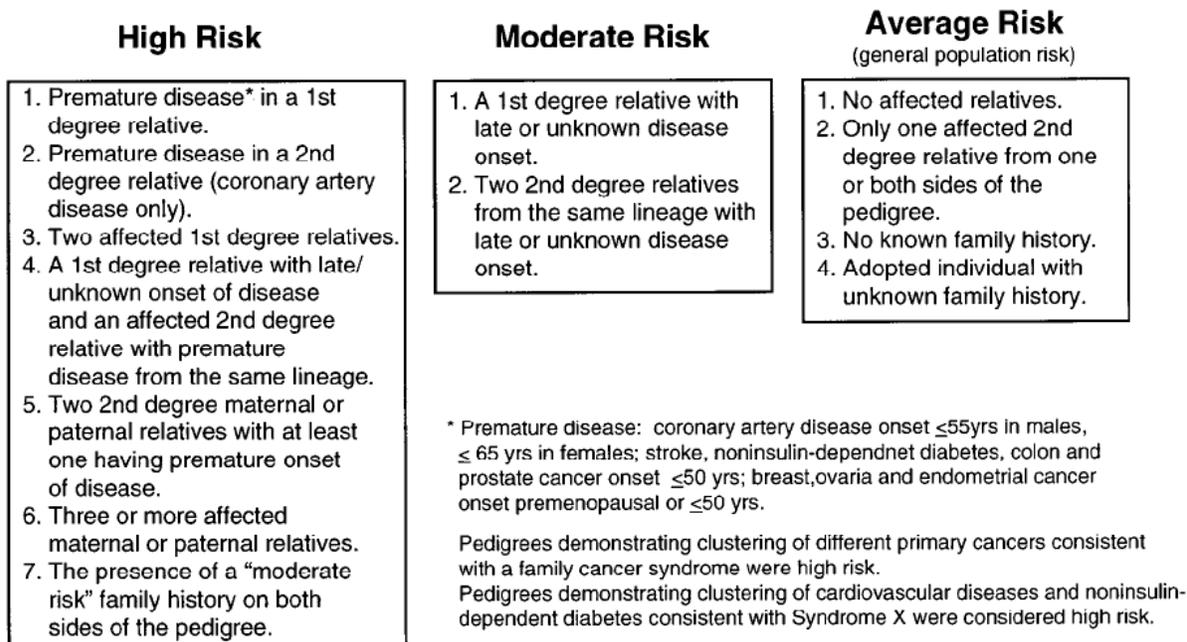


Figure 1 Guidelines for risk stratification from Scheuner 1997

2.4 DATA COLLECTION

Survey information was collected on paper during the FHH interview, then entered and recorded using Perseus SurveySolutions 6[®]. Family history information was also collected on paper during the interview, then contact information, family history information, and the participant's risk stratification was entered and recorded using Progeny Software[®]. For this analysis, the following presurvey data were utilized: socio-demographic information, risk perception for cardiovascular disease (CVD), diabetes mellitus (diabetes), and high blood pressure (HTN), physical activity level, self-reported weight and general health, and objective risk based on the family history.

Risk perception was measured in two ways using perceived risk and comparative risk. Perceived risk was determined by asking participants "at this time, what do you think your

chances are of developing any of the following health conditions sometime in your life?” with possible responses including “low (<10%),” “moderate (10-50%),” “high (>50%),” “don’t know/not sure”, or “I already have the condition.” Comparative risk was determined by asking participants “at this time, what do you think your chance are of developing any of the following health conditions someday, compared with most individuals your age?” with possible responses including “much lower,” “somewhat lower,” “same,” “somewhat higher,” “much higher,” “don’t know/not sure,” or “I already have the condition.”

Physical activity level was measured by providing participants with the national recommendation for physical activity, and asking their level of physical activity. Possible responses included “yes, I have been for more than 6 months,” “yes, I have been for less than 6 months,” no, but I am planning on starting in the next 30 days,” “no, but I am thinking about starting in the next 6 months,” or “no, and I don’t plan to start in the next 6 months.” Physical activity level was measured this way in the presurvey and in the follow-up survey. For the purposes of our analysis, individuals who responded with the first two responses were labeled as physically active, and those who responded with the last three responses were labeled as not physically active.

Self-reported weight was measured by asking participants to describe their weight as either “underweight,” “healthy weight,” “overweight,” or “obese.” Self-reported general health was described by asking participants to describe their general health as “excellent,” “very good,” “good,” “fair,” or “poor.” Objective risk for disease in each participant was obtained using guidelines for risk stratification as previously described.

2.5 STATISTICAL METHODS

All information was transferred to SPSS[®] (Statistical Package for the Social Sciences) for statistical analysis. Univariate analysis was used to conduct descriptive statistics for each variable. Bivariate analysis was used to conduct the Chi Squared test for categorical data and was used to determine the relationship between socio-demographic variables, perceived and comparative risk, self-reported weight and general health, BMI and physical activity.

3.0 RESULTS

3.1 DEMOGRAPHICS

Socio-demographic information for the study sample is included in Table 2. It includes 546 women, the majority of whom self-identified as Black (n=536). The mean age of the women was 54 years, ranging from 19-85 years. The great majority of the sample had at least a high school diploma or GED and some type of health care coverage, and most of the sample earned at least \$20,000 in income. Most of the sample for which BMI information is available classified as obese or overweight and the sample was largely made up of non-smokers.

Table 2 Socio-demographic information of the study sample

Age	Total Number of Women	(%)
Under 30	33	6.0
30-39	54	9.9
40-49	129	22.2
50-59	186	34.1
60-69	104	19.0
Over 70	48	8.8
Education level		
Grade 8 or less	1	0.2
Grades 9-11	5	0.9
High school graduate or GED	112	20.5
College 1 year to 3 years	250	45.8
College 4+ years or college graduate	94	17.2
Graduate level	78	14.3
Not answered	6	1.1
Income		
Under \$10,000	56	10.3
\$10,000-\$20,000	100	18.3
\$20,001-\$30,000	131	24.0
\$30,001-\$50,000	100	18.3
\$50,001-\$75,000	73	13.4
Over \$75,000	43	7.9
Not answered	43	7.9
Health Care Coverage		
Yes	489	89.6
No	50	9.2
Don't know	4	0.7
Not answered	3	0.5
BMI		
underweight	3	0.5
normal	29	5.3
overweight	89	16.3
obese	212	38.8
unavailable	213	39
Smoking		
Yes	76	13.9
No	641	84.4
Not answered	9	1.6

The women in this study were divided into two subgroups. Individuals in the ‘no condition’ subgroup did not report to be affected with CVD, diabetes, or HTN during the FHH intervention. Individuals in the ‘at least one condition’ subgroup reported being affected with at least one of these conditions. Two subgroups were created because individuals who are affected or unaffected with disease may have different responses to physical activity.

A two-step analysis was conducted. The first step was a cross-sectional examination of the relationship between physical activity level, socio-demographic factors, risk perception, general health, weight, and BMI at baseline defined as the time of the presurvey. This was performed for the no condition subgroup and the at least one condition subgroup. The second step involved two parts. First, an examination of the relationship between the change in physical activity between the no condition and the at least one condition subgroups and second, an examination of the relationship between physical activity level and objective risk for CVD, diabetes, and HTN as defined by the family history in individuals in the no condition subgroup.

