I, Anders Cedergren, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Health Education.

It is entitled:
Personal, Behavioral, and Environmental Influences on Employer Facilitated Health Consumerism among Employees of a Large Health System: A Mixed Methods Study

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Personal, Behavioral, and Environmental Influences on Employer Facilitated Health Consumerism among Employees of a Large Health System: A Mixed Methods Study

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In the Department of Health Promotion and Education
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Abstract

AN ABSTRACT OF THE DISSERTATION FOR THE DOCTOR OF PHILOSOPHY
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TITLE: Personal, Behavioral, and Environmental Influences on Employer Facilitated Health Consumerism among Employees of a Large Health System: A Mixed Methods Study

DISSERTATION COMMITTEE MEMBERS: Dr. Bradley Wilson
Dr. Randall Cottrell
Dr. Amy Bernard
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Background: Health reform promotes wise consumption of health care services and engagement in health behaviors as a way to improve public health and control health care costs. This study operationalized this concept through Employer Facilitated Health Consumerism (EFHC). EFHC was measured by the incentive tier reached by an employee in a comprehensive workplace health and wellness program. This study utilized Social Cognitive Theory (SCT) in conceptualizing environmental, personal, and behavioral factors that may have an influence on EFHC. Research Questions: Is the level of EFHC related to demographics, program participation, or selected environmental, personal, and behavioral factors? The researcher also wanted to determine the level of agreement between quantitative survey results related to levels of EFHC and qualitative focus group findings concentrated on reasons for program participation.

Methods: Quantitative data were collected using a valid and reliable electronic survey in addition to pre-existing data made available by the employer. Mann-Whitney and Kruskal-Wallis tests were used to look for differences between groups in the ordinal dependent variable and
Spearman’s correlations coefficients were run to look for associations between independent variables and the dependent variable. A multinomial logistic regression model was generated to establish how several independent variables were able to influence the odds to reaching a high level of EFHC. Multiple focus groups were conducted on-site to gather qualitative information. Group discussions were recorded and transcribed, and narratives were analyzed using constant comparison analysis. Results: Overall, eighteen independent variables were paired with EFHC in bivariate analyses. Gender, completing a physical, previously earning a program award, and behavioral capability and self-control were shown to have the strongest influence on the dependent variable. These statistical findings persisted in multivariate tests. Focus group data indicated that all SCT constructs were mentioned by employees as impacting their level of involvement in the comprehensive workplace health and wellness program. Conclusion: In this sample, a variety of demographic, environmental, personal, and behavioral factors were significantly associated with level of EFHC. Focus group data provided additional support for the use of theory when examining EFHC. The use of EFHC as a study variable needs to be replicated and further refined. Future research should emphasize random sampling to ensure generalizability and should aim to assess both direct and indirect relationships for independent variables. EFHC needs to be tested as a possible predictor of health and cost outcomes. Results from this study should help target communications and inform how specific services are offered to promote EFHC. The fact that behavioral capability and self-control were strongly associated with the dependent variable suggests that these constructs should be prioritized in behavioral interventions that seek to simultaneously impact several predictors of high levels of EFHC.
Acknowledgements

The Law of Jante is a prevailing societal conviction often found in Scandinavian culture that individual achievement should not be desired nor pursued. In fact, in its dichotomous existence, the law signals that individual achievement will undoubtedly detract from the common good of the group. Since I was raised in Sweden and often struggle with this innate need to marginalize the work required to complete a task, I would like to present my dissertation as proof that the greatest individual successes are only possible through the selfless hard work of many. It is also my hope that whatever benefits I may receive from this research can be shared with all of those who made this moment possible.

I would first like to thank my committee chair, Dr. Randall Cottrell, for his extensive guidance throughout this process. It is my sincere belief that this work could not have been completed without Dr. Cottrell’s genuine interest in my personal wellbeing. His ability to encourage, provide constructive criticism, as well as demand accountability from those he works with has been a constant positive influence on me since I moved to the US more than a decade ago. I would also like to thank my committee members: Dr. Bradley Wilson for helping me understand and navigate the academic environment throughout my time at the University of Cincinnati, Dr. Amy Bernard for always being a positive personal and professional point of reference, and Dr. William Mase for facilitating my desire to position health education within the greater scope of public health. I want to thank all of the people from TriHealth I was fortunate enough to work with while conducting my study. From ensuring organizational acceptance of my work to promoting individual employee participation, this research truly could not have been completed without the help of so many within this organization.
Finally, I want to thank my family for all they have done for me since I decided to pursue my doctorate degree. Though half a world away, the love and encouragement of my mother, Eva Cedergren, was always only a phone call away. My daughter Sofia was the ultimate motivation to complete my dissertation. There is no role in life that I consider more important or rewarding than being her father. Lastly, I want to thank my wife Erika for her unwavering support throughout this process. When things were at their worst, Erika was the one who made sure I looked at my research with the proper perspective as a father and as a husband. As proud as I am of my accomplishment, I will forever be in awe of what Erika was able to do for our family through all the late nights and weekends of work. It is my deepest wish that our family will be able to enjoy the benefits associated with my doctorate degree for years to come.
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Chapter 1

The Purpose

Indicators of access, cost, and quality of health care in the US were reported to fall well below desired benchmarks. The World Health Organization (WHO) ranked the US health care system as the 37th best out of 191 nations assessed (WHO, 2000). The Commonwealth Fund Commission on a High Performance Health System (2011) reported that the US only scored a 64 out of 100 possible points overall across 42 indicators of health system performance when compared to international and domestic targets. An examination of the distribution of the cost of health care showed that the US had the second highest out of pocket costs and was the top spender per capita in both private and public health care (Squires, 2011). As of 2010, more than 81 million working age adults in the US (44% of those 19 to 64 years of age) were underinsured or uninsured at some point during the year (Commonwealth Fund Commission on a High Performance Health System, 2011).

The Patient Protection and Affordable Care Act (ACA) promoted greater health coverage by attempting to evolve the existing public-private system for providing health care coverage. It sought to expand the Medicaid program, encourage employers to offer health insurance to workers, and make premium subsidies available to improve affordability of private health insurance (Kaiser Commission on Medicaid and the Uninsured, 2010). Better outcomes and lower health care costs were goals health reform supported through investment in primary care, prevention and management of chronic disease, and health care planning and coordination (Commonwealth Fund Commission on a High Performance Health System, 2011). Payment and health care coverage design features that promoted primary care medical homes and ensured that providers were accountable for results were considered critical to overall reform success. It was
also recommended that such system improvement efforts were coupled with activation of individual consumers to access health care services with consideration for cost and quality and to engage in healthy behaviors.

Guo (2010) discussed the role of consumer-directed health care in maximizing the potential for successful health reform. The author described how employers or health insurers could strengthen efforts to address rising health care costs and promote quality services by offering high deductible health plans (HDHPs). For HDHPs to be effective, these types of products needed to be coupled with information and tools to aid health decisions. The author pointed out that employees who were covered by HDHP encountered a relatively greater out of pocket expense compared to individuals covered by traditional health plans before certain insurance benefits would become active. By increasing the financial stakes at the point of purchase, these plans were expected to have the impact of the individual carefully considering cost and quality of health care products or services. Though there were selection and utilization aspects of HDHPs that may be associated with health risk, Guo (2010) concluded that over time it could be expected that these plans would have a significant and long lasting positive impact on cost and quality of US health care.

Often built around HDHPs and health savings options, consumer directed health care was said to have the potential to support the creation of engaged and informed patients who were better able to make health decisions (Robinson, 2005). In their issue brief, Fronstin and Collins (2005) reported that over one third of those in high deductible or consumer driven health plans spent five percent or more of their income on out-of-pocket costs and premiums in the last year. This was in comparison to 12 percent of those in more traditional health plans. Also, about one third of individuals in high deductible or consumer directed health plans reported delaying or
avoiding care, compared with 17 percent of those in comprehensive health plans. However, the authors found that people with high deductible or consumer directed health care coverage more often reported that they had checked whether their health plan would cover their costs as well as the price of a service prior to receiving care. In addition, participants in these nontraditional plans tended to be more likely to discuss treatment options and the cost of care with their doctors.

As consumer directed health benefits kept evolving, Robinson and Ginsburg (2009) argued that the aspects that reminded people of managed care were likely to become more pronounced. There was a need to ensure that recommended care was not overlooked because of cost. The authors suggested that programs would become more diverse and there would be a focus on improving care along the full continuum of health. Examples of areas that would be emphasized included prevention and wellness services, service coordination for patients needing acute care, disease management for enrollees with chronic conditions, and intensive case management for enrollees with severe conditions. These programs were likely to be presented as options by employers and health plans rather than requirements. Incentives or disincentives could be provided to encourage behaviors, such as first dollar coverage for preventive services or higher cost sharing for those people who were eligible for a program but chose not to participate.

It was recommended that worksite activities intended to promote health consumerism tried to increase awareness of the impact health care cost and quality may have on organizational success. Chapman (2008) suggested a range of organizational decisions and activities that could help increase consumerism motivation and skills, including coordinating benefits design and incentives with wellness behaviors. Also, learning behaviors necessary for consumerism and opportunities to practice those skills were recommended to be emphasized through worksite
individual or small group on-site or online health and wellness programs. Changes in self-efficacy, patient activation measures, selected health care utilization measures, health claims cost patterns, and customer satisfaction were all potential indicators of whether a population was engaging in healthy behaviors in a way that may have a positive impact on cost and promote quality of care. According to the author, worksite health promotion was also a field equipped to provide employees with effective decision support tools when planning to use health care services. One of the more common ways that companies tried to enable informed decision making was by providing access to online health resources. It was also crucial for employers to incentivize actions likely to improve personal health, such as participation in recommended screenings and health and wellness programing. Finally, Chapman (2008) argued for the importance of organizations promoting consumer responsibility by working to eliminate health care entitlement beliefs that were often present among employees who had traditionally enjoyed low cost comprehensive health coverage.

Chapman (2008) presented a wise health consumer as a person who used high quality resources and took appropriate action when faced with a particular health recommendation or need. According to the author, being a wise health consumer was dependent on the ability to apply health related skills to maintain a person’s health or the health of a person’s family. Johnson, Cummins, Evers, Prochaska, and Prochaska (2009) further developed this concept within the scope of worksite wellness by describing proactive health consumerism as being based on an individual participating as a partner in decision-making with health care providers, learning about options for care before making health related decisions, pursuing a healthy lifestyle, and considering cost and quality when using health services.
Ultimately, what made a person consume health care with appropriate consideration for cost and quality was a complex question. Studies presented in the professional literature that looked at patient activation seemed to most closely deal with what may have predicted behaviors that would be representative of health and health care consumerism. Patient activation has been assessed by the Patient Activation Measure (PAM), which was a stage based tool that assessed patient knowledge, skill, and confidence for improving health or managing disease (Hibbard, Stockard, Mahoney, & Tusler, 2004). However, research focused solely on a person’s knowledge, skill, and confidence as it related to activities performed to stay well or to deal with an existing health condition could have overlooked additional important contributors to healthy behaviors. With additional focus on behaviors and environment, Social Cognitive Theory (SCT) could potentially be used to form a more complete picture of what factors influenced health consumerism and the strength and relative independence of such relationships. As explained by Bandura (1998):

We have shifted from trying to scare people into health, to rewarding them into health, to equipping them with self-regulatory skills to manage their health habits, to shoring up their habit changes with dependable social supports. These transformations have evolved a multifaceted approach that addresses the reciprocal interplay between self-regulatory and environmental determinants of health behavior. Social cognitive theory addresses the socio structural determinants of health as well as the personal determinants. (p. 623)

Woolf and colleagues (2005) suggested three types of providers who could work with patients to improve informed decision making in health care: clinicians who lacked formal informed-choice training, clinicians with formal informed-choice training, or trained third parties
who functioned as impartial decision counselors. The increased emphasis on considerations of cost and quality in health care reform was likely to create opportunities for health professionals with non-clinical health knowledge as well as behavior change training. Services that the authors suggested would be provided by these decision counselors overlapped considerably with professional roles and responsibilities of health education specialists listed by the National Commission for Health Education Credentialing (NCHEC) (2010). Functioning either in an autonomous or coordinated role, these decision counselors could help patients understand treatment options, properly weigh evidence of benefits and harms, explore personal beliefs and fears as significant contributors to effective care, determine desired level of control in decision making, and support intrinsic motivation for working with the clinician to make medical decisions (Woolf et al., 2005).

When reviewing the public health literature on the status of the US health care system and certain indicators of health for the US public, it became clear that there was a need to get people to take advantage of select health care services and engage in health promoting behaviors. If health reform efforts were to be successful, both from a fiscal as well as population health status standpoint, decisions for when and how to utilize health care had to include proper considerations of cost and quality. Though there were several factors that may have influenced whether an individual acted as an informed consumer of health behaviors and health care, the employer or health plan often tried to promote healthy lifestyles and the use of recommended health services. Within a quality based benefits design structure and best practices workplace health promotion, the health education specialist may have been uniquely qualified to work with employees and their families to motivate a lifestyle that maintained good health or effectively managed chronic conditions. There were substantial gaps in the professional literature as to
whether employees engaged in health consumerism. Also, more research was needed to
determine what personal, behavioral, and environmental factors influenced behaviors related to
health consumerism among an employee population. This study sought to fill those gaps and
allow health promotion practitioners to form a more complete picture of how employees took
advantage of health care services and engaged in health behaviors that were promoted by the
employer through cost and quality means.

**Purpose Statement**

The purpose of this study was to establish the level of Employer Facilitated Health
Consumerism (EFHC) among employees of a large health system and to investigate whether
EFHC differed among these employees based on individual, behavioral, and environmental
factors. EFHC was developed as a unique operational definition to measure to what extent
employees of a large health system took advantage of health care services and engaged in
positive health behaviors that were promoted by the employer through cost and quality means.
EFHC was measured by award tier reached in the Healthy Living Program. The Healthy Living
Program was a worksite sponsored health and wellness incentive program available to all
TriHealth employees. TriHealth, a not-for-profit health system that provided a wide range of
clinical, educational, preventive and social programs at more than 80 sites around greater
Cincinnati, served as the large health system accessed for this study. For this study, demographic
characteristics of employees, specific program participation aspects, and SCT constructs were
applied in a mixed methods approach to investigate factors possibly associated with or predictive
of EFHC.

Employees who took a proactive role in managing health specifically through
recommended access of health care services and healthy lifestyles were healthier and improved
the capacity of organizations to manage health care costs (Goetzel & Ozminkowski, 2008). The value of this study came from the ability to identify personal, behavioral, and environmental influences that were associated with employees being more likely to engage in EFHC. As conceptualized, the dependent variable in this study was derived from several different health behaviors that were promoted by the employer through cost and quality means. As such, the literature that discussed factors associated with behaviors that could be considered representative of EFHC was quite diverse. For example, level of education has been shown to be associated with a healthy lifestyle and the likelihood of utilizing preventive health care services (Hughes, Hannon, Harris, & Patrick, 2010). Also, the theoretical construct of outcome expectancies has been shown to be positively linked to diabetes self-care behaviors (Williams & Bond, 2002). Though diabetes self-care behaviors were not a perfect match to actions that contributed to EFHC, many of the reasons for health behaviors related to cost and quality were the same.

Studies have previously shown that certain individual, programmatic, and workplace factors impacted participation in employer sponsored health and wellness initiatives (Robroek, van Lenthe, van Empelen & Burdorf, 2009; Seaverson, Grossmeier, Miller & Anderson, 2009). This study also added clarity to what health and health care consumerism may have looked like specifically from a large health system worksite health promotion perspective. As previously described by Johnson, Onwuegbuzie, and Turner (2007), the mixed methods approach utilized by the researcher in this study should have allowed for the development of a more comprehensive picture of what made someone engage in EFHC. The application of theory improved the chances that identified relationships between variables could be positioned according to the existing professional literature and that study findings could be incorporated into future health education projects (Glanz & Bishop, 2010).
Though there was a need to include information on cost and quality in how health behaviors and the use of health care services were promoted, there was still a question as to what professions may be well suited to fulfill the charge of health care consumerism within health reform. Retchin (2007) concluded that medical decision advisors could provide health information for consumers and support difficult decisions that had to be made. The tasks listed by the author for this new profession fit very well with the roles and responsibilities of health education specialists (NCHEC, 2010). Findings from this study would assist health education specialists in incorporating and properly positioning considerations of health care cost and quality in individual or group health improvement efforts. Resources necessary to initially enable consumerism behaviors, as well as much of the motivation for continued wise consumption of health care, were likely to come from sources external to the individual (Robinson & Ginsburg, 2009). As a profession, health education was uniquely qualified to work with health insurance providers, care givers, and employers in translating technical medical information for patients and assisting individuals who engaged in healthy behaviors or needed to seek out medical care.

Research Questions

1. To what extent do TriHealth employees engage in Employer Facilitated Health Consumerism?

2. Is there a relationship between Employer Facilitated Health Consumerism and age, education, or income for TriHealth employees?

3. Does Employer Facilitated Health Consumerism differ among TriHealth employees based on gender, race, health plan, type of health care coverage, job type, primary job location, Healthy Living Program premium discount tier reached in 2010, or credit earned for an annual physical in the 2011 Healthy Living Program?
4. Is there a relationship between Employer Facilitated Health Consumerism and the Social Cognitive Theory constructs of situation, behavioral capability, expectations, expectancies, self-control, observational learning, or self-efficacy for TriHealth employees?

5. How does a selection of personal characteristics and behaviors (possibly including age, gender, race, education, income, health plan, type of health care coverage, job type, primary job location, Healthy Living Program premium discount tier reached in 2010, or credit earned for an annual physical in the 2011 Healthy Living Program) and Social Cognitive Theory constructs (possibly including situation, behavioral capability, expectations, expectancies, self-control, observational learning, and self-efficacy) influence the likelihood of reaching a certain level of Employer Facilitated Health Consumerism for TriHealth employees?

6. How do quantitative and qualitative findings of individual, behavioral, and environmental factors related to Employer Facilitated Health Consumerism compare?

Hypotheses

**Hypothesis 1.** There will be a negative relationship between age and level of Employer Facilitated Health Consumerism for TriHealth employees.

**Alternative Hypothesis 1.** There will be a positive relationship between age and level of Employer Facilitated Health Consumerism for TriHealth employees.

**Null Hypothesis 1.** There will be no relationship between age and level of Employer Facilitated Health Consumerism for TriHealth employees.

**Hypothesis 2.** There will be a positive relationship between the level of education and the level of Employer Facilitated Health Consumerism for TriHealth employees.
**Alternative Hypothesis 2.** There will be a negative relationship between the level of education and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Null Hypothesis 2.** There will be no relationship between the level of education and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Hypothesis 3.** There will be a positive relationship between the level of income and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Alternative Hypothesis 3.** There will be a negative relationship between the level of income and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Null Hypothesis 3.** There will be no relationship between the level of income and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Hypothesis 4.** The level of Employer Facilitated Health Consumerism for female TriHealth employees will be higher than the level of Employer Facilitated Health Consumerism for male TriHealth employees.

**Alternative Hypothesis 4.** The level of Employer Facilitated Health Consumerism for male TriHealth employees will be higher than the level of Employer Facilitated Health Consumerism for female TriHealth employees.

**Null Hypothesis 4.** There will be no difference in the level of Employer Facilitated Health Consumerism between female and male TriHealth employees.

**Hypothesis 5.** The level of Employer Facilitated Health Consumerism for White or Caucasian TriHealth employees will be higher than the level of Employer Facilitated Health Consumerism for non-White or non-Caucasian TriHealth employees.
**Alternative Hypothesis 5.** The level of Employer Facilitated Health Consumerism for non-White or non-Caucasian TriHealth employees will be higher than the level of Employer Facilitated Health Consumerism for White or Caucasian TriHealth employees.

**Null Hypothesis 5.** There will be no difference in the level of Employer Facilitated Health Consumerism between White or Caucasian TriHealth employees and non-White or non-Caucasian TriHealth employees.

**Hypothesis 6.** The level of Employer Facilitated Health Consumerism for TriHealth employees who were covered by the employer sponsored high deductible health plan will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who were not covered by the employer sponsored high deductible health plan.

**Alternative Hypothesis 6.** The level of Employer Facilitated Health Consumerism for TriHealth employees who were not covered by the employer sponsored high deductible health plan will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who were covered by the employer sponsored high deductible health plan.

**Null Hypothesis 6.** There will be no difference in the level of Employer Facilitated Health Consumerism between TriHealth employees who were covered by the employer sponsored high deductible health plan and TriHealth employees who were not covered by the employer sponsored high deductible health plan.

**Hypothesis 7.** The level of Employer Facilitated Health Consumerism for TriHealth employees who have additional persons covered on their health insurance will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who do not have additional persons covered on their health insurance.
**Alternative Hypothesis 7.** The level of Employer Facilitated Health Consumerism for TriHealth employees who do not have additional persons covered on their health insurance will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who have additional persons covered on their health insurance.

**Null Hypothesis 7.** There will be no difference in the level of Employer Facilitated Health Consumerism between TriHealth employees who have additional persons covered on their health insurance and TriHealth employees who do not have additional persons covered on their health insurance.

**Hypothesis 8.** There will be a difference in the level of Employer Facilitated Health Consumerism for TriHealth employees based on job type.

**Null Hypothesis 8.** There will be no difference in the level of Employer Facilitated Health Consumerism for TriHealth employees based on job type.

**Hypothesis 9.** The level of Employer Facilitated Health Consumerism for TriHealth employees whose primary work location is one of the two main hospital sites will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees whose primary work location is not one of the two main hospital sites.

**Alternative Hypothesis 9.** The level of Employer Facilitated Health Consumerism for TriHealth employees whose primary work location is not one of the two main hospital sites will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees whose primary work location is one of the two main hospital sites.

**Null Hypothesis 9.** There will be no difference in the level of Employer Facilitated Health Consumerism between TriHealth employees whose primary work location is one of the
two main hospital sites and TriHealth employees whose primary work location is not one of the two main hospital sites.

**Hypothesis 10.** The level of Employer Facilitated Health Consumerism for TriHealth employees who reached insurance premium discount tier 2 or 3 in the Healthy Living Program year 2010 will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who did not reach insurance premium discount tier 2 or 3 in the Healthy Living Program year 2010.

**Alternative Hypothesis 10.** The level of Employer Facilitated Health Consumerism for TriHealth employees who did not reach insurance premium discount tier 2 or 3 in the Healthy Living Program year 2010 will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who reached insurance premium discount tier 2 or 3 in the Healthy Living Program year 2010.

**Null Hypothesis 10.** There will be no difference in the level of Employer Facilitated Health Consumerism between TriHealth employees who reached insurance premium discount tier 2 or 3 in the Healthy Living Program year 2010 and TriHealth employees who did not reach insurance premium discount tier 2 or 3 in the Healthy Living Program year 2010.

**Hypothesis 11.** The level of Employer Facilitated Health Consumerism for TriHealth employees who received credit for an annual physical in the Healthy Living Program year 2011 will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who did not receive credit for an annual physical in the Healthy Living Program year 2011.

**Alternative Hypothesis 11:** The level of Employer Facilitated Health Consumerism for TriHealth employees who did not receive credit for an annual physical in the Healthy Living
Program year 2011 will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who received credit for an annual physical in the Healthy Living Program year 2011.

**Null Hypothesis 11.** There will be no difference in the level of Employer Facilitated Health Consumerism between TriHealth employees who received credit for an annual physical in the Healthy Living Program year 2011 and TriHealth employees who did not receive credit for an annual physical in the Healthy Living Program year 2011.

**Hypothesis 12.** There will be a positive relationship between level of agreement that the work environment (situation) supports Healthy Living Program participation and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Alternative Hypothesis 12.** There will be a negative relationship between level of agreement that the work environment (situation) supports Healthy Living Program participation and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Null Hypothesis 12.** There will be no relationship between level of agreement that the work environment (situation) supports Healthy Living Program participation and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Hypothesis 13.** There will be a positive relationship between level of agreement of having the knowledge and skills needed to take part in the Healthy Living Program (behavioral capability) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Alternative Hypothesis 13.** There will be a negative relationship between level of agreement of having the knowledge and skills needed to take part in the Healthy Living Program (behavioral capability) and the level of Employer Facilitated Health Consumerism for TriHealth employees.
**Null Hypothesis 13.** There will be no relationship between level of agreement of having the knowledge and skills needed to take part in the Healthy Living Program (behavioral capability) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Hypothesis 14.** There will be a positive relationship between level of agreement that Healthy Living Program participation will lead to positive outcomes (expectations) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Alternative Hypothesis 14.** There will be a negative relationship between level of agreement that Healthy Living Program participation will lead to positive outcomes (expectations) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Null Hypothesis 14.** There will be no relationship between level of agreement that Healthy Living Program participation will lead to positive outcomes (expectations) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Hypothesis 15.** There will be a positive relationship between level of agreement that the positive outcomes that will result from Healthy Living Program participation are important (expectancies) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Alternative Hypothesis 15.** There will be a negative relationship between level of agreement that the positive outcomes that will result from Healthy Living Program participation are important (expectancies) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Null Hypothesis 15.** There will be no relationship between level of agreement that the positive outcomes that will result from Healthy Living Program participation are important
(expectancies) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Hypothesis 16.** There will be a positive relationship between level of agreement of regulating behaviors related to Healthy Living Program participation (self-control) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Alternative Hypothesis 16.** There will be a negative relationship between level of agreement of regulating behaviors related to Healthy Living Program participation (self-control) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Null Hypothesis 16.** There will be no relationship between level of agreement of regulating behaviors related to Healthy Living Program participation (self-control) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Hypothesis 17.** There will be a positive relationship between level of agreement of knowing of other TriHealth employees who successfully participate in the Healthy Living Program (observational learning) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Alternative Hypothesis 17.** There will be a negative relationship between level of agreement of knowing of other TriHealth employees who successfully participate in the Healthy Living Program (observational learning) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Null Hypothesis 17.** There will be no relationship between level of agreement of knowing of other TriHealth employees who successfully participate in the Healthy Living Program (observational learning) and the level of Employer Facilitated Health Consumerism for TriHealth employees.
**Hypothesis 18.** There will be a positive relationship between level of agreement of being confident participating in the Healthy Living Program (self-efficacy) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Alternative Hypothesis 18.** There will be a negative relationship between level of agreement of being confident participating in the Healthy Living Program (self-efficacy) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Null Hypothesis 18.** There will be no relationship between level of agreement of being confident participating in the Healthy Living Program (self-efficacy) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

**Delimitations**

1. A delimitation of this study is that Employer Facilitated Health Consumerism is measured only by Healthy Living Program activities tracked by medical claims automatically submitted to the program administrators, records manually collected by the program administrators, or logs submitted by participants for credit for calendar year 2011.

2. A delimitation of this study is that only employees who purchase TriHealth sponsored medical insurance will be tracked in the Health Living Program. Employer Facilitated Health Consumerism among employees who receive medical insurance through TriHealth as a spouse or dependent, or lack TriHealth sponsored health care coverage will not be studied.

3. A delimitation of this study is that qualitative data will only be collected from focus groups conducted at select TriHealth sites. To maximize the likelihood of reaching the number of participants required to conduct a focus group, sites will be selected based on...
the size of the employee population. Opinions on what may influence employer facilitated health consumerism from employees who work at other locations will not be evaluated.

4. A delimitation of this study is that qualitative data will be collected from a limited number of focus groups. The focus groups will be populated by employees who purchase TriHealth sponsored medical insurance and volunteer to participate in the focus group. Those willing to volunteer may have different perspectives and opinions than those who are not willing to volunteer.

5. A delimitation of this study is that qualitative data will be collected from focus groups offered Monday through Friday during regular work hours. Though the only requirement for participation in a focus group was eligibility to earn a health insurance premium discount for Health Plan Year 2013, no focus groups will be offered specifically for employees working weekends or nontraditional hours. Employee opinions on what may contributes to employer facilitated health consumerism could be different for those who work weekends or 2nd or 3rd shift compared to the main employee population.

6. A delimitation of this study is that some data will be collected by the administration of a survey. This survey will be administered electronically and completion of the survey will be voluntary. Only employees who purchase TriHealth sponsored medical insurance who have reported an email address to the Healthy Living program or have a functional email address associated with their employee profile will be able to receive as well as have an opportunity to respond to the survey.
Limitations

1. A limitation of this study is the ability of participants to read and understand questions included on the electronic survey.

2. A limitation of this study is that participants may be absent the day a focus group is conducted and thus not able to participate.

3. A limitation of this study is the willingness of study participants to answer survey and focus group questions honestly and accurately.

4. This study is limited by the accuracy and completeness of the Healthy Living Program data that were provided by TriHealth administrators.

Assumptions

1. An assumption of this study is that participants answered questions honestly and accurately.

2. An assumption of this study is that Healthy Living Program activities performed and measures reached were reported truthfully to the program administrators.

3. An assumption of this study is that records of credit earned in the Health Living Program that were provided to the researcher by administrators were accurate and complete.

Operational Definitions

1. TriHealth Employee – For this study, this term refers to a TriHealth employee who was the policy holder of a TriHealth sponsored health insurance plan at any point between July 1, 2012 and June 30, 2013.

2. Two main TriHealth hospital sites – For this study, this term refers to the two TriHealth sites that house the largest number of employees.
3. Employer Facilitated Health Consumerism – For this study, this term refers to TriHealth employees taking advantage of health care services and engaging in health behaviors that were promoted by the employer through cost and quality means tied to the Healthy Living Program.

4. Healthy Living Program – For this study, this term refers to an employer sponsored health and wellness incentive program available to all TriHealth employees.

5. Healthy Living Program Award Tier – For this study, this term refers to the incentive tier reached as a result of points earned in the Healthy Living Program. Each of the three tiers is associated with a discount dollar amount a TriHealth employee is able to apply to next fiscal year’s health insurance premium cost.

6. Employer Sponsored Health Insurance – For this study, this term refers to any of the health plans offered by TriHealth to eligible employees. Eligibility for employer sponsored health insurance is based on number of hours worked each pay period (every two weeks). For Benefits Year 2012 (July 1, 2011 through June 30, 2012), the three plans offered were the TriHealth POS (Point of Service) Plan, the TriHealth HMO (Health Maintenance Organization) Plan and the TriHealth HD90 (High Deductible) Plan.

7. High Deductible Health Plan – For this study, this term refers to the TriHealth HD90 (High Deductible) Plan.

8. Primary Work Location – For this study, this term refers to the TriHealth location where an employee spends most of their work time. Depending on job title and responsibilities, an employee may work at multiple TriHealth sites.
9. Annual Physical – For this study, this term refers to an annual physical exam conducted on a TriHealth employee by a health care professional that resulted in Healthy Living Program credit in 2011.

10. Situation – For his study, this term refers to a person’s perceptions of how the physical and social work environment influence Employer Facilitated Health Consumerism. This Social Cognitive Theory construct will be measured in this study by survey items one, two and three.

11. Behavioral Capability – For this study, this term refers to the knowledge and skills needed by a person to be able to effectively engage in Employer Facilitated Health Consumerism. This Social Cognitive Theory construct will be measured in this study by survey items four, five and six.

12. Expectations – For this study, this term refers to positive outcomes anticipated by a person as a result of engaging in Employer Facilitated Health Consumerism. This Social Cognitive Theory construct will be measured in this study by survey items seven, eight and nine.

13. Expectancies – For this study, this term refers to the value assigned to positive outcomes anticipated by a person as a result of engaging in Employer Facilitated Health Consumerism. This Social Cognitive Theory construct will be measured in this study by survey items 10, 11 and 12.

14. Self-Control – For this study, this term refers to whether a person self-regulates behaviors (sets goals, monitors progress, give rewards) related to Employer Facilitated Health Consumerism. This Social Cognitive Theory construct will be measured in this study by survey items 13, 14 and 15.
15. Observational Learning – For this study, this term refers to behaviors a person performs as a result of watching the actions and outcomes of other TriHealth employees who engage in Employer Facilitated Health Consumerism. This Social Cognitive Theory construct will be measured in this study by survey items 16, 17 and 18.

16. Self-Efficacy – For this study, this term refers to the confidence a person has in successfully engaging in Employer Facilitated Health Consumerism. This Social Cognitive Theory construct will be measured in this study by survey items 19, 20 and 21.

Summary

This chapter introduced the problems of high cost and poor quality in the US health care system. It was suggested that the employer or health plan may enable the selection of recommended health care services and engagement in preventive health behaviors through cost and quality means. Conceptually, actions that occur under such circumstances were thought to be examples of Employer Facilitated Health Consumerism (EFHC). EFHC was the operational definition of the dependent variable investigated in this study.

The purpose of this study was to determine the level of EFHC among employees of a large health system and to see how EFHC was impacted by personal, behavioral, and environmental factors. The value of this study came from the ability to identify factors that were associated with EFHC. Health education specialists who were able to improve EFHC through these factors would have a positive impact on employee health and health care costs. This chapter concluded with the research questions, hypotheses, delimitations, limitations, assumptions, and operational definitions necessary for the execution of the proposed study.
Chapter 2

Review of the Literature

This review of the literature will introduce the reader to the state of the US health care system as well as policies and practical efforts intended to address issues of health care access and quality. The review includes aspects of health consumerism that were promoted through the Patient Protection and Affordable Care Act (ACA). Many of these directives on how to improve the health status of the US public targeted healthy living and recommended use of health care services. It was found that the emphasis on prevention in the ACA was also supported by the health insurance industry, employers, and health care providers. Consumer driven health care, often based on a high deductible health plan (HDHP) with a health savings option, was presented in public health research as one way problems related to health care cost and quality could be improved. Innovative health benefit offerings tended to include additional resources meant to promote fiscally responsible healthy behaviors. Best practices worksite health promotion programs that gave employees and their families a chance to engage in healthy behaviors or management of disease were proposed in the literature as an important resource to facilitate a consumerism approach to health.

From the perspective of the individual, health consumerism could be defined as participating as a partner in decision-making with health care providers, learning about options for care before making health related decisions, pursuing a healthy lifestyle, and considering cost and quality when using health services. Studies showed that a range of personal, behavioral, and environmental factors had the potential to influence behaviors that constituted health consumerism. The professional literature did not present a consistent message as to who may have been best suited to fulfill the charge of promoting health consumerism. It was suggested
that health education specialists could work with insurance providers, care givers, and employers to translate technical medical information for patients, teach employees how to best use their health benefits, and assist individuals who were interested in engaging in healthy behaviors or needed to seek out medical care.

This literature review was conducted using a selection of databases recognized as containing information on public health as well as health promotion and education (Academic Search Complete, CINAHL, ERIC, and MEDLINE). Search terms that were used independently as well as in a variety of phrases to generate the literature support for this research included (but were not limited to) health, health care, health care system, health care reform, high deductible health plans, consumer driven health care, consumerism, patient activation, worksite health promotion, health education, and social cognitive theory.

**State of the US Health Care System**

**Quality.** In a report often referenced in the professional literature analyzing health system performance, the World Health Organization (WHO) ranked the US health care system as the 37th best out of 191 nations assessed (WHO, 2000). The WHO report defined a health care system as being composed of all societal entities that worked to create and support health actions. A health action was thought of as any effort in personal health care or public health services that was intended to improve health. Though improving health was the main objective of a health system, the WHO was clear in pointing out that it was not the only one. The report stated that a health system should strive for the best average level of health (goodness) as well as the smallest feasible difference in health among individuals and groups (fairness).

The WHO rated countries based on the three fundamental goals of population health, responsiveness to the expectations of the population, and fairness of financial contribution
(Murray & Frenk, 2000). To further operationalize these goals from a health systems assessment approach, improving population health meant both raising health status and reducing health disparities. Responsiveness to the expectations of the population included respect for persons with a focus on dignity, as well as confidentiality and autonomy of individuals and families to decide about their own health. Responsiveness also depended on the level of orientation of the health care system to the client, which was indicated by prompt medical attention, access to social support networks during care, quality of basic facilities and services, and having a choice of provider. Finally, fairness of financial contribution meant that every household paid a reasonable share of the total health bill for a country. In a system that was just in how it was financed, Murray and Frenk (2000) suggested that every person should have been protected from catastrophic financial loss due to medical expenses.

In July 2011, The Commonwealth Fund released a study based on data from the Organization for Economic Cooperation and Development (OECD) that compared the performance of the US health care system with 11 nations of similar economic and political structure (Squires, 2011). This reports showed that the US spent more than $7,500 per person on health care in 2008, which represented 16% of gross domestic product (GDP). This was $2,500 more than the second place country spent in that industry and double that of half of the other 11 countries used for comparison. As a percentage of GDP, France had the next highest rate at 11.2%. An examination of the distribution of the cost of health care showed that the US had the second highest out of pocket costs and was the top spender per capita in both private and public health care.

Per 1000 population, the US had the fewest physicians among the 10 countries with available data and patients in the US had the second lowest number of doctor visits per person
per year (four visits) (Squires, 2011). Out of the 12 countries studied, the US had relatively few hospital beds per 1000 population (2.7 beds), an average length of acute care hospital stay (5.5 days), and the highest cost per hospital visit at $16,708 (almost triple the OECD average). The US had the highest rates of hospital admissions for asthma, congestive heart failure, and diabetes acute complications, and lower extremity amputations due to diabetes were more common than in any of the other 11 countries studied. With $897 per person, the US also had the highest per capita pharmaceutical spending out of all 12 countries assessed.

Though there were some indicators in the Commonwealth Fund report that placed the US above or well above average in health care performance, overall, analysis of OECD data showed that the US health care system did not deliver the best results despite being the most expensive (Squires, 2011). There were many reasons suggested for the discrepancy between level of spending and health outcomes. The 2011 report cited higher prices of medical care and fragmented delivery of health care services. More effective (in the form of earlier and better coordinated) treatment in a primary care setting was said to have the potential to improve patient care and prevent unnecessary or duplicate use of expensive medical treatments.

The Commonwealth Fund Commission on a High Performance Health System (2011) also reported that the US scored a 64 out of 100 overall across 42 indicators of health system performance when compared to international and domestic benchmarks. The 42 indicators on the 2011 scorecard assessed healthy lives, quality, access, efficiency, and equity of health care. In large part, this low score was said to be attributable to the significant variability in the quality of care across the United States. As of 2010, more than 81 million working age adults (44% of those 19 to 64 years of age) were underinsured or uninsured at some point during the year. The Commonwealth Fund Commission on a High Performance Health System (2011) report
considered a person underinsured when medical bills or deductibles were high relative to their income. This number was an increase from the 61 million (35%) who reported the same problems with access to care in 2003 (Commonwealth Fund Commission on a High Performance Health System, 2006). The rate of people lacking health care coverage rose more steeply for low and middle income adults (Commonwealth Fund Commission on a High Performance Health System, 2011). Health care spending per person in the US was double that of many other developed nations, and costs attributable to health care rose faster in the US than income. Data used for the 2011 report showed that only four percent of adults lived in a state where group health insurance premiums averaged less than 15 percent of household income. In 2003, this number was reported to be 57 percent (Commonwealth Fund Commission on a High Performance Health System, 2006). Two out of five adults who made up the study population for the 2011 report indicated that they had medical debt or had difficulties paying medical bills (Commonwealth Fund Commission on a High Performance Health System, 2011).

Efficiency of health care in the US ranked especially low with an overall score of 53 out of 100 (Commonwealth Fund Commission on a High Performance Health System, 2011). This was said to be due to inappropriate, wasteful, or fragmented care, avoidable hospitalizations, variation in quality and cost of care, administrative costs and low use of information technology. The report stated that lowering insurance administrative costs to that of countries setting the benchmark could save up to $114 billion a year alone. The lack of improvement on many health system indicators, such as preventive care, families with strong primary care connections, and hospital readmissions or hospitalization from nursing homes, was likely related to weak primary care and lack of care coordination.
Data collected in 2008 showed that more than two out of five nonelderly adults lacked a primary care physician and only half received a set of basic preventive services (Commonwealth Fund Commission on a High Performance Health System, 2011). Though vaccination rates had improved, 25 percent of children were missing full protection against communicable disease. Additional indicators listed in the report that raised concerns over the quality of the US health care system included infant mortality, childhood obesity, and health disparities based on race and income. Safe, patient-centered, timely, and coordinated medical care was also an area in which the US needed to improve. In 2007 and 2008, one quarter of elderly Medicare patients were prescribed a medication that could be inappropriate for older adults, almost one fifth of US adults underwent duplicate medical tests, and less than half of adults were able to see a doctor in a timely fashion when they were sick. Many adults reported difficulty accessing care other than through an emergency department after regular business hours. These failings of the health care system outlined by the Commonwealth Fund Commission on a High Performance Health System (2011) highlighted the need for improvement efforts across the care continuum supported by performance measurements and accountability.

**Access and cost.** Ensuring access to care was often the centerpiece of the healthcare debate in the US. According to a study on health insurance in the US published by Kaiser Commission on Medicaid and the Uninsured (2010), the number of nonelderly uninsured Americans was 50 million in 2009. This was nearly one in five (19%) of people under the age of 65. More than 70% of uninsured were without health coverage for more than a year. The report pointed out that while Medicare in the US was supposed to cover those 65 years of age or older, the nonelderly who did not have access to insurance through work or could not afford private insurance often went without health coverage unless they qualified for insurance through the
Medicaid program, Children’s Health Insurance Program (CHIP), or a state subsidized program. Adults without dependent children made up the majority of the uninsured largely because they were the least likely to qualify for Medicaid.

Just over half of people in the U.S. under age 65 received health insurance coverage as an employer provided benefit (Kaiser Commission on Medicaid and the Uninsured, 2010). In 2011, 60% of firms offered health coverage to their employees (Kaiser Family Foundation and Health Research and Educational Trust, 2011). Between 2001 and 2011, it became increasingly difficult for those workers who were eligible for employer sponsored health insurance to afford coverage. The average annual total cost of employer sponsored coverage was $5,429 for individuals and $15,073 for families in 2011, and the average share of the premium paid by workers for family coverage was 28%. Compared to 2001, health insurance costs in 2011 showed a 113% increase in premium and 131% increase in worker contribution for employer sponsored family health coverage (Kaiser Family Foundation and Health Research and Educational Trust, 2011). Also, though most health plans limited the total cost sharing an employee could face in a year, the majority of covered workers were responsible for fees at the point of seeking care.

In terms of plan enrollment, Preferred Provider Organizations (PPOs) were by far the most popular plan type covering 55% of workers (Kaiser Family Foundation and Health Research and Educational Trust, 2011). PPOs were networks of health care providers that agreed to provide services at lower rates based on certain utilization protocols to people enrolled in specific health coverage options (Kaiser Family Foundation [KFF], 2008). Twenty-three percent of firms that offered health benefits to employees had a high deductible health plan with savings options (HDHP/SOs) and 17% of workers were covered by a HDHP/SO in 2011 (Kaiser Family Foundation and Health Research and Educational Trust, 2011). HDHP/SOs included
health plans with a deductible of at least $1,000 for single coverage and $2,000 for family coverage offered with a Health Reimbursement Arrangement (HRA). This type of health coverage also included HDHPs that met the federal legal requirements to permit an enrollee to establish and contribute to a Health Savings Account (HSA).

Yi (2010) summarized the differences between two health benefits related savings options by explaining that the employer or the employee may fund pretax dollars into an HSA account whereas only the employer may contribute funds to an HRA. Any unused amount in both account types would not be lost at the end of the year. The rules for HSAs allowed the money in these accounts to be used for retirement income and the same types of investments permitted for Individual Retirement Arrangements (IRAs) were allowed for HSAs. The funds in an HRA were only to be used for medical expenses and could not be invested. As long as the money from an HSA was withdrawn to pay medical expenses and not for retirement income, the interest or other earnings in this account were tax and penalty free. According to Yi (2010), an individual had to be enrolled in what the Internal Revenue Service (IRS) termed a qualified HDHP to enroll in an HSA. A person interested in enrolling in an HRA did not need to be covered under an HDHP or any other health care plan to participate.

Workers enrolled in an HDHP with an HRA received an average contribution from their employer of $861 per year for single coverage and $1,539 for family coverage (Kaiser Family Foundation and Health Research and Educational Trust, 2011). The average HSA annual contribution was $611 in 2011 for single coverage and $1,069 for family coverage. In contrast to HRAs, not all firms contributed to HSAs. The average employer contributions to HSAs in those firms who funded these account in 2011 was $886 for single coverage and $1,559 for family coverage. Compared to the overall average worker premium contributions, people in HDHP/SHLS
paid less for single coverage ($723 vs. $921). Twenty percent of firms offering coverage in 2011 included a high performance or tiered provider network in their health plan with the largest enrollment. According to the Kaiser Family Foundation and Health Research and Educational Trust (2011), this type of network grouped providers based on the quality and cost of care delivered. Plans encouraged patients to visit higher performing providers by restricting networks or changing how much it would cost to purchase services from a particular doctor or medical office.

Federal and state run Medicaid and CHIP covered 20% of the low income nonelderly population by providing access to health care to qualifying children, their parents, pregnant women, and individuals with disabilities (Kaiser Commission on Medicaid and the Uninsured, 2010). The Kaiser Commission on Medicaid and the Uninsured (2010) reported that there were certain demographics that put people at higher risk for being uninsured. Compared to the rate of uninsured among whites (14%), Hispanics (33%) and African Americans (23%) had a much higher risk of lacking health care coverage. People with the lowest income faced the greatest risk of being uninsured. Although more than three quarters of the uninsured came from working families, four in ten of the uninsured were individuals and families who were poor (defined as having an income less than the federal poverty level or $22,050 for a family of four in 2009). Young adults (19 to 26 years of age) had the highest uninsured rate at 32% of any age group in the US. More than half of the nonelderly uninsured were limited to a high school education.

About half of people with employer sponsored health insurance were covered by their own employer and half were covered as dependents (Kaiser Commission on Medicaid and the Uninsured, 2010). Large firms and those companies with more high-wage workers were more likely to offer health coverage to employees. Only 7% of people under the age of 65 were
covered by a health insurance policy purchased outside of an employer sponsored system (Fronstin, 2011). Depending on various characteristics of an individual, such as age or preexisting medical conditions, purchasing private health insurance may have been made more difficult (Rosenbaum, 2009). Policies that were offered on an individual basis could be less comprehensive and more expensive than traditional health care coverage available through work.

In their review of relevant data and published literature on the uninsured, the Kaiser Commission on Medicaid and the Uninsured (2010) reported that lacking health care coverage put people at higher risk for poor health and financial strain. Health insurance made a difference in whether and when people received necessary medical care, where they got their care, and how healthy people were. Uninsured adults were more likely than the insured to postpone or forgo health care altogether. For uninsured families who may already have struggled financially to meet basic needs, medical bills could quickly lead to accumulation of debt. The uninsured were about three times as likely as those with health coverage to live in a household that was having difficulty paying basic monthly expenses such as rent, food, and utilities. When the uninsured did receive health care, they could be charged for the full cost of that care. Most of the uninsured did not receive health services for free or at reduced charge.

**US Health Care Reform**

**Overview of the Patient Protection and Affordable Care Act.** The Kaiser Commission on Medicaid and the Uninsured (2010) outlined the major strategies that the ACA would use to reduce the number of uninsured and how it would make significant changes to the organization and delivery of health care. Though some of the provisions of the law did not apply to grandfathered health plans (plans that covered a worker when the ACA became law and plans that did not make significant changes to plan design that reduced benefits or increased costs),
over time it was expected that there would be vast improvements in access to care as a result of the ACA (Kaiser Commission on Medicaid and the Uninsured, 2010). The law promoted greater health coverage by building on the existing public-private system for providing health care coverage. It sought to expand the Medicaid program, encouraged employers to offer health insurance to workers, and the law would make premium subsidies available to improve affordability of private health insurance.

Although a few directives of the ACA were implemented immediately, the major coverage expansions would come into play in 2014 (Kaiser Commission on Medicaid and the Uninsured, 2010). As of 2011, the law had created a new Pre-existing Condition Insurance Program that provided coverage to people with pre-existing medical conditions who had been uninsured for at least six months. In addition, young adults were allowed to remain on their parent’s health insurance until they turned 26. As the law was originally passed, Medicaid coverage would become available to nearly all individuals under age 65 with incomes up to 138% of the federal poverty level in 2014. This expansion would have created a standard minimum eligibility threshold for the program across states. However, a Supreme Court decision in the summer of 2012 found that states had the right to opt out of the expansion of Medicaid as dictated by the ACA (Network for Public Health Law, 2012). This ruling had the potential to significantly impact how the ACA extended health care coverage to people previously at risk for being uninsured.

States were encouraged to set up Health Insurance Exchanges, which would be new marketplaces where individuals and small employers could purchase insurance (Kaiser Commission on Medicaid and the Uninsured, 2010). These new marketplaces were intended to ensure a more level competitive environment for insurers. They would also provide people with
data on cost and quality to enable consumers to make informed choices among plans. To help ensure that coverage in the new exchanges was affordable for those above the Medicaid eligibility levels, the federal government would make premium and cost sharing subsidies available to qualifying individuals and families. According to the Kaiser Commission on Medicaid and the Uninsured (2010), the ACA would eventually prevent insurers from denying coverage to people for any reason and from charging people who are sick more for health insurance. The law also required that all new health plans provide comprehensive coverage that included at least a minimum set of services, limited annual out-of-pocket spending, did not impose cost-sharing for preventive services, and did not include annual or lifetime limits on coverage.

Beginning in 2014, the ACA would require most individuals to have health insurance (Kaiser Commission on Medicaid and the Uninsured, 2010). Those not exempt from this requirement who chose to go without coverage would be required to pay a yearly penalty through their taxes. Also beginning in 2014, employers with more than 50 employees would be assessed a fee of up to $2,000 per full-time employee (in excess of 30 employees) if they did not offer affordable coverage and if they had at least one employee who received a premium credit through an exchange. The law would also provide tax credits to the smallest employers (those with fewer than 25 workers and average annual wages of less than $50,000) to offset the cost of providing health insurance. When fully implemented in 2019, the Kaiser Commission on Medicaid and the Uninsured (2010) reported that the law was expected to expand health care coverage to 32 million people, cutting what would have been the uninsured rate in that year without the implementation of the ACA by more than half. While the new law was set to make important strides in reducing the number of uninsured, an estimated 23 million people were
expected to remain uninsured in 2019. This group would likely include immigrants who were not legal residents and were therefore not eligible for Medicaid coverage or for federal premium subsidies, people who were exempt from the mandate because they did not have access to affordable coverage, and people who were subject to the mandate but chose to pay the penalty rather than purchase health insurance.

**Role of consumerism in health care reform.** According to some projections, health reform legislation passed in 2010 would reduce health care spending by $590 billion over the next decade (Cutler, Davis, & Stremikis, 2010). Implementation of health reform was also projected to lower health insurance premiums by an average of $2000 per family by slowing the growth rate in national health expenditures.

Better outcomes and lower health care costs were goals health reform supported through investment in primary care, prevention and management of chronic disease, and care planning and coordination (Commonwealth Fund Commission on a High Performance Health System, 2011). Health information technology was seen as critical in improving how health care was provided in the US. The capacity of the US health care system to improve was thought to ultimately depend on skilled and motivated professionals who prioritized quality in health care. Through the ACA, physicians were encouraged to select primary care careers and health systems were incentivized to prevent rehospitalizations. Payment and health care coverage design features that promoted primary care medical homes and ensured that providers were accountable for results were considered essential to overall reform success. According to Cutler and colleagues (2010), it was recommended that such system improvement efforts were coupled with activation of individual consumers to access health care services with consideration for cost and quality and to engage in healthy behaviors. Health reform also contained several directives.
focused on investment in public health and research to create the evidence base needed to pursue quality improvements.

Much of the positive impact on health spending that was anticipated from the ACA would come from health system modernizations (Cutler et al., 2010). The health reform law included several provisions that focused on providing information to patients and providers and incentivizing health care professionals to make medical care more efficient. Within the Medicare and Medicaid programs, examples of payment innovations related to quality of care included higher reimbursement for preventive care services and patient-centered primary care and bundled payment for hospital, physician, and other services provided for a single episode of care. The Medicare and Medicaid programs were expected to rely on an Independent Payment Advisory Board for recommendations on how to reduce cost growth and improve quality of care.

A new Innovation Center within the Center for Medicare and Medicaid Services was to be charged with overseeing and expanding projects that led to program performance improvements (Cutler et al., 2010). Medical care providers would be profiled on the basis of cost and quality indicators and this data were to be made available to consumers and insurance plans, and providers rated as low-quality and high-cost would be provided with financial incentives to improve care. Finally, Cutler and colleagues (2010) reported that increased funding for comparative effectiveness research would be made available through the ACA and there would be a greater emphasis on wellness and prevention. Overall, reform was expected to lead to fewer and less-costly acute care episodes. With the support of financial incentives, it was expected that there would be significant savings tied to prevention and management of certain chronic illnesses through well-coordinated high-quality care.
Mongan, Ferris, and Lee, (2008) saw consumerism as an option that showed intermediate potential for cost savings. Consumerism was likely to be expressed through insurance products with high deductibles or copayments, health savings accounts, and transparency. Transparency referred to making information available about the cost and quality of services so that patients could become informed consumers of health care. One reason for why consumerism was not said to have a high potential for slowing the spending trend associated with health care was that people with multiple chronic conditions had limited ability to engage in prevention or choose services based on quality and cost indicators. The authors argued that with 70% of health care costs being attributable to 10% of the population, improved care for patients with chronic conditions was listed as a more promising approach for slowing the growth of health care costs than consumerism.

Orszag and Emanuel (2010) also highlighted how information and decision support could contribute to health care quality improvements. Cost control efforts were expected to be effective and long-lasting as a result of coordinated care focused on prevention of avoidable complications for people with chronic conditions. The authors believed that the sharing of information that would come from the spread of electronic health records had the potential to significantly help providers. With more accurate and real-time data available on their patients as well as decision support tools, doctors would be able to improve the quality of care. In addition, the authors pointed to the Patient-Centered Outcomes Research Institute (PCORI) that was created by the ACA and how it was charged with supplying physicians and patients with updated information regarding the effectiveness of various medical technologies and treatments. The combination of PCORI research findings and decision supports, guidelines, and other aspects of electronic health
records was anticipated to improve the quality of information that physicians and patients had access to when choosing tests and procedures.

In 2011, The Commonwealth Fund presented findings from a study that investigated one specific way consumerism could play a role in the success of health care reform efforts (Quincy, 2011). The report explained that the ACA called for a new standardized health insurance disclosure form, called the Summary of Benefits and Coverage. This form used a set layout that was intended to allow consumers to compare and better understand health insurance plans and terms of coverage. According to the author, the ACA required all insurance plans to use this form beginning in 2012. For this study, Consumers Union, with funding from The Commonwealth Fund and the California HealthCare Foundation, tested an early version of the disclosure form with 112 consumers through focus groups. Even though there were many features that were well liked by consumers, there was confusion about cost-sharing provisions and covered service definitions. This limited participants’ ability to use the new disclosure forms to compare health plans. There was also financial uncertainty and anxiety when study participants were asked to calculate out-of-pocket costs. These findings suggested that form revisions and other strategies were needed to address confusion and help consumers become informed, activated purchasers of coverage. From an overall policy perspective, Quincy (2011) stated that this type of standardized insurance disclosure had the potential to not only help consumers but also to support more general health reform goals. Well planned and executed buying and using of health plans by consumers, combined with other provisions of the ACA that supported sensible consumption of health, could fuel competition and lead to lower costs and higher quality of health care and more activated consumers.
In a summary of the ACA and changes to the law by subsequent legislation provided by the Kaiser Family Foundation (KFF, 2010), several components were identified that spoke to the essential nature of consumerism in health care reform. The Prevention/Wellness section of the KFF report indicated that the ACA required the establishment of a webpage to help patients identify health coverage options and use of a standard format for presenting information on coverage options. The law also established the National Prevention, Health Promotion and Public Health Council to coordinate federal prevention, wellness, and public health activities. It created task forces on Preventive Services and Community Preventive Services that were charged with developing, updating, and disseminating evidenced-based recommendations on the use of clinical and community prevention services. Medicare beneficiaries would be provided with access to a comprehensive health risk assessment and a personalized prevention plan, and there were incentives planned for covered individuals who completed behavior modification programs. The law required qualified health plans to provide coverage without cost-sharing for preventive services rated A or B by the U.S. Preventive Services Task Force, recommended immunizations, preventive care for infants, children, and adolescents, and additional preventive care and screenings for women. From a worksite health promotion perspective, the report highlighted the fact that the ACA included grants to small employers that established wellness programs. The law also allowed employers to offer employees rewards in the form of premium discounts, waivers of cost sharing requirements, or benefits that may otherwise not be provided based on participation in a wellness program and meeting certain health-related standards.

**Consumer Directed Health Plans and Health Consumerism**

**High deductible and consumer directed health plans.** Yi (2010) described HDHPs as “health plans with higher annual deductibles (the amount the insured must pay in medical costs
before receiving coverage) and a higher annual out-of-pocket maximum (the amount that the
insured pays before being fully covered for costs) than the typical traditional plan. One can view
these plans as catastrophic coverage plans; HDHPs guard against major medical cost” (High-
deductible health plans, para. 5). The author also pointed out that HDHPs have lower premiums
compared with traditional health plans and a person must be enrolled in an HDHP to open a HSA
or an Archer Medical Savings Account (MSA).

Consumer driven health plans was a term often used to refer to the combination of a
pretax payment account with a HDHP (Yi, 2010). As for how care was paid for in a consumer
driven health plan, this type of health care coverage was often referred to as three-tier payment
systems, consisting of a savings account, out-of-pocket payments, and an insurance plan. The
Kaiser Family Foundation (KFF, 2006) also generalized the term consumer directed health care
as referring to the combination of a high-deductible health insurance plan with a tax-preferred
savings account used to pay for routine health care expenses. In a document outlining the various
medical savings accounts available to individuals, the IRS (n.d.) defined HDHPs as having a
higher annual deductible than traditional health plans and a maximum limit on the sum of the
annual deductible and out-of-pocket medical expenses that a person had to pay for covered
expenses. Out-of-pocket expenses included copayments and other amounts, but did not include
premiums. A HDHP could provide preventive care benefits without a deductible or with a
deductible below the minimum annual deductible. Minimum annual deductible and maximum
annual deductible and other out-of-pocket expenses for HDHPs for 2011 were $1,200 and $5,950
for self-coverage and $2,400 and $11,900 for family coverage.

The ACA contained only two components that at first glance directly impacted HSAs: the
elimination of the ability to use the HSA for over-the-counter drugs and an increase of the early
withdrawal penalty for non-eligible medical expenses from 10% to 20% (W. Johnson, 2011). However, implementation of the law would span at least a decade and specific directives were often written in a way that left room for regulatory interpretation. According to W. Johnson (2011), the different philosophical foundations of the ACA and HDHPs with health savings options, with one mandating certain types of coverage and the other wanting to leave as much as possible of the decision making in health care to the individual, raised a number of other potential conflicts. The definition of preventive care as well as essential benefits in the ACA had to match what was allowed for HDHPs. If not, HDHPs would not be recognized as qualifying health plans under health reform and would no longer be offered by insurance companies. Health plans also had to maintain a medical loss ratio (MLR) of 85% for large-group plans and 80% for small-group or individual plans. An MLR was calculated by determining the amount of insurance premiums that were used toward qualifying medical expenses. According to W. Johnson (2011), HDHPs tended to have lower MLR than traditional plans, which led to an increase risk of these plans being discontinued by insurance companies.

HDHPs had to stay within the allowable deductible amounts laid out by the ACA. Though W. Johnson (2011) was fairly confident that this directive was of low risk for HDHPs, this requirement could still make these plans less attractive by increasing employee premium contributions. On the other hand, the ACA limited the out-of-pocket maximum of health plans to amounts already used by HDHPs and HSAs, which had the potential to make these plans more attractive to certain individuals. It needed to be determined whether HDHPs could be included in the newly created health insurance exchanges and in that case as what level of coverage (bronze, silver, gold, platinum or catastrophic). Though W. Johnson (2011) identified the catastrophic level as the most likely destination for HDHPs, eligibility criteria for these types of plans made
this a very limited area for growth. For HDHPs to be anything but catastrophic, these plans had to have a minimum actuarial value. For the bronze level plans, this value was 60%. This meant that the plan had to pay at least 60% of the expenses of an identical plan with zero cost sharing, which was potentially a condition difficult to HDHPs to meet. One final indirect risk to HDHPs in a reformed health care system was a new tax called the Cadillac tax. This tax would apply to high-cost health plans, defined as those costing more than $10,200 for individuals and more than $27,500 for families. W. Johnson (2011) reported that many would think of this as a non-issue for HDHPs and HSAs, since HSA plans were generally less expensive than traditional health care coverage. However, the problem with the way definitions were applied in this directive of the ACA was that both employer and employee tax-exempt HSA contributions count toward the Cadillac tax cap.

Though health reform often did not explicitly identify high deductible health plans and health savings options as part of how it attempted to address issues related to health care cost and quality, Guo (2010) provided an argument for how a consumer focus supported by these new products should be the driving force behind industry reform. The author defined a health care consumer as “anyone who receives or has the potential to receive health care services, regardless of whether the individual pays for those services directly or indirectly” (Guo, 2010, p. 30). Consumerism in health care was defined as “a concept of involving consumers in the health care decision-making process. Specifically, it enables consumers to have larger financial incentives, information on prices, quality, and treatment alternatives, so that they can take more responsibility for their health” (p. 30). Offering high deductible health plans was identified as one of the few ways organizations could strengthen efforts to address rising employer and employee health care costs. High deductible health plans also needed to be coupled with
information and tools to aid the health decisions of participants. These plans put the purchasing power with the individual by increasing the financial stakes of the individual at the point of purchase. Though Guo (2010) acknowledged that there were selection and utilization aspects of high deductible health plans that may be associated with health risk, over time it could be expected that these plans would have a significant and long lasting impact on cost and quality of US health care. Consumer directed health care supported the creation of engaged and informed patients who were better able to make health decisions. For consumer directed health care to fulfill its promise, the author believed it was crucial to have wide adaptation of these types of plans, better information for consumers, and more effective delivery of health care services.

Demographic characteristics of consumer directed health plan enrollees. In an issue brief from the Employee Benefits Research Institute (EBRI), Fronstin and Collins (2005) summarized findings from the first EBRI/Commonwealth Fund Consumerism in Health Care Survey. This online survey was conducted to provide data on the growth of high-deductible health plans (with or without savings accounts) and their impact on the behaviors and attitudes of health care consumers. A sample of privately insured adults ages 21–64 was randomly drawn from Harris Poll Online, which was Harris Interactive’s online sample of Internet users who have agreed to participate in research surveys. Survey findings indicated that people with high deductible or consumer directed plans were slightly more likely to be in excellent or very good health than those with traditional health insurance. There were no differences when comparing type of health care coverage based on gender, marital status, number of children, or race/ethnicity. However, individuals in Consumer Directed Health Plans (CDHPs) and HDHPs were less likely than individuals in comprehensive health plans to be under age 35. Individuals in comprehensive plans were also more likely than those in a CDHP or HDHP to report low
educational attainment. It was more likely that a person from the group of people covered by consumer directed health plans reported an income at or above $150,000.

In their review of the early literature discussing consumer directed health care, Butin and colleagues (2006) looked at the evidence for whether the availability of these new products impacted individual selection of health plan, health care utilization, and cost. Findings presented by the authors supported the demographic profile of consumer directed health plan participants as having a higher income and being healthier. These characteristics were confirmed once more in Barry, Cullen, Galusha, Slade, and Busch’s (2008) investigation of 17,000 employees continuously enrolled in employer provided health insurance in 2003 and 2004. Participants in consumer driven health plans were younger, made more money, and were likely to be white. Lower health care spending the year prior to health plan selection and the absence of a chronic condition (self or family member) were also predictors of enrollment in the consumer driven health plans.

**Consumer directed health plans and health care spending.** In their 2005 issue brief, Fronstin and Collins (2005) reported that over one third of those in high deductible or consumer driven health plans spent five percent or more of their income on out-of pocket costs and premiums in the last year, compared with 12 percent of those in more traditional health plans. Also, about one third of individuals in high deductible or consumer directed health plans reported delaying or avoiding care, compared with 17 percent of those in comprehensive health plans. The authors found that people with high deductible or consumer directed health care coverage more often reported that they had checked whether their health plan would cover their costs as well as the price of a service prior to receiving care. In addition, participants in these
nontraditional plans tended to be more likely to discuss treatment options and the cost of care with their doctors.

Because of demographics, health status, and spending patterns of those who were more likely to choose a CDHP, Barry and colleagues (2008) argued that these types of plans were unlikely to lead to major decreases in health care costs. In their study, the 14 percent of employees choosing the high deductible health plan with a health reimbursement account represented only eight percent of all health care spending in the prior year. Also, depending on how a savings option that came with a high deductible health plan was structured, the authors conclude that more traditional health insurance products could have a greater potential to encourage employees to consider cost when choosing whether or not to seek out care. Butin and colleagues (2006) also raised the possibility that the selection of these newer health insurance products by healthier and wealthier individuals could result in greater financial burden for those who maintained more traditional health care coverage. In terms of health care utilization, the authors suggested that there would likely be a limited one-time reduction in the use of care and associated costs if all employees were covered under a consumer directed health plan. High deductible plans were also associated with a lower rate of increase in health care cost for employers. However, some of these gains could be offset by the indiscriminant inclusion of people regardless of health status and financial means, by the exact design of the high deductible plan, and the presence of a health savings account.

Buntin, Haviland, McDevitt, and Sood (2011) provided one of the more recent studies published on the relationship between consumer directed health plans and cost. The authors analyzed claims and enrollment data for 808,707 households from 53 large US employers to estimate the effects of high deductible or consumer directed health plan enrollment on healthcare
cost growth between 2004 and 2005. It was found that health care costs grew for both the treatment families (HDHP or CDHP) and the control families, but they grew more slowly in the high deductible and consumer directed health plan groups. Families who enrolled in HDHPs or CDHPs for the first time spent 14% less than similar families enrolled in traditional health plans. This was due to lower growth in inpatient, outpatient, and prescription drug costs. Families in firms offering a HDHP or a CDHP spent less on health care than those employed with firms who did not. Smaller savings, though still significant compared to firms that only offered traditional health coverage, were realized in firms that offered both conventional and HDHP or CDHP plans. Significant savings were realized only for plans with deductibles of at least $1000, and savings were maintained at a similar level when a savings account option was added with a low employer contribution (less than $500).

Lieu and colleagues (2010) found that focus group participants in their study who were enrolled in a consumer directed health plan had a heightened awareness of health care costs and participants identified important barriers to their ability to control costs. Needing to seek care for urgent problems without having the time to assess potential costs, having mistaken expectations about what services the high deductible health plan covered, and being reluctant to discuss costs with doctors all influenced the overall feeling towards health care coverage. Discussions revealed that people attempted to control costs by delaying or avoiding visits to doctors. It was also reported that there was a feeling of lack of control over costs when a medical service was being accessed. If some sort of preparation was not done before the doctor-patient interaction, then there was less likelihood of cost influencing course of action. Overall, the authors believed that helping people with consumer directed health plans make decisions related to care based on quality and cost would likely require system wide changes involving clinicians and health
insurers. Simplifying plans, providing clearer communication on plan details, and supplying providers with real-time cost information were some suggestions for how the consumer role in health care could be further developed.

**Use of preventive care among enrollees in consumer directed health plans.** In their review of the consumer directed health care literature, Butin and colleagues (2006) were not able to draw a firm conclusion on whether health care quality was positively associated with consumer directed health plans. The authors found that care could be appropriately rationed or service cuts could take place indiscriminant of personal risks. Incentivized wellness activities and reducing cost sharing for recommended care seemed to help direct health care cuts. Individuals covered by high deductible plans were found to be more likely to try to choose care based on performance and price. However, data to make informed choices were rarely readily available.

Enrollment in HDHPs or CDHPs has been shown to be associated with moderate reductions in the use of preventive care. In a study conducted by Butin and colleagues (2011) of 808,707 households, child immunization rates increased over time for people covered by a traditional health plan and decreased for people covered by a consumer directed health plan. Also, for each of the three cancer screening measures investigated by the authors (breast, cervical, and colorectal), among those who did not receive the recommended screening in 2004, significantly fewer HDHP or CDHP enrollees received appropriate care in 2005 compared to adults carrying more customary health insurance.

In contrast, Busch, Barry, Vegso, Sindelar, and Cullen (2006) found that maintaining more traditional health care coverage or choosing to join a consumer directed health plan did not significantly impact the use of recommended screenings. The authors looked at rates of cervical
cancer screenings, colorectal cancer screenings, well-child visits, adolescent well care, and breast cancer screening for more than 40,000 US employees. Overall, the authors found no significant change in rates of any of the preventive care from one year to the next. To go beyond simply maintaining previous rates of recommended care when implementing consumer driven health plans, it was suggested by the authors that educational efforts or strong financial incentives might be necessary. Health insurance providers were also cautioned to be careful when balancing the potential savings that come from cost sharing compared to the potential decreased use of preventive screening.

**Additional health behaviors associated with consumer directed health plans.** Using survey data collected in a longitudinal study of salaried and hourly employees in a large manufacturing company, Dixon, Greene, and Hibbard (2008) set out to investigate the impact of CDHPs on self-reported behavior related to health care. The authors were interested in whether the provision of decision support resources led to a change in CDHP enrollees’ location and utilization of information regarding health and cost. Employees who enrolled in high or lower deductible CDHPs at the beginning of 2004 were compared with employees who remained in a PPO. The authors found that enrollees in the lower-deductible CDHP were overall more active information seekers before enrollment. Also, lower-deductible CDHP enrollees who were not already active were more likely to start using information on cost, health, and quality than people who remained in a more traditional plan.

A second study based on the same population confirmed the fact that people who were more activated were more likely to enroll in a CDHP (Hibbard, Greene, & Tusler, 2008). However, researchers were not able to show that CDHP enrollees become more activated over time. Those who were more activated were more likely to engage in information- seeking and
healthy behaviors and they were more likely to adopt a new healthy behavior. This finding seemed to be consistent regardless of type of health care coverage. Even though CDHPs did not appear to foster activation, the authors suggested that CDHPs may be a good choice for those who were more activated and prepared to take on a more active role in managing their health and healthcare.

**Employer and Health Plan Support for Health Consumerism**

Rosenthal and Milstein (2004) used survey data from 680 national and regional commercial health benefit plans to examine to what extent consumer-directed health plans supported consumerism. The authors also looked at whether mainstream health plans were being influenced by the movement towards providing individuals with the information and tools necessary to influence health care. Providing resources to support informed choice of provider or treatment was not found to be standard practice. Comparative cost information, a type of evidence that could be highly influential in choosing physicians and hospitals, was often missing. Also, information on cost implications of alternative types of treatment options was typically not available. Consumer directed health plans did however tend to make hospital quality information available. Average costs for services or procedures and drugs were also common elements of decision support.

To a limited degree, Rosenthal and Milstein (2004) found that traditional health plans supported the consumer by providing tools such as nurse help-lines, health risk assessments, and health profiles as well as member outreach. Because of potential financial rewards associated with the growing market share of consumer directed health plans, the authors believed that complementary programs and decision support to help consumers manage their health and health spending would become more common in mainstream health plans.
In their discussion of the promise, performance, and future outlook of consumer directed health plans, Robinson and Ginsburg (2009) recognized that many of the initial propositions of high deductible health plans fell short of expectations. Though the number of employers that offered consumer driven products steadily increased from when these products were first introduced, the authors categorized the rise as relatively slow. According to the authors, most of the consumer driven products available could better be described as hybrid models that combined elements of consumerism as well as health management.

As consumer directed health benefits kept evolving, Robinson and Ginsburg (2009) argued that the aspects that reminded people of managed care were likely to become more pronounced. The authors suggested that programs would become more diverse and there would be a focus on improving care along the full continuum of health. Examples of areas that would be emphasized included prevention and wellness programs for healthy enrollees, service coordination for patients needing acute care, disease management for enrollees with chronic conditions, and intensive case management for enrollees with severe conditions. These programs were likely to be presented as options by employers and health plans rather than requirements. Incentives or disincentives could be provided to encourage behaviors, such as higher cost sharing for those people who were eligible for a program but chose not to participate. For consumer choice to be meaningful and have the potential to contribute to cost and quality improvements, the authors emphasized the choice had to be between high quality options and such options needed to be purposely planned, constructed, implemented, and maintained.

Robinson (2005) supported the idea that for consumer directed care to be effective, efforts needed to be made to combine the principles of consumerism and managed competition into what the author called managed consumerism. Resources had to be made available to ensure
that all people had an opportunity to benefit from changes to the health care system that placed
more responsibility on the patient. The author claimed that crude implementation of high
deductible health plans would mostly benefit those in better health with greater financial
resources. Cost-sharing provisions that were unadjusted for the individual patient or lacked some
utilization constraints were unlikely to have a significant positive impact on health care spending
or population health. Subsequently, support was needed at various levels and in multiple forms
for consumerist principles to translate from theory into practice.

According to Robinson (2005), true consumerism would be realized only when health
plans and employers, as well as providers of health services, made meaningful resources
available that supported quality and cost-conscious care choices. Such products could include
disease management and case management programs, certain provider groups who charged
lower fees for particular services, or resources with more controlled access that provide highly
specialized care. Customizing health insurance through the type of services covered, by
controlling when and to what extent beneficiaries were expected to pay for care, and offering
health savings accounts, could promote behaviors in health care that were based on quality and
cost. If a managed consumerism system was successfully created, the author suggested that the
use of the most appropriate and highest quality services by consumers could result in a natural
section process that promoted narrower and more efficient provider networks.

Christianson, Ginsburg, and Draper (2008) utilized a large set of qualitative data gathered
from health plans and large employers to come up with a set of resources that needed to be
present for consumerism related behaviors to occur. Labeled “facilitated consumerism” and
investigated through more than 5000 interviews conducted in metropolitan areas all over the
United States, the authors found that health benefits design, price and quality transparency,
health and wellness programs, and care management were consistently mentioned as ways to improve population health and control health care costs. Health benefits design aspects of facilitated consumerism included PPOs with increased cost sharing for employees at the point of service and consumer directed health plans. CDHPs tended to be structured with low premiums and high deductibles, a health savings account (HSA), and first dollar coverage for preventive care. Based on their conversations with large employers and health plans, the authors reported that transparency of quality and price of health care varied greatly. Though comparative data may have been available to companies that provide health benefits to employees, little was made accessible to the individual consumer.

In terms of health and wellness programming, the study by Christianson and colleagues (2008) revealed that more and more companies and health plans were offering sophisticated options to help employees prevent health problem and control health care costs. Employers were increasingly emphasizing investments focused on prevention as compared to treatment. Expert guidance was sought by companies trying to decided what type of incentives to offer to encourage participation in these programs, and there was a desire to better understand what participation levels were likely to improve employee health overall and positively impact claims costs. Care management was an example of how health benefits and additional employee support resources could be applied to help individuals manage chronic disease, help employer anticipate what employees are likely to engage in high use of medical services, and help health plans and employers manage the use of certain medical services. Some of the key issues related to whether care management had a positive impact on consumerism listed by the authors were identification of preferred participants, a supportive cost sharing structure, and ultimate utilization of services.
Lee and Hoo (2006) also discussed how the unadjusted implementation of consumer
 driven health plans would not do enough to address cost and quality concern in US health care.
The authors spoke of quality based benefits design as crucial for all health insurance offerings,
not just high deductible health plans. This type of approach was said to be based on the six
elements of 1) health plan selection, eligibility and contributions, 2) provider network
differentiation and selection, 3) inpatient and outpatient benefit design, 4) pharmacy benefit
design, 5) health promotion and health risk management, and 6) tools and incentives for
consumer engagement. As it came to the role of health promotion in quality based benefits
design, the authors pointed to the fact that employers were more and more likely to invest in
wellness, lifestyle modification, and disease management programs that had the potential of
improving both financial performance and employee quality of life. One especially important
aspect of this approach was chronic care management, since it was common to see a high risk
minority employee population account for a majority of health care costs. Also, without
maintained consumer engagement, any reliance on choice of care by the individual based on cost
and quality indicators was doomed to fail. Engagement had to provide the foundation for a
quality-based benefit design strategy. In cooperation with health plans and providers, employers
were recommended to make explicit investments to support their employees. By having access to
tools and incentives, consumers could become more actively engaged in selecting and accessing
higher value providers and services.

Additional support for a focus on value in employer provided health benefits was
provided by Vitt and Werntz (2008). In their brief, the authors summarized the evolution of
consumer directed health plans over the last decade and they spoke of the value of educating
employees on health benefits and health care. The authors cautioned that trying to create
consumerism by indiscriminant promotion of consumer directed health plans was not that far off past managed care attempts to control consumer behavior. A top down approach like this, offered without a good understanding of what consumers knew, needed to know, and what they valued, was unlikely to lead to impactful and maintained behavior change in a population.

In their review of the literature, Vitt and Werntz (2008) found that there was no consensus to whether consumer driven health benefits, by themselves, addressed increasing health care costs. In order to motivate consumers to choose healthy lifestyles and make care decisions based on cost and quality, people needed help in the form of education. Knowing how to use consumer directed health plans was crucial since this expanding market relied on individual responsibility and participant cost sharing. Consumers often had little or no input into the policymaker and employer driven consumerism movement, and health education that addressed psycho-social and income-security concerns was limited. The authors cautioned that consumerism in health care seriously risked failure by ignoring consumer values. The consumer-driven health movement could very well be doomed if education was overlooked or ineffectively applied, especially since the industry was dependent on fully educated health consumers proactively managing health and costs.

**Worksite Health Promotion and Health Consumerism**

Health consumerism behaviors employers, health insurance companies, health care providers, or other public health experts advocated for could be pursued by offering comprehensive worksite health promotion programming. If implemented according to best practices, worksite health promotion efforts have been shown to improve employee health and decrease associated employer costs (Soler et al., 2010; Chapman, 2012). In their summary of the relevant professional literature, Goetzel and Ozminkowski (2008) concluded that certain
program aspects were essential for worksite health promotion to be able to show its worth and keep evolving with the health and financial needs of employers as well as employees. It was important to rigorously evaluate program outcomes and to effectively communicate these outcomes to key stakeholders. Of course, evaluation of interventions was dependent on proper program planning and assessment of progress. This could be at least partially be accomplished by offering a high quality health assessment tool and various feedback mechanisms. Worksite health promotion efforts were recommended to be based on the most up-to-date methodologically sound research, and it was preferred that program components and processes originated from appropriate behavioral theory. Making sure that results were continuously shared with leadership as well as the general employee population would help integrate worksite health promotion programming as an essential company function. Communicating progress would also support the creation of a culture in which employee health and wellness was valued just as highly as more traditional indicators of organizational success.

Goetzel and Ozminkowski (2008) also concluded that effective worksite health and productivity measures employed a socio-ecological approach to promote employee wellbeing. This meant that people involved in offering health promotion programing needed to carefully consider individual, environmental, policy, as well as cultural factors that may have impacted health behaviors and health status. This all-inclusive view of the multitude of influences on employee health, as well as what it may ultimately take to change select indicators of health and productivity, dictated that programs were offered to a group of people for several years. Also, the authors found clear evidence that it was best to target several health issues at the same time. This may very well have included behaviors at opposite ends of the health and wellness continuum, such as eating well or engaging in physical activity to stay healthy as well as disease or chronic
condition management activities like monitoring blood pressure or filling a prescription. To ensure that participants were not overwhelmed, it was recommended that program providers helped prioritize health improvement efforts and supported behavior change through individually tailored solutions.

It was suggested that a focus on multiple health issues as well as the availability of multiple modalities for change may help generate desirable program participation rates (Goetzel & Ozminkowski, 2008). What a high enough participation rate was varied greatly based on the type of results that were pursued, and research showed that personal, programmatic, and workplace factors all impacted to what extent people took part in worksite health promotion programming (McLellan et al., 2009; Robroek et al., 2009; Seaverson et al., 2009). Goetzel & Ozminkowski (2008) found that program participation can be better maintained among employees by specifically utilizing social support provided by coworkers and family members. Also, incentives in various forms have been shown to be effective in promoting participation by high value individuals (individuals with multiple risk factors) as well as driving up the overall number of people who chose to take part in worksite health promotion programs. Type of incentive offered and associated costs would have to be considered with other expenses during the planning phase to ensure that programming showed an acceptable return on investment potential. The authors mentioned that government could also encourage employers to implement effective programs by treating initiatives and associated incentives favorably from a tax perspective.

Chapman (2008) provided one of the most comprehensive overviews of how consumer health skills could be developed at the worksite. Overall, it was recommended that organizational efforts to promote consumerism should be integrated, timely, consumer-centric, practical, and
have multiple options. It was emphasized by the author that specific messages of an organization’s coordinated communication strategy could play a big part in establishing the need for consumerism among employees. Considerations such as the cost associated with unnecessary use of medical care and unhealthy lifestyles, the actual cost of medical services, and how the high cost of health benefits impacted the operations of the company were important to highlight to employees. Pointing out the fact that the employer and the employees needed to address this situation together and that solutions had to be cooperative and must not result in loss of coverage could help create a sense of a common purpose between leadership and the workforce.

Worksite activities intended to promote consumerism in health were recommended to be focused around increasing awareness through various educational resources (Chapman, 2008). The author suggested that coordinating benefits design and incentivized health behaviors could help increase the motivation for choosing services or products based on price and quality. Also, learning skills necessary for health and health care consumerism and opportunities to practice those skills could be emphasized through individual or small group on-site or online health and wellness programs. Changes in self-efficacy, patient activation measures, selected health care utilization measures, health claims cost patterns, and customer satisfaction were all indicators of whether a population was engaging in healthy behaviors and consuming health care services in a way that had a positive impact on cost and promoted quality of care.

From a practical standpoint, it was necessary to have the right level and type of employee cost sharing for consumerism to develop (Chapman, 2008). The cost for specific procedures and total annual deductible were two benefits design features that could help establish shared responsibility for quality and cost of care. High deductible health plans could be coupled with a health savings account that was funded by pretax dollars. This would allow for long term
financial planning on the part of the consumer. Employees also needed to be provided with effective decision support tools when planning to use health care services. One of the more common ways that companies tried to enable informed decision making was by providing access to online health resources. It was also crucial for employers to incentivize actions likely to improve personal health, such as participation in recommended screenings and health and wellness programming. Finally, organizations needed to promote consumer responsibility by working to eliminate health care entitlement beliefs that were often present among employees who had traditionally enjoyed low cost comprehensive health coverage.

Sharon and Tacker (2010) also discussed the various ways the worksite could attempt to develop beliefs and behaviors that supported health and health care consumerism. Consistent communication messages to educate, engage, and empower health care consumers could provide a foundation for programming. Employees needed to understand how consumerism in health care required a redefinition of the role of the patient. They also needed to appreciate how consumerism affected them specifically and what behaviors they could engage in to improve quality and cost of care. As far as empowerment, employees needed to seek out and use resources that helped them be healthier and assisted in making health care decisions. The authors listed four areas of interest in terms of employer actions that supported consumerism. First, the employee needed to be financially motivated to be an informed consumer of health care. This financial motivation could be established through modification of cost sharing, incentives tied to certain health related activities, and allowing account based plans and employee contributions that are not taxed. Second, the employee needed to have access to health plan information, such as pharmacy and physician pricing, hospital quality indicators, and targeted messaging based on health risks or plan design. Third, the employee needed to have access to resources that helped
manage health. This could include a health assessment tool and programming related to common behavioral risk factors. Employees also needed to do certain things for an employer initiated consumerism strategy to have the desired impact. Consumer involvement was the fourth and final area of focus for a consumer based health care strategy. Activities on the part of the employee included obtaining preventive services, considering cost and quality of care, actively working to improve health, and making a conscious decision to avoid overutilization of health care services.

Johnson and colleagues (2009) took the discussion of worksite support for health consumerism one step further by describing the actual development of a novel worksite health promotion program intended to provide the necessary conditions for proactive health consumerism. Based on the Transtheoretical Model, the program promoted informed decision making in choosing health plans and providers through worksheets, external links containing comparative information, and a satisfaction assessment. It helped develop shared decisions in health care by providing tools that assessed quality of communication with health care providers and identified ways to improve interactions. The program also contained a financial decision making section that gave advice on age and gender appropriate medical services, provided a cost calculator, and offered interactive testimonials and decision trees. Finally, the health and wellness section of the program linked participants to smoking cessation services, weight management, exercise resources, stress management, depression prevention, and blood pressure and lipid information.

**Health Consumerism: Definitions and Examples of Associated Behaviors**

Though a variety of conditions had the potential to influence health consumerism, the interaction with a care provider was where many health actions were decided. Roter’s (2000)
description of three distinct types of doctor-patient relationships offered suggestions for how patients could best be involved in improving health care processes and outcomes. According to the framework presented by the author, consumerism involved the doctor or therapist as a technical consultant. In this type of relationship, the patient ultimately took full responsibility for health care decisions. In paternalism (the opposite of consumerism), the doctor was the expert and was expected to act in the patient’s best interests. Finally, in mutuality, the doctor acted as an advisor and both people were integral to deciding the care process.

Though M. Johnson (2011) did not explicitly claim to study the concept of consumerism as it related to health and health care, the conceptual approach to health care empowerment presented by the author was based on many of the same principles. The health care environment’s increased focus on cost containment and responsible health practices necessitated the establishment of a theoretical framework that could be applied when analyzing how people seek out care. Though data were often available to show the presence or absence of certain behaviors, the author found that experts tended to know less about how and why specific health related actions were taken. Empowerment was ultimately a condition built on the individual patient being engaged, informed, collaborative, committed, and tolerant of uncertainty. M. Johnson’s (2011) model depicted a variety of environmental, personal resources, and intrapersonal attributes that contributed to the development of empowerment. Though this conceptual structure represented an inclusive view of the influences on why and how a person may seek out care, there was still much work to be done in testing model constructs for relative influence and directionality. Also, it was suggested that future studies should aim to tie confirmed health care empowerment constructs to more tried and tested measures, such as health outcomes and cost.
In her investigation into patient involvement in health visiting, Almond (2001) provided a discussion of what was needed for health care consumerism to occur and how it would be possible to conceptualize this term. The author described health visitors as public health nurses who provided preventative and health promotion services to families with children. They worked in community contexts and were affiliated with general practice surgeries. Most of the work of health visitors was done with families in their homes or through community child health clinics. The author initially noted the inconsistencies in the research regarding what the crucial components of consumerism were and what certain consumerist behaviors were called from source to source. Almond (2001) suggested that consumerism was an outdated term often replaced in the British health literature by such concepts as partnership, public involvement, or collaboration. True consumerism required the redistribution of power from the provider of health services to the patient, which was a very difficult transition to successfully complete. The literature reviewed by the author showed no consistent findings that consumer involvement in health care led to improvement of services or health outcomes.

Almond (2001) presented a model of consumerism that included collaboration, participation, advocacy, partnership, client centeredness and empowerment. Since the review of the literature conducted by the author revealed no consistent description of consumerism, a unique definition of how this concept should be thought of in health care was provided:

Consumerism is a belief and attitude, which regards patients as powerful, active and sentient participants in structuring and developing health services. Their opinions and involvement to assess the quality and provision of services are sought and valued, and form a pivotal role in providing optimum levels of care for all. Consequently health
services meet the needs of the consumers and not those of the professionals. (Almond, 2001, p. 896)

In a discussion of how to incorporate consumerist principles into worksite health promotion, Chapman (2008) defined a wise health consumer as “a person who uses reasonable and sound health advice and/or tools and takes appropriate action when faced with particular symptoms, diagnoses, or screening needs. A wise health consumer also possesses a set of core skills and uses those skills in maintaining his or her own health and/or the health of his or her family member” (p. 4). Johnson and colleagues (2009) further developed this concept within the scope of worksite wellness by describing proactive health consumerism as being based on an individual participating as a partner in decision-making with health care providers, learning about and carefully considering options before making health related decisions, engaging in ongoing health and wellness activities, and using health services wisely and in a financially responsible way.

According to Chapman (2008), a wise consumer of health care needed to know how to recognize and appropriately deal with significant symptoms of disease. Also, it was important to know how to find quality health information, how to choose the right type of practitioner and site for care, how to have a productive interaction with the care provider and engage in the needed follow-up. In addition, a person should know how to evaluate whether care was satisfactory and how to assess the cost associated with medical services before and after receiving care. The author stated that consumers often did not experience the actual cost of health care services and information on cost and quality was not readily available or it was difficult to understand. Making information available to patients, making sure the patient understands health
information, and helping patients with the skills to act on information were all important parts of how care should be provided.

Sharon and Tacker (2010) offered a discussion for what consumerism may look like from the perspective of a person who was healthy to someone who was actively managing a chronic condition. The authors defined consumerism in health (also called consumer driven health care or consumer engagement) as “participants assuming more responsibility for their personal health and health care purchasing decisions” (Sharon & Tacker, 2010, p. 8). There were three primary ways individuals needed to modify their behaviors to promote consumerism. First of all, value purchasing required a person to ask for price, consider alternatives, research services and products, and utilize novel care options. Secondly, improved health on the part of the individual was expected to result from using preventive medical services, completing an individual assessment of health risks, using wellness resources that were available through a health plan or employer, and engaging in well-established practices that were connected to quality and quantity of life. Finally, chronic condition management depended on utilization of disease management programs, maintaining personal health records, following evidence based best practices in managing a certain condition, and using care options that were specifically intended to represent condition specific high quality care.

**Personal Factors and Health Consumerism**

Though there was an ever-growing amount of health information available as consumerism in health care became a highly debated topic, quantity of information did not necessarily correlate with behaviors that had the potential to promote health across an entire population. Lorence, Park, and Fox (2006) presented an investigation of the types of health information sought on the Web by different people and how user characteristics may have influenced health-seeking behaviors. To be able to look at demographic characteristics of online
health information seekers (987 individual) compared to non-seekers (506 individuals), 13 categorical variables were selected. Ten online activities related to information seeking were included in the study as the dependent variables of interest.

Whether a person reported to be a health information seeker was found to be significantly associated with gender (74% of females), age (70% of people 30 to 49 years of age), race and ethnicity (68% of White and Africa American participants), and marriage status (71% of participants who were married/living as married) (Lorence et al., 2006). Internet experience (69% of those with three or more years of experience), frequency of Internet access (69% of those with daily use), health service utilization within one year (69% of those who had used services within the last year), and health conditions of interviewee (82% of those with a chronic condition or disease) were additional conditions that were found to be significantly associated with information seeking behavior. Individuals with higher education level, more internet experience, and higher frequency of internet access were more regular information seekers. Also, those who were married or living as married, those who used health service during the past year, and those who reported a health condition of a dependent looked for information online more often. Over half of health information seekers searched for health information for someone other than themselves, and over 75% of health information seekers reported that the Internet had a positive influence on their health. Study results clearly showed that certain demographic variables were significantly related to access of online health information.

In addition to certain demographics being associated with health and health care consumerism, how well a person was able to access and understand information or manage the interaction with a health care provider may also help explain how people sought out care and treatment outcomes. Hardie, Kyanko, Busch, LoSasso, and Levin (2011) investigated whether
health literacy among a group of people covered by a consumer driven health plan was significantly associated with health care costs and services utilization. The prevalence of low health literacy in the US has previously been reported as a significant public health concern and it has been discussed in-depth in relation to the use of medical care and health outcomes (US Department of Health and Human Services, 2010). For their study, Hardie and colleagues (2011) offered a web-based survey to newly enrolled CDHP members employed at one of two large companies. Study inclusion criteria resulted in a final number of 4,130 study participants. Three questions on the survey were used to measure health literacy. Health care spending was calculated per member per year and was segmented into several cost categories. Health care utilization measures included hospital admissions and lengths of stays, prescriptions, outpatient cholesterol screens, and emergency department visits. Member characteristics (age, gender, employer, region of residence, and comorbidity variables) were treated as covariates in the analysis of health care costs and health literacy.

For total spending, the regression analysis conducted by the researchers suggested that higher levels of health literacy were associated with lower levels of total health care spending (Hardie et al., 2011). Based on study parameters, “never needing assistance” compared to “occasionally needing assistance” in understanding health information was associated with 15% lower total health care spending. Also, for the group investigated, results showed that inpatient spending was lower when health literacy scores were higher. Emergency department spending was significantly lower with an adequate health literacy score (nearly 60%). In terms of utilization, the number of inpatient admissions decreased with higher health literacy scores. Low health literacy was also associated with more acute health care use, but had no measurable effect on cholesterol screening or an office visit. Hardie and colleagues (2011) singled out this finding
as indicative of a lost opportunity to educate members before there was a need to access health services. The authors concluded that the results of this study should have encouraged providers of insurance or care to assess whether available decision tools were understandable and actionable based on the health literacy level of a population. How this type of functional consideration influenced a person’s access of care could have been incorporated into efforts intended to decreased health care costs and improve quality of care.

Health Behavior Theory and Health Consumerism

The public health literature contained theory based studies designed to better understand to what extent environmental, individual, and behavioral factors influenced health and health care consumerism. Using a sample of 239 new Medicare enrollees, Levesque, Cummins, Prochaska, and Prochaska (2006) looked for relationships between Transtheoretical Model (TTM) stage of change, decisional balance, self-efficacy, and informed choice. Informed choice was defined in the study as finding out what Medicare health plan choices there were, gathering information on the different plans, comparing the advantages and disadvantages of your choices, and using this information to choose the plan that was the best fit based on health and financial criteria. The authors also tested whether Medicare knowledge and information seeking increased from one TTM stage to the next.

Survey results grouped about one third of study participants in the pre-contemplation stage, one third in contemplation and preparation stages, and one third in action stage (Levesque et al., 2006). Stage of change was unrelated to demographic variables with the exception of race and ethnicity. New enrollees who were white, non-Hispanic were most likely to be in the action stage. Individuals self-identifying as being part of other racial and ethnic groups were most likely to be in the precontemplation stage. Results showed that individuals in
contemplation/preparation and action stages reported significantly more benefits associated with informed decision making when selecting a health plan than individuals in the precontemplation stage. This finding fit the concept of decisional balance in TTM, which suggested that as a person progressed through the stages of change, pros of behavior change would come to outweigh the cons. Compared with those in the precontemplation stage, individuals in the action stage had significantly more confidence that they would compare plans. Individuals in the action stage also had significantly higher Medicare knowledge scores. Those in the action stage engaged in significantly more information seeking than people in the precontemplation and contemplation/preparation stages. The authors found that the TTM could be used to gauge the likelihood of informed choice of a Medicare plan. In terms of incorporating research findings into practical recommendations, the authors suggested that stage-based messages could be integrated into traditional Medicare materials. This would mean that people were exposed to messages that were appropriate for their level of preparedness, which would support positive development across stages and maximize the use of resources.

Another attempt to determine why individuals engaged in behaviors considered part of health consumerism was presented by Hibbard, Mahoney, Stock, and Tusler (2007). The authors were interested in investigating whether patient activation could be increased by an intervention and if patient activation levels were related to desired health behaviors. Patients who were activated were defined by Hibbard and colleagues (2004) as:

Those who are activated believe patients have important roles to play in self-managing care, collaborating with providers, and maintaining their health. They know how to manage their condition and maintain functioning and prevent health declines; and they have the skills and behavioral repertoire to manage their condition, collaborate with their
health providers, maintain their health functioning, and access appropriate and high-quality care could be thought of as engaging patients to be an active part of the care process and the concept. (p. 1010)

Patient activation was measured in the study by the PAM (Patient Activation Measure). This tool collected interval level data to assess patient knowledge, skill, and confidence for self-management (Hibbard et al., 2004). Though the development of the PAM did not exclusively rely on any one commonly cited behavioral theory, the use of the tool showed that results could be grouped by how prepared a person was to change (from believing the patient role is important but not necessarily being able to act to having the skills and confidence to maintain behaviors even under stress). For the study by Hibbard and colleagues (2007), a short version of the tool that had previously been developed and tested was applied (Hibbard, Mahoney, Stockard, & Tusler, 2005). Eighteen health related behaviors were included as outcome variables in the study. These behaviors fell into the two major categories of self-management behaviors (exercise, healthy eating etc.) and disease-specific self-management behaviors (take blood pressure, test blood glucose etc.) Other variables included in the analysis were health related quality of life, a measure of depression, and a measure of social desirability.

Eighty-seven percent of the 479 participants completed the three surveys used in the study (Hibbard et al., 2007). Findings showed that activation levels did change over the course of the study and the level and progression of change varied based on individual characteristics and treatment. An increase in activation was also related to a positive change in a variety of self-management behaviors. Though the intervention group showed a positive sustained change in activation, the control group also increased in activation over the full study period. In fact, after
six months, the control group showed greater gains in certain self-management behaviors associated with activation than those individuals who received the intervention. Results of the study also pointed to the central role that depression could play in activation and behaviors on an individual level. Among study participants, those who had depressive symptoms were much less likely to gain in activation and to improve their self-management behaviors. These findings highlighted the importance of trying to identify people who faced serious barriers when trying to improve health or manage disease, and the need for health professionals to provide additional resources that promoted activation.

**Social Cognitive Theory and Health Consumerism**

Studies presented in the professional literature that looked at patient activation seemed to most closely deal with what may have predicted behaviors that would be representative of health and health care consumerism. However, research focused solely on a person’s knowledge, skill, and confidence as it related to activities performed to stay healthy or to deal with an existing medical condition could potentially have overlooked additional important contributors to healthy behaviors. Social Cognitive Theory (SCT) could plausibly be used to form a more complete picture of what factors influenced health consumerism and the strength and relative independence of such relationships. As explained by Bandura (1998):

> We have shifted from trying to scare people into health, to rewarding them into health, to equipping them with self-regulatory skills to manage their health habits, to shoring up their habit changes with dependable social supports. These transformations have evolved a multifaceted approach that addresses the reciprocal interplay between self-regulatory and environmental determinants of health behavior. Social cognitive theory addresses the socio structural determinants of health as well as the personal determinants. (p. 623)
Glanz, Lewis, and Rimer (1997, p. 157) provided a list of major SCT concepts and what their implication could be for health behavior interventions:

- Environment: Factors physically external to the person; provides opportunities and social support
- Situation: Person’s perception of the environment; correct misperceptions and promote healthful forms
- Behavioral Capability: Knowledge and skill to perform a given behavior; promote mastery learning through skills training
- Expectations: Anticipatory outcomes of a behavior; model positive outcomes of healthful behavior
- Expectancies: The values that the person places on a given outcome or incentives; present outcomes of change that have functional meaning
- Self-Control: Personal regulation of goal-directed behavior or performance; provide opportunities for self-monitoring, goal setting, problem solving, and self-reward
- Observational Learning: Behavioral acquisition that occurs by watching the actions and outcomes of others’ behavior; include credible role models of the targeted behavior
- Reinforcements: Responses to a person’s behavior that increase or decrease the likelihood of reoccurrence; promote self-initiated rewards and incentives
- Self-Efficacy: The person’s confidence in performing a particular behavior; approach behavioral change in small steps to ensure success and seek specificity about the change sought
• Emotional coping responses: Strategies or tactics that are used by a person to deal with emotional stimuli; provide training in problem solving and stress management and include opportunities to practice skills in emotionally arousing situations

• Reciprocal determinism: The dynamic interaction of the person, the behavior, and the environment in which the behavior is performed; consider multiple avenues to behavioral change, including environmental, skill, and personal change

Ayotte, Margrett, and Hicks-Patrick (2010) used mail-in survey data from 116 married community dwelling middle-aged and young-old couples to test how the SCT constructs of self-efficacy, outcome expectancies, perceived barriers, self-regulatory behaviors and social support were associated with physical activity. The authors used three different instruments previously described in the professional literature to assess the dependent variable. Coupled with information on age, sex, and number of reported health conditions, these SCT constructs were able to generate a theoretically driven model that accounted for 66 percent of the variance in physical activity among study participants. Since the authors utilized Structural Equation Modeling (SEM) to evaluate relationships between SCT constructs, demographics, and physical activity level of middle-aged and young-old adults, they were able to effectively report both direct and indirect associations.

In terms of the influence of population characteristics included in this study on both physical activity and SCT constructs, females reported more positive outcome expectancies compared to males and number of reported health conditions was positively related to perceived barriers and outcome expectancies (Ayotte et al., 2010). No direct relationship between demographics and physical activity was reported by the authors. Self-efficacy was found to be
directly related to all of the other SCT constructs tested as well as physical activity. There were also indirect relationships found between self-efficacy and physical activity through outcome expectancies, perceived barriers and self-regulatory behavior. Self-efficacy was indirectly related to self-regulatory behavior through perceived barriers and outcome expectancies. The authors suggested that the practical implications of this specific finding may be that people who thought there were significant barriers associated with physical activity and who did not expect positive outcomes from being physical activity were less likely to have physical activity related plans and goals. Subsequently, the lack of these self-regulatory behaviors ultimately led to a lower incidence of physical activity. This research also discovered that self-regulatory behavior was directly related to physical activity and the relationship between social support and physical activity was almost entirely indirect.

Anderson, Winett, and Wojcik (2007) found similar direct and indirect relationships between SCT and healthy behaviors in their study to identify important influences of nutritional content of food purchases and consumption. The fit of the theoretically driven indicators (social support, self-efficacy, outcome expectations, and self-regulation), select population characteristics (socioeconomic status [SES], age, and gender), and nutritional data for the study population were tested using SEM. The final models explained 35%, 53%, and 61% of the variance observed in the fat, fiber, and fruit and vegetable content of food-shopping receipts and food intake questionnaires.

Using 712 churchgoers as their study sample, the authors found that engagement in self-regulatory behaviors and perceived self-efficacy showed the greatest direct and indirect effects on fat, fiber, and fruit and vegetable purchases and intake (Anderson et al., 2007). In addition, social support and outcome expectations were important determinants of the analyzed nutrition
behaviors. The effect of social support was found to be indirect specifically through self-efficacy and self-regulation. Also, outcome expectations made only a small unique contribution to understanding the dependent variables after accounting for its relationship with self-efficacy. As for apparent demographic influence on fiber, fruit, and vegetable intake, the authors found significant mediation by social support and self-regulation strategies. Women scored higher on the nutritional aspects assessed partly because they exhibited greater self-efficacy and were more likely to use self-regulation strategies. Participants with higher levels of SES scored higher on fiber intake in part because of higher levels of self-regulation, though SES was also found to contribute independently to better fruit and vegetable scores among study participants.

In terms of why people may have decided to take part in medical studies that included behavioral as well as clinical assessments, Sinicrope and colleagues (2009) found that qualitative information coded by SCT constructs showed distinct differences between participants and non-participants. Using 48 healthy women split into six focus groups from a longitudinal study intended to investigate the association between breast density and breast cancer (two groups for individuals who agreed to participate in the original research study and four groups for individuals who declined to take part), the authors reported motivators and barriers to participation at both individual and the environmental levels. For participants, a personal connection to breast cancer served as the principal driver in the decision to enroll in the original research study. The authors mentioned that this finding was consistent with SCT in terms of observation of the cancer experience in friends or family possibly motivating research participation by perceived value (expectancies). Individuals who took part in the study also mentioned the social value that was assigned to supporting the institution that was conducting the research as a reason for participation.
For those who chose to not take part in the original research study, procrastination was frequently cited as a reason for nonparticipation (Sinicrope et al., 2009). In the context of SCT, the outcome expectations of participation for these healthy women might not have been as highly valued as for those who chose to participate with a personal connection to cancer. Another barrier to participation was the desire to be perfect when filling out the survey. The authors noted that if respondents could not answer a survey item correctly, they often opted to not fill out the survey at all. Also, survey length and readability were brought up by focus group participants who did not take part in the original research study as barriers to participation. In terms of coding this finding by the constructs of SCT, the authors labeled it an issue related to self-efficacy (confidence in one’s ability to perform a behavior). Finally, fear associated with the study topic and the study procedures was also reported as a reason for not responding favorably to requests for participation in the original research study. According to SCT, fear elicited an emotional coping response which could be either study participation or avoidance of the topic altogether. The authors concluded that strategies and approaches that accounted for the influence of SCT constructs on the decision to take part in a medical research study or not could lead to reductions in selection bias and improved study validity through the inclusion of a wider range of subjects.

Hallam and Petosa (2004) provided evidence for how an intervention implemented in the worksite can be effective in raising targeted SCT constructs and how those constructs may have had a mediating effect on healthy behaviors. The treatment group for this study consisted of individuals from an employee population of about 7000 who responded to recruitment efforts by the authors. Two classes were offered with the maximum number participants in each class being set at 30. The intervention focused on increasing the use of self-regulation skills, dispelling the myths of exercise, identifying the expected outcomes from exercise participation, and teaching
how to engage in a safe, efficient, and effective exercise program (self-efficacy). The comparison group was formed by randomly selecting 64 individuals who recently joined the company’s on-site fitness center who also returned a usable pretest and fit additional inclusion criteria. The comparison intervention was intended to represent what is typical in terms of employee fitness or wellness centers and included an orientation of the fitness facility and instruction on the proper use of the exercise equipment.

Based on pretest data and six week, six month, and 12 month assessments, the comparison group reported small but significant decreases in all SCT variables measured in this study (Hallam & Petosa, 2004). The authors speculated that this finding may have been related to a lack of understanding or lack of skills for what it takes to be physically active on a consistent basis as well as an inability to deal with barriers to exercise that may arise over the course of 12 months. For the treatment group, the amount of exercise was significantly higher at six weeks, six months, and 12 months compared to baseline data. Also, at the 12 month mark, the treatment group showed a significantly higher level of exercise than the control group. Self-regulation was the only construct tested that was found to mediate exercise behavior. A significant group-by-time interaction showed that the intervention was effective in increasing the use of self-regulation skills (such as proper goal setting or monitoring progress). There was also a significant group-by-time interaction for outcome expectancy. The authors suggested that a combination of the treatment group’s increase in outcome-expectancy values and a decrease in the comparison group’s outcome-expectancy values may have explained the significant interaction. Finally, a significant interaction was found for self-efficacy, although the effect size was small. Again, the authors mentioned that this interaction may have occurred because of the continual increase in self-efficacy for the treatment group and the continual decline for the
comparison group. It was also suggested that the relatively low impact on self-efficacy pointed to a need to revise the intervention to more effectively address self-efficacy aspects of maintained exercise behaviors.

**Health Education and Health Consumerism**

**Professional role of health education specialists.** Reflecting on the increasing availability of health information, expanding medical options and higher costs, and higher dependency on patient involvement in choosing medical care, Woolf and colleagues (2005) offered a discussion on the importance, as well as complexity, of informed decision making in health care. To maximize the likelihood of a productive process as well as desired outcomes, there needed to be at a minimum a combination of the right health information with effective medical decisions counseling. The authors suggested three types of providers who could work with patients to improve informed decision making: clinicians who lacked formal informed-choice training, clinicians with formal informed-choice training, or trained third parties who functioned as impartial decision counselors.

The authors were careful in pointing out that there was a need to ensure that utilizing this type of new health professional was a process that improved the overall quality of care (Woolf et al., 2005). The increased emphasis on patient involvement in health care was likely to create opportunities for health professionals with non-clinical medical knowledge as well as behavior change training. Based on the services that the authors suggested would be provided by these decision counselors, professional roles and responsibilities of health education specialists seemed to be a good fit. The seven areas of responsibilities for health education specialists listed by the National Commission for Health Education Credentialing (NCHEC) (2010) were to assess needs, assets and capacity for health education, plan health education, implement health education,
conduct evaluation and research related to health education, administer and manage health education, serve as a health education resource person, and to communicate and advocate for health and health education. Woolf and colleagues (2005) suggested that decision counselors could help patients understand options, consider evidence of benefits and harms, explore personal beliefs and fears, determine the level of control in making decisions that were desired by an individual patient, and support intrinsic motivation to work with the primary clinician to make medical decisions. Compared to clinicians with or without formal informed-choice training, the authors stated that decision counselors should be better capable to provide the best educational resources for patients. They may also have the expertise to coach patients in a way that supported the recognition and application of personal preferences as it related to medical care. Decision counseling was also better suited for supporting informed choice compared to traditional decision aids and web sites. Face-to-face interaction and personal assistance had the potential to be extremely helpful to patients who were overwhelmed with the task of making a decision that could have life altering consequences. Woolf and colleagues (2005) recommended that counselors should be prepared to structure support in a way that was well suited for populations that were traditionally considered to be at higher risk for not receiving care or receiving care in a way that decreased the chance for desired health outcomes.

Retchin’s (2007) discussion of how information asymmetry posed a problem to health care consumerism also supported the idea of medical decision advisors who were to help patients choose services that were recommended based on care needs and preferences. The authors supported their conclusions with an explanation of how assessment of cost and quality in health care was a complex process. Often, it was questionable whether data to make an informed choice were even available to consumers or whether facts represented a good measure of quality of care.
In addition, it was unreasonable to expect the simple presence of quality and cost indicators to automatically lead to a more informed and proactive patient population.

With availability of decision support resources for people who accessed health care often being limited, Retchin (2007) suggested that a new workforce should be trained to deal with this need. These medical decision advisors did not necessarily need to be physicians. There were additional professions in health care that may effectively advice patients on how to best make health related decisions. The author suggested that nurses and pharmacists, as well as retired health care workers could somehow be integrated into assisting patients in medical decision making. Key responsibilities of this new workforce would include providing advice on best care and care that was appropriate for the person, guiding critical thinking for patients, and counseling patients through the decision making process. Though health education specialists were not mentioned specifically by the author as a professional group that would be a good fit to these qualifications, there was a clear connection between the identified needs and the core roles and responsibilities of health education (NCHEC, 2010). Certainly, translating technical health information related to price and quality was a skill applicable to a health education specialist. Health education specialists were also specifically trained to deal with the complexity of health behaviors.

Health education programming. What should be presented to clients and how health information should be communicated to best support behavior change were practical aspect that had to be considered when discussing health consumerism. Informed decision making in health was a complex matter, and the amount of information available was often not the determining factor as to whether a person acted in a way consistent with what were considered healthy behaviors. Hibbard and Peters (2003) suggested that health professionals present comparative
information to improve understanding and allow new information to be cross-referenced with current knowledge. There was also a need to motivate consumers to use information and to make sure they were able to evaluate how health recommendations possibly fit with existing personal goals, needs, and preferences.

Hibbard and Peters (2003) listed three specific recommendations to follow when presenting information, all of which were applicable to the health consumerism conversation. First, there was a need to lower the cognitive effort required to use information in making a choice. The authors argued that simply reducing the amount of information may go a long way in accomplishing this aim. Second, people needed support to get a better idea of what the actual experience of a certain health choice would be like. Third, the meaning of information that was at first glance less impactful on its own should be highlighted. It was thought that the web offered the most opportunities for interaction and use of multimedia to support all three of the recommendations above. Web information could be customized in a way that the take-away messages were unique to the end user. Through the web, communities for information sharing and emotional support could also become an important part of the decision making process. Decision support tools and links to other resources could provide great variability for how choices were supported or encouraged on the web. Finally, in terms of assessing the process and impact of an educational intervention, the authors recommended evaluating the degree to which the information was presented as intended, the degree to which the information was comprehended, as well as the degree to which information was actually used.

Oliffe and colleagues (2011) also described an investigation that focused specifically on how education may pursued in a way that was more likely led to behaviors representative of health consumerism. The authors studied the impact prostate cancer support groups (PCSGs) had
on health literacy and condition-specific health management. The researchers observed 16 focus groups and interviewed 54 unique individuals for their study. Focus group meeting typically included formal health and prostate cancer presentations and small group discussions that focused on men’s illness experiences and issues. Breaks were also incorporated to allow men to connect with one another in smaller groups and one-to-one.

Findings from this qualitative study showed that having access to health care professionals at monthly meetings and group information sharing could increase men’s capacity to understand prostate cancer (Oliffe et al., 2011). This setting allowed individuals to question information or practices that were perceived to be ineffective or were inconsistent with personal values. Also, the authors found that groups were able to promote engagement in clinical condition management. By interacting with PCSGs, health care professionals could better understand the needs of their patients and could use the group setting as way to educate a large number of patients. Three key factors fostered men’s participation in PCSGs. First, these groups provided highly relevant free health information. Second, information was communicated in a way that respected individual needs, levels of health literacy, and learning styles. Third, PCSGs promoted adequate health literacy as a necessity to securing the best medical care, which was a type of clear connection to desired health outcomes that appealed to most men. Though it should be emphasized that findings were specific to the study population and problem, recommendations for how to promote health literacy and health consumerism could be extended to other areas related to older men’s health and well-being.

Summary

The professional literature contained several reports that pointed to how access, cost, and quality of health care in the US fell well below desired benchmarks. Public health authorities
argued that the ACA would lead to overall system improvements in health care availability and delivery. Not only would health reform extend health care coverage to people traditionally at risk for being uninsured, but the ACA also contained a range of efforts intended to improve how care was provided to people who had health care coverage. Many of these directives focused on healthy living and recommended use of health care services

There were several methods the employer or the provider of insurance or care could use to encourage selection of health care services based on quality and cost. Consumer driven health plans and various resources there were tied to these types of products were intended to make people more considerate of what health behaviors they engaged in and what health care services they purchased. As these types of products kept evolving, programs would become more diverse and there would be a focus on improving the care along the full continuum of health. Worksite wellness could integrate with benefits to promote health consumerism by offering prevention and wellness programs for healthy enrollees, service coordination for patients needing acute care, disease management for enrollees with chronic conditions, and intensive case management for enrollees with severe conditions.

Early findings on the impact of consumer driven health plans on select indicators of health care cost and quality, such as overall spending, spending on certain types of health care services, the use of preventive care, and patient activation as it came to managing personal health, seemed to be mixed. One consideration for why there were inconsistencies in health outcomes related to these types of products was that these plans may have been more likely to be selected by individuals who were younger, healthier, and made more money. Also, not all people covered by a consumer directed health plan behaved the same. There were population characteristics, such as health literacy, social support, and readiness to change that influenced
desired health care consumerism behaviors. Social Cognitive Theory could be used to form a
more complete picture of what environmental, individual, and behavioral constructs influenced
health consumerism and the strength and relative independence of such relationships.
Health consumerism could be thought of as an individual participating as a partner in decision-
making with health care providers. Also, health consumerism required considering several
options for care, having a healthy lifestyle, and using health services as a result of cost and
quality information. Health education specialists had the potential to play a unique role in
helping individual engage in recommended behaviors and access care with appropriate
consideration for cost and quality. Identifying individual or environmental characteristics that
mediated health care consumerism would allow health education specialists to develop and
implement health education interventions that incorporated these components. Much of the initial
motivation for wise consumption of health, as well as the resources necessary to sustain health
care consumerism behaviors, were thought to come from sources external to the individual. The
health education specialist could work to fulfill the charge of promoting health care consumerism
within health reform with the support of health insurance providers, care givers, and employers.
As a profession, health education could play an important role in translating technical medical
information for patients, teaching employees how to best use health benefits, and supporting
individuals who were interested in engaging in healthy behaviors or needed to seek out medical
care.
Chapter 3

Methods

The professional literature contained several reports that pointed to how access, cost, and quality of health care in the US fell well below desired benchmarks (Commonwealth Fund Commission on a High Performance Health System, 2011; World Health Organization, 2000). Public health experts argued that the Patient Protection and Affordable Care Act (ACA) would eventually lead to overall system improvements in health care availability and delivery. Not only would health reform extend health care coverage to people traditionally at risk for being uninsured, but the ACA also contained a range of efforts intended to improve how care was made available and accessed by people who had health care coverage (Commonwealth Fund Commission on a High Performance Health System, 2011; Kaiser Commission on Medicaid and the Uninsured, 2010).

There were several methods the employer, the provider of insurance, or the health care provider could use to encourage behaviors that were shown to promote health or the selection of high quality, relatively low cost health care services. High deductible health plans could be offered to encourage health care consumerism (Guo, 2010). Consumer driven health plans, often structured around high deductible health plans and health savings options, were intended to make people more considerate of what health care services they purchased (Robinson, 2005). Also, consumer directed health care depended on where services were purchased, how often services were purchased, and whether there were self-care behaviors that people could engage in that had the potential to eliminate or delay the need to seek out medical care. Worksite health promotion programs could be integrated with benefits to promote health consumerism among employees (Chapman, 2008). Early findings on the impact of high deductible and consumer driven health
plans on select indicators of health care cost and quality seemed to be mixed (Butin et al., 2006; Fronstin & Collins, 2005). One consideration of why the literature showed inconsistencies in outcomes attributed to high deductible and consumer driven health plans may have been that not all people behaved the same way with this type of health care coverage. There may have been population characteristics, other than type of health care coverage that influenced whether people engaged in desired health and health care consumerism behaviors (Hardie et al., 2011; M. Johnson, 2011). Relative contribution of individual, behavioral, and environmental factor on engagement in healthy behaviors and recommended access of health care services needed to be further explored.

The purpose of this study was to establish the level of Employer Facilitated Health Consumerism (EFHC) among employees of a large health system and to investigate whether EFHC differed among these employees based on individual, behavioral, and environmental factors. EFHC was developed as a unique operational definition to measure to what extent employees of a large health system took advantage of health care services and engaged in positive health behaviors that were promoted by the employer through cost and quality means.

The value of this study came from the ability to identify individual and environmental influences that were associated with employees being more likely to engage EFHC. Employees who took a proactive role in managing health specifically through recommended access of health care services and healthy lifestyles would be healthier and would improve the capacity of an organization to manage health care costs (Goetzel & Ozminkowski, 2008). Findings from this study would assist health education specialists in incorporating and properly positioning considerations of health care cost and quality in individual or group health improvement efforts. As a profession, health education may have been uniquely qualified to work with health
insurance providers, care givers, and employers in translating technical medical information for patients and assisting individuals who engaged in healthy behaviors or needed to seek out medical care.

**Participants**

TriHealth was a full-service, not-for-profit healthcare system that provided a wide range of clinical, educational, preventive and social programs at more than 80 sites in and around Cincinnati (TriHealth, n.d.). TriHealth was the 5th largest employer in the region with approximately 10,000 employees. Participants in this study were all TriHealth employees who purchased employer sponsored health insurance in the 2013 fiscal year. To be eligible to purchase a TriHealth medical plan, an employee had to be scheduled to work 32 hours or more per pay period (every two weeks). Individuals who also were holders of a TriHealth sponsored health insurance plan in calendar year 2011 were eligible to earn a discount on their premium cost for Health Plan Year 2013 (July 1, 2012 through June 30, 2013) by participating in the Healthy Living Program during 2011. This health and wellness initiative was available to all TriHealth employees, though the premium discount award was only offered to those who purchased a TriHealth sponsored health insurance plan.

For this study, EFHC was indicated by award tier reached in the 2011 Healthy Living Program. As a comprehensive worksite health and wellness initiative, the Healthy Living Program contained a range of activities that were assigned individual scores. An employee could earn between 0 and 3500 points by completing up to 28 activities. If the total number of points accumulated was between 1000 and 3500, an employee reached the highest award tier (tier 3) and earned $360. If the total number of points collected was between 650 and 999, the employee
reached award tier 2 and earned $180. Any point total less than 650 (award tier 1) resulted in an employee not earning a financial reward associated with the Healthy Living Program.

Activities that traditionally were considered more important based on organizational health experts were assigned higher scores to encourage greater use. In 2011, completing a physical resulted in 325 points earned. This was the greatest number of points for a single activity in the program that year. The cost for many recommended preventive services included in the program were either fully covered or heavily discounted by TriHealth. Some program activities were exclusively available at the worksite while other points could be earned by employees taking advantage of recommended health care services offered in the community or scheduled on an individual basis. The type of activities included in the program ranged from highly independent logs that participants completed and submitted on their own to highly structured condition management programs that reported directly to program administrators. Some program activities had to be reported by the participant to the program administrators using set procedures, while others were automatically credited through medical or dental claims data.

Employees who purchased a health insurance policy through TriHealth were automatically enrolled in the Healthy Living program and could potentially earn points without initially knowing that some health behaviors were tracked for incentive purposes. If enough points were earned to reach an award level that corresponded with a financial incentive, the reward was issued six months after the completion of a calendar year. The reward was issued in the form of a discount on insurance premium costs. The discount was split between all planned premium payments for that fiscal year, and it was the same dollar amount for all who reached a
certain award tier. The program, both the type of activities offered and the incentives, was completely funded by the organization’s health plan.

Final analysis of the Healthy Living Program data shared by administrators showed that 7169 individuals were holders of a TriHealth sponsored health insurance plan in November of 2011. Out of these 7169 employees, those employees who still purchased a health insurance plan through TriHealth in early 2013 (and as such were eligible to earn points in the Healthy Living Program) qualified to participate in this study.

Instrumentation

An original questionnaire was developed for this study. This questionnaire was designed to collect data on Social Cognitive Theory (SCT) constructs. It was constructed after a thorough review of the relevant professional literature. No existing instrument was found that could be utilized to answer the research questions posed in this study. However, when developing the questionnaire to be used for this research, the primary investigator tried to incorporate SCT constructs that had previously been shown to influence the type of healthy behaviors included in employer facilitated health consumerism.

The final version of the questionnaire for this study included 31 items. To answer the research questions in this study, one item was used collect information to match participant data from multiple sources (employee identification number). One question asked participants to indicate their highest earned degree or completed level of education. Twenty-one items measured SCT constructs believed to be associated with Healthy Living Program participation (three statements for situation, three statements for behavioral capability, three statements for expectations, three statements for expectancies, three statements for self-control, three statements for observational learning, and three statements for self-efficacy). All statements tied to SCT
constructs asked study participants about completing activities that resulted in earned points in the Healthy Living Program.

Study participants were told that the purpose of this study was to establish the level of EFHC among TriHealth employees and to investigate whether the level of EFHC differed among employees based on individual, behavioral, and environmental factors. They were also told that they would be asked to complete a survey for this research study that asked about their level of agreement with statements regarding individual, behavioral, and environmental influences on Healthy Living Program participation. For this study, EFHC was treated as the dependent variable and education and SCT constructs were treated as independent variables. All SCT constructs were measured on a four point Likert type scale (1 point Strongly Disagree, 2 points Disagree, 3 points Agree, and 4 points Strongly Agree).

To make sure the full breath of environmental, individual, and behavioral influences on EFHC (as indicated by credit earned in the Healthy Living Program and the resulting award tier reached) were assessed, content validity of the questionnaire was established both qualitatively and quantitatively by completing a modified version of the steps recommended by McKenzie, Wood, Kotecki, Clark, & Brey (1999). With the concept to be measured clearly defined and the overall purpose and specific objectives of the instrument established, a draft version of the instrument was developed. The researcher then identified an expert panel of individuals who were likely to be familiar with employer facilitated health consumerism as it was conceptualized and applied in this study. This group included researchers, University faculty members, and professionals who were involved with worksite health promotion and health benefits, had expertise in survey research, and who had previously implemented studies that applied SCT constructs. Ten individuals were invited and six experts agreed to provide feedback on the
content validity of the questionnaire. Once responses from all who were invited to take part in the content analysis process were collected, the researcher electronically distributed the draft questionnaire as well as detailed qualitative and quantitative review instructions to the jurors who agreed to participate. The review panel members were given ten days to provide feedback on the appearance and appropriateness of the design of the questionnaire, language used, and how well the data collection tool captured information vital to understanding EFHC. Jurors’ suggestions were compiled and common themes were considered for inclusion by the researcher to improve how well the phenomenon of interest was measured. This process resulted in a number of slight modifications to the instrument intended to improve ease of reading and answering the questions. Based on the quantitative as well as qualitative content validity feedback provided by the experts, no significant modifications needed to be made to the questionnaire.

Test-retest reliability of the questionnaire was established by issuing the final version twice to employees associated with two TriHealth departments one week apart. Employees were given hard copy questionnaires to complete. The questionnaires were placed in the mailboxes of the employees with a Research Information Sheet. This information sheet told employees that they were free to choose not to take part in the test-retest phase of this study. An email was also sent to notify employees of the opportunity to participate in this phase of the study and to briefly explain the purpose of the test-retest procedure. Email addresses were obtained from the department managers. Forty-one out of 99 employees completed both questionnaires for a response rate of 41.4%. The seven 3-item scales used in the questionnaire had correlation coefficient scores of .64 (situation), .63 (behavioral capability), .72 (expectations), .59 (expectancies), .82 (self-control), .78 (observational learning), and .77 (self-efficacy).
Focus group questions were developed as a natural extension to the validity and reliability process that resulted in the questionnaire used for this study. Questions asked during the focus groups were intended to offer employees a chance to add depth and contrast to quantitative data that were anticipated to be collected by questionnaire and shared by Healthy Living Program administrators. Instead of being asked questions about specific SCT constructs, employees were allowed to make free associations for what, why and how they were influenced to engage in behaviors and complete activities that resulted in earned points in the Healthy Living Program. Employees were encouraged to explain their initial comments and expand on emotionally related responses. A total of six focus group questions were used for each focus group.

Data Collection

For this study, data were shared by Healthy Living Program administrators and collected by the researcher through an electronic survey and multiple focus groups. Data from multiple sources that needed to be matched by study participant contained a unique identifier. The researcher had no way of using that id number to gather additional identifying information (such as name, address, social security number, work department etc.). All data collection and matching procedures were officially approved in a signed letter by the organization used to access the study population.

Healthy Living Program participation data for 7169 employees who were holders of a TriHealth sponsored medical plan in November 2011 were provided to the researcher by program administrators. This data were collected during the 2011 program year using an online tracking tool that could be viewed and preliminarily modified by individual participants. However, only program administrators were allowed to enter or confirm information that
generated points used to determine what level of discount an eligible employee had earned for Health Plan Year 2013 (July 1, 2012 through June 30, 2013). Program administrators also provided the researcher with target population demographic information continuously tracked by the organization.

All together, the data shared included information on points earned in the 2011 Healthy Living Program, credit earned for an annual physical in the 2011 Healthy Living Program, points earned in the 2010 Healthy Living Program, age, gender, race, income, health plan, type of health care coverage, job type, and primary job location for each employee who was eligible to earn credit towards a health insurance premium discount in the 2011 Healthy Living Program.

Points earned in the 2011 Healthy Living Program resulted in an employee qualifying for one of three award tiers the following fiscal year. The award tier a person qualified for was treated as the ordinal dependent variable in this study. Credit earned for an annual physical in the 2011 Healthy Living Program, points earned in the 2010 Healthy Living Program, age, gender, race, income, health plan, type of health care coverage, job type, and primary job location were all used as independent variables in trying to answer the research questions.

Early 2013, a link to an electronic questionnaire developed specifically for this study was issued by the principle investigator to all current Healthy Living Program incentive eligible employees. Though all employees who were currently eligible for the Healthy Living Program were allowed to complete the questionnaire, only data from employees who were also eligible to earn points in 2011 were used to answer research questions. From an employee satisfaction perspective, it may have been important to let all who were interested in completing the survey do so, even though a minority of respondents did not fit the study inclusion criteria. Information provided by program administrators allowed the researcher to identify questionnaires submitted
by individuals who were eligible to earn an incentive in the 2011 Healthy Living Program.
Healthy Living Program participants were required to report an email address when first
accessing the Healthy Living Program online tracking tool. This electronic scorecard was
regularly updated by program administrators to reflect completed activities and earned points.
For employees who did not have an active email address registered with the Healthy Living
Program, the email containing the link to the questionnaire was sent to the personalized email
addresses the organization had established at the point of hire. The link was sent out to 7482
unique email addresses. A total of 1045 emails were returned as non-deliverable. This resulted in
6437 emails reaching an address associated with a person who was eligible to earn points in
Healthy Living Program year 2012.

The email that was sent out functioned as the Institutional Review Board (IRB) approved
study script briefly introducing the purpose of the study, the person conducting the research, and
the institution that approved the study protocol. The email also contained a link to an IRB
approved Research Information Sheet that participants were encouraged to review. This
document informed potential participants that each individual respondent would be identified by
a unique employee identification number provided by the respondent, and they were assured that
responses would be confidential. It was made clear that researcher did not have access to any
information that connected the employee id with additional personal identifiers (such as name,
address, or social security number). Participants were also told that completing the questionnaire
indicated consent to take part in the study. Participants were informed that they could
discontinue the questionnaire and their participation in the study at any time with no
consequences. Information provided on an incomplete questionnaire that was not submitted was
not used by the researcher. A completed questionnaire was submitted by respondents by clicking
on the submit button after the last question. A participant did not have to provide information related to all of the individual items to submit a questionnaire. Submitted questionnaires provided data used to test the hypotheses of this study and were not able to be recalled by the participants. After accessing the survey by clicking on the appropriate link in the email, respondents were instructed in a short section of text how to best provide answers for items included in the questionnaire.

One week after the survey was first sent out to TriHealth employees, a reminder email containing the link to the questionnaire was sent to all employees who were eligible to take part in the 2013 Healthy Living Program for a second time to maximize the participation rate. The reminder notice contained the link to the questionnaire. The researcher waited one week past the issuing of the reminder email to deactivate the questionnaire link. This process resulted in 1058 submitted questionnaires. Out of the 1058 surveys that were submitted early 2013, 834 were able to be matched with 2011 demographic data. The remaining surveys (224) were not used to answer the research questions asked for this study.

A total of six focus groups were conducted at four TriHealth sites in the fall of 2012 to collect qualitative data related to the phenomenon of interest. Locations for focus groups were selected based number of employees associated with a site provided to the researcher by program administrators. Groups were offered to employees around noon Tuesday through Thursday. Since the primary investigator had to be present at each group conducted, group offerings at different sites did not overlap. Each meeting lasted between 45 and 60 minutes. Groups were conducted by the primary investigator and all discussions were recorded using a small handheld SONY recording device to allow for exact narratives to be transcribed. In the script used when introducing each focus group, as well as in the IRB approved research information sheet that all
participants had to sign, all attendees were made aware that discussions would be recorded. Focus group participants were recruited by email, flyers, and newsletter.

Recruitment efforts started four weeks before the first focus group was planned. All recruitment materials (format, language and location) were approved by the organization before they were used. All advertising for focus groups specified that for employees to participate, they had to be eligible to earn points in the Healthy Living Program. Participation in a focus group was incentivized by the promise of light snacks and soft drinks and water during all meetings. Individual who were interested in taking part were asked to call or email the researcher to find out if there was a group with an open spot that fit their schedule. The phone number and email address of the primary investigator were included in all advertisements. As long as the person who was interested in taking part in a group was eligible to earn points in the Healthy Living Program and indicated that the time and location of a particular focus group would allow them to take part, that person was qualified to participate.

Whether a qualified employee was ultimately offered to take part in the qualitative portion of this study was based on the number of eligible people who reported an interest in participating on a particular focus group. A group took place when at least six individuals had signed up. The researcher would not allow more than 10 people to join one group. Groups needed to reach the minimum number of registered participants at least three days before they were planned to be conducted. This meant that a group that was set to take place noon on a Friday had to have six people signed up by noon the Tuesday of that same week. If between six and 10 people signed up for one group, all were confirmed by the researcher by phone or email as participants shortly after the registration deadline. If more than 10 people reported an interest in joining a particular group, the researcher randomly drew 10 participants shortly after the
registration deadline and then notified those individuals selected. The researcher also notified those individuals who were not selected to participate to thank them for their interest and to, if possible, offer them the opportunity to register for a focus group to be conducted at a later date. If the planned focus group did not reach the minimum number of registered participants by the deadline, or if the minimum number of participants did not show for a focus group, the group was cancelled. Potential participants were told of all of these rules when they signed up for a group. If a scheduled group did not reach the minimum number of participants at least three full days in advance, the registered individuals were notified of the cancelation by email or phone. The researcher was given permission to use the room for each group by the overall organizational or site specific event scheduler.

**Data Analysis**

Quantitative data shared by program administrators and collected by the issuing of questionnaire were combined by the researcher and analyzed using IBM SPSS Statistics 21. Descriptive statistics (frequencies, means, and standard deviations) were run to establish the demographics of the study population, to show how common it was for certain Healthy Living Program activities to be completed, and to show how many participants earned a certain point total in 2011 as indicated by award tier reached. There were three award tiers, with tier 3 (1000 to 3500 points) corresponding with the highest point total and the greatest financial incentive. Tier 2 (650 to 999 points) resulted in half of the financial incentive of tier 3, and tier 1 (0 to 649 points) resulted in no financial incentive. Descriptive statistics were also used to summarize how employees responded to the 21 items that measured the seven SCT constructs included on the survey. A free online tool was used to assess what number of surveys needed to be returned to be generalized results to the overall population. Using Raosoft (2004) sample size calculator with a
margin of error of 5%, a confidence level of 95% and a population size of 7165, it was recommended that 365 completed surveyed be returned for analysis.

Chi-square and Mann-Whitney tests were conducted to examine whether there were differences between survey respondents and survey non respondents related to the independent variables that were available for both groups. Spearman’s correlation coefficient tests were used to investigate whether there as a relationship between two variables with at least one of the variables being ordinal in nature. Since the dependent variable of EFHC was indicated by award level one, two, or three reached as a result of points collected in the Healthy Living Program, this was the case for all hypotheses that paired one independent variable with EFHC. Mann-Whitney and Kruskal-Wallis tests were used when looking for significant differences in the ordinal dependent variable between groups of survey respondents (based on such factors as sex, race, or employment location). A multinomial logistic regression model was developed to investigate how a selection of independent variables influenced the likelihood of reaching award tier 3 compared to tier 1, and award tier 2 compared to tier 1. The alpha level for all statistical tests performed in this study was set at .05.

Qualitative information collected through focus groups was recorded and transcribed by the principle investigator. Transcripts from all of the focus groups were carefully read and analyzed. As explained by Strauss and Corbin (as cited by Onwuegbuzie, Dickinson, Leech, & Zoran, 2009), constant comparison analysis was used to attach descriptors to small sections of text, group descriptors into categories, and apply categories into overall themes of what influenced Healthy Living Program participation. Though often associated with grounded theory, Onwuegbuzie and colleagues (2009) emphasized that constant comparison analysis was an
appropriate qualitative method to use when examining data gathered through several focus
groups.

Summary

Participants in this study were all TriHealth employees who were policy holders of an
employer sponsored health insurance plan in fiscal year 2013. To be eligible to take part in this
comprehensive workplace health and wellness initiative, TriHealth employees had to be enrolled
in an employer sponsored medical plan the same calendar year. Data for EFHC, which was the
dependent variable in this study, as well as for several independent variables were continuously
tracked by Healthy Living Program administrators and were shared by request with the
investigator. Data were also collected by issuing an electronic survey to people enrolled in the
program and by conducting multiple focus groups. Data from multiple sources were able to be
matched by the employee id provided by study participants who agreed to take the survey.

The electronic survey was intended to collect employment and demographic data as well
as data related to personal, behavioral and environmental factors that may have influenced
participation in the Healthy Living Program. The survey instrument used was developed
specifically for this study. Survey development included a modified expert panel content validity
process. The researcher also established test-retest reliability of SCT scales using a sample of
TriHealth employees. The quantitative data collection in this study included issuing the
electronic survey twice in the span of two weeks to all eligible employees using the email
addresses on-file with the Healthy Living Program. Six focus groups were also conducted at four
different TriHealth sites to collect qualitative data. Employees who were eligible to take part in
the Healthy Living Program were allowed to sign up for a group. Questions asked in focus
groups progressed from general to specific with a focus on health and Healthy Living Program involvement.

Since the dependent variable in this study was treated as ordinal data, quantitative data were analyzed using nonparametric statistics. Depending on the number of groups and whether an association or difference was investigated, bivariate analyses were conducted using Spearman’s \( r \) correlation coefficient, Mann-Whitney tests, and a Kruskal-Wallis test. A multinomial logistic regression model was later tested to discover whether selected significant bivariate relationships were maintained in multivariate setting. Finally, qualitative data from the six focus groups were examined and organized by constant comparison analysis. Codes, categories, and themes derived from the transcripts were arranged using the structure of SCT.
Chapter 4

Results

The purpose of this study was to establish what the level of employer facilitated health consumerism (EFHC) was among employees of a large health system and to investigate whether EFHC differed among employees based on individual, behavioral, and environmental factors. The value of this study came from the ability to identify individual and environmental influences that were associated with employees being more likely to engage in EFHC. Employees who took a proactive role in managing health specifically through recommended access of health care services and healthy lifestyles have been shown to be healthier. These employees also improved the capacity of an organization to manage health care costs. The ability of this study to build on the existing literature specific to what factors were associated with recommended use of health care services and positive health behaviors would allow health education specialists to offer more effective programs in a worksite setting. It would also maximize the potential that employer resources were spent on health education initiatives with a high likelihood of success.

The mixed methods approach utilized in this study allowed the researcher to develop a more comprehensive understanding of factors related to EFHC engagement. The application of theory improved the chances that identified relationships between variables could be discussed relative to the established professional literature. Also, the use of theory will allow future studies to replicate this research or test specific aspects of the study in an alternate setting or with a different population.

Employee Population Surveyed

All participants in this study were employees of TriHealth, a not for profit health system located in Cincinnati, Ohio. Demographic variables collected and analyzed for this study
included age, sex, race, income, health plan, type of health care coverage, job type, primary job location, and education. All information but education was provided by TriHealth Human Resources (HR). This meant that those variables could be examined both for survey respondents and non-respondents to see whether the two groups were significantly different. This would allow for commentary on the extent to which results from this study could be generalized to the entire TriHealth employee population.

TriHealth HR was able to provide demographic information on the 7169 employees who were eligible for the 2011 Healthy Living Program at the end of that year. A link to the online survey that asked about educational attainment was sent to all 7482 employees who were eligible to take part in the Healthy Living Program as of early 2013. The reason a higher number of employees were emailed the survey link than were included in the demographics database shared by TriHealth HR was that the overall program eligible employee population increased between November 2011 (when the demographics list was generated) and February 2013 (when the survey was issued). Though the population of interest for this study was limited to those employees who were both eligible to take part in the Healthy Living Program in 2011 and able to respond to the 2013 survey, TriHealth did not want to exclude any currently eligible employees from having an opportunity to respond to the survey. Instead, survey responses were matched with 2011 demographics based on employee id and only those employees who were part of both groups were utilized to answer the research questions asked in this study. Out of 7482 emails sent, 1045 (13.97%) were not able to be delivered to the indicated addresses. This may have been due to the fact that some were generic email addresses generated at the time of hire but never used by employees. The high number of non-deliverable emails could also have been caused by employees providing an inaccurate email to program administrators while managing their online
profile or the survey link could have been marked as spam based on the sender and number of intended recipients. Overall, the survey resulted in 1058 responses, which based on the number of deliverable emails (6437) was a response rate of just over 16.4%. Out of these 1058 survey responses, 834 unique employees could be matched to the list of 2011 demographics provided by TriHealth HR for a usable response rate of 12.96%. The remaining 224 completed surveys were eliminated from the study because they were missing employee id or contained an inaccurate id number, were duplicate responses from the same individuals, or were from employees who did not meet the criteria of being eligible to earn credit in the 2011 Healthy Living Program as well as able to respond to the 2013 survey.

Demographics and Indicators of Program Participation for Survey Respondents and Non-Respondents

The mean age for the 834 people who responded to the survey and who could be matched with 2011 HR demographic data was 48.65 years ($SD = 11.254$). There were 5523 (85.5%) study eligible employees who did not respond to the survey who had an age indicated in the TriHealth HR database. The mean age for these employees was 46.05 ($SD = 12.215$). Based on visual inspection of box plots and histograms, skewness and kurtosis for the two groups, as well as the results of a Kolmogorov-Smirnov (K-S) test and a Levene’s test, normality and homogeneity of variance could not be assured for these two data sets. As such, a nonparametric Mann-Whitney test was preferred when trying to determine whether the survey group and the survey non-respondents were significantly different based on age. Results indicated that survey respondents ($Mdn = 51$) were significantly older than non-survey respondents ($Mdn = 48$), $U = 2017274$, $z = -5.79$, $p$ (one tailed) < .001, $r = -.07$. 
Out of the 834 survey respondents, 752 (90.2%) were female and 82 (9.8%) were male. For the 5523 non-respondents with data available for this variable, 4496 (81.4%) were female and 1027 (18.6%) were male. Chi-square testing indicated that there was a significant difference between survey respondents and non-respondents related to sex, $X^2 (1, N = 6357) = 38.63, p = <.001$. The group of survey respondents had more females and fewer males than the group of non-respondent.

The racial composition of the survey sample consisted of 10 Asian (1.2%), 50 Black/African American (6%), 4 Hispanic (0.5%), 2 Multiracial (0.2%), and 768 White (92.1%) respondents. For the rest of the population with data available for this variable (5523), 9 were American Indian/Alaskan Native (0.2%), 99 were Asian (1.8%), 698 were Black/African American (12.6%), 2 were Hawaiian (0.04%), 28 were Hispanic (0.5%), 26 were Multiracial (0.5%), and 4661 where White (84.4%). Based on known racial mix of TriHealth employees and the wording of Hypothesis 3, these racial categories were combined into two groups of White or Caucasian and non-White employees. This variable transformation resulted in 768 (92.1%) White and 66 (7.9%) non-White survey respondents. For those non-survey respondents for whom information on race was available, 4661 (84.4%) were White and 862 (15.6%) were non-White. Chi-square testing indicated that there was a significant difference between survey respondent and non-respondents related to race, $X^2 (1, N = 6357) = 34.40, p = <.001$. The group of survey respondents had more white and fewer non-white participants than the group of non-respondents.

Since information of educational attainment was not available through TriHealth HR, one item on the electronic survey was dedicated to measuring this demographic variable. Potential respondents were asked to indicate the highest degree or level of school they had completed. Of
those responding, two employees indicated less than a high school diploma (0.2%), 171 indicated a high school diploma/GED (20.7%), 227 indicated an Associate’s Degree (27.5%), 262 indicated a Bachelor’s Degree (31.8%), 127 indicated a Master’s Degree (15.4%), 16 indicated a Professional degree beyond a bachelor’s degree (1.9%), and 20 indicated a Doctorate Degree (2.4%). No educational attainment information was available for non-respondents so comparisons could not be made.

For income, data were provided from TriHealth HR that placed an employee in one of five salary categories. Fifty-two (6.2%) survey respondents earned an annual income of $25,000 or less, 382 (45.8%) earned an annual income of $25,001 to $50,000, 251 (30.1%) earned an annual income of $50,001 to $75,000, 96 (11.5%) earned an annual income of $75,001 to $100,000, and 53 (6.4%) earned an annual income of $100,001 or more. For the rest of the study eligible employee population, 1457 (23%) earned an annual income of $25,000 or less, 2631 (41.5%) earned an annual income of $25,001 to $50,000, 1425 (22.5%) earned an annual income of $50,001 to $75,000, 399 (6.3%) earned an annual income of $75,001 to $100,000, and 423 (6.7%) earned an annual income of $100,001 or more. Chi-square testing indicated that there was a significant difference between survey respondents and non-respondents related to income, $X^2(4, N = 7169) = 148.93, p = <.001.$

For fiscal year 2012 (July 1, 2011 through June 30, 2012), TriHealth offered three different health insurance plans. As of November 2011, 117 (14%) out of the 834 survey respondents were enrolled in the High Deductible plan option (HD90), 628 (75.3%) were enrolled in the Health Maintenance Organization plan option (HMO), and 89 (10.7%) were enrolled in the Point of Service plan option (POS). For survey non-respondents, 631 (10%) out of 6335 were enrolled in the HD90 plan, 4825 (76.2%) were enrolled in the HMO plan, and 879
(13.9%) were enrolled in the POS plan. To be able to determine if Null Hypothesis 6 could be rejected, data were further combined into high deductible plan participants versus non-high deductible plan participants. This consolidation of information resulted in 717 (86%) non-high deductible plan participants in the survey sample 5704 (90%) in the remaining employee population. Chi-square testing indicated that there was a significant difference between survey respondent and non-respondents related to health plan, $\chi^2 (2, N = 7169) = 13.05, p = <.001$. Those who responded to the survey were more likely to be in the high deductible health plan and less likely to be in the non-high deductible health plans than were the non-respondents.

For type of health care coverage within a health plan, TriHealth offered employees one option where only the employee was covered and five options where the employee was covered as well as additional persons (employee and spouse, family, employee and children, employee and working spouse, and family with working spouse). For the 834 survey respondents, 334 (40%) were covered as single and 500 (60%) had additional persons covered on their health insurance. The rest of the program eligible population had similar distribution across type of health care coverage with 2738 (43.2%) being covered as single and 3597 (56.8%) including additional persons on their health insurance. Chi-square testing indicated that there was not a significant difference between survey respondent and non-respondents related to type of health care coverage, $\chi^2 (1, N = 7169)$, ns. Regardless of health plan, both respondents and non-respondents had similar type of coverage.

For this study, TriHealth HR was able to provide information on type of employment. The original data shared contained 13 different categories. In an effort to examine whether being a survey respondent or not was associated with type of employment, these 13 categories were further consolidated into 5 types of employment (optional employee, standard part-time, standard
full-time, physician, and manager/director/vice president). Out of the 384 survey respondents, 166 (19.9%) were standard part-time, 537 (64.4%) were standard full-time, 12 (1.4%) were physicians, and 119 (14.3%) were managers/directors/vice presidents. No optional employees responded to the survey. For the rest of the program eligible employee population, 812 were missing information on employment type, 116 (2.1%) were optional employees, 1165 (21.1%) were standard part-time, 3510 (63.6%) were standard full-time, 314 (5.7%) were physicians, and 418 (7.6%) were managers/directors/vice presidents. Chi-square testing indicated that there was a significant difference between survey respondent and non-respondents related to employment type, $X^2 (4, N = 6357) = 82.07, p = <.001$.

In terms of job location, original data shared by TriHealth HR contained 14 categories. Based on the wording of Hypothesis 9, these categories were consolidated into two groups; Bethesda North and Good Samaritan Hospitals were treated as one employee group that was compared to employees from all other sites (which included mostly physician practices, administration offices, and off-site facilities). Among survey respondents, 552 (66.2%) employees worked at the two hospitals and 282 (33.8%) had another primary job location listed. For the rest of the program eligible population who had information on job location stored with TriHealth HR, 4018 (72.8%) employees worked at the two main hospitals and 1505 (27.2%) had another primary job location indicated. Chi-square testing indicated that there was a significant difference between survey respondents and non-respondents related to job location, $X^2 (1, N = 6357) = 15.45, p = <.001$. Survey respondents were less likely to work in one of the two main hospital location and more likely to work in another location than were the non-respondent group.
Overall, TriHealth employees responding to the survey differed significantly from employees not responding to the survey in relation to age, sex, race, income, health plan, job type, and primary job location. Therefore, the results of this study only apply to the study participants (survey respondents) and not to the entire TriHealth employee population.

**Social Cognitive Theory Constructs among Survey Respondents**

In addition to educational attainment, the electronic survey issued in early 2013 collected information on the Social Cognitive Theory (SCT) constructs of situation, behavioral capability, expectations, expectancies, self-control, observational learning, and self-efficacy. Each of the constructs was assessed by three survey items that were added together for seven cumulative scale scores. Each item was scored on a 4 point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 Agree, 4 = Strongly Agree), which resulted in a possible scale score range for each SCT construct in this study of between 3 and 12 points (4.1). Based on visual inspection of box plots and histograms, skewness and kurtosis, as well as K-S test results, it was determined that situation, self-control, and self-efficacy could be treated as normally distributed continuous data. Tests for normality were unable to show that behavioral capability, expectations, expectancies, and observational learning scores fulfilled parametric assumptions.

Table 4.1

*Descriptive Statistics for Survey Scales Measuring Social Cognitive Theory Constructs*

<table>
<thead>
<tr>
<th>Construct</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
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<tr>
<td>Situation</td>
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<td>8.86</td>
<td>1.656</td>
</tr>
<tr>
<td>Behavioral Capability</td>
<td>820</td>
<td>9.74</td>
<td>1.577</td>
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<tr>
<td>Expectations</td>
<td>818</td>
<td>9.86</td>
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<td>Expectancies</td>
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<td>9.51</td>
<td>1.710</td>
</tr>
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<td>818</td>
<td>7.39</td>
<td>1.747</td>
</tr>
<tr>
<td>Observational Learning</td>
<td>814</td>
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<tr>
<td>Self-Efficacy</td>
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<td>8.78</td>
<td>2.059</td>
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</tbody>
</table>
Extent of Employer Facilitated Health Consumerism among TriHealth Employees

To be able to answer to what extent TriHealth employees engaged in EFHC (a concept that could be thought of as employees taking advantage of health care services and engaging in health behaviors that were promoted by the employer through cost and quality means tied to the Healthy Living Program), program administrators provided the actual number of credits earned in the 2011 Healthy Living Program for current TriHealth employees who were also eligible to take part in the program at that time. To best answer study research questions and test hypotheses as written in Chapter 1, these continuous data were transformed into ordinal records representing actual program award tiers.

Compared to the raw program score, looking at award tier met by an employee was determined to be a more accurate representation of EFHC. This decision was made based on the fact that there were three award tiers, and the distance between tier 3 (the largest financial incentive), tier 2 (half of the incentive of tier 3) and tier 1 (no incentive) was not equal. As such, out of a possible 3500 points, two employees could collect 1100 points and 3200 respectively but still reach the same award category. Since credit earned in the Healthy Living Program was argued to be a fair representation of EFHC, efforts needed to be made to be able to discuss the employee population based on the level of monetary reward reached. It was hypothesized that the extent of employee involvement in the program would be dictated by reasons related to cost and quality promoted by the employer. Based on personal circumstances, a person who earned close to the maximum amount of points available in the program should not necessarily be considered a better health and health care consumer than a person who completed high priority program activities just to the extent of reaching the highest award level. Compared to the raw program score, award level reached was also a dependent variable seen as well suited to position
this study relative to the possible roles played by health education specialists as the U.S. health care system continued to implemented major reforms.

Among the 834 survey respondents, 612 (73.4%) reached the highest 2011 incentive tier (tier 3), 84 (10.1%) reached the middle incentive tier (tier 2), and 138 (16.5%) reached the lowest incentive tier (tier 1; reaching this tier did not result in a financial award). For the non-respondents, 2091 (33%) reached the highest 2011 incentive tier (tier 3), 947 (14.9%) reached the middle incentive tier (tier 2), and 3297 (52%) reached the lowest incentive tier (tier 1). Chi-square testing indicated that there was a significant difference between survey respondents and non-respondents related to 2011 award tier reached, \( X^2 \) (2, N = 7169) = 524.62, \( p = .001 \). Respondents to the questionnaire were more likely to reach higher incentive tiers than were non-respondents.

In addition to points earned in the Healthy Living Program in 2011 and the corresponding incentive tier reached, program administrators were also able to provide information on 2010 credits earned and whether eligible employees completed an annual physical as part of the 2011 program. Though this information could be thought of as additional indicators of Healthy Living Program participation and could add to the quality of representing EFHC, for hypotheses testing these two measures were applied as independently variables when trying to identify significant associations with 2011 Healthy Living Program award tier reached. For the 762 survey respondents who were eligible to earn credit in the 2010 Healthy Living Program, 619 (81.2%) reached either award tier 3 or 2 in 2010 and 143 (18.8%) earned no 2010 award (tier 1). For the rest of the study eligible population who could earn an incentive in the 2010 program (5415), 2659 (49.1%) reached either award tier 3 or 2 in 2010 and 2756 (50.9%) earned no 2010 award (tier 1). Chi-square testing indicated that there was a significant difference between survey
respondent and non-respondents related to reaching an incentive tier in 2010, $X^2 (2, N = 6177) = 276.87, p = <.001$. Respondents were more likely to have reached an award tiers associated with a financial reward (tier 3 or 2) in 2010 than were non-respondents.

As far as earning credit for a completed physical in the 2011 program year, 615 (73.7%) of the survey respondents had a physical and 219 (26.3%) did not have a physical. For the rest of the study population, 3610 (57%) earned credit for an annual physical and 2725 (43%) did not. Chi-square testing indicated that there was a significant difference between survey respondents and non-respondents related to earning Healthy Living credit for a physical in 2011, $X^2 (2, N = 7169), = 85.50, p = <.001$. Survey respondents were more likely to have had a physical than were non-respondents.

**Association between Employer Facilitated Health Consumerism and Employee Characteristics**

A series of statistical tests were performed to investigate whether there was a relationship between level of EFHC and age, education and income for TriHealