USING THE HEALTH BELIEF MODEL TO PREDICT AN INDIVIDUAL'S WILLINGNESS TO CONDUCT GENETIC TESTING

by

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DEDICATION

Esto es para mi querido abuelo, Gersain Chavez. I have no words to truly describe how grateful and lucky I am to have a grandfather like you, Bempa. You have always been my anchor, by my side encouraging me to better myself and continue following every dream, big and small. You always tell me “Little by little, mija. That’s the only way to fly.” You have celebrated each step with me, and I have enjoyed sharing ever moment with you. Bempa, you are always so kind to cheer me on when I need a pep talk and remind me to relax when I need a break. I am forever in debt for the love you fill my day with. You are a constant inspiration and I will continue to make you proud! I love you and I dedicate this to you!

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ABSTRACT

Genetic testing is increasingly popular with estimates that over 7 million (M) people in the United States and 28M worldwide have purchased kits to complete testing. While most individuals use genetic testing for non-health reasons, such as for ancestral information, others use it to make healthcare decisions. This study uses the Health Belief Model (HBM) to identify factors individuals use when deciding to conduct genetic testing.

Design/Methodology/Approach – An online survey using HBM constructs measured individual propensity to complete genetic testing. Data were collected using a convenience sample of respondents over 18 years of age.

Paper Type – Research Paper

Keywords: health belief model (HBM), proactive health, patient engagement, genetic testing, genetics, health predictions, carrier status

1. INTRODUCTION

Consumer interest in genetic testing is reflected in current media. One cannot get through an evening watching television or scroll through a social media app without seeing an ad promoting genetic testing. Most have heard stories from others about what they learned about themselves or their families through genetic testing. While many individuals use genetic testing for amusement or to identify ancestral ties, other individuals are exploring genetic predispositions to disease or determining if they carry a disease trait. According to Regalado (2019), the number of people who purchased direct to consumer genetic tests in 2018 was equal to the total sum of those purchased in all previous years. Time reported the number of individuals who have done direct-to-consumer testing as 7 million in October of 2018 (Ducharme, 2018), which had risen to an estimated 26 million by February of 2019 (Regalado, 2019). According to Dr. Larkin (2020), as of January 2020 the top three direct-to-consumer testing organizations had millions of clients in their databases as shown in Table 1.

Table 1
Number of clients in direct-to-consumer databases

AncestryDNA	**23andME**	**MyHeritage**
> 16 million	> 10 million	> 3.77 million

Often, individuals have completed DNA profiles in multiple databases, so the true number of participants is difficult to estimate. The number of individuals interested in genetic testing has increased so much that the National Institutes of Health (2020) published a web page to answer consumer questions. The site includes information on

cells and DNA, mutations and health, how genes work, inheriting genetic conditions, genetics and human traits, genetic consultation, genetic testing, direct-to-consumer genetic testing, and precision medicine. Educating consumers is the priority.

Awareness of and interest in genetic testing is growing due in part to advertising and national coverage of celebrity's stories, such as Angelina Jolie (Payne, 2013) and Christina Applegate ("Christina Applegate Reveals," 2017) publicly announcing their decision to take preventive health measures based on their genetic test results. Liede et al. (2018) noted that there was a spike in the number of individuals who chose to get tested for the breast cancer gene (BRCA) after the media reported about Angelina Jolie's mastectomy, which they call the "Angelina Jolie Effect" (p. 436).

Briggs (2015) discusses how genetic testing results can impact an individual's life in several ways. One's relationship with family members can change if results are positive for future genetic issues or trait carrier status. Insurance can become complicated when positive results pose a threat to medical coverage and life insurance. Employment status can be at risk if one's employer feels they are a liability based on genetic testing results. Individuals face difficult decisions regarding how to address medical needs that may arise based on the results of the testing. Briggs (2015) compares genetic testing to a kaleidoscope and explains that although the pieces are still the same, once the view of life has changed, the old image can never be recreated. Kleiderman et al. (2014) found that parents that may pass potential genetic disorders onto their children usually want to learn the results from genetic testing unless those results indicate a fatal genetic disease. Parents felt that knowing about a fatal disease would significantly impact day to day life. However, for nonfatal diseases, parents indicated that being made aware of possible

diseases empowered them to prepare emotionally and financially to provide the needed care.

The Health Belief Model (HBM) was created in an effort to understand why individuals decide whether or not to access preventive health care options (Orji, Vassileva, & Mandryk, 2012; Rosenstock, 1966; Rosenstock, Derryberry, & Carriger, 1959; Soleymanian, Niknami, Hajizadeh, Shojaeizadeh, & Montazeri, 2014). With the exception of one study regarding Tay-Sachs disease (Becker, Kaback, Rosenstock, & Ruth, 1975), researchers have not used the HBM to explore whether individuals would consider genetic testing results when making preventive health decisions. Understanding individual intention to use genetic testing results to make health decisions might inform others to do the same. With so many consumers interested in genetic testing, health care providers will need to be prepared to create actionable plans to deal with the future of preventive medicine. "Primary prevention is economically and socially less expensive than sickness care," (Rosenstock & Kirscht, 1974, p. 472).

The remainder of this document is organized as follows: Section 2 reviews prior literature to establish how the HBM was developed and examines constructs used in previous studies. Research questions are presented in section 3. The research model and hypotheses are proposed in section 4 and the methodology is explained in section 5. Section 6 contains the analysis followed by the results in section 7. Section 8 includes the research discussion and, lastly, conclusions are stated in section 9.

2. THEORETICAL FRAMEWORK

Rosenstock (1974b) explains that the HBM was originally developed to examine the infrequent use of public health services. While working with Dr. Hochbaum, Dr. Kegeles, and Dr. Leventhal in public health service, Rosenstock (1974b) noted the lack of behavioral theories exploring patient decision-making in healthcare. Thus, Drs. Rosenstock, Hochbaum, Kegeles, and Leventhal developed a model specific to preventive health care with the goal of increasing the use of public health services preventive care. Zimmerman and Vernberg (1994) classify the actions of preventive health behavior as either discrete or continuous. Using genetic testing results to make preventive health decisions can include behavior that is discrete, such as getting a check-up, or continuous, such as implementing an exercise routine or changing one's eating habits.

The Health Belief Model

The HBM was developed to test an individual's behavior and decisions regarding preventive medicine, rather than an individual's decision to accept treatment after receiving a diagnosis. Hochbaum (1958) researched the relationship between an individual's beliefs and participation in a public tuberculosis screening program offering x-rays. He used constructs that would eventually comprise the HBM: psychological readiness (self-efficacy), belief in possibility of contracting tuberculosis (perceived susceptibility), belief in benefits of early diagnosis (perceived benefits), and situational factors (perceived barriers and cues to action). Rosenstock et al. (1959) studied why individuals were not getting poliomyelitis vaccines. Within this study, the constructs that would become the HBM were further developed. Rosenstock et al. (1959) looked at

perceived susceptibility, perceived seriousness, safety and effectiveness of the vaccine (perceived benefits), and social and situational factors including social pressures (cues to action) and convenience (perceived barriers). Rosenstock et al. (1959) mentioned the prompts which were in place to alert individuals to take action regarding the poliomyelitis vaccine were targeted toward higher income and higher educated individuals. He expressed concerns that those of lower economic status and education possibly had not seen the ads and, if they had, could not comprehend them.

To further this development of HBM, Rosenstock (1960) reflected on how motivation impacts public health use and proposed three principles of motivation. The first is that preventive behavior is defined by the perceived susceptibility, perceived severity, and perceived benefits. Second, action rises from conflict between motives and various behaviors. Third, health-related motives do not always lead to health-related behavior, and vice versa.

Rosenstock (1966) acknowledged the origin of the HBM within his study that explored individual behavior concerning public health services. The HBM evolved through several studies that sought to understand preventive health behavior. The constructs which are both cognitive and emotional are derived from an individual's subjective world rather than the objective world of their physician. Rosenstock discussed that three areas must be satisfied for action to be taken: 1) the individual must be psychologically ready (perceived susceptibility and severity); 2) the individual must believe that the preventive action is achievable or will reduce the severity and/or susceptibility of a condition, and has no psychological barriers (perceived benefits and barriers); and 3) a stimulus must trigger the action (cues to action). Rosenstock admits

that the HBM ideas were drawn from general socio-psychological theories, in particular Lewin's theory of goal setting and level-of-aspiration situation (Lewin, 1935). Maiman and Becker (1974) compared the HBM to six other psychological theories, including Lewin. As suggested by Lewin, they concluded that an individual's behavior depends ultimately on the value they place on the outcome and the estimate that the outcome can be achieved. The achievement of an outcome is perceived as more attractive when there is hard work needed to accomplish success.

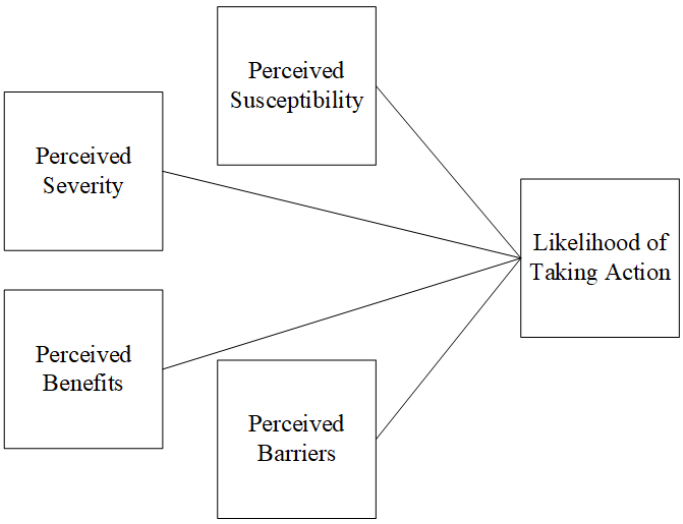

Figure 1. The original HBM model

As shown in Figure 1, the original HBM is best used when an individual is in a normal state of health, however, it has been adapted and used successfully to study compliance with care after an individual is already diagnosed with an illness (Becker, Drachman, & Kirscht, 1974; Becker et al., 1978). Rosenstock (1974b) explained that the original researchers recognized individuals have varying beliefs, fears, and knowledge, which influence their actions and are affected by four constructs: perceived susceptibility, perceived severity, perceived barriers, and perceived benefits, as shown in Figure 1 (Rosenstock, 1974b). It is important to note that each variable is preceded by the term

"perceived" due to the fact that these constructs are strictly based on individual beliefs and not objective facts or reality. Lewis and Lewis (1982) sought to understand where children's health beliefs and behaviors are derived. They looked at demographics, family (parenting style, maternal health orientations), the child (ordinal position, self-concept, self-reliance, cognitive style, experience with illness), and the healthcare system (the health care provider's behavior towards the child). The researchers concluded that educating parents and engaging children in their own healthcare discussions and decisions promotes a solid foundation for healthy habits in adulthood.

Researchers have extended the theory by adding variables to measure cues to action (Rosenstock, 1966), health motivation (Becker et al., 1974), self-efficacy (Rosenstock, Strecher, & Becker, 1988), perceived threat (Bishop, Baker, Boyle, & MacKinnon, 2015), and intent (Chuang, Tsai, Hsieh, & Tumurtulga, 2013). Zimmerman and Vernberg (1994) found that many studies prefer to use the four original constructs, as the extended version of the HBM has not yet been widely accepted. However, Carpenter (2010) completed a meta-analysis of the effectiveness of the HBM and concluded that the simple four variable HBM should be abandoned and that future studies should look at the mediation and moderation effects between the constructs. Jones et al. (2015) felt the model might need to be revisited. Subsequently, they considered alternative construct ordering including parallel, serial, and moderated models. Jones et al. explain that parallel mediation is when all constructs effect intent in a comparable manner, serial mediation is when there is specific causal flow between the linked variables, and moderated mediation can be any form where one variable moderates another variable. Their results indicated

that the model worked whether the constructs are ordered in parallel, in serial, or as moderators.

The Original HBM Constructs

Perceived Susceptibility. Perceived susceptibility is an individual's belief that they are vulnerable to contracting a disease or could be a carrier of a trait. Rosenstock (1966) discusses that perceived susceptibility can vary between persons and conditions and that risk is synonymous with perceived susceptibility. The degree of risk is subjective and is based upon an individual's knowledge and experiences. Kamal, El-Borgy, and Wahba (2017) found that the greater the belief that there is a risk, the greater the chance that an individual will act.

Perceived Severity. Perceived severity is an individual's belief that contracting a disease or carrying a trait would negatively impact their life. Rosenstock (1966) explains that concerns can be medical, mental, or functional hardships, as well as other obstacles such as employment, family, and social burdens. If an individual's perceived severity causes extreme levels of anxiety and fear, they may lose their ability to process their situation and options (Rosenstock, 1974b). If an individual has a low perception of severity, the individual is not likely to act (Becker et al., 1975). It can be difficult for an individual to indicate their perception of severity if they are not familiar with or have not witnessed the condition in question (Sulat, Prabandari, Sanusi, Hapsari, & Santoso, 2018).

Perceived Benefits. According to Champion (1984), perceived benefits measure individual belief that their actions will help them maintain good health and avoid contracting a disease. They are able to detect that they have a disease, identify a cure for

a disease, and decrease undesirable consequences of a disease. An individual considers whether the perceived benefits, based on what they understand, will reduce their susceptibility to a disease or the severity of an illness.

Perceived Barriers. Perceived barriers are an individual's expectation that he will experience negative consequences when he takes a certain action (Champion, 1984). An individual may have trouble making a decision because he fears he might experience issues such as inconvenience, pain, embarrassment, or financial cost. Rosenstock (1974b) discusses how significant perceived barriers can cause an individual to avoid taking an action when they feel the consequence is not worth proceeding. The greater the perceived barrier, the less likely the individual will behave (Kamal et al., 2017).

Additional Factors Previously Tested

Cues to Action. Cues to action trigger an individual to respond to a stimulus, such as receiving a postcard reminder, seeing a commercial, or having a conversation. When exploring how HBM constructs impact participants' decisions to get vaccinated for poliomyelitis, Rosenstock et al. (1959) mentioned cues to action might not reach low-income and low-educated individuals. Cues to action were officially added as a construct when Rosenstock (1966) acknowledged that they are essential to the decision-making process. He explained that cues to action can be either internal, such as an individual's perception of their bodily status, or external, such as media communication or interpersonal interactions. Jones et al. (2015) suggested cues to action can also be categorized as either naturally occurring, such as news stories or sudden illness in the family, or manipulated, such as campaigns or interventions. According to Carpenter (2010); Jones et al. (2015); Zimmerman and Vernberg (1994), cues to action are the least

researched construct of the HBM even though cues seem to be important to the HBM process. When Chou and Wister (2005) studied exercise and self-care behavior, they recommended that cues to action be considered central to the HBM.

Health Motivation. Rosenstock (1966) acknowledged that individuals must be motivated for both "perception and action," (p. 98) and concluded that motives "determine the particular ways in which the environment will be perceived" (p. 98). Rosenstock (1960), concluded that individuals are more motivated by their personal beliefs than by objective truth. An individual's choice is made according to which motives they feel are most important. Conflict unrelated to health can arise between motives, such as social pressure or encouragement from an employer. However, Rosenstock (1974b) believed that motivation could be accurately measured using perceived susceptibility and perceived severity and; therefore, did not need to be measured separately.

Motivation was officially introduced as an independent variable when Becker et al. (1974) successfully adapted the model. They measured health motivation using items that considered "physical threat, control over health matters, attitude toward medical authority, and general health concern" (p. 207). In his meta-analysis study of prior HBM studies, Carpenter (2010) found that motivation is not used often.

Self-Efficacy. Self-efficacy is one's belief that they can complete a required behavior to achieve a desired outcome. Self-efficacy was initially considered to be a perceived barrier. Rosenstock et al. (1988) explained that the HBM was originally designed to predict small actionable outcomes, such as choosing to get vaccinated or choosing to take a medication. The authors suggested that self-efficacy be included as an

independent variable to strengthen the model by distinguishing between different perceived barriers. This extension expands the model's ability to predict more substantial decisions, such as dealing with a chronic disease. Self-efficacy has an impact on every aspect of life (Khorsandi et al., 2019) and understanding self-efficacy can help individuals increase and sustain healthy behaviors.

Rosenstock et al. (1988) further discuss how trepidation can negatively impact a person's feelings about their capability to follow through with a given action. An individual can increase their self-efficacy by successfully completing short-term goals. The accomplishment produces an increase in the sense of pride and self-efficacy. When Zimmerman and Vernberg (1994) compared the HBM to the theory of planned behavior and the social cognitive theory, they concluded that the single most important variable contained in all three models is self-efficacy. In a meta-analysis done by Carpenter (2010), self-efficacy was not used often. Orji et al. (2012) found self-efficacy to be the strongest construct.

Perceived Threat. Bennett (1992) defines perceived threat as a situation where an individual anticipates that they will experience harm or loss. She explains that threat is determined by perception based on an individual's memory, learning, and judgment from previous knowledge and experiences. Most previous HBM studies (Janz & Becker, 1984; Orji et al., 2012; Rosenstock, 1960) discussed perceived threat but measured it using other constructs within the model, as shown in Table 2. Jones et al. (2015) measured perceived threat by combining perceived susceptibility and perceived severity items. However, Jones later recommended that perceived susceptibility and perceived severity should be separated into distinct constructs. Bishop et al. (2015) studied perceived threat

instead of perceived susceptibility and perceived severity and found that it significantly impacted patient safety in a modified HBM model. This study will include perceived threat as its own construct in the model and anticipates that this will strengthen the prediction value of the model. It is important to test whether adding items to determine if measuring perceived threat increases the variance explained by the model, since perceived threat is influenced by both susceptibility and severity.

Table 2
Threat constructs that have been examined in prior HBM studies

Article	Susceptibility	Severity	Motivation	Benefits	Barriers
(Rosenstock, 1960)	X	X	X		
(Rosenstock, 1966)				X	
(Haefner & Kirscht, 1970)	X	X		X	
(Becker et al., 1974)			X	X	
(Kirscht, 1974a)				X	X
(Kirscht, 1974b)			X	X	X
(Maiman & Becker, 1974)			X	X	
(Rosenstock, 1974a)	X	X			X
(Rosenstock, 1974b)				X	X
(Becker et al., 1975)		X			
(Becker et al., 1978)	X	X			
(Orji et al., 2012)	X	X		X	X
(Chuang et al., 2013)				X	
(Soleymanian et al., 2014)				X	
(Kamal et al., 2017)		X		X	

Intent. Intention to perform a behavior reflects an individual's level of commitment to proceed. Intention has been mentioned in previous studies as well as discussed as a determinant of whether an individual will act a given decision (Haefner &

Kirscht, 1970; Kirscht, 1974b; Orji et al., 2012). However, intention was not included as a construct until Chuang et al. (2013) incorporated "usage intention" (p. 269) into the model when exploring the adoption of telecare technology.

Constructs Not Previously Tested in HBM

This study adds to the body of knowledge about HBM by exploring the constructs eHealth Literacy and normative belief.

eHealth Literacy. Previous versions of the HBM include knowledge as a construct. Knowledge refers to an individual's general comprehension about a disease, including that which comes from experiencing the disease as a bystander watching another person who is enduring it. In an effort to update the HBM, this study explored eHealth literacy instead of basic knowledge.

According to the CDC (2019b), health literacy is the "degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions." Individuals use health literacy skills to understand health information and services. The CDC (2019a) notes that an individual must "find, understand, and use health information and services" at some point in their life. Comprehending the various levels of health literacy is important when creating information that needs to be understood. Individuals must learn how to locate information, communicate needs, understand the meaning and use of information, and decide upon their care plan. High levels of health literacy can contribute to preventing health issues as well as managing situations when they do arise.

Often, individuals search for information on the internet, making eHealth literacy an important factor in the HBM. Chansiri, Wongphothiphan, and Shafer (2019)

completed a study to show that the HBM can be used when exploring access to online systems. They used the HBM to look at acne prevention based on discussions found in online message boards. They found that Americans trust the internet for their health information and even question professional opinions when they oppose online content. Online communities and forums can influence decision making. Harris, Sillence, and Briggs (2011) explored consumer's trust of and readiness to act on advice found on internet sites that contain health advice. Their study revealed four factors that lead a consumer to trust and use information on the internet: information quality, personalization, impartiality, and credible design.

Since the HBM focuses on a person's belief and perceptions, increasing one's comprehension will have a positive effect on preventive health choices. Norman and Skinner (2006) defined eHealth literacy as "the ability to read, use computers, search for information, understand health information, and put it into context" (p. 1). They identified six core skills that measure an individual's comfort and perceived skills rather than actual skills, when they developed and tested the eHealth Literacy Scale (eHEALS). These skills included traditional literacy, health literacy, information literacy, scientific literacy, media literacy, and computer literacy. When an individual's eHealth literacy is high, they have a better understanding and ability to research any health risks including risks associated with genetic testing.

Normative Belief. Normative belief is defined by Ajzen (1971) as the decision an individual believes other people expect of them in a given situation. Ajzen notes that "the reference groups or individuals whose expectations are perceived to be relevant will vary with the behavioral situation" (p. 264). Normative belief is also referred to as subjective

norm or social norm. It has been suggested that normative belief can be included with the HBM variables of perceived benefits and perceived barriers (Janz & Becker, 1984). While normative belief has not been studied within the HBM, it has been used to explore genetic testing (Frost, Myers, & Newman, 2001; Gooding, Organista, Burack, & Biesecker, 2006) For example, Frost, Myers, & Newman found normative belief impacted an individual's intention to get genetic testing for Alzheimer's Disease. This research explored whether normative belief can be used to better understand an individual's decision making when exploring the HBM.

Purpose Statement

Understanding what factors influence an individual to consider genetic testing can better prepare other individuals in their decision to get genetic testing. Studies completed by Soltani and Tavafian (2016) and Khorsandi et al. (2019) show that educational programs can improve an individual's knowledge and understanding of a disease, such as HIV, impacting their perception of susceptibility, severity, benefits, barriers, as well as their self-efficacy. Yang, Barker, Goodman, and Park (2018) found that effective communication and an understanding of one's risks can lead to lifestyle and behavior changes. Healthcare providers must understand the health myths and old wives' tales that are perpetuated to better educate their patients. The HBM reveals how the relationship between health beliefs and health behaviors are a function of knowledge and attitude (Mehdi Hazavehie, Lotfinik, Moeini, & Roshanaei, 2018). Understanding this relationship can help identify why individuals accept or reject behaviors.

3. RESEARCH QUESTIONS

The goal of this study is to explore how the HBM constructs influence individuals in deciding to get genetic testing. This study will help consumers, geneticists, and healthcare professionals understand whether these factors affect an individual's decision to proceed with genetic testing. To understand the degree to which the HBM constructs, as well as eHealth literacy and normative belief, effect an individual's choice to conduct genetic testing, the following research questions are proposed:

R1. Does perceived susceptibility influence perceived threat when considering genetic testing?

R2. Does perceived susceptibility influence intent when considering genetic testing?

R3. Does perceived severity influence perceived threat when considering genetic testing?

R4. Does perceived severity influence intent when considering genetic testing?

R5. Does perceived threat influence intent when considering genetic testing?

R6. Does health motivation influence intent when considering genetic testing?

R7. Does self-efficacy influence eHealth literacy when considering genetic testing?

R8. Does eHealth literacy influence perceived benefits when considering genetic testing?

R9. Does eHealth literacy influence perceived barriers when considering genetic testing?

R10. Does perceived benefits influence intent when considering genetic testing?

R11. Does perceived barriers influence intent when considering genetic testing?

R12. Do cues to action influence normative belief when considering genetic testing?

R13. Does normative belief influence intent when considering genetic testing?

4. RESEARCH MODEL AND HYPOTHESES

This research study seeks to understand individual beliefs about getting genetic testing. The researcher will test this using the original HBM model, which includes the variables of perceived susceptibility, perceived severity, perceived benefits, and perceived barriers, substituting intent for behavior. In addition, the model will be modified to analyze additional factors previously tested including health motivation, cues to action, self-efficacy, perceived threat. The researcher proposes that two additional constructs, normative beliefs and eHealth literacy, will also be added. The proposed model is shown in Figure 2. Thus, the following hypothesis will be examined:

H1 Perceived susceptibility will have a positive impact on perceived threat.

H2 Perceived susceptibility will have a positive impact on intent.

H3 Perceived severity will have a positive impact on perceived threat.

H4 Perceived severity will have a positive impact on intent.

H5 Perceived threat will have a positive impact on intent.

H6 Health motivation will have a positive influence on intent.

H7 Self-efficacy will have a positive influence on eHealth literacy.

H8 eHealth literacy will have a positive influence on perceived benefits.

H9 eHealth literacy will have a positive influence on perceived barriers.

H10 Perceived benefits will have a positive influence on intent.

H11 Perceived barriers will have a negative influence on intent.

H12 Cues to action will have a positive impact on normative belief.

H13 Normative belief will have a positive impact on intent.

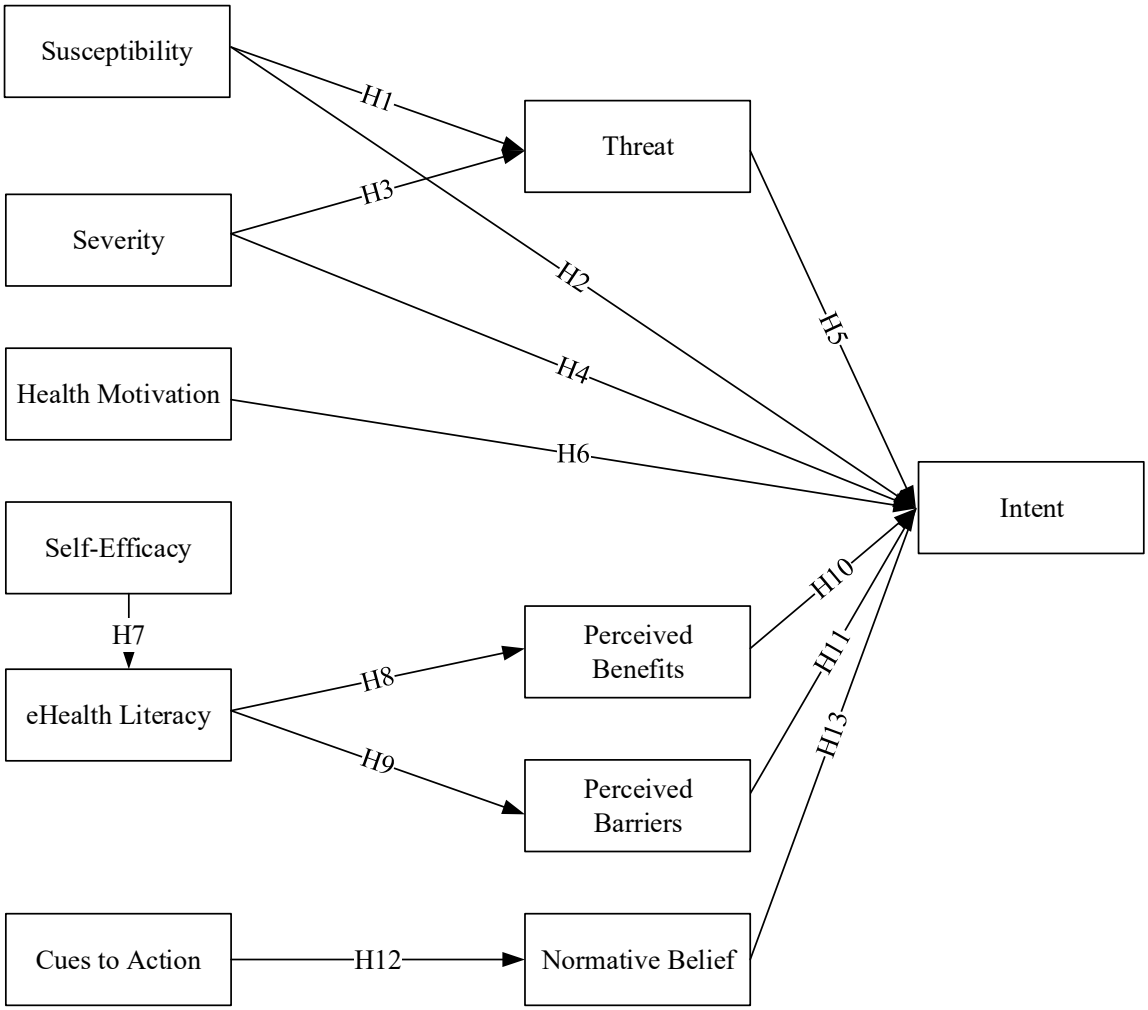

Figure 2. The proposed modified HBM.

5. METHODOLOGY

Research Method

To test the original and modified HBM, a questionnaire was created to measure the independent variables: perceived susceptibility, perceived severity, eHealth literacy, self-efficacy, perceived benefit, health motivation, perceived barriers, perceived threat, cues to action, and normative belief, as well as the dependent variable intent.

Approximately 1,700 students from Texas State University were randomly selected to participate in the pilot study to examine reliability and validity of the instrument. These students were invited via an email message to participate in the pilot study. In an attempt to increase the response rate, reminders were sent one week after the original email. In total, 62 students responded, however, six responses were removed due to the survey being incomplete or having all responses the same. To ensure that the items adequately represented the constructs, Smart PLS was used to perform a confirmatory factor analysis and the results are shown in Appendix A. Items that did not factor appropriately were modified prior to launching the final survey as shown in Appendix B.

Measures

The study used an online survey, which was created in Qualtrics and is included in Appendix B. The survey consisted of a seven-point Likert-scale questionnaire where the first radio button represented *strongly disagree* and the seventh radio button represented *strongly agree*. An eighth option *not applicable* was added to the survey to ensure that the participants read and respond to all questions. During the analysis, *not applicable* was handled by using pair-wise deletion. The survey collected demographic questions to determine that respondents were over 18, establish their gender, and

determine whether they had any healthcare-oriented experience. Following the demographic information, the survey contained 61 questions regarding perceived susceptibility, perceived severity, perceived benefits, perceived barriers, health motivation, self-efficacy, cues to action, perceived threat, eHealth literacy, normative belief, and intent.

Data Collection

Once the items for the constructs used in the pilot study were modified, the researchers obtained potential participants from various organizations, including faculty and staff at K-12 schools, colleges, and universities in Southern California and Texas, a health foundation in West Texas, staff at healthcare facilities in West and Central Texas, and Health Information professionals across Texas. The survey link was also shared via the author's personal social media profiles. The target population included anyone who was aged 18 or older. Subjects were recruited to participate in the survey regardless of gender, racial/ethnic background, or occupation. Some respondents were invited via email with a reminder email sent as follow-up one week later. Most respondents accessed the survey via anonymous links shared on social media. The survey was completed by 231 individuals, however; 39 were eliminated for incomplete responses or responses that were all the same. Responses from the remaining 192 participants were analyzed.

6. ANALYSIS

More females (n = 161, 84%) responded to the survey than males (n = 31, 16%). While the number of females responding was substantially higher than the number of males, the researcher assumes that it is due to the methods she used to contact her convenience sample. Almost 72% of the respondents had some healthcare experience (n = 138) while 28% said they did not (n = 54). Respondents were between the ages of 18 and 72. To establish how many individuals answered the survey retroactively, 16% said they have previously had genetic testing (n = 31) while 84% had not previously been tested (n = 161). See Table 3 for the demographic characteristics.

The data were analyzed using Smart PLS (version 3.2.9) (Ringle, Wende, & Becker, 2014). Chin (1998) suggests that Smart PLS is a statistical tool which can be used for evaluating both large and small sample sizes. It is effective for interval or ratio responses. The underlying distribution is not critical since it uses resampling (Vinzi, Trinchera, & Amato, 2010). According to Gefen, Rigdon, and Straub (2011b), "the PLS estimation method, ordinary least squares, is remarkably stable even at low sample sizes" (p. A3-A4). It is suggested that the sample size be "at least ten times the largest number of predictors of any dependent variable" (p. A4). By this standard, the minimum accepted sample size is 70 due to intent having seven predictors. Chin (2010) also suggests the sample size of at least 10 times per the number of variables. Subsequently, the minimum accepted sample size is 100 since this study has ten constructs. The number of responses included in our analysis is 192. Thus, our sample size is sufficient.

Table 3
Demographics

DEMOGRAPHIC	NO.	%
GENDER		
Female	161	83.85
Male	31	15.82
HEALTHCARE EXPERIENCE		
Yes	138	71.88
Male	18	9.38
Female	120	62.50
No	54	28.13
Male	13	6.77
Female	41	21.35
AGE		
18-29	29	15.10
30-39	27	14.06
40-49	49	25.52
50-59	40	20.83
60 and up	47	24.48
GENETIC TESTING HISTORY		
Yes	31	15.82
Male	2	1.04
Female	29	15.10
No	161	83.85
Male	29	15.10
Female	132	68.75

A two-step approach was used to analyze the data by first considering the reliability and validity of the measurement model and then assessing the structural model (Anderson & Gerbing, 1988). Prior to testing for reliability, a factor analysis was performed. The original factor analysis results are in Appendix E. To reduce the model,

items with a loading less than 0.70 on the corresponding construct were removed using a stepwise approach. Appendix F contains the remaining items after all the items that factored less than 0.70 were removed.

Reliability demonstrates that the items provide a consistent reflection of the underlying latent variable, whereas validity ensures the instrument measures the intended relationships within the model (DeVellis, 2003; Tavakol & Dennick, 2011). Individual item internal consistency was evaluated using Cronbach's Alpha. Table 4 provides Cronbach's Alpha value for each construct. All items scored higher than 0.70, except for perceived barriers (0.42) which was then removed from the model (p-value = 0.29). Thus, all items except for perceived barriers demonstrated adequate reliability.

Table 4
Cronbach's Alpha, composite reliability, AVE of proposed modified HBM

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Perceived Barriers	0.42	0.77	0.63
Perceived Benefits	0.74	0.85	0.65
Cues to Action	0.91	0.94	0.79
Intent	0.96	0.98	0.96
eHealth Literacy	0.92	0.94	0.72
Health Motivation	0.72	0.87	0.77
Normative Belief	0.89	0.92	0.75
Self-Efficacy	0.89	0.92	0.70
Perceived Severity	0.71	0.84	0.63
Perceived Susceptibility	0.88	0.92	0.74
Perceived Threat	0.90	0.93	0.72

Composite reliability was also computed. Composite reliability estimates the extent to which a set of latent construct indicators share in their measurement of a construct, while the average variance extracted is the amount of common variance among

latent construct indicators (Hair, 1998). Composite reliability is computed using the ratio of true variance to observed variance in the overall sum score (McDonald, 1999). The composite reliability for each of the constructs was above 0.7, including perceived barriers. These results confirm internal consistency for our constructs. Table 4 shows the composite reliability for each construct.

After establishing construct reliability, construct validity was assessed by testing convergent and discriminant validity. According to Brown (2006), convergent validity is demonstrated when "different indicators of theoretically similar or overlapping constructs are strongly interrelated" (p. 2), whereas discriminant validity is supported when "indicators of theoretically distinct constructs are not highly intercorrelated" (p. 3). As suggested by Gefen, Rigdon, and Straub (2011a), a factor analysis can be used to determine the convergent and discriminant validity. To ensure convergent validity, factor loading should be greater than 0.70, while loadings below 0.50 are unacceptable (Carlson & Herdman, 2012). Factor loadings for individual items were analyzed to determine if on-factor loadings were greater than 0.70 for each construct. On factor loadings refer to the items that load together for a specific construct. The lowest on-factor loading was 0.70, thus, all constructs demonstrated adequate convergent validity. The results of factor analysis can be found in Appendix F.

After assessing the convergent validity of the measurement model, the factor analysis was also used to evaluate discriminant validity. While on-factor loadings are indicative of convergent validity, off-factor loadings are used to consider discriminant validity. All factors loaded higher on-factor than off-factor indicating discriminant validity as shown in Appendix F.

An additional step in substantiating discriminant validity is confirmed by calculating the average variance extract (AVE). AVE is used to assess the validity and reliability of a measurement model (Ahmad, Zulkurnain, & Khairushalimi, 2016). The value of AVE should be greater than or equal to 0.50 to achieve validity. Table 4 details the AVE for each construct. All AVE were greater than 0.50, which indicates discriminant validity.

Another way to ensure discriminant validity is to compare the square root of the AVE with the correlation of the other constructs. If the square root of the AVE is greater than the correlation between other constructs, these results indicate discriminant validity. In Table 5, the square root of AVE is listed in bold on the diagonal in the matrix, and the correlation values with the other constructs listed vertically. The correlation values are all less than the square root of the AVE, which indicates the strength of the relationship between two variables (StatSoft, 2013).

The measurement model demonstrated satisfactory discriminant validity since the square root of the AVE value was greater than any correlated value by construct as shown in Table 5, and the factor loadings were greater on-factor than off-factor as shown in Appendix F.

The same process was repeated to test the reliability and validity of the constructs in the original HBM as explained about the modified model above. The table is listed in Appendix C. In summary, the reliability and validity assessment provided suggest that the original model and the modified HBM are suitable research models.

Table 5
AVE and construct correlations of the proposed modified HBM

	Perceived Barriers	Perceived Benefits	Cues to Action	Intent	eHealth Literacy	Health Motivation	Normative Belief	Self-Efficacy	Perceived Severity	Perceived Susceptibility	Perceived Threat
Perceived Barriers	**0.79**										
Perceived Benefits	-0.12	**0.81**									
Cues to Action	-0.01	0.31	**0.89**								
Intent	-0.02	0.54	0.30	**0.98**							
eHealth Literacy	-0.22	0.21	0.16	0.15	**0.85**						
Health Motivation	-0.27	0.20	0.09	0.11	0.20	**0.88**					
Normative Belief	-0.10	0.46	0.47	0.51	0.27	0.04	**0.86**				
Self-Efficacy	-0.20	0.12	0.06	0.07	0.45	0.22	0.17	**0.83**			
Perceived Severity	0.18	0.16	0.21	0.06	0.14	-0.09	0.12	-0.06	**0.80**		
Perceived Susceptibility	-0.02	0.22	0.17	0.33	0.25	-0.01	0.22	0.05	0.12	**0.86**	
Perceived Threat	0.28	0.07	0.20	0.10	0.08	-0.17	0.12	-0.06	0.63	0.06	**0.85**

The next step was to perform bootstrapping to identify constructs that were not significant through a stepwise approach. Thus, constructs with t-statistic greater than 1.96 or a *p*-Value greater than 0.05 were removed starting with the construct with the highest *p*-Value. The bootstrapping routine was repeated until all constructs with a *p*-Value greater than 0.05 were removed. The following paths were removed due to *p*-Values greater than 0.05: perceived susceptibility to perceived threat (0.86), perceived severity to intent (0.10), and health motivation to intent (0.43). Additionally, the paths between perceived threat and intent (0.30) and between perceived barriers and intent (0.29) were not significant, the items perceived threat and perceived barriers were removed. Thus, the paths from perceived severity to perceived threat (<0.001) and from eHealth literacy to

perceived barriers (0.01) were removed. The factor loadings for the resulting model with only six of the original ten remaining are included in Appendix G. A similar process was used to eliminate factors in the original model. Those factor loadings are shown in Appendix D.

7. RESULTS

Original Model Testing

After evaluating the outer measurement model, the proposed inner model was assessed. The path coefficients and variance extracted, or R^2 values, were calculated for the construct relationships. According to Wright (1934), "the path coefficient is a means of relating the correlation coefficients between variables in a multiple system to the functional relations among them" (p. 161). Table 6 provides the path coefficients, p-values, and the R^2 value for the relationships in the original HBM.

Table 6
Path coefficients, T-statistics, p-Values, and R^2 of original HBM

	Path Coefficients	T Statistics	p-Values	R-Squared
Perceived Barriers -> Intent	-0.14	1.90	0.06	
Perceived Benefits -> Intent	0.43	5.61	0.00	
Perceived Severity -> Intent	0.14	0.92	0.36	
Perceived Susceptibility -> Intent	0.19	2.89	0.00	
Intent				0.38

The path values represent the effect of one construct on another. All the path values that were not significant were removed using a stepwise approach. The result was perceived benefits and perceived susceptibility each with a positive path value towards intent. The values strongly supported the original HBM model R-squared (R^2) measures the percent of variation in the "dependent" variable that can be accounted for by the "independent" variables (Leamer, 1999). The R^2 or variance extracted was calculated for

the dependent variable intent with a value of 0.34. Figure 3 details the path analysis between constructs for the model as well as the R^2 value.

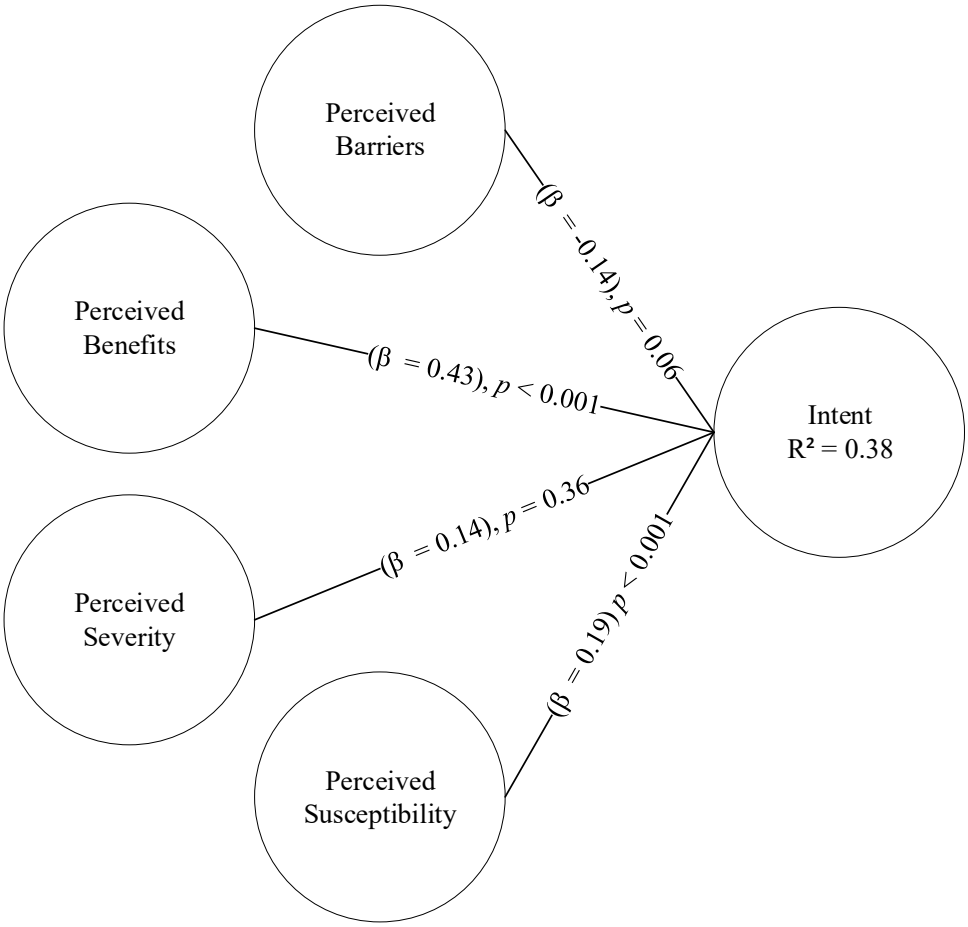

Figure 3. Path coefficients, *p*-Values, and R^2 for the original HBM.

Modified Model Testing

To further tests the hypotheses, a modified HBM was created. Previously studied variables including perceived threat, self-efficacy, health motivation, cues to action, as well as two additional constructs normative belief and eHealth literacy were analyzed. The following paths were not significant and were removed from the modified model: perceived susceptibility to threat; eHealth literacy to perceived barriers; perceived severity to threat; perceived severity, perceived threat, perceived barriers, and health motivation to intent. These results support that the following paths were significant: cues

to action to normative belief, self-efficacy to eHealth literacy, eHealth literacy to perceived benefits, and perceived susceptibility, normative belief, and perceived benefits to intent. The path coefficients are shown in Table 7. The results that are significant are shown in Figure 4 and Table 7.

Table 7
Path coefficients, T-statistics, and p-Values of modified HBM

	Path Coefficients	T Statistics	p-Values
Perceived Benefits -> Intent	0.36	5.12	0.00
Cues to Action -> Normative Belief	0.47	10.00	0.00
eHealth Literacy -> Perceived Benefits	0.21	2.59	0.01
Normative Belief -> Intent	0.31	4.34	0.00
Self-Efficacy -> eHealth Literacy	0.46	7.88	0.00
Perceived Susceptibility -> Intent	0.19	3.11	0.00

The R^2 values or variance extracted was calculated for the independent variables perceived benefits, eHealth literacy, and normative belief, as well as the dependent variable, intent. Table 8 shows the R^2 (variance extracted by construct). The model accounted for a significant portion of the variance for perceived benefits, eHealth literacy, normative belief, and intent. The R-Squared, Path Coefficients, and *p*-values for the modified HBM are represented in Figure 4.

Table 8
R^2 of modified HBM

	R Square
Perceived Benefits	0.04
Intent	0.41
eHealth Literacy	0.21
Normative Belief	0.22

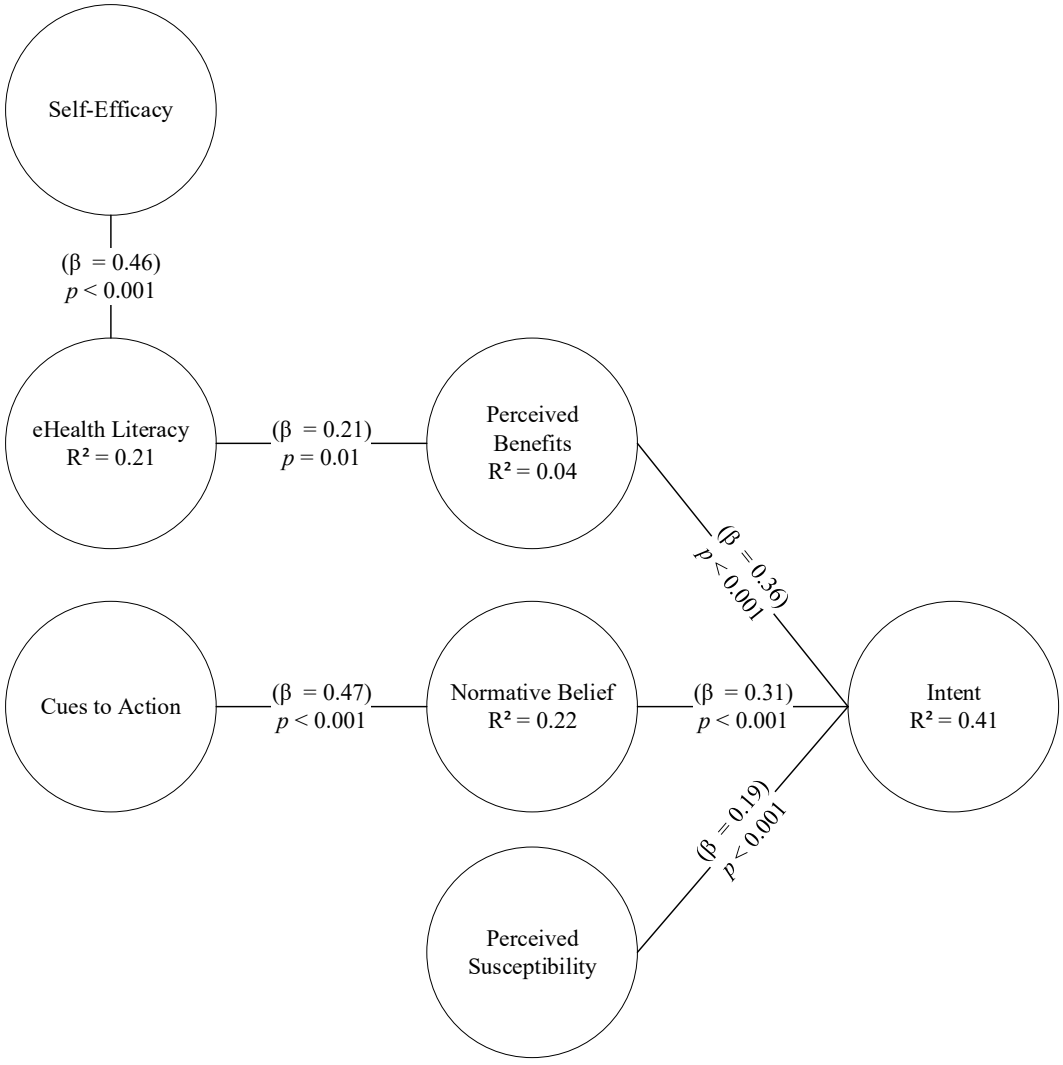

Figure 4. Path coefficients, *p*-Values, and R^2 for modified HBM.

Results provided support for H2, H3, H7, H8, H9, H10, H12 and H13, justifying the modified HBM. Table 9 provides a summary of hypothesis results.

Table 9
Hypotheses results

Hypothesis	Description	Results
H1	Perceived susceptibility will have a positive impact on threat.	Not Supported
H2	Perceived susceptibility will have a positive impact on intent.	Supported
H3	Perceived severity will have a positive impact on threat.	Supported
H4	Perceived severity will have a positive impact on intent.	Not Supported
H5	Perceived threat will have a positive impact on intent.	Not Supported
H6	Health motivation will have a positive influence on intent.	Not Supported
H7	Self-efficacy will have a positive influence on eHealth literacy.	Supported
H8	eHealth literacy will have a positive influence on perceived benefits.	Supported
H9	eHealth literacy will have a positive influence on perceived barriers.	Supported
H10	Perceived benefits will have a positive influence on intent.	Supported
H11	Perceived barriers will have a negative influence on intent.	Not Supported
H12	Cues to action will have a positive impact on normative belief.	Supported
H13	Normative belief will have a positive impact on intent.	Supported

While Smart PLS shows which paths are significant, to determine whether individuals truly intend to conduct genetic testing, the items were analyzed individually to see how many respondents agreed or strongly agreed with the statement. The responses in perceived susceptibility showed that only 30% of respondents felt there is a great chance they will be diagnosed with a genetic disease even though almost 60% revealed

that they have at least one family member with a genetic disease. The cues to action indicators show that respondents prefer to be prompted by their physician (70%) or medical insurance (23%) rather than media (4%). Roughly 65% of respondents felt genetic testing would help them discover a possible genetic diagnosis, however only 28% felt that it would reduce anxiety or prevent future problems. All eHealth literacy indicators had less than 50% of respondents agree or strongly agree regarding their confidence in using internet-based resources. All self-efficacy indicators were between 70% and 90%, suggesting that the majority of respondents felt themselves to be capable of participating in their health care decisions after completing genetic testing. Of the normative belief questions, physicians (83%) are the group of referent others who will most likely influence an individual. The results for the all questions are shown in Appendix H.

8. DISCUSSION

This research study explored the HBM to identify factors which influence an individual's intent to consider genetic testing. The HBM model was tested along with a modified model which contained the constructs that were previously added, as well as two additional constructs: eHealth literacy and normative belief. When analyzing the original model, only two of the constructs, perceived benefits and perceived susceptibility, were significant in predicting whether an individual would use genetic testing. The results for the modified model included two original constructs (perceived susceptibility and perceived benefits), two previously tested variables (cues to action and self-efficacy), and the two factors that were added (normative belief and eHealth literacy).

The researcher identified additional factors that she thought would improve the HBM including eHealth literacy and normative beliefs. While testing the original model, the variance (R^2) was 34% indicating the original model explained 34% of why people would consider genetic testing. Once the constructs were added, including those recommended by other researchers, the variance (R^2) increased to 41%. Thus, the new model more thoroughly explains what individuals use when considering genetic testing and is, therefore, more robust. The remainder of this section will discuss these results.

Perceived susceptibility did not have a positive impact on perceived threat of genetic disease. When individuals felt vulnerable to getting a positive test result, they did not have an increased perception of threat by the diagnosis. Becker et al. (1978) included perceived susceptibility, along with perceived severity, when exploring threat of an illness. The survey responses indicate that only 30% of respondents felt their chances of

getting diagnosed with a genetic disease are high and 24% felt there was a good possibility. These results suggest that the perception of susceptibility was not high enough to increase an individual's perceived threat.

When testing whether an individual's perceived susceptibility had a positive impact on their intent to get genetic testing, more than 58% of respondents reportedly are informed about their immediate family health history and potential hereditary conditions. More than half of respondents (57%) indicated that at least one family member has been diagnosed with a genetic disease. Roughly, 30% of respondents felt they were likely to contract a genetic disease and 24% felt there is at least a good possibility. This indicates that at least 1 in 4 people feel susceptible to genetic disease. Kamal et al. (2017) found that the greater the perceived susceptibility, the greater chance an individual will act. According to Janz and Becker (1984), perceived susceptibility is the strongest predictor of preventive health behavior. These findings were reflected in the results of this study. The results indicated that perceived susceptibility to genetic disease increased one's intent to get genetic testing.

Perceived severity did not impact an individual's intent to complete genetic testing. Individuals, regardless of their perception of the severity, were not influenced by the seriousness of a condition that could be predicted by the results of the test. Champion (1984) found that positive health behavior can be undermined by perceptions of seriousness; however, a moderate level of severity is needed for that action to be taken. Sulat et al. (2018) stated that perceived severity is the weakest variable since many individuals struggle to formulate the seriousness of a condition they do not have. Janz and Becker (1984) found that perceived severity is only significant in roughly one-third

of HBM studies. This research found that perceived severity did not have a significant positive impact on intent. Therefore, the construct was removed from the model. While 39% of respondents felt getting a genetic disease will cause them to experience problems that significantly impact their life, only 5% avoid genetic testing because they were afraid to even think about genetic diseases. The results indicate that the level of severity of the hardships that come from a genetic disease diagnosis did not influence an individual's intent to conduct genetic testing.

Another important result was that while an individual's perceived severity had a positive impact on their perceived threat, perceived threat did not significantly impact intent. Thus, the antecedent perceived severity was also removed from the modified HBM. According to Champion (1984), perceived severity is "concerned with perceived degree of personal threat related to a specific condition" (p. 77), however it is "difficult to predict" (p. 84).There was approximately 39% of respondents who felt a genetic disease would lead to significant problems in their life and 37% were afraid of the ramifications of the results of genetic testing. These results suggest that the perception of severity will increase an individual's perceived threat.

Forty-four percent (44%) of the respondents indicated they felt threatened by the trouble having a genetic disease would cause. Only 33% felt threatened because being diagnosed with a genetic disease would have negative effects. The results suggest that less than half of respondents feel threated by the notion of a genetic disease. Jones et al. (2015) suggested the HBM should be tested with perceived severity and perceived susceptibility separate from perceived threat; however, the results of this study suggest that perceived threat does not influence intent to get genetic testing.

An individual's health motivation did not affect their intent to get tested for genetic disorders. While 86% of respondents felt maintaining health was important, only 56% frequently do things to improve their health. This indicated that no matter how motivated an individual was in maintaining their health, it did not affect their decision to proceed with genetic testing. Rosenstock (1966) acknowledged that individuals must be motivated to take action, however Carpenter (2010) found that health motivation is not often used in HBM studies. This study found that health motivation is not a factor that contributes to intent towards genetic testing.

Self-efficacy influenced an individual's eHealth literacy. Orji et al. (2012) and Jorvand, Sadeghirad, Haeri Mehrizi, Ghofranipour, and Tavousi (2019) found self-efficacy to be the strongest construct in their research. Khorsandi et al. (2019) found self-efficacy to be a "prerequisite for self-care" (p. 2). Of the respondents, 88% felt capable to discuss their genetic testing results with their doctor and 69% trusted their own ability to understand the results. These results indicate that individuals trust their ability to understand and feel confident in looking at information regarding genetic testing results. In other words, self-efficacy does have a positive affect an individual's eHealth literacy.

An individual's eHealth literacy influenced their perception of benefits when considering genetic testing. There were 46% of respondents who felt confident in using information from health resources, and 42% who felt they know how to use internet-based information to help understand genetic testing results. Although less than half of the respondents felt confident and capable of using internet-based resources, this study suggests that eHealth literacy has a positive impact on perceived benefits.

More than half of the respondents (65%) felt that genetic testing would allow them to discover a potential genetic disease diagnosis, while 40% felt that there is a high probability that they will be diagnosed. Champion (1984) found that perceived benefits allow individuals to believe their actions will help them maintain good health and avoid contracting a disease. While using the HBM to study help-seeking intention for anxiety, Langley, Wootton, and Grieve (2018) found perceived benefits to be the strongest variable to predict seeking help. This study suggests that the benefits an individual expects from genetic testing positively influences their intent.

Champion (1984) explained that an individual may have trouble making decisions when they fear potential barriers; however, most of the respondents in the current study did not feel the barriers to genetic testing were deterrents. Carpenter (2010) found barriers to have the strongest relationship with behavior, however this research contradicted those results since perceived barriers were not significant in the present study. Few respondents (26%) felt that genetic testing is too expensive. Almost 70% of individuals did not perceive barriers to conducting genetic testing. Only 2% of respondents felt that genetic testing is not reliable or is embarrassing. Perceived barriers do not influence an individual's intent to conduct genetic testing.

Another important result was that while an individual's eHealth literacy had a positive impact on their perceived barriers, perceived barriers did not significantly impact intent. Thus, the path from its antecedent eHealth literacy was also removed from the modified HBM. Less than half of the respondents were confident in their ability to use electronics, to find trustworthy information, and to put it into context to aid in their decision making. Previously, general disease knowledge has been included as a construct

(Becker et al., 1974). This study included eHealth literacy in an effort to see if understanding how to use technology-based resources would have a positive impact on perceived barriers. This study found that eHealth literacy has an impact on an individual's perceived barriers.

Cues to action had a positive impact on normative belief. Individuals indicate that prompts from physicians would be the most influential at 71% while other means would be less influential such as health insurance (23%), internet (9%), print media (4%), or television and radio (3%). These results indicate that media does not have a strong impact on normative belief. The majority of individuals would be receptive to hearing from their physician but less receptive to any other source, including their insurance company. Begley (2016) found that only 27% of physicians have recommended genetic testing; however, 63% would be willing to help interpret the results of direct-to-consumer testing. These results suggest that cues to action influence normative belief.

Normative beliefs were found to have a positive effect on an individual's intent to complete genetic testing. When examining normative beliefs, respondents would be influenced by their doctor (83%), a spouse or partner (52%), a family member (42%), a friend or acquaintance (18%), or by colleagues (15%). Ajzen (1971) found that varying referent groups impact an individual's behavior based on the action in question. Physicians, a spouse or partner, and family members are most influential on an individual when they are considering genetic testing. The results indicated that normative belief influenced intent to get genetic testing.

One goal of this study was to explore how the HBM constructs influence an individual's decision to conduct genetic testing. The results suggest that perceived

susceptibility, perceived benefits, cues to action, self-efficacy, eHealth literacy, and normative belief all play a positive role in an individual getting genetic testing. When asked where they would go for genetic testing, 80 % said they would use their doctor, 45% would go through a genetic counselor, and only 16% would go through a direct-to-consumer website.

The current interest in genetic testing is evident. Consumers need to be aware of the choices they have regarding how to complete genetic testing, as well as what to do once they receive results. As individuals continue to pursue genetic testing, healthcare providers should prepare to provide education and assistance to help an individual navigate through their preventive health options.

9. CONCLUSION

In summary, this study applied the HBM to explore whether we can predict if individuals intend to get genetic testing. This study aimed to add eHealth literacy and normative belief to the HBM model. The results indicated that while perceived susceptibility, perceived benefits, cues to action, self-efficacy, eHealth literacy, and normative belief had a positive impact on an individual's intent to conduct genetic testing, less than 20% of respondents plan to get genetic testing. Ajzen (1985) stated that "actions are controlled by intentions, but not all intentions are carried out" (p. 11). Thus, identifying additional factors that influence an intent model, such as the HBM, provides a better prediction of an individual's intent.

Limitations

Previous studies included additional demographics, such as education level and annual income. These should be considered in future HBM studies specific to genetic testing results. Kirscht (1974a), discusses how demographics affect an individual's behavior when he mentions that low education and income levels usually lead to "pessimism, alienation, skepticism, and fatalism" (p. 403).

Another limitation was the small sample size. While the sample size was sufficient, a larger sample of participants could produce different results. A convenience sample was used which makes it difficult to generalize the results. Most respondents were female who have a history of working in healthcare.

Contributions and Implications for Future Research

This study contributed by identifying important factors for the HBM framework. By adding normative belief and eHealth literacy, the results provided a better understanding of one's intention to conduct genetic testing.

Future research should investigate whether individuals will make lifestyle changes based on their genetic testing results. For example, would they consider preventive surgery, a new diet, or an exercise regimen? Do they consider getting checkups at regular intervals? Identifying factors that influence individuals to change their lifestyles would allow us to encourage others to do the same. By refining our research, we could develop a better understanding of how to use genetic testing results to promote increased awareness of patient expectations and positive health outcomes.

APPENDIX SECTION

APPENDIX A: FACTOR LOADINGS PILOT STUDY

Construct	Research Question	Perceived Barrier	Perceived Benefit	Cues to Action	Intent	eHealth Literacy	Health Motivation	Normative Belief	Self-efficacy	Perceived Severity	Perceived Susceptibility	Perceived Threat
Perceived Benefit	Doing genetic testing will prevent future problems for me.	0.13	**0.61**	0.15	0.27	0.03	0.20	-0.17	0.07	0.16	0.20	0.40
	Genetic testing can help me find potential genetic disease diagnoses.	0.10	**0.66**	-0.09	0.31	0.12	0.03	0.06	0.26	0.17	0.18	0.34
	I have a lot to gain by doing genetic testing.	0.00	**0.56**	0.09	0.22	0.06	-0.09	-0.12	0.16	0.12	0.41	0.31
	I would not be so anxious about genetic diseases if I did genetic testing.	0.18	**0.68**	0.29	0.47	0.11	0.27	0.06	0.19	0.14	0.28	0.31
	If I get genetic testing, I may discover a high probability that I will get diagnosed with a genetic disorder.	0.19	**0.77**	0.10	0.53	0.21	0.06	-0.06	0.17	0.31	0.31	0.50
Cues to Action	Information from a physician prompted me to get genetic testing.	0.31	0.23	**0.77**	0.37	0.09	0.13	0.19	0.01	-0.07	0.24	0.17
	Information from internet prompted me to get genetic testing.	0.23	0.23	**0.88**	0.35	-0.05	0.03	0.29	-0.03	0.10	0.20	0.28
	Information from my health insurance prompted me to get genetic testing.	0.40	0.16	**0.83**	0.26	-0.07	0.16	0.18	-0.07	-0.06	0.07	0.05
	Information from print media prompted me to get genetic testing.	0.42	0.09	**0.91**	0.36	0.00	0.12	0.27	-0.09	-0.03	0.13	0.12
	Information from radio prompted me to get genetic testing.	0.39	0.12	**0.95**	0.34	-0.08	0.08	0.27	-0.13	-0.06	0.10	0.07

	Information from television prompted me to get genetic testing.	0.36	0.13	**0.87**	0.32	-0.16	-0.15	0.33	-0.17	0.16	0.26	0.25
Health Motivation	I follow medical orders because I believe they will benefit my health.	0.01	0.15	0.19	0.02	0.22	**0.40**	-0.02	0.35	-0.03	0.05	0.09
	I frequently do things to improve my health.	0.11	0.09	0.05	0.14	0.04	**0.63**	0.12	0.26	0.11	-0.12	0.06
	I seek out new information related to my health.	0.15	0.10	0.07	0.07	0.22	**0.76**	-0.10	0.17	0.03	0.03	0.17
	I try to discover health issues early.	0.22	0.17	-0.05	0.16	0.36	**0.88**	-0.32	0.40	0.00	0.06	0.09
	Keeping healthy is important to me.	0.23	0.10	-0.08	-0.11	-0.03	**0.44**	-0.05	0.17	0.23	-0.02	0.21
Intent	I will most likely use results from genetic testing done through a direct-to-consumer website.	0.22	-0.02	0.05	**0.27**	-0.06	0.12	0.20	-0.11	-0.05	-0.07	-0.01
	I plan to get genetic testing	0.16	0.57	0.13	**0.80**	0.34	0.09	0.18	0.29	0.26	0.27	0.47
	I will most likely use results from genetic testing done through my doctor.	0.14	-0.02	0.18	**0.39**	-0.16	0.00	0.49	-0.14	-0.11	-0.19	-0.16
	I intend to get genetic testing.	0.24	0.58	0.27	**0.90**	0.36	0.18	0.19	0.31	0.37	0.36	0.56
	I will most likely get genetic testing done through a direct-to-consumer website.	0.34	0.42	0.42	**0.73**	0.26	0.34	0.20	0.21	0.10	0.25	0.27
	I will most likely get genetic testing done through a genetic counselor.	0.27	0.49	0.41	**0.77**	0.28	0.36	0.17	0.33	0.03	0.18	0.21
	I will most likely get genetic testing done through my doctor.	0.31	0.43	0.28	**0.70**	0.23	0.10	0.08	0.34	0.34	0.33	0.54
	I would use the results of genetic testing to make healthcare decisions.	0.18	-0.06	0.07	**0.20**	-0.10	-0.18	0.40	-0.17	-0.11	-0.10	-0.07
	I would make healthcare decisions based on the results of genetic testing.	0.14	-0.08	0.10	**0.18**	-0.15	-0.11	0.40	-0.20	-0.12	-0.12	-0.08

	I will most likely use results from genetic testing done through a genetic counselor	0.18	0.05	0.18	**0.36**	-0.17	0.13	0.37	-0.14	-0.10	-0.17	-0.09
eHealth Literacy	I can tell high quality health resources from low quality health resources on the internet.	0.03	0.10	0.10	0.18	**0.74**	0.26	-0.19	0.54	0.04	0.27	0.12
	I feel confident in using information from health resources to make health decisions regarding the results of my genetic testing.	-0.02	-0.09	0.01	0.16	**0.52**	0.23	0.10	0.44	0.05	0.21	-0.01
	I have the skills needed to evaluate the content of health resources to understand my genetic testing.	-0.07	0.31	0.03	0.38	**0.86**	0.22	-0.07	0.61	0.12	0.37	0.22
	I know how to find helpful health resources to make a decision after getting genetic testing.	-0.12	0.09	-0.07	0.25	**0.94**	0.30	-0.17	0.68	0.05	0.30	0.12
	I know how to use information from the internet to understand the results of my genetic testing.	-0.07	0.24	-0.02	0.32	**0.88**	0.31	-0.16	0.65	0.01	0.30	0.12
	I know how to use the Internet to answer my questions on results of my genetic testing.	0.01	0.08	0.02	0.20	**0.71**	0.36	-0.06	0.50	-0.02	0.15	0.02
	I know what health resources are available on the Internet that will help me make a decision about genetic test results.	0.01	0.13	0.01	0.23	**0.66**	0.30	-0.02	0.50	0.03	0.16	0.02
	I know where to find helpful health resources on the Internet about genetic testing results.	-0.13	0.13	-0.04	0.23	**0.87**	0.40	-0.25	0.62	-0.02	0.25	0.13

Normative Belief	Recommendation by a physician prompted me to get genetic testing.	0.13	-0.07	0.37	0.26	-0.17	-0.16	**0.89**	-0.16	-0.10	-0.13	-0.17
	Recommendation by colleagues prompted me to get genetic testing.	0.01	0.01	0.19	0.32	-0.12	-0.22	**0.91**	-0.01	0.03	0.00	0.03
	Recommendation by family prompted me to get genetic testing.	0.14	-0.07	0.26	0.23	-0.22	-0.09	**0.95**	-0.11	-0.09	-0.16	-0.12
	Recommendation by friends/acquaintances prompted me to get genetic testing.	0.06	-0.05	0.30	0.24	-0.15	-0.13	**0.96**	-0.10	-0.14	-0.15	-0.08
	Recommendation by spouse/partner prompted me to get genetic testing.	0.10	-0.05	0.28	0.24	-0.21	-0.08	**0.94**	-0.09	-0.11	-0.20	-0.17
Self-efficacy	I can make meaningful health decisions if I get genetic testing.	0.00	0.36	-0.07	0.34	0.53	0.34	-0.06	**0.84**	0.27	0.35	0.38
	I am confident in my ability to discuss my genetic testing results with my doctor.	-0.22	0.15	-0.20	0.18	0.61	0.15	-0.03	**0.76**	-0.09	0.03	-0.04
	I am confident in my ability to understand results from genetic testing.	-0.09	0.02	0.10	0.19	0.57	0.46	-0.02	**0.78**	-0.14	0.04	-0.16
	I have the skills I need to make decisions based on the results of genetic testing if I had it done.	-0.15	0.02	-0.07	-0.01	0.49	0.27	-0.14	**0.69**	0.08	0.12	-0.09
	I know that I will be able to actively participate in decisions about the results of genetic testing.	-0.22	0.10	-0.14	0.11	0.52	0.31	-0.27	**0.59**	-0.16	0.14	-0.09
Perceived Severity	A genetic disease would endanger my relationships.	0.41	0.00	0.10	0.03	-0.04	-0.06	0.05	-0.06	**0.51**	0.13	0.30
	I am afraid to even think about genetic diseases, so I avoid genetic testing.	0.17	0.29	0.01	0.25	0.05	-0.07	-0.14	0.01	**0.77**	0.33	0.45

	If I get a genetic disease, I will experience problems that significantly impact my life.	0.30	0.14	0.05	0.09	-0.12	0.07	0.03	-0.03	**0.66**	0.04	0.52
	My feelings about myself would change if I got a genetic disease.	0.23	0.12	0.01	0.08	0.14	-0.09	0.12	0.09	**0.58**	0.16	0.47
	The thought of getting a genetic disease scares me.	0.35	0.23	-0.04	0.19	0.05	0.02	-0.09	0.10	**0.83**	0.20	0.63
Perceived Susceptibility	I feel that my chances of getting a genetic disease in the future are high.	0.19	0.41	0.15	0.30	0.42	0.00	-0.15	0.33	0.33	**0.96**	0.40
	My current state of health makes it more likely that I will get a genetic disease.	0.04	0.26	0.21	0.10	0.22	0.02	-0.18	0.14	0.06	**0.78**	0.19
	There is a good possibility that I will get a genetic disease.	0.19	0.44	0.15	0.25	0.30	0.02	-0.15	0.23	0.25	**0.93**	0.33
	At least one of my family members have been diagnosed with (a) genetic disease(s).	0.27	0.26	0.18	0.25	0.19	-0.08	-0.05	0.06	0.29	**0.84**	0.26
	I have knowledge of my immediate family health history and potential hereditary conditions.	0.06	0.11	-0.11	-0.06	0.10	-0.14	-0.18	0.01	0.20	**0.35**	0.19
Perceived Threat	I am scared that a genetic disease will have harmful consequences for me.	0.41	0.42	0.12	0.31	0.06	0.09	-0.09	0.04	0.63	0.16	**0.87**
	I am worried that being diagnosed with a genetic disease will negatively affect me.	0.28	0.37	0.09	0.30	0.12	-0.04	-0.16	0.12	0.61	0.12	**0.81**
	It would be awful if I was diagnosed with a genetic disease.	0.09	0.26	0.00	0.13	0.22	-0.17	-0.06	0.22	0.32	0.01	**0.48**
	A genetic disease poses a threat to me.	0.46	0.47	0.23	0.51	0.12	0.08	-0.05	0.09	0.58	0.47	**0.83**
	The trouble caused by a genetic disease threatens me.	0.25	0.61	0.16	0.40	0.16	0.10	-0.08	0.12	0.52	0.36	**0.84**

Perceived Barrier	A genetic disease would interfere with my activities.	**0.74**	0.24	0.29	0.32	-0.10	0.08	0.12	-0.10	0.45	0.27	0.44
	In order to do genetic testing I have to give up quite a bit.	**0.55**	0.15	0.36	0.12	-0.18	0.19	0.04	-0.17	0.11	0.04	0.28
	It is embarrassing for me to do genetic testing.	**0.71**	0.11	0.24	0.21	0.01	-0.04	0.01	-0.10	0.17	0.08	0.21
	Genetic testing is not reliable.	**0.50**	0.05	0.16	0.09	-0.21	0.13	0.03	-0.13	0.14	0.07	0.08
	Genetic testing is too expensive.	**0.23**	0.07	0.11	-0.14	-0.15	-0.18	-0.11	-0.10	-0.01	0.13	0.00
	I have no intention of changing my lifestyle choices, so genetic testing is useless.	**0.23**	-0.15	0.10	0.07	0.02	-0.31	0.12	-0.11	-0.03	0.02	-0.04
	I worry about my genetic profile being misused.	**0.55**	0.08	0.18	0.16	0.00	0.19	-0.08	0.12	0.03	0.18	0.14

APPENDIX B: PILOT QUESTIONS AND FINAL RESEARCH QUESTIONS

Construct	Pilot Question	Pilot Factor Loadings	Action Taken	Research Question
Demographics	Age		None	Age
	Do you have a history of working in healthcare?		None	Do you have a history of working in healthcare?
	Sex: Male or Female		None	Sex: Male or Female
	Have you completed genetic testing?		None	Have you previously completed genetic testing?
Perceived Susceptibility	I feel that my chances of getting a genetic disease in the future are high.	0.96	Updated	My chances of getting a genetic disease are high.
	My current state of health makes it more likely that I will get a genetic disease.	0.78	None	My current state of health makes it more likely I will get a genetic disease.
	There is a good possibility that I will get a genetic disease.	0.93	None	There is a good possibility I will get a genetic disease.
	At least one of my family members have been diagnosed with (a) genetic disease(s).	0.84	None	At least one of my family members have been diagnosed with (a) genetic disease(s).
	I have knowledge of my immediate family health history and potential hereditary conditions.	0.35	Updated	I am informed regarding my immediate family health history and potential hereditary conditions.
Perceived Severity	A genetic disease would endanger my relationships.	0.51	None	A genetic disease would endanger my relationships.
	I am afraid to even think about genetic diseases, so I avoid genetic testing.	0.77	None	I am afraid to even think about genetic diseases, so I avoid genetic testing.
	If I get a genetic disease, I will experience problems that significantly impact my life.	0.66	None	If I get a genetic disease, I will experience problems that significantly impact my life.
	My feelings about myself would change if I got a genetic disease.	0.58	None	My feelings about myself would change if I got a genetic disease.
	The thought of getting a genetic disease scares me.	0.83	None	The thought of getting a genetic disease scares me.

Cues to Action				I would be prompted to get genetic testing with information from:
	Information from a physician prompted me to get genetic testing.	0.77	Updated	a physician.
	Information from internet prompted me to get genetic testing.	0.88	Updated	the internet.
	Information from my health insurance prompted me to get genetic testing.	0.83	Updated	my health insurance.
	Information from print media prompted me to get genetic testing.	0.91	Updated	print media.
	Information from radio prompted me to get genetic testing.	0.95	Updated	the radio.
	Information from television prompted me to get genetic testing.	0.87	Updated	television.
Perceived Threat				The idea of a genetic disease threatens me because:
	I am scared that a genetic disease will have harmful consequences for me.	0.87	Updated	of the harmful consequences it would have.
	I am worried that being diagnosed with a genetic disease will negatively affect me.	0.81	Updated	being diagnosed would negatively affect me.
	It would be awful if I was diagnosed with a genetic disease.	0.48	Updated	it would be awful if I was diagnosed with a genetic disease.
	A genetic disease poses a threat to me.	0.83	Updated	a genetic disease poses a threat to me.
	The trouble caused by a genetic disease threatens me.	0.84	Updated	I would have trouble caused by a genetic disease.
Perceived Benefits	I have a lot to gain by doing genetic testing.	0.56	None	I have a lot to gain by doing genetic testing.
				Genetic testing:
	I would not be so anxious about genetic diseases if I did genetic testing.	0.68	Updated	would reduce my anxiety about genetic diseases.
	If I get genetic testing, I may discover a high probability that I will get diagnosed with a genetic disorder.	0.77	Updated	means I may discover a high probability that I will be diagnosed with a genetic disorder.
	Doing genetic testing will prevent future problems for me.	0.61	Updated	will prevent future problems for me.

	Genetic testing can help me find potential genetic disease diagnoses.	0.66	Updated	can help me find potential genetic disease diagnoses.
Perceived Barriers				I feel that getting genetic testing:
	A genetic disease would interfere with my activities.	0.74	Updated	would interfere with my activities.
	In order to do genetic testing I have to give up quite a bit.	0.55	Updated	requires me to give up quite a bit.
	It is embarrassing for me to do genetic testing.	0.71	Updated	is embarrassing.
	Genetic testing is not reliable.	0.50	Updated	is not reliable.
	Genetic testing is too expensive.	0.23	Updated	is too expensive.
	I have no intention of changing my lifestyle choices, so genetic testing is useless.	0.23	Updated	is useless since I have no intention of changing my lifestyle choices.
	I worry about my genetic profile being misused.	0.55	Updated	could lead to my genetic profile being misused.
eHealth Literacy				I am confident:
	I can tell high quality health resources from low quality health resources on the internet.	0.52	Updated	that I can tell high quality health resources from low quality health resources on the internet.
	I feel confident in using information from health resources to make health decisions regarding the results of my genetic testing.	0.86	Updated	in using information from health resources to make health decisions regarding the results of my genetic testing.
	I have the skills needed to evaluate the content of health resources to understand my genetic testing.	0.94	Updated	I have the skills to evaluate the content of health resources to understand my genetic testing.
				Regarding health resources on the internet, I know:
	I know how to find helpful health resources to make a decision after getting genetic testing.	0.74	Updated	how to find helpful resources to make a decision after getting genetic testing.
	I know how to use information from the internet to understand the results of my genetic testing.	0.88	Updated	how to use the information to understand the results of my genetic testing.
	I know how to use the Internet to answer my questions on results of my genetic testing.	0.66	Updated	how to use the internet to answer my questions on results of my genetic testing.

	I know what health resources are available on the Internet that will help me make a decision about genetic test results.	0.87	Updated	what health resources are available that will help me make a decision about genetic test results.
	I know where to find helpful health resources on the Internet about genetic testing results.	0.74	Removed	
Health Motivation	I follow medical orders because I believe they will benefit my health.	0.40	None	I follow medical orders because I believe they will benefit me.
	I frequently do things to improve my health.	0.63	None	I frequently do things to improve my health.
	I seek out new information related to my health.	0.76	Updated	I seek out new information to support my health.
	I try to discover health issues early.	0.88	None	I try to discover health issues early.
	Keeping healthy is important to me.	0.44	Updated	Maintaining health is important to me.
Self-Efficacy				I trust my ability to:
	I can make meaningful health decisions if I get genetic testing.	0.84	Updated	make meaningful health decisions if I get genetic testing.
	I am confident in my ability to discuss my genetic testing results with my doctor.	0.76	Updated	discuss my genetic testing results with my doctor.
	I am confident in my ability to understand results from genetic testing.	0.78	Updated	understand results from genetic testing.
	I have the skills I need to make decisions based on the results of genetic testing if I had it done.	0.69	Updated	use my skills to make decisions based on the results of my genetic testing.
	I know that I will be able to actively participate in decisions about the results of genetic testing.	0.59	Updated	actively participate in decisions about the results of genetic testing.
Normative Belief				I would consider genetic testing if it were suggested by:
	Recommendation by a physician prompted me to get genetic testing.	0.89	Updated	a physician.
	Recommendation by colleagues prompted me to get genetic testing.	0.91	Updated	colleagues.
	Recommendation by family prompted me to get genetic testing.	0.95	Updated	my family.

	Recommendation by friends/acquaintances prompted me to get genetic testing.	0.96	Updated	my friends/acquaintances.
	Recommendation by spouse/partner prompted me to get genetic testing.	0.94	Updated	my spouse/partner.
Intent	I plan to get genetic testing	0.80	None	I plan to get genetic testing
	I intend to get genetic testing.	0.90	None	I intend to get genetic testing.
				I will most likely get genetic testing done through:
	I will most likely get genetic testing done through a direct-to-consumer website.	0.73	Updated	a direct-to-consumer website.
	I will most likely get genetic testing done through a genetic counselor.	0.77	Updated	a genetic counselor.
	I will most likely get genetic testing done through my doctor.	0.70	Updated	my doctor.
	I would use the results of genetic testing to make healthcare decisions.	0.20	Removed	
	I would make healthcare decisions based on the results of genetic testing.	0.18	Removed	
	I will most likely use results from genetic testing done through a direct-to-consumer website.	0.27	Removed	
	I will most likely use results from genetic testing done through a genetic counselor	0.36	Removed	
	I will most likely use results from genetic testing done through my doctor.	0.39	Removed	

APPENDIX C: FACTOR LOADINGS FROM ORIGINAL HBM

Construct	Research Question	Intent	Perceived Barriers	Perceived Benefits	Perceived Severity	Perceived Susceptibility
Perceived Barriers	I feel that getting genetic testing would interfere with my activities.	0.01	**0.35**	-0.01	0.23	0.13
	I feel that getting genetic testing requires me to give up quite a bit.	-0.05	**0.46**	-0.04	0.22	0.14
	I feel that getting genetic testing is embarrassing.	-0.06	**0.50**	-0.09	0.25	0.04
	I feel that getting genetic testing is not reliable.	-0.12	**0.67**	-0.19	0.05	0.01
	I feel that getting genetic testing is too expensive.	0.02	**0.22**	0.05	0.13	0.02
	I feel that getting genetic testing is useless since I have no intention of changing my lifestyle choices.	-0.18	**0.65**	-0.31	0.07	-0.08
	I feel that getting genetic testing could lead to my genetic profile being misused.	-0.32	**0.85**	-0.31	-0.02	-0.12
Perceived Benefits	Genetic testing will prevent future problems for me.	0.30	-0.22	**0.58**	0.21	0.15
	Genetic testing can help me find potential genetic disease diagnoses.	0.29	-0.26	**0.70**	0.08	0.14
	I have a lot to gain by doing genetic testing.	0.62	-0.30	**0.86**	0.23	0.28

	Genetic testing would reduce my anxiety about genetic diseases.	0.39	-0.34	**0.78**	0.12	0.06
	Genetic testing means I may discover a high probability that I will be diagnosed with a genetic disorder.	0.27	-0.15	**0.63**	0.11	0.33
Intent	I plan to get genetic testing	**0.92**	-0.19	0.52	0.24	0.34
	I intend to get genetic testing.	**0.90**	-0.23	0.52	0.19	0.31
	I will most likely get genetic testing done through a direct-to-consumer website.	**0.51**	-0.24	0.28	0.16	0.22
	I will most likely get genetic testing done through a genetic counselor.	**0.36**	-0.18	0.17	0.07	0.04
	I will most likely get genetic testing done through my doctor.	**0.40**	-0.26	0.24	0.06	0.00
Perceived Severity	A genetic disease would endanger my relationships.	0.10	0.08	0.07	**0.65**	0.09
	I am afraid to even think about genetic diseases, so I avoid genetic testing.	-0.03	0.28	-0.08	**0.31**	0.05
	If I get a genetic disease, I will experience problems that significantly impact my life.	-0.10	0.12	0.07	**0.19**	0.11
	My feelings about myself would change if I got a genetic disease.	0.16	0.09	0.21	**0.81**	0.03
	The thought of getting a genetic disease scares me.	0.11	0.13	0.17	**0.70**	0.14

Perceived Susceptibility	My chances of getting a genetic disease are high.	0.27	-0.08	0.23	0.03	**0.90**
	My current state of health makes it more likely I will get a genetic disease.	0.29	-0.05	0.27	0.09	**0.87**
	There is a good possibility I will get a genetic disease.	0.35	-0.06	0.28	0.11	**0.93**
	At least one of my family members have been diagnosed with (a) genetic disease(s).	0.19	-0.10	0.11	0.00	**0.71**
	I am informed regarding my immediate family health history and potential hereditary conditions.	0.02	-0.15	-0.02	-0.11	**0.14**

APPENDIX D: ORIGINAL MODEL RESULTS AFTER STEPWISE REDUCTION

	R-Squared	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Intent	0.34	0.96	0.98	0.96
Perceived Barriers		0.60	0.83	0.72
Perceived Benefits		0.74	0.84	0.65
Perceived Severity		0.68	0.83	0.61
Perceived Susceptibility		0.88	0.92	0.74

	Intent	Perceived Barriers	Perceived Benefits	Perceived Severity	Perceived Susceptibility
Intent	0.978				
Perceived Barriers	-0.046	0.846			
Perceived Benefits	0.542	-0.19	0.804		
Perceived Severity	0.143	0.23	0.16	0.782	
Perceived Susceptibility	0.331	0.034	0.225	0.106	0.858

APPENDIX E: FACTOR LOADINGS OF ALL RESEARCH QUESTIONS

Construct	Research Question	Perceived Barriers	Perceived Benefits	Cues to Action	Intent	eHealth Literacy	Health Motivation	Normative Belief	Self-efficacy	Perceived Severity	Perceived Susceptibility	Perceived Threat
Perceived Barriers	I feel that getting genetic testing would interfere with my activities.	**0.38**	-0.01	0.13	0.01	0.04	-0.02	0.01	-0.17	0.37	0.13	0.34
	I feel that getting genetic testing requires me to give up quite a bit.	**0.48**	-0.04	0.05	-0.06	-0.01	-0.07	-0.09	-0.24	0.33	0.15	0.32
	I feel that getting genetic testing is embarrassing.	**0.53**	-0.10	0.06	-0.06	-0.06	-0.14	-0.08	-0.33	0.31	0.05	0.24
	I feel that getting genetic testing is not reliable.	**0.70**	-0.19	-0.15	-0.13	-0.09	-0.06	-0.20	-0.24	0.15	0.02	0.15
	I feel that getting genetic testing is too expensive.	**0.40**	0.05	0.08	0.02	-0.22	-0.19	0.02	-0.12	0.22	0.03	0.25
	I feel that getting genetic testing is useless since I have no intention of changing my lifestyle choices.	**0.73**	-0.31	-0.20	-0.18	-0.18	-0.33	-0.26	-0.23	0.15	-0.08	0.19
	I feel that getting genetic testing could lead to my genetic profile being misused.	**0.75**	-0.30	-0.29	-0.32	-0.01	-0.05	-0.36	-0.06	0.08	-0.11	0.01
Perceived Benefits	Genetic testing will prevent future problems for me.	-0.21	**0.57**	0.35	0.30	0.11	0.09	0.33	-0.01	0.14	0.16	0.16
	Genetic testing can help me find potential genetic disease diagnoses.	-0.26	**0.71**	0.22	0.29	0.16	0.18	0.25	0.20	0.05	0.14	0.00
	I have a lot to gain by doing genetic testing.	-0.27	**0.86**	0.45	0.61	0.19	0.24	0.48	0.07	0.13	0.28	0.07

	Genetic testing would reduce my anxiety about genetic diseases.	-0.32	**0.77**	0.29	0.39	0.15	0.16	0.45	0.07	0.03	0.06	0.08
	Genetic testing means I may discover a high probability that I will be diagnosed with a genetic disorder.	-0.13	**0.64**	0.17	0.26	0.18	-0.01	0.18	0.11	0.16	0.34	0.21
Cues to Action	I would be prompted to get genetic testing with information from a physician.	-0.29	0.36	**0.43**	0.31	0.15	0.10	0.40	0.07	0.05	-0.03	0.07
	I would be prompted to get genetic testing with information from the internet.	-0.17	0.39	**0.79**	0.33	0.22	0.05	0.45	0.11	0.19	0.16	0.21
	I would be prompted to get genetic testing with information from my health insurance.	-0.27	0.39	**0.64**	0.37	0.10	0.10	0.41	0.09	0.07	0.02	0.12
	I would be prompted to get genetic testing with information from print media.	-0.14	0.24	**0.86**	0.32	0.20	0.10	0.41	0.08	0.16	0.12	0.16
	I would be prompted to get genetic testing with information from the radio.	-0.07	0.24	**0.81**	0.23	0.09	0.05	0.34	0.01	0.19	0.15	0.16
	I would be prompted to get genetic testing with information from television.	-0.11	0.25	**0.84**	0.27	0.12	0.07	0.38	-0.01	0.15	0.19	0.17
Intent	I plan to get genetic testing	-0.16	0.51	0.38	**0.91**	0.17	0.08	0.52	0.07	0.06	0.34	0.10
	I intend to get genetic testing.	-0.18	0.51	0.36	**0.89**	0.12	0.10	0.52	0.07	0.04	0.31	0.09
	I will most likely get genetic testing done through a direct-to-consumer website.	-0.24	0.28	0.32	**0.51**	0.22	0.00	0.38	0.08	0.11	0.22	0.12
	I will most likely get genetic testing done through a genetic counselor.	-0.19	0.17	0.15	**0.38**	0.15	0.11	0.24	0.20	0.03	0.04	0.04

	I will most likely get genetic testing done through my doctor.	-0.24	0.24	0.10	**0.43**	0.08	0.18	0.33	0.18	-0.04	0.00	0.00
eHealth Literacy	I am confident that I can tell high quality health resources from low quality health resources on the internet.	-0.08	0.10	0.18	0.06	**0.65**	0.21	0.08	0.38	0.08	0.05	0.11
	I am confident in using information from health resources to make health decisions regarding the results of my genetic testing.	-0.24	0.13	0.16	0.14	**0.63**	0.14	0.13	0.47	0.04	0.10	-0.04
	I am confident I have the skills to evaluate the content of health resources to understand my genetic testing.	-0.05	0.10	0.15	0.10	**0.75**	0.14	0.21	0.38	0.03	0.13	0.08
	Regarding health resources on the internet, I know how to find helpful resources to make a decision after getting genetic testing.	-0.07	0.20	0.17	0.19	**0.82**	0.17	0.22	0.34	0.07	0.21	0.02
	Regarding health resources on the internet, I know how to us the information to understand the results of my genetic testing.	-0.13	0.16	0.11	0.20	**0.86**	0.11	0.25	0.38	0.09	0.28	0.06
	Regarding health resources on the internet, I know how to use the internet to answer my questions on results of my genetic testing.	-0.04	0.17	0.16	0.24	**0.82**	0.21	0.25	0.39	0.11	0.19	0.10
	Regarding health resources on the internet, I know what health resources are available that will help me make a decision about genetic test results.	-0.16	0.27	0.21	0.23	**0.86**	0.23	0.27	0.42	0.13	0.25	0.07

	Regarding health resources on the internet, I know where to find helpful resources on the internet about genetic testing results.	-0.09	0.19	0.14	0.13	**0.83**	0.23	0.22	0.37	0.09	0.18	0.07
Health Motivation	I follow medical orders because I believe they will benefit me.	-0.28	0.20	0.10	0.08	0.15	**0.66**	0.12	0.13	-0.04	-0.11	-0.06
	I frequently do things to improve my health.	-0.11	0.02	0.10	0.01	0.09	**0.57**	-0.01	0.15	-0.14	-0.04	-0.14
	I seek out new information to support my health.	-0.18	0.06	0.06	0.05	0.19	**0.73**	0.07	0.25	-0.16	0.00	-0.24
	I try to discover health issues early.	-0.12	0.19	0.09	0.14	0.20	**0.90**	0.03	0.17	-0.07	-0.02	-0.10
	Maintaining health is important to me.	-0.05	0.05	0.14	-0.01	0.00	**0.58**	-0.07	0.12	-0.09	-0.17	-0.03
Normative Belief	I would consider genetic testing if it were suggested by a physician.	-0.35	0.42	0.37	0.46	0.17	0.15	**0.63**	0.16	-0.04	0.05	-0.02
	I would consider genetic testing if it were suggested by colleagues.	-0.22	0.41	0.48	0.56	0.26	0.05	**0.83**	0.16	0.08	0.17	0.07
	I would consider genetic testing if it were suggested by my family.	-0.33	0.39	0.45	0.52	0.25	0.05	**0.88**	0.21	0.00	0.22	0.07
	I would consider genetic testing if it were suggested by my friends/acquaintances.	-0.26	0.45	0.48	0.51	0.20	0.06	**0.85**	0.06	0.12	0.24	0.14
	I would consider genetic testing if it were suggested by my spouse/partner.	-0.27	0.35	0.43	0.46	0.18	0.03	**0.83**	0.17	0.10	0.12	0.15

Self-efficacy	I trust my ability to make meaningful health decisions if I get genetic testing.	-0.29	0.18	0.11	0.18	0.46	0.17	0.23	**0.87**	-0.11	0.10	-0.11
	I trust my ability to discuss my genetic testing results with my doctor.	-0.31	0.09	0.04	0.11	0.30	0.23	0.14	**0.76**	-0.22	-0.07	-0.10
	I trust my ability to understand results from genetic testing.	-0.19	0.06	0.03	0.06	0.51	0.11	0.11	**0.81**	-0.05	0.04	0.01
	I trust my ability to use my skills to make decisions based on the results of my genetic testing.	-0.11	0.07	0.06	0.15	0.45	0.19	0.13	**0.88**	-0.03	0.03	0.01
	I trust my ability to actively participate in decisions about the results of genetic testing.	-0.22	0.07	0.10	0.10	0.36	0.24	0.17	**0.86**	-0.12	0.03	-0.08
Perceived Severity	A genetic disease would endanger my relationships.	0.12	0.06	0.12	0.10	-0.02	0.02	0.00	-0.14	**0.67**	0.09	0.31
	I am afraid to even think about genetic diseases, so I avoid genetic testing.	0.31	-0.08	-0.03	-0.03	-0.02	-0.25	-0.06	-0.16	**0.65**	0.05	0.39
	If I get a genetic disease, I will experience problems that significantly impact my life.	0.14	0.07	0.03	-0.10	0.12	-0.06	-0.07	-0.02	**0.73**	0.11	0.49
	My feelings about myself would change if I got a genetic disease.	0.11	0.21	0.20	0.16	0.10	-0.06	0.16	-0.06	**0.81**	0.04	0.51
	The thought of getting a genetic disease scares me.	0.15	0.17	0.29	0.11	0.14	-0.03	0.15	-0.08	**0.71**	0.15	0.51
Perceived Susceptibility	My chances of getting a genetic disease are high.	-0.08	0.23	0.11	0.26	0.24	-0.02	0.16	0.06	0.06	**0.90**	0.00
	My current state of health makes it more likely I will get a genetic disease.	-0.02	0.27	0.15	0.29	0.16	-0.08	0.24	0.03	0.11	**0.88**	0.06

	There is a good possibility I will get a genetic disease.	-0.05	0.28	0.14	0.34	0.19	-0.03	0.18	0.00	0.17	**0.93**	0.13
	At least one of my family members have been diagnosed with (a) genetic disease(s).	-0.10	0.11	0.05	0.18	0.20	-0.03	0.09	0.08	0.02	**0.70**	-0.01
	I am informed regarding my immediate family health history and potential hereditary conditions.	-0.17	-0.02	0.00	0.02	0.07	0.18	-0.05	0.11	-0.08	**0.11**	-0.13
Perceived Threat	The idea of a genetic disease threatens me because of the harmful consequences it would have.	0.21	0.10	0.04	0.07	0.02	-0.14	0.05	-0.06	0.51	0.06	**0.81**
	The idea of a genetic disease threatens me because being diagnosed would negatively affect me.	0.22	0.10	0.17	0.07	0.03	-0.14	0.09	-0.08	0.61	-0.01	**0.88**
	The idea of a genetic disease threatens me because it would be awful if I was diagnosed with a genetic disease.	0.17	0.09	0.21	0.06	0.08	-0.09	0.07	-0.07	0.53	0.06	**0.87**
	The idea of a genetic disease threatens me because a genetic disease poses a threat to me.	0.11	0.16	0.25	0.15	0.12	-0.12	0.13	0.00	0.50	0.14	**0.86**
	The idea of a genetic disease threatens me because I would have trouble caused by a genetic disease.	0.15	0.13	0.18	0.15	0.06	-0.15	0.09	-0.05	0.53	0.06	**0.84**

APPENDIX F: FACTOR LOADINGS OF ALL CONSTRUCTS IN MODIFIED MODEL

Construct	Research Question	Perceived Barriers	Perceived Benefits	Cues to Action	Intent	eHealth Literacy	Health Motivation	Normative Belief	Self-efficacy	Perceived Severity	Perceived Susceptibility	Perceived Threat
Perceived Barriers	I feel that getting genetic testing is too expensive.	**0.88**	0.05	0.06	0.05	-0.21	-0.18	0.01	-0.12	0.18	0.03	0.25
	I feel that getting genetic testing is useless since I have no intention of changing my lifestyle choices.	**0.70**	-0.31	-0.11	-0.10	-0.13	-0.27	-0.22	-0.22	0.08	-0.08	0.19
Perceived Benefits	Genetic testing can help me find potential genetic disease diagnoses.	-0.14	**0.72**	0.14	0.28	0.14	0.13	0.23	0.20	0.12	0.14	0.00
	I have a lot to gain by doing genetic testing.	-0.06	**0.91**	0.35	0.60	0.20	0.22	0.44	0.07	0.17	0.28	0.07
	Genetic testing would reduce my anxiety about genetic diseases.	-0.13	**0.78**	0.20	0.33	0.15	0.10	0.41	0.07	0.08	0.06	0.08
Cues to Action	I would be prompted to get genetic testing with information from the internet.	0.00	0.36	**0.85**	0.31	0.20	0.08	0.47	0.11	0.21	0.15	0.21
	I would be prompted to get genetic testing with information from print media.	-0.01	0.23	**0.90**	0.28	0.18	0.10	0.42	0.08	0.17	0.12	0.16
	I would be prompted to get genetic testing with information from the radio.	0.00	0.25	**0.89**	0.21	0.07	0.04	0.36	0.01	0.20	0.15	0.16
	I would be prompted to get genetic testing with information from television.	-0.01	0.25	**0.92**	0.25	0.10	0.08	0.39	-0.01	0.16	0.18	0.17
Intent	I plan to get genetic testing	-0.03	0.52	0.30	**0.98**	0.17	0.08	0.50	0.07	0.08	0.34	0.10
	I intend to get genetic testing.	0.00	0.53	0.28	**0.98**	0.13	0.13	0.50	0.07	0.03	0.31	0.09

eHealth Literacy	Regarding health resources on the internet, I know I am confident I have the skills to evaluate the content of health resources to understand my genetic testing.	-0.11	0.09	0.13	0.06	**0.74**	0.14	0.20	0.38	0.08	0.13	0.08
	Regarding health resources on the internet, I know how to find helpful resources to make a decision after getting genetic testing.	-0.21	0.18	0.15	0.13	**0.84**	0.17	0.21	0.34	0.10	0.22	0.02
	Regarding health resources on the internet, I know how to use the information to understand the results of my genetic testing.	-0.22	0.15	0.10	0.17	**0.88**	0.09	0.25	0.39	0.12	0.28	0.06
	Regarding health resources on the internet, I know how to use the internet to answer my questions on results of my genetic testing.	-0.15	0.17	0.14	0.20	**0.87**	0.20	0.24	0.40	0.13	0.19	0.10
	Regarding health resources on the internet, I know what health resources are available that will help me make a decision about genetic test results.	-0.22	0.28	0.18	0.15	**0.89**	0.21	0.26	0.42	0.18	0.25	0.07
	Regarding health resources on the internet, I know where to find helpful resources on the internet about genetic testing results.	-0.21	0.18	0.11	0.07	**0.88**	0.22	0.22	0.38	0.12	0.19	0.07
Health Motivation	I seek out new information to support my health.	-0.29	0.11	0.07	0.06	0.16	**0.80**	0.05	0.24	-0.16	0.01	-0.24
	I try to discover health issues early.	-0.22	0.21	0.08	0.12	0.20	**0.95**	0.03	0.17	-0.04	-0.02	-0.10

Normative Belief	I would consider genetic testing if it were suggested by colleagues.	-0.10	0.42	0.43	0.50	0.27	0.05	**0.86**	0.15	0.11	0.16	0.07
	I would consider genetic testing if it were suggested by my family.	-0.12	0.38	0.37	0.45	0.25	0.02	**0.87**	0.21	0.03	0.22	0.07
	I would consider genetic testing if it were suggested by my friends/acquaintances.	-0.11	0.45	0.45	0.44	0.23	0.06	**0.89**	0.06	0.15	0.24	0.14
	I would consider genetic testing if it were suggested by my spouse/partner.	-0.02	0.34	0.36	0.37	0.18	-0.01	**0.84**	0.17	0.11	0.12	0.15
Self-efficacy	I trust my ability to make meaningful health decisions if I get genetic testing.	-0.21	0.20	0.08	0.11	0.39	0.16	0.21	**0.86**	-0.09	0.10	-0.11
	I trust my ability to discuss my genetic testing results with my doctor.	-0.24	0.09	-0.05	0.04	0.24	0.17	0.10	**0.74**	-0.11	-0.06	-0.10
	I trust my ability to understand results from genetic testing.	-0.16	0.07	0.04	0.02	0.47	0.15	0.11	**0.82**	-0.02	0.05	0.01
	I trust my ability to use my skills to make decisions based on the results of my genetic testing.	-0.09	0.06	0.07	0.08	0.41	0.22	0.12	**0.89**	-0.01	0.04	0.01
	I trust my ability to actively participate in decisions about the results of genetic testing.	-0.18	0.08	0.08	0.04	0.31	0.24	0.17	**0.86**	-0.08	0.03	-0.08
Perceived Severity	If I get a genetic disease, I will experience problems that significantly impact my life.	0.16	0.04	0.01	-0.10	0.12	-0.10	-0.07	-0.02	**0.77**	0.11	0.49
	My feelings about myself would change if I got a genetic disease.	0.14	0.17	0.17	0.13	0.10	-0.09	0.15	-0.05	**0.84**	0.03	0.51
	The thought of getting a genetic disease scares me.	0.12	0.16	0.31	0.10	0.13	-0.04	0.18	-0.08	**0.78**	0.14	0.51

Perceived Susceptibility	My chances of getting a genetic disease are high.	-0.06	0.20	0.16	0.29	0.25	0.01	0.17	0.06	0.07	**0.90**	0.00
	My current state of health makes it more likely I will get a genetic disease.	0.04	0.22	0.18	0.28	0.18	-0.05	0.25	0.03	0.11	**0.87**	0.05
	There is a good possibility I will get a genetic disease.	-0.01	0.23	0.17	0.34	0.22	0.01	0.20	0.00	0.17	**0.93**	0.13
	At least one of my family members have been diagnosed with (a) genetic disease(s).	-0.04	0.09	0.06	0.21	0.21	-0.01	0.10	0.09	0.02	**0.72**	-0.01
Perceived Threat	The idea of a genetic disease threatens me because of the harmful consequences it would have.	0.27	0.05	0.06	0.10	0.03	-0.12	0.07	-0.05	0.51	0.05	**0.81**
	The idea of a genetic disease threatens me because being diagnosed would negatively affect me.	0.25	0.04	0.17	0.06	0.03	-0.15	0.12	-0.07	0.60	-0.01	**0.88**
	The idea of a genetic disease threatens me because it would be awful if I was diagnosed with a genetic disease.	0.22	0.02	0.19	0.03	0.09	-0.12	0.09	-0.07	0.54	0.05	**0.87**
	The idea of a genetic disease threatens me because a genetic disease poses a threat to me.	0.21	0.11	0.27	0.11	0.13	-0.13	0.16	0.00	0.50	0.13	**0.85**
	The idea of a genetic disease threatens me because I would have trouble caused by a genetic disease.	0.25	0.08	0.15	0.13	0.06	-0.19	0.09	-0.05	0.54	0.05	**0.84**

APPENDIX G: FACTOR LOADINGS OF FINAL MODIFIED HBM

Construct	Research Question	Perceived Benefits	Cues to Action	Intent	eHealth Literacy	Normative Belief	Self-efficacy	Perceived Susceptibility
Perceived Benefits	Genetic testing can help me find potential genetic disease diagnoses.	**0.72**	0.14	0.28	0.14	0.23	0.20	0.14
	I have a lot to gain by doing genetic testing.	**0.91**	0.35	0.60	0.21	0.44	0.07	0.28
	Genetic testing would reduce my anxiety about genetic diseases.	**0.78**	0.20	0.33	0.15	0.41	0.07	0.06
Cues to Action	I would be prompted to get genetic testing with information from the internet.	0.36	**0.85**	0.31	0.20	0.47	0.11	0.15
	I would be prompted to get genetic testing with information from print media.	0.24	**0.90**	0.28	0.18	0.42	0.08	0.12
	I would be prompted to get genetic testing with information from the radio.	0.25	**0.89**	0.21	0.07	0.36	0.01	0.15
	I would be prompted to get genetic testing with information from television.	0.25	**0.92**	0.25	0.10	0.39	-0.01	0.18
Intent	I plan to get genetic testing	0.52	0.30	**0.98**	0.17	0.50	0.07	0.34
	I intend to get genetic testing.	0.53	0.28	**0.98**	0.13	0.50	0.07	0.31

eHealth Literacy	I am confident I have the skills to evaluate the content of health resources to understand my genetic testing.	0.09	0.13	0.06	**0.74**	0.20	0.38	0.13
	Regarding health resources on the internet, I know how to find helpful resources to make a decision after getting genetic testing.	0.18	0.15	0.13	**0.84**	0.21	0.34	0.22
	Regarding health resources on the internet, I know how to use the information to understand the results of my genetic testing.	0.15	0.10	0.17	**0.88**	0.25	0.39	0.28
	Regarding health resources on the internet, I know how to use the internet to answer my questions on results of my genetic testing.	0.17	0.14	0.20	**0.87**	0.24	0.40	0.19
	Regarding health resources on the internet, I know what health resources are available that will help me make a decision about genetic test results.	0.28	0.18	0.15	**0.89**	0.26	0.42	0.25
	Regarding health resources on the internet, I know where to find helpful resources on the internet about genetic testing results.	0.18	0.11	0.07	**0.87**	0.22	0.38	0.19
Normative Belief	I would consider genetic testing if it were suggested by colleagues.	0.42	0.43	0.50	0.27	**0.86**	0.15	0.16
	I would consider genetic testing if it were suggested by my family.	0.38	0.37	0.45	0.25	**0.87**	0.21	0.21

	I would consider genetic testing if it were suggested by my friends/acquaintances.	0.45	0.45	0.44	0.23	**0.89**	0.06	0.24
	I would consider genetic testing if it were suggested by my spouse/partner.	0.34	0.36	0.37	0.18	**0.84**	0.17	0.12
Self-efficacy	I trust my ability to make meaningful health decisions if I get genetic testing.	0.20	0.08	0.11	0.39	0.21	**0.86**	0.10
	I trust my ability to discuss my genetic testing results with my doctor.	0.09	-0.05	0.04	0.24	0.10	**0.74**	-0.06
	I trust my ability to understand results from genetic testing.	0.07	0.04	0.02	0.47	0.11	**0.83**	0.05
	I trust my ability to use my skills to make decisions based on the results of my genetic testing.	0.06	0.07	0.08	0.41	0.12	**0.89**	0.04
	I trust my ability to actively participate in decisions about the results of genetic testing.	0.08	0.08	0.04	0.31	0.17	**0.86**	0.03
Perceived Susceptibility	My chances of getting a genetic disease are high.	0.20	0.16	0.29	0.25	0.17	0.06	**0.91**
	My current state of health makes it more likely I will get a genetic disease.	0.22	0.18	0.28	0.18	0.25	0.03	**0.86**
	There is a good possibility I will get a genetic disease.	0.23	0.17	0.34	0.21	0.20	0.00	**0.92**
	At least one of my family members have been diagnosed with (a) genetic disease(s).	0.09	0.06	0.21	0.21	0.10	0.09	**0.73**

APPENDIX H: SURVEY INDICATORS AGREEANCE PERCENTAGE

Construct	Indicator	Indicator Text	Respondents who Agreed/Strongly Agreed
Perceived Susceptibility	1	My chances of getting a genetic disease are high.	58 (30.21%)
	2	My current state of health makes it more likely I will get a genetic disease.	37 (19.27%)
	3	There is a good possibility I will get a genetic disease.	46 (23.96%)
	4	At least one of my family members have been diagnosed with (a) genetic disease(s).	109 (56.77%)
	5	I am informed regarding my immediate family health history and potential hereditary conditions.	112 (58.33%)
Perceived Severity	1	A genetic disease would endanger my relationships.	23 (11.98%)
	2	I am afraid to even think about genetic diseases, so I avoid genetic testing.	9 (4.69%)
	3	If I get a genetic disease, I will experience problems that significantly impact my life.	75 (39.06%)
	4	My feelings about myself would change if I got a genetic disease.	36 (18.75%)
	5	The thought of getting a genetic disease scares me.	70 (36.46%)
Cues to Action	1	I would be prompted to get genetic testing with information from a physician.	136 (70.83%)
	2	I would be prompted to get genetic testing with information from the internet.	18 (9.38%)
	3	I would be prompted to get genetic testing with information from my health insurance.	44 (22.92%)
	4	I would be prompted to get genetic testing with information from print media.	8 (4.17%)
	5	I would be prompted to get genetic testing with information from the radio.	6 (3.13%)
	6	I would be prompted to get genetic testing with information from television.	7 (3.65%)

Perceived Threat	1	The idea of a genetic disease threatens me because of the harmful consequences it would have.	67 (34.90%)
	2	The idea of a genetic disease threatens me because being diagnosed would negatively affect me.	64 (33.33%)
	3	The idea of a genetic disease threatens me because it would be awful if I was diagnosed with a genetic disease.	71 (36.98%)
	4	The idea of a genetic disease threatens me because a genetic disease poses a threat to me.	76 (39.58%)
	5	The idea of a genetic disease threatens me because I would have trouble caused by a genetic disease.	84 (43.75%)
Perceived Benefits	1	Genetic testing will prevent future problems for me.	55 (28.65%)
	2	Genetic testing can help me find potential genetic disease diagnoses.	124 (64.58%)
	3	I have a lot to gain by doing genetic testing.	75 (39.06%)
	4	Genetic testing would reduce my anxiety about genetic diseases.	53 (27.60%)
	5	Genetic testing means I may discover a high probability that I will be diagnosed with a genetic disorder.	76 (39.58%)
Perceived Barriers	1	I feel that getting genetic testing would interfere with my activities.	8 (4.17%)
	2	I feel that getting genetic testing requires me to give up quite a bit.	11 (5.73%)
	3	I feel that getting genetic testing is embarrassing.	4 (2.08%)
	4	I feel that getting genetic testing is not reliable.	4 (2.08%)
	5	I feel that getting genetic testing is too expensive.	50 (26.04%)
	6	I feel that getting genetic testing is useless since I have no intention of changing my lifestyle choices.	10 (5.21%)
	7	I feel that getting genetic testing could lead to my genetic profile being misused.	41 (21.35%)

eHealth Literacy	1	I am confident that I can tell high quality health resources from low quality health resources on the internet.	80 (41.67%)
	2	I am confident in using information from health resources to make health decisions regarding the results of my genetic testing.	89 (46.35%)
	3	I am confident I have the skills to evaluate the content of health resources to understand my genetic testing.	64 (33.33%)
	4	Regarding health resources on the internet, I know how to find helpful resources to make a decision after getting genetic testing.	73 (38.02%)
	5	Regarding health resources on the internet, I know how to use the information to understand the results of my genetic testing.	81 (42.19%)
	6	Regarding health resources on the internet, I know how to use the internet to answer my questions on results of my genetic testing.	72 (37.50%)
	7	Regarding health resources on the internet, I know what health resources are available that will help me make a decision about genetic test results.	73 (38.02%)
	8	Regarding health resources on the internet, I know where to find helpful resources on the internet about genetic testing results.	67 (34.90%)
Health Motivation	1	I follow medical orders because I believe they will benefit me.	141 (73.44%)
	2	I frequently do things to improve my health.	108 (56.25%)
	3	I seek out new information to support my health.	123 (64.06%)
	4	I try to discover health issues early.	128 (66.67%)
	5	Maintaining health is important to me.	165 (85.94%)
Self-efficacy	1	I trust my ability to make meaningful health decisions if I get genetic testing.	144 (75.00%)
	2	I trust my ability to discuss my genetic testing results with my doctor.	168 (87.50%)
	3	I trust my ability to understand results from genetic testing.	132 (68.75%)
	4	I trust my ability to use my skills to make decisions based on the results of my genetic testing.	145 (75.52%)

	5	I trust my ability to actively participate in decisions about the results of genetic testing.	159 (82.81%)
Normative Belief	1	I would consider genetic testing if it were suggested by a physician.	159 (82.81%)
	2	I would consider genetic testing if it were suggested by colleagues.	29 (15.10%)
	3	I would consider genetic testing if it were suggested by my family.	81 (42.19%)
	4	I would consider genetic testing if it were suggested by my friends/acquaintances.	34 (17.71%)
	5	I would consider genetic testing if it were suggested by my spouse/partner.	99 (51.56%)
Intent	1	I plan to get genetic testing	38 (19.79%)
	2	I intend to get genetic testing.	38 (19.79%)
	3	I will most likely get genetic testing done through a direct-to-consumer website.	30 (15.63%)
	4	I will most likely get genetic testing done through a genetic counselor.	86 (44.79%)
	5	I will most likely get genetic testing done through my doctor.	154 (80.21%)

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