Physical activity level, risk perception, general health, and weight were self-reported at baseline in the presurvey before the family health history was taken. Physical activity level was measured as either yes or no. Risk perception was measured in two ways using perceived risk and comparative risk. In measuring comparative risk, individuals describing that their risk perception was “much lower” or “somewhat lower” were both described as “lower;” individuals describing that their risk perception was “much higher” or “somewhat higher” were described as “higher; and individuals describing that their risk perception was the “same” remained as “same.” Perceived general health was measured as excellent/very good/good or fair/poor. Perceived weight was measured as healthy weight, overweight, or obese. BMI was obtained during a health assessment prior to or subsequent to the Family Health History interview.

Change in physical activity level using follow-up survey information was available for 102 women in the no condition subgroup and 150 women in the at least one condition subgroup. This information was available by determining the difference between physical activity level at baseline during the presurvey and four weeks later at the time of the follow-up survey. The change in physical activity was measured as increased, no change, or decreased.

Only women with self-reported physical activity data were included in the study. Within this sample, individuals who did not respond to a question, who responded with “don’t know/not sure,” or who responded with “I already have the condition” were excluded from the statistical analysis. Because of low sample numbers, individuals describing their weight as “underweight” (n=5) and individuals with a BMI of underweight (n=2) were excluded from analysis.

Within the subgroup of women with at least one condition, women who responded with “I already have the condition” when questioned about their risk perception for disease were excluded from analysis. This explains the decrease in the number of women included in the analysis for this subgroup.

Table 3 Participants included in statistical analysis

Analysis variable	No Condition		At Least One Condition	
	Included in analysis	Excluded from analysis	Included in analysis	Excluded from analysis
Physical activity level	245	0	296	0
Perceived risk for CVD	223	22	230	66
Perceived risk for diabetes	229	16	197	99
Perceived risk for HTN	223	22	124	172
Comparative risk for CVD	219	75	225	71
Comparative risk for diabetes	221	77	180	166
Comparative risk for HTN	216	77	104	192
Weight	236	9	289	7
General health	240	5	293	3
BMI	135	110	193	103

Statistical Methods

The aim of this study was to examine the relationship between risk perception, socio-demographic variables, self-reported weight, self-reported health, BMI and self-reported physical activity in Black women from the HBFP population. This aim was achieved in two steps. The first step was to determine the relationship between physical activity and the following variables in both populations at baseline: perceived risk for CVD, diabetes and HTN, comparative risk for CVD, diabetes, and HTN, perceived weight, perceived general health, and BMI. The second step had two parts: to examine the change in physical activity level in the two study subgroups and determine if there was a significant difference between the two; and determine if there was a relationship between physical activity four weeks after the FHH intervention and objective risk based on family history in the no condition subgroup. The study sample was dichotomized into

two different subgroups of women with no conditions (n=245) and with at least one condition (n=296) because individuals who have a condition are no-longer 'at-risk,' and their response to physical activity may differ. Chi-squared statistics were used to test for differences between each variable and physical activity within the subgroups.

3.2 NO CONDITION SUBGROUP AT BASELINE

The relationships between physical activity and socio-demographic variables including income, education, access to health care coverage, and age were not significant in the no condition subgroup. Education categories of grade 8 or less (n=0) and grades 9-11 (n=3) were excluded due to small sample size.

Table 4 Chi square analysis of socio-demographic data for no condition subgroup (*P<0.05)

Socio-demographic Variables	Physical Activity		p-value
	Yes	No	
Income			P=0.596
Under \$10,000	13 (59%)	9 (41%)	
\$10,000-\$20,000	18 (44%)	23 (56%)	
\$20,001-\$30,000	35 (58%)	25 (42%)	
\$30,001-\$50,000	29 (60%)	19 (40%)	
\$50,001-\$75,000	21 (57%)	16 (43%)	
Over \$75,000	13 (57%)	7 (35%)	
Education			P=0.833
High school graduate or GED	16 (52%)	15 (48%)	
College 1 year to 3 years	61 (54%)	51 (46%)	
College 4+ years or college graduate	32 (60%)	21 (40%)	
Graduate level	24 (59%)	17 (41%)	
Health Care Coverage			P=0.961
Yes	120 (57%)	90 (43%)	
No	17 (57%)	13 (43%)	
Age			P=0.734
Under 30	16 (52%)	15 (48%)	
30-39	23 (59%)	16 (41%)	
40-49	46 (55%)	37 (45%)	
50-59	31 (61%)	20 (39%)	
60-69	18 (60%)	12 (40%)	
Over 70	4 (36%)	7 (64%)	

The relationship between physical activity and self-reported weight was significant in the no condition subgroup. Women who described themselves as being a healthy weight tended to be physically active. There was no significance between self-reported health or BMI and physical activity level.

Table 5 Chi square analysis of health variables for no condition subgroup (*P<0.05)

Health Variables	Physical Activity		p-value
	yes	no	
Weight			*P= 0.012
Healthy	39 (74%)	14 (26%)	
Overweight	78 (53%)	70 (47%)	
obese	16 (46%)	19 (54%)	
General Health			P=0.107
Excellent/very good/good	114 (59%)	80 (41%)	
Fair/poor	21 (46%)	25 (54%)	
BMI			P= 0.652
Normal	9 (64%)	5 (36%)	
Overweight	21 (51%)	20 (49%)	
obese	41 (51%)	39 (49%)	

Among women in the no condition subgroup, there was a significant relationship between self-reported physical activity level and perceived risk for CVD and diabetes. Individuals with low perceived risk for each of these diseases tended to be physically active, and individuals with high perceived risk for these diseases tended to be physically inactive. There was no significant relationship between perceived risk for HTN and physical activity levels, but the trend was similar to that seen for CVD and diabetes.

Table 6 Chi square analysis of perceived risk data for no condition subgroup (*P<0.05)

Risk Perception	Physical Activity		p-value
	Yes	No	
Risk Perception for CVD			*P=0.049
Low	57 (66%)	30 (34%)	
Moderate	46 (51%)	44 (49%)	
High	21 (46%)	25 (54%)	
Risk Perception for Diabetes			*P=0.008
Low	46 (63%)	27 (37%)	
Moderate	53 (62%)	33 (38%)	
High	28 (40%)	42 (60%)	
Risk Perception for HTN			P=0.157
Low	44(64%)	25 (36%)	
Moderate	47 (53%)	42 (47%)	
High	31 (48%)	34 (52%)	

There was a significant relationship between physical activity and comparative risk for CVD, diabetes, and HTN in the no condition subgroup. Women who described their risk for these conditions as lower compared with individuals their age tended to be physically active.

Table 7 Chi square analysis of comparative risk for no condition subgroup (*P<0.05)

Comparative Risk	Physical Activity		p-value
	yes	no	
Comparative Risk for CVD			*P=0.035
Lower	54 (67%)	27 (33%)	
Same	32 (46%)	37 (54%)	
Higher	36 (52%)	33(48%)	
Comparative Risk for Diabetes			*P=0.011
Lower	57 (68%)	27 (32%)	
Same	26 (45%)	32 (55%)	
Higher	39 (49%)	40 (51%)	
Comparative Risk for HTN			*P=0.000
Lower	60 (71%)	24 (29%)	
Same	24 (41%)	34 (59%)	
Higher	34 (46%)	40 (54%)	

3.3 AT LEAST ONE CONDITION SUBGROUP AT BASELINE

In the subgroup of women with at least one condition, there was no significance in the relationship between physical activity level and income or availability of health care coverage. The relationship between physical activity level and education level was significant, but there was no discernible pattern along the education continuum. There was a significant relationship between age and physical activity, with women over the age of 60 tending to be physically active and women under age 50 tending to be physically inactive. Education categories of grade 8 or less (n=0) and grades 9-11 (n=3) were excluded due to small sample size.

Table 8 Chi square analysis of socio-demographic variables for at least one condition subgroup (*P<0.05)

Socio-demographic Variables	Physical Activity		p-value
	Yes	No	
Income			P=0.114
Under \$10,000	14 (42%)	19 (58%)	
\$10,000-\$20,000	33 (56%)	26 (44%)	
\$20,001-\$30,000	30 (42%)	41 (58%)	
\$30,001-\$50,000	31 (60%)	21 (40%)	
\$50,001-\$75,000	20 (59%)	14 (41%)	
Over \$75,000	16 (70%)	7 (30%)	
Education			*P=0.035
High school graduate or GED	36 (45%)	44 (55%)	
College 1 year to 3 years	79 (58%)	56 (42%)	
College 4+ years or college graduate	17 (41%)	24 (59%)	
Graduate level	24 (67%)	12 (33%)	
Health Care Coverage			P=0.094
Yes	149 (54%)	125 (46%)	
No	7 (35%)	13 (65%)	
Age			*P= 0.017
Under 40	4 (29%)	10 (71%)	
40-49	16 (43%)	21 (57%)	
50-59	68 (50%)	67 (50%)	
60-69	43 (59%)	30 (41%)	
Over 70	27 (73%)	10 (27%)	

The relationship between physical activity level and self-reported weight and self-reported general health was significant in the subgroup of women with at least one condition. Individuals describing themselves to be a healthy weight tended to be physically active, while individuals describing themselves as obese tended to be physically inactive. Individuals describing their health as excellent/very good/good tended to be physically active, while individuals describing their health as fair/poor tended to be physically inactive. There was no significance between BMI and physical activity level.

Table 9 Chi square analysis of health variables for the at least one condition subgroup (*P<0.05)

Health Variables	Physical Activity		p-value
	yes	no	
Weight			*P= 0.002
Healthy	38 (68%)	8 (32%)	
Overweight	94 (54%)	80 (46%)	
obese	21 (36%)	38 (64%)	
General Health			*P=0.000
Excellent/very good/good	116 (62%)	71 (38%)	
Fair/poor	40 (38%)	66 (62%)	
BMI			P= 0.152
Normal	9 (60%)	6 (40%)	
Overweight	32 (68%)	15 (32%)	
obese	68 (52%)	63 (48%)	

Among women who reported being affected with at least one condition, there was no significance between perceived risk for CVD, diabetes, and HTN and physical activity. Perceived risk for CVD came close to being significant, and showed that individuals with low perceived risk for CVD tended to be physically active, and individuals with high perceived risk tended to be physically inactive.

Table 10 Chi square analysis of perceived risk for the at least one condition subgroup (*P<0.05)

Risk Perception	Physical Activity		p-value
	Yes	No	
Risk Perception for CVD			P=0.054
Low	32 (64%)	18 (36%)	
Moderate	51 (54%)	43 (46%)	
High	37 (43%)	49 (57%)	
Risk Perception for Diabetes			P=0.297
Low	34 (64%)	19 (36%)	
Moderate	26 (50%)	26 (50%)	
High	49 (53%)	43 (47%)	
Risk Perception for HTN			P=0.483
Low	10(71%)	4 (29%)	
Moderate	15 (56%)	12 (44%)	
High	45 (54%)	38 (46%)	

Among women with at least one condition, there was a significant relationship between physical activity and comparative risk for CVD. Individuals who described their risk for CVD as lower compared to peers their age tended to be physically active, while people who described their risk for CVD as higher compared to individuals their age tended to be physically inactive. There was no significance between physical activity level and comparative risk for diabetes or HTN.

Table 11 Chi square analysis of comparative risk for the at least one condition subgroup (*P<0.05)

Comparative Risk	Physical Activity		p-value
	yes	no	
Comparative Risk for CVD			*P=0.009
Lower	42 (64%)	24 (36%)	
Same	32 (57%)	24 (43%)	
Higher	42 (41%)	61 (59%)	
Comparative Risk for Diabetes			P=0.585
Lower	33 (58%)	24 (42%)	
Same	28 (56%)	22 (44%)	
Higher	36 (49%)	37 (51%)	
Comparative Risk for HTN			P=0.247
Lower	13 (72%)	5 (28%)	
Same	15 (65%)	8 (35%)	
Higher	33 (52%)	30 (48%)	

3.4 FOLLOW-UP PHYSICAL ACTIVITY

Within both subgroups of women with no health conditions and women with at least one condition, there was no significant relationship between women who increased, decreased, or did not change their physical activity level between baseline and at the follow-up survey.

Table 12 Chi square analysis of change in physical activity between the subgroups of women (*P<0.05)

	Physical Activity			P-value
	Decrease	No Change	Increase	
No Condition	28 (27%)	55 (54%)	19 (19%)	
At Least One Condition	32 (21%)	76 (51%)	42 (28%)	
				P= 0.194

Among women with no health conditions, there was no significant relationship between their self-reported physical activity level at follow-up and their objective risk for CVD, diabetes, or HTN based on family history.

Table 13 Chi square analysis of change in objective risk in no condition subgroup (*P<0.05)

Objective Risk	Follow-up Physical Activity		p-value
	Yes	No	
CVD			P=0.885
Average	26 (55%)	21 (45%)	
Moderate	8 (61%)	5 (39%)	
High	25 (60%)	17 (40%)	
Diabetes			P=0.758
Average	26 (54%)	22 (46%)	
Moderate	12 (63%)	7 (37%)	
High	21 (60%)	14 (40%)	
HTN			P=0.627
Average	16 (52%)	15 (49%)	
Moderate	13 (65%)	7 (35%)	
High	30 (59%)	21 (41%)	

4.0 DISCUSSION

The aim of this study was to examine the relationship between risk perception, socio-demographic variables, self-reported weight, self-reported health, BMI and self-reported physical activity in Black women from the HBFP population. This aim was achieved in two steps. The first step determined the relationship between physical activity and the following variables in two subgroups at baseline: perceived risk for CVD, diabetes and HTN, comparative risk for CVD, diabetes, and HTN, perceived weight, perceived general health, and BMI. The second step had two parts: to examine the change in physical activity level in the two study subgroups and determine if there was a significant difference between the two; and determine if there was a relationship between physical activity four weeks after the FHH intervention and objective risk based on family history in the subgroups of women with no health conditions.

The current study showed that in comparing women with no health conditions and women with at least one health condition, there were more significant relationships between risk perception and physical activity in women with no conditions. In the no condition subgroup, women with low perceived risk for CVD and diabetes, and low comparative risk for CVD, diabetes, and HTN tended to be physically active. In the at least one condition subgroup, there was only one significant relationship involving perceived and comparative risk for CVD: women with low perceived risk for CVD and low comparative risk for CVD tended to be physically active.

Physical Activity and Risk Perception

Previous studies have examined the relationship between risk perception and health protective behavior. It has been determined that higher risk perception can be associated with increased participation in health protective behavior, such as diet, exercise, disease screening, or vaccinations. [24] However, alternatives to this finding have been described and include ideas such as optimistic biases or unrealistic optimism. Defined as the belief that one's own risk of a poor outcome is less than that of the average person, optimistic biases and unrealistic optimism have been found in a variety of health-related topics including smoking and cancer. [25-26] Overall, these studies show that many people perceived their risk of death from smoking or developing cancer to be less than that of the average person. This type of mindset has been shown to have many consequences such as increased likelihood of engaging in risky behavior or not engaging in health protective behaviors.

The results from our subgroup of women without health conditions showing a significant relationship between low risk perception for chronic diseases and participation in physical activity and in our subgroup of women with at least one condition showing a significant relationship between low risk perception for CVD and participation in physical activity suggest that a theory different from what has been shown in the literature may be playing a role. Based on our analysis, women who are unaffected by a chronic condition may view their risk for disease to be low based on the fact that they are physically active. Women with at least one chronic condition may not share this view because they are already affected with a condition. Both subgroups of women showed a significant relationship between low risk perception for CVD and participation in physical activity. This could be explained by misperceptions of CVD risk in the women, which has been shown in previous studies. [27] It could also be explained by

educational messages and public health campaigns that have been aimed at increasing awareness of CVD risk factors and ways to decrease the chance of developing CVD.

Studies have shown that the presence or absence of a family history of disease has an effect on risk perception for disease, which can translate into worry about the disease. [28] This increased risk perception and worry may or may not lead to health protective behavior in these individuals. Even in the presence of high risk factors, some individuals may inaccurately perceive their risk as low. [29-30] Particularly in the case of our sample as participants of an intervention, individuals who do not have a health condition may have an incorrect risk perception for disease. This may distort the attempt to examine the relationship between risk perception and physical activity level. Unpublished studies have shown the FHH Intervention is effective in correcting risk perceptions in our sample, so using risk perception data and physical activity levels subsequent to the intervention may provide more valid results. In the second part of the study, we examined this possibility. We found that there was no significant relationship between the objective risk for chronic disease based on family history and follow-up physical activity level in our subgroup of women with no conditions. These results indicate that there could be other factors in addition to risk perception playing a role in the physical activity. Additional studies would be necessary to investigate this possibility.

Also in the second step of the study, we found no significant relationship between the change in physical activity level between the no condition subgroup and the at least one condition subgroup, although there were slightly more individuals with at least one condition who increased their physical activity between baseline and follow-up. These results suggest that behaviors and actions involving the maintenance, increase, or decrease in physical activity may not differ between individuals who are or are not affected with disease.

Physical Activity and Socio-demographic Variables

There was no significant relationship between socio-demographic information and physical activity level in the no condition subgroup. In the at least one condition subgroup, however, there was a significant relationship between physical activity level and age. The data showed that individuals aged 60 and above tended to be physically active, and individuals under age 50 tended not to be physically active. These results were unexpected, since increasing age is typically associated with decreased physical activity level. [20] Considering a subgroup of individuals with at least one chronic disease was examined and we know that chronic diseases tend to occur at later ages, these results may indicate the acknowledgement of physical activity as a health benefit in the population. The results may also be due to the recommendations by healthcare providers of the population. We described before that about 90% of our sample has some type of health care coverage, so the increased physical activity level of older individuals with at least one chronic condition may also be attributed to increased doctor visits by these individuals and subsequent lifestyle changes due to the visits.

There was also a significant relationship between physical activity level and education in the at least one condition subgroup, but the relationship did not follow the education continuum as described by previous studies. These studies typically show that as educational attainment increases, so does physical activity level. [19]

Physical Activity and Health Variables

There was a significant relationship between physical activity and perceived weight in both the no condition and at least one condition subgroups. In both subgroups, individuals who perceived their weight as healthy were more likely to be physically active, while individuals who perceived themselves to be obese were more likely not to be physically active. The trend appeared a bit

more pronounced in the population of women with at least one condition. Furthermore, there was also a significant relationship between physical activity and perceived general health in this subgroup that was not seen in the subgroup of women unaffected with health conditions. Previous studies have shown that individuals in good or better health are more likely to be physically active when compared to individuals in poor health [19] and regular exercise is associated with higher self-rated health [31], so our results are not unexpected. The significant relationship between physical activity and self-reported general health found in the at least one condition subgroup, but not in the no condition subgroup may be due to increased perception of physical activity as a health benefit. Individuals who are affected with a chronic condition may have increased awareness of health and wellness because they may be taking medications and having increased doctor visits.

Of note in our subgroups is the lack of relationship between BMI and physical activity level. Unpublished data has shown the existence of a significant difference in weight perceptions and actual BMI in our population. This is evident in our analysis population with the non-concordance between the proportion of women with self perceptions of weight as healthy and the proportion of overweight and obese women.

Conclusions

Overall, results from our analysis suggest similar predictors of physical activity as found in the literature, including feelings of health and perceptions of weight. It also suggests that behaviors and decisions to engage in health protective behavior such as physical activity may differ between individuals who are and are not affected with disease. These differences may exist within the risk perceptions for chronic disease, within the difference in healthcare between the two populations or other factors not examined in the current analysis. The public health

implications of this study involve the ability to use this information to tailor interventions to best fit the needs of the respective population. Having the knowledge of factors that influence the physical activity level of certain populations can also help in the provision of specific resources aimed at increasing health protective behavior.

4.1 LIMITATIONS

There are several limitations in this study. The first is its cross-sectional nature. Although the current study investigated possible reasons for differences in physical activity level in the sample, none of the analysis is able to provide a definitive answer. Even though areas of further study have been elucidated, there are remaining factors that have yet to be explored. Further studies would be required to determine the causation of difference in physical activity level in the sample.

A second limitation is the sample used in our analysis. The majority of the sample resides within 3 predominantly Black neighborhoods in Pittsburgh, PA termed the Health Empowerment Zone. Despite the inclusion of an underserved, minority population in our study, the fact that the majority of them reside in similar areas in Southwestern PA may bias the data and hinder the applicability to Blacks in other geographic locations. Additionally, all of the study population was recruited through an intervention study at a community center. The data may also be biased toward individuals who attend classes and events at community centers, are motivated to become involved in programs offered by the community center, or who have an interest in participating in research.

The self-reported nature of the study variables is also a limitation. For purposes of studying physical activity level, we have no way of knowing whether individuals were as physically active as they reported on their survey questionnaires. Having the ability to keep track of the actual amount of physical activity individuals participate in, and being able to examine our study variables with that information would be more informative than a self report. In addition, follow-up data regarding physical activity was not available for our entire population. Fewer numbers in the second part of the study could have biased the data due to the exclusion of part of the sample.

4.2 FUTURE STUDIES

The current study provided ample ideas for further studies, especially due to the unique demographics of the study sample. Studies involving Blacks typically exhibit a certain socio-demographic range that tends to cluster at the lower end of the economic spectrum. Although these sample populations are useful in the study of healthcare disparities and other topics, they may contribute to a bias that does not necessarily exist in many Blacks in the US. The Black middle class is a population that has been under-represented and understudied at this point, and our study sample appeared to provide an untapped resource. Examination of the socio-demographics of the women from our study in Table 2 shows that the majority of our sample had a high school diploma or GED or some college experience. Also, more than half of our sample had an income above the poverty line of about \$22,000, [32] and about 90% of our sample had some type of health coverage. Additional studies involving health perceptions and behavior in

this middle class group would provide additional knowledge in the study of healthcare disparities.

Our current study sample consisted of over 500 participants. Only women were included in the analysis and only about half of the sample had follow-up surveys available for analysis. A larger sample with more follow-up surveys would increase the number of participants used in the second part of the study and allow for continued analysis. An increase in the number of male participants would also allow the analysis to occur in another underserved, understudied sample population. A similar study examining the role of risk perception in the physical activity level of men could provide information about their health protective behaviors. In addition, an increase in sample size would also allow for a more comprehensive statistical analysis involving multivariate analysis. This type of analysis would allow for the development of a model that could be used to predict the factors most involved in influencing physical activity level.

Additional variables in our sample could also be examined for a relationship with physical activity. Especially when dealing with risk perception for chronic disease, an important factor to keep in mind is age. Our results showed that there was a significant relationship between age and physical activity level in the subgroup of women with at least one health condition, so it would be interesting to further explore this trend. Further studies could involve stratifying the sample by age instead of disease status. Demographic information from our study showed that there was a fairly even distribution of ages, so it would be interesting to explore the relationship between risk perception and physical activity in younger subgroups vs. older subgroups. Judging from our current results, we could expect to find something different from what is typically reported in the literature and may have implications for further interventions.

The focus of our study involved the role of risk perception in physical activity level. Although some trends were seen, a further study would benefit from the inclusion of other factors known to affect physical activity levels including self-efficacy and social support. Conclusions from the current study indicate the possibility of factors other than risk perception as playing a role in the physical activity level of our sample, so further information could be gleaned from the inclusion of additional survey questions or a more extended follow-up survey.

Additionally, observations made by the genetic counseling graduate students while performing the FHH at the Kingsley support the hypothesis that social support may play an important role in the physical activity level of our sample. The Kingsley provides an area for socialization for many different age groups due to the variety of activities offered at different times. Particularly before and after fitness classes begin, the Kingsley is always crowded with fitness class participants socializing with one another and with the fitness instructors. The Kingsley has also been known to accommodate suggestions made by HBFP members by providing fitness classes at times that are most convenient for them. For example, classes geared toward senior citizens are offered during the morning hours as was requested by these individuals due to convenience. Taken together, these observations at the Kingsley provide evidence that social support may be a key feature in encouraging HBFP members to be physically active.

APPENDIX A

HBFP SURVEY IRB APPROVAL



University of Pittsburgh
Institutional Review Board

3500 Fifth Avenue
Pittsburgh, PA 15213
(412) 383-1480
(412) 383-1508 (fax)
<http://www.irb.pitt.edu>

Memorandum

To: Dr. Stephen Thomas
From: Sue Beers PhD, Vice Chair
Date: 2/10/2009
IRB#: IRB0403125
Subject: **THE HEALTHY BLACK FAMILY PROJECT: Assessing the Response of African Americans to Family Health Histories**

Your research study has received expedited review and approval from the University of Pittsburgh Institutional Review Board under:
45 CFR 46.110.(7)

Please note the following information:

Approval Date: 2/9/2009
Expiration Date: 2/19/2010

Please note that it is the investigator's responsibility to report to the IRB any unanticipated problems involving risks to subjects or others [see 45 CFR 46.103(b)(5) and 21 CFR 56.108(b)]. The IRB Reference Manual (Chapter 3, Section 3.3) describes the reporting requirements for unanticipated problems which include, but are not limited to, adverse events. If you have any questions about this process, please contact the Adverse Events Coordinator at 412-383-1480.

The protocol and consent forms, along with a brief progress report must be resubmitted at least one month prior to the renewal date noted above as required by FWA00006790 (University of Pittsburgh), FWA00006735 (University of Pittsburgh Medical Center), FWA00000600 (Children's Hospital of Pittsburgh), FWA00003567 (Magee-Womens Health Corporation), FWA00003338 (University of Pittsburgh Medical Center Cancer Institute).

Please be advised that your research study may be audited periodically by the University of Pittsburgh Research Conduct and Compliance Office.

APPENDIX B

PRESURVEY

An important aim of genetic counseling is to provide risk information so that individuals and families can make better informed decisions about their health and that of their families. The purpose of this survey is to explore your perceptions of risk for developing certain health conditions. We want to understand whether family health histories (i.e., sharing information about diseases in your family) can help provide you with a more accurate assessment of your risk for developing particular health conditions.

If there is a question that you do not feel comfortable answering, you can skip it and continue on.

Please answer the following questions to the best of your ability.

DO NOT PROVIDE ANY NAMES OF FAMILY MEMBERS.

The survey should take approximately 10 minutes.

We would like to thank you in advance for your willingness to participate in this survey.

Section 1: General Information

1) What is your age?

__ __ age in years

2) What is your gender?

- 1 - Male
- 2 - Female

3) Are you Hispanic or Latino?

- 1 - Yes
- 2 - No
- 3 - Don't know

3a) Which one or more of the following would you say is your race? **(Check all that apply)**

- 1 - White
- 2 - Black or Black
- 3 - Asian
- 4 - Native Hawaiian or Other Pacific Islander
- 5 - American Indian, Alaska Native
- 6 - Other [specify] _____

4) What was the total household income from all sources last year?

- 1 - Less than \$10,000
- 2 - Between \$10,000 and \$20,000
- 3 - Between \$20,001 and \$35,000
- 4 - Between \$35,001 and \$50,000
- 5 - Between \$50,001 and \$75,000
- 6 - Greater than \$75,000

5) What is the highest grade or year of school you completed?

- 1 - Grades 8 or less (Elementary)
- 2 - Grades 9 through 11 (Some high school)
- 3 - Grade 12 or GED (High school graduate)
- 4 - College 1 year to 3 years (Some college or technical school)
- 5 - College 4 years or more (College graduate or post-graduate)
- 6 - Graduate level (Masters or PhD)

6) How would you rate your knowledge on genetics?

- 1 - Excellent
- 2 - Very good
- 3 - Good
- 4 - Fair
- 5 - Poor

7) How would you describe your general health?

- 1 - Excellent
- 2 - Very good
- 3 - Good
- 4 - Fair
- 5 - Poor

8) Do you smoke?

- 1 - Yes
- 2 - No

9a) How would you describe your weight?

- 1 - Underweight
- 2 - Healthy weight
- 3 - Overweight
- 4 - Obese

9b)



1. For each of the questions below, please write the letter for only **ONE** body. Select the body that is the best choice.

(a) Which body looks most like the adult women in your family? _____

(b) Which body looks most like your women friends? _____

(c) Which body looks most like the adult women in your community? _____

2. For each of the questions below, please circle the letters for **ALL** bodies that fit the description.

(a) Which bodies look healthy? A B C D E F G H I J none

(b) Which bodies look underweight? A B C D E F G H I J none

(c) Which bodies look normal weight? A B C D E F G H I J none

(d) Which bodies look overweight? A B C D E F G H I J none

(e) Which bodies look obese? A B C D E F G H I J none

3. **For women only** – men should not complete this section:

(a) Which body looks most like yours? _____

(b) Which body would you most like to have? _____

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9c)



1. For each of the questions below, please write the letter for only **ONE** body. Select the body that is the best choice.

- (a) Which body looks most like the adult men in your family? _____
- (b) Which body looks most like your male friends? _____
- (c) Which body looks most like the adult men in your community? _____

2. For each of the questions below, please circle the letters for **ALL** bodies that fit the description.

- (a) Which bodies look healthy? A B C D E F G H I J none
- (b) Which bodies look underweight? A B C D E F G H I J none
- (c) Which bodies look normal weight? A B C D E F G H I J none
- (d) Which bodies look overweight? A B C D E F G H I J none
- (e) Which bodies look obese? A B C D E F G H I J none

3. **For men only** – women should not complete this section:

- (a) Which body looks most like yours? _____
- (b) Which body would you most like to have? _____

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10) Do you have one person you think of as your personal doctor or health care provider?

- 1 - Yes, only one
- 2 - Yes, more than one
- 3 - No
- 4 - Don't know / Not sure

11) Was there a time in the past 12 months when you needed to see a doctor but could not because of the cost?

- 1 - Yes
- 2 - No
- 3 - Don't know / Not sure

12) Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

- 1 - Yes
- 2 - No
- 3 - Don't know / Not sure

Section 2: Physical Activity Habits

Definition of Physical Activity: The national recommendation for physical activity is engaging in moderate physical activity (walking briskly, mowing the lawn, dancing, bicycling) for 30 minutes a day 5 or more days a week OR engaging in vigorous physical activity (jogging, high-impact aerobics, swimming) for 20-30 minutes a day 3 or more days a week.

11) Based on this definition, are you physically active?

- 1 - Yes, I have been for more than 6 months
- 2 - Yes, I have been for less than 6 months
- 3 - No, but I am planning on starting in the next 30 days
- 4 - No, but I am thinking about starting in the next 6 months
- 5 - No, and I don't plan to start in the next 6 months

12) If you answered **NO** to question 11, do you get some physical activity but not enough to fit the definition?

- 1 - Yes
- 2 - No

Section 3: Risk Perception

13) In your opinion, how often do you believe each of the following factors increases (or contributes to) an individual's chance or risk for developing a disease?

(Please respond for each item listed)

- 1=Never
- 2= Sometimes
- 3=Always
- 4=Don't know / Not sure

Smoking	_____
Having a poor diet	_____
Lack of exercise	_____
Family history (other family members with a disease)	_____

14) What do you think the chances are of a **healthy woman the same age as you** to develop the following health conditions sometime in her life?

(Please respond for each condition listed)

- 1=Low (<10%)
- 2=Moderate (10-50%)
- 3=High (>50%)
- 4=Don't know / Not sure

Breast cancer	_____
Ovarian cancer	_____
Colon cancer	_____
Heart disease	_____
Lung cancer	_____
Diabetes	_____
Alzheimer's disease	_____
High Blood Pressure	_____

15) What do you think the chances are of a **healthy man the same age as you** to develop the following health conditions sometime in his life? **(Please respond for each condition listed)**

(Please respond for each condition listed)

- 1=Low (<10%)
- 2=Moderate (10-50%)
- 3=High (>50%)
- 4=Don't know / Not sure

Breast cancer	_____
Colon cancer	_____
Prostate cancer	_____
Heart disease	_____
Lung cancer	_____
Diabetes	_____
Alzheimer's disease	_____
High Blood Pressure	_____

16) Have you ever been concerned about your chances for developing any of these health conditions?

- 1 - Yes
- 2 - No

16a) If yes, which condition(s)? _____

17) On a scale from 1 (not concerned) – 5 (extremely concerned), how would you rate your concern about developing any of the above health condition(s)? _____

18) Do you have a blood relative (mother, father, sister, brother, uncle, aunt, grandmother, grandfather) who had or has a health condition that you are concerned about developing sometime in your life?

- 1 - Yes
- 2 - No
- 3 - Don't know / Not sure

18a) If **YES**, who had the condition and what was it?

***DO NOT INCLUDE NAMES OF FAMILY MEMBERS, ONLY THE RELATIONSHIP TO YOU**

19) Have you ever talked to a health provider about your concern for developing that particular health condition?

- 1 - Yes
- 2 - No
- 3 - Don't know / Not sure

19a) If yes, which condition (s)? _____

20) At this time, what do you think your chances are of developing any of the following health conditions sometime in your life? **(Please respond for each condition listed)**

- 1=Low (<10%)
- 2=Moderate (10-50%)
- 3=High (>50%)
- 4=Don't know / Not sure
- 5=I already have the condition

Breast cancer	_____
Ovarian cancer (Females Only)	_____
Colon cancer	_____
Prostate cancer (Males Only)	_____
Heart disease	_____
Lung cancer	_____
Diabetes	_____
Alzheimer's disease	_____
High Blood Pressure	_____

21) At this time, what do you think your chances are of developing any of the following health conditions someday, compared with most individuals your age?

(Please respond for each condition listed)

ML=Much lower

SL=Somewhat lower

S=Same

SH=Somewhat higher

MH=Much higher

DK=Don't know / Not sure

AH=I already have the condition

Breast cancer	_____
Ovarian cancer (Females Only)	_____
Colon cancer	_____
Prostate cancer (Males Only)	_____
Heart disease	_____
Lung cancer	_____
Diabetes	_____
Alzheimer's disease	_____
High Blood Pressure	_____

Section 4: Multidimensional Health Locus of Control

Questions 22- 39:

Each item below is a belief statement about your medical condition with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree(1) to strongly agree(6). For each item we would like you to circle the number that represents the extent to which you agree or disagree with that statement. The more you agree with a statement, the higher the number you circle. The more you disagree with a statement, the lower will be the number you circle. Please make sure that you answer **EVERY ITEM** and that you circle **ONLY ONE** number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

1= STRONGLY DISAGREE (SD)	4= SLIGHTLY AGREE (A)
2= MODERATELY DISAGREE (MD)	5= MODERATELY AGREE (MD)
3= SLIGHTLY DISAGREE (D)	6= STRONGLY AGREE (SA)

		SD	MD	D	A	MA	SA
22	If I get sick, it is my own behavior which determines how soon I get well again.	1	2	3	4	5	6
23	No matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
24	Having regular contact with my physician is the best way for me to avoid illness.	1	2	3	4	5	6
25	Most things that affect my health happen to me by accident.	1	2	3	4	5	6
26	Whenever I don't feel well, I should consult a medically trained professional.	1	2	3	4	5	6
27	I am in control of my health.	1	2	3	4	5	6
28	My family has a lot to do with my becoming sick or staying healthy.	1	2	3	4	5	6
29	When I get sick, I am to blame.	1	2	3	4	5	6
30	Luck plays a big part in determining how soon I will recover from an illness.	1	2	3	4	5	6
31	Health professionals control my health.	1	2	3	4	5	6
32	My good health is largely a matter of good fortune.	1	2	3	4	5	6
33	The main thing which affects my health is what I myself do.	1	2	3	4	5	6
34	If I take care of myself, I can avoid illness.	1	2	3	4	5	6
35	Whenever I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.	1	2	3	4	5	6
36	No matter what I do, I 'm likely to get sick.	1	2	3	4	5	6
37	If it's meant to be, I will stay healthy.	1	2	3	4	5	6
38	If I take the right actions, I can stay healthy.	1	2	3	4	5	6
39	Regarding my health, I can only do what my doctor tells me to do.	1	2	3	4	5	6

**Thank you for taking the time to answer these few questions.
Your participation is greatly appreciated.**

APPENDIX C

POSTSURVEY

We hope that you enjoyed having your family health history done.

We would like to ask you a few more questions about risk to see if the family health history session changed your ideas about what conditions you might be at risk for. In addition, this post-session survey is looking at your opinions regarding participating in research.

If there is a question that you do not feel comfortable answering, you can skip it and continue on.

Please answer the following questions to the best of your ability.

DO NOT PROVIDE ANY NAMES OF FAMILY MEMBERS.

The survey should take approximately 10 minutes.

We would like to thank you in advance for your willingness to participate in this survey.

Section 1: Physical Activity Habits

1) Based on our discussion, do you think that you will increase your physical activity?

1 - Yes

2 - No

Section 2: Risk Perception

2) In your opinion, how often do you believe each of the following factors increases (or contributes to) an individual's chance or risk for developing a disease?

(Please respond for each item listed)

1=Never

2= Sometimes

3=Always

4=Don't know / Not sure

Smoking

Having a poor diet

Lack of exercise

Family history (other family members with a disease)

3) Based on your family health history, what do you think your chances are of developing any of the following health conditions sometime in your life?

(Please respond for each condition listed)

- 1=Low (<10%)
- 2=Moderate (10-50%)
- 3=High (>50%)
- 4=Don't know / Not sure
- 5=I already have the condition

Breast cancer	_____
Ovarian cancer (Females Only)	_____
Colon cancer	_____
Prostate cancer (Males Only)	_____
Heart disease	_____
Lung cancer	_____
Diabetes	_____
Alzheimer's disease	_____
High Blood Pressure	_____

4) Based on your family health history, what do you think **your chances** are of developing any of the following health conditions **someday**, compared with most individuals your age?

(Please respond for each condition listed)

- ML=Much lower
- SL=Somewhat lower
- S=Same
- SH=Somewhat higher
- MH=Much higher
- DK=Don't know / Not sure
- AH=I already have the condition

Breast cancer	_____
Ovarian cancer (Females Only)	_____
Colon cancer	_____
Prostate cancer (Males Only)	_____
Heart disease	_____
Lung cancer	_____
Diabetes	_____
Alzheimer's disease	_____
High Blood Pressure	_____

Section 3: Opinions on Research

5) How important do you feel that medical research is?

- 1 - Very important
- 2 - Somewhat important
- 3 - Not very important
- 4 - Not important at all
- 5 - Don't know

6) Have you ever participated as a subject in any medical research studies?

- 1 - Yes
- 2 - No
- 3 - Don't know

7) Have you ever been offered the chance to participate in a medical research study, but decided not to participate?

- 1 - Yes
- 2 - No
- 3 - Don't know

8) If you were to describe your general attitude towards medical research involving people, would you say that you feel ...?

- 1 - Very favorable
- 2 - Somewhat favorable
- 3 - Somewhat unfavorable
- 4 - Very unfavorable
- 5 - Neither favorable nor unfavorable
- 6 - Don't know

9) Would the offer of free medical care make you more likely or less likely to agree to participate in research?

- 1 - More likely
- 2 - Less likely
- 3 - No effect
- 4 - Don't know

10) Would the offer of \$500 make you more likely or less likely to agree to participate in research?

- 1 - More likely
- 2 - Less likely
- 3 - Have no effect
- 4 - Don't know

11) Would the offer of free medicine make you more likely or less likely to agree to participate in research?

- 1 - More likely
- 2 - Less likely
- 3 - Have no effect
- 4 - Don't know

12) How much do you think scientists benefit from medical research?

- 1 - A great deal
- 2 - A moderate amount
- 3 - Only a little
- 4 - Not at all
- 5 - Depends

13) How much do you think your community benefits from medical research?

- 1 - A great deal
- 2 - A moderate amount
- 3 - Only a little
- 4 - Not at all
- 5 - Depends

14) How much do you think your family and friends benefit from medical research?

- 1 - A great deal
- 2 - A moderate amount
- 3 - Only a little
- 4 - Not at all
- 5 - Depends

15) How much do you think you benefit from medical research?

- 1 - A great deal
- 2 - A moderate amount
- 3 - Only a little
- 4 - Not at all
- 5 - Depends

16) Do you have an interest in having your name in a database that would allow you to receive information about clinical research studies related to your family health history?

NOTE: Answering YES to this question DOES NOT enter you into any database nor does it sign you up to receive any information.

- 1 - Yes
- 2 - No

16a) If you answered **YES**, what are your expectations? **(Please circle all that apply)**

- 1 - I expect to receive information about *all* of the latest research studies.
- 2 - I expect to receive information about studies that I am eligible for.
- 3 - I expect to be rewarded for participating in research (paid, free health care, etc.)
- 4 - I expect to get the best health care available.
- 5 - Other: _____

16b) If you answered **NO**, what are your primary reasons? **(Please circle all that apply)**

- 1 - I am not interested in participating in research.
- 2 - I am not interested in anything tied to my family/my genetics.
- 3 - I do not want to be part of a database.
- 4 - I do not want to disclose my contact information.
- 5 - Other: _____

17) How would you describe your experience with having your family health history taken? **(Please circle all that apply)**

- 1 - Enjoyable
- 2 - Informative
- 3 - Uncomfortable/Unpleasant
- 4 - Neutral/No opinion

18a) From 1932-1972, a medical experiment involving Blacks was conducted. This experiment was known as the Tuskegee Syphilis Study. How much have you heard or read about this study?

- 1 – A great deal
- 2 – A moderate amount
- 3 – A little amount
- 4 – None at all

18b) Of these statements regarding the Tuskegee Syphilis Study, which one do you believe is most accurate?

- 1 – In the study, the government deliberately infected the men with syphilis
- 2 – The men in the study already had syphilis, but were not given treatment
- 3 – The men in the study already had syphilis, but the government accidentally gave them the wrong treatment
- 4 – The men in the study believed they were getting effective treatment
- 5 – I do not have any strong beliefs regarding the study

19) Some people believe that AIDS is a man-made virus. Do you believe that this is true?

- 1 – Yes
- 2 – No
- 3 – Don't Know

20) Some people believe that HIV and AIDS are being used to deliberately kill Blacks. Do you believe this is true?

- 1 – Yes
- 2 – No
- 3 – Don't Know

Section 4: Information Seeking Behavior

21a) Where do you seek information regarding health conditions you are concerned about?

(Check all that apply)

- Doctor
- Library
- Internet
- Family and friends
- Community health fair
- Magazines/ Newspapers
- Other _____

21b) From the options you checked above, please rate them in order of which you use most frequently to least frequently.

22) Circle the statement that most closely resembles your information seeking behavior.

- 1 - I am aware of the health conditions that run in my family, but I do not feel the need to do any more research on these conditions.
- 2 - I am aware of the health conditions that run in my family and I read about these conditions when the information is provided for me.
- 3 - I have done some of my own research on health conditions that I am concerned about.
- 4 - I actively keep up with current research on health conditions that I am concerned about.

23) How frequently do you research health conditions that you are concerned about?

- 1 - Very Frequently
- 2 - Frequently
- 3 - Occasionally
- 4 - Rarely
- 5 - Very Rarely
- 6 - Never

**Thank you for taking the time to answer these few questions.
Your participation is greatly appreciated.**

APPENDIX D

FOLLOW-UP SURVEY

Date: _____

Person Making Phone Call: _____

INTERVIEWER: ASK TO SPEAK WITH THE INDIVIDUAL WHO GAVE US HIS OR HER NAME AND TELEPHONE NUMBER. IF YOU ARE TOLD THAT THE PERSON IS NOT HOME, SCHEDULE A CALL-BACK. WHEN YOU ARE SPEAKING WITH THE INDIVIDUAL, READ...

Hi, my name is _____ and I am calling from the Center for Minority Health at the University of Pittsburgh. About a month ago, you completed a survey and had your family health history (family tree) completed at _____. As you may recall, you agreed to let us contact you for a follow-up questionnaire. I just have a couple of brief questions to ask you. It should take about five minutes. Is it okay to proceed with the questions?

Yes **No** – end interview

If Yes → Proceed to Question 1

If No → Thank you for your time. Have a great day.

1) After having your family health history drawn out, which statement best describes how you felt? **(Circle all that apply)**

- 1 - More Informed
- 2 - More Concerned
- 3 - Same as before
- 4 - Confused
- 5 - Worried

2) Did you tell any one that you had your family health history drawn out?

1 - Yes If Yes → Proceed to Question 2a and 2b

2 - No If No → Proceed to Question 3

2a) Who did you tell about your family health history?

2b) What did you tell them?

3) Has anything about your family health history changed since we met?

1 - Yes If Yes → Proceed to Question 3a

2 - No If No → Proceed to Question 4

3a) What has changed about your family health history?

4) Have you contacted any other relatives or researched old records to learn more about your family history?

1 - Yes

2 - No

5) Did you look over the materials/information we sent you with your family health history?

1 - Yes If Yes → Proceed to Question 6a

2 - No If No → Proceed to Question 7

6a) Did you find the materials/information sent to you helpful?

1 - Yes → Proceed to Question 6b

2 - No → Proceed to Question 7

6b) Would you like any additional information?

1 - Yes

2 - No

7) Have you seen a health care professional since you had your family health history done?

1 - Yes If Yes → Proceed to Question 7a

2 - No If No → Proceed to Question 8

7a) Did you show your family health history to the health care professional?

1 - Yes If Yes → Proceed to Question 7b

2 - No If No → Proceed to Question 8

8) In regards to the following statement: “Having my family health history drawn out has made me more comfortable in talking my doctor about health concerns,” would you say that you agree strongly, agree moderately, agree slightly, disagree slightly, disagree moderately, or disagree strongly? **(Select only one response)**

1 - Agree Strongly

2 - Agree Moderately

3 - Agree Slightly

4 - Disagree Slightly

5 - Disagree Moderately

6 - Disagree Strongly

9) In regards to the following statement: “Having my family health history drawn out has made me more comfortable in talking to my family about health concerns,” would you say that you agree strongly, agree moderately, agree slightly, disagree slightly, disagree moderately, or disagree strongly? **(Select only one response)**

1 - Agree Strongly

2 - Agree Moderately

3 - Agree Slightly

4 - Disagree Slightly

5 - Disagree Moderately

6 - Disagree Strongly

10) Do you have any plans to show your family health history to your family in the next six months?

1 - Yes

2 - No

11) Do you plan to show your family health history to a health care professional (i.e., doctor, nurse, pharmacist, physician assistant, or genetic counselor) in the next six months?

1 - Yes

2 - No

12) During our meeting, you answered a question about your physical activity; I am going to read that question to you again to see if your answer has changed.

I am going to read you the definition of Physical Activity. The national recommendation for physical activity is engaging in moderate physical activity (walking briskly, mowing the lawn, dancing, bicycling) for 30 minutes a day 5 or more days a week OR engaging in vigorous physical activity (jogging, high-impact aerobics, swimming) for 20-30 minutes a day 3 or more days a week.

Based on this definition, which of these statements best describes your level of being physically active? **(Select only one response)**

- 1 - Yes, I have been physically active for more than 6 months
- 2 - Yes, I have been physically active for less than 6 months
- 3 - No, I have not been physically active, but I am planning on starting in the next 30 days
- 4 - No, I have not been physically active, but I am thinking about starting in the next 6 months
- 5 - No, I have not been physically active and I don't plan to start in the next 6 months

If Answered 3, 4, or 5 → Proceed to Question 12a

If Answered 1 or 2 → Proceed to Question 12b

12a) Have you increased your physical activity, but not enough to fit the definition?

- 1 - Yes → Proceed to Question 12b
- 2 - No → Proceed to Question 12b

12b) Did having the family health history drawn out play a role in increasing your physical activity?

- 1 - Yes → Proceed to Question 12c
- 2 - No → Proceed to Question 12c

13) What kind of physical activity, if any, do you engage in? **(Circle all that apply)**

- 1 - Walking
- 2 - Jogging
- 3 - Aerobics
- 4 - Bicycling
- 5 - Housework/yardwork
- 6 - Swimming
- 7 - None
- 8 - Other_____

14) Have you made any other lifestyle changes since we did your family health history?
(Circle all that apply)

- 1 - Improved Diet
 - 2 - Smoking cessation
 - 3 - Talking to doctor about health concerns
 - 4 - Increased health screening (mammogram, colonoscopy, PSA)
 - 5 - Joined a support group
 - 6 - Other_____
 - 7 - None

If Answered 7 (No changes) → Proceed to Question 14a

If Answered 1 thru 6 → Proceed to Question 15

14a) Do you want to or are you planning on making any changes?

- 1 - Yes → Proceed to Question 14b
- 2 - No → Proceed to Question 15

14b) Are there any barriers that prevent you from making changes?

1 - Yes → Proceed to Question 14c

2 - No → Proceed to Question 15

14c) What are the barriers that prevent you from making changes?
(After response proceed to Question 14d)

14d) Is there anything that would help you make the changes you want? (ie: classes, support groups)

15) In regards to the following statement: “Having my family health history drawn out motivated me to increase my knowledge about health conditions that run in my family,” would you say that you agree strongly, agree moderately, agree slightly, disagree slightly, disagree moderately, or disagree strongly? **(Select only one response)**

1 - Agree Strongly

2 - Agree Moderately

3 - Agree Slightly

4 - Disagree Slightly

5 - Disagree Moderately

6 - Disagree Strongly

If Answered 1, 2, or 3 → Proceed to Question 15a

If Answered 4, 5, or 6 → Proceed to Question 16

15a) Please list, in order of most frequently used to least frequently used, how you have increased your knowledge/understanding. (talked to doctor, family, friends, internet, library, etc.) (After response proceed to Question 15b)

15b) Which of the following statements most closely resembles your information seeking behavior: **(Select only one response)**

1 - I am aware of the health conditions that run in my family, but I do not feel the need to do any more research on these conditions.

2 - I am aware of the health conditions that run in my family and I read about these conditions when the information is provided for me.

3 - I have done some of my own research on health conditions that I am concerned about.

4 - I actively keep up with current research on health conditions that I am concerned about.

16) In regards to the following statement: “How frequently do you research or look for information about health conditions that concern you,” would you say that you look very frequently, frequently, occasionally, rarely, very rarely, or never? **(Select only one response)**

1 - Very Frequently

2 - Frequently

3 - Occasionally

4 - Rarely

5 - Very Rarely

6 - Never

**Thank you for taking the time to answer these few questions.
Your participation is greatly appreciated.**

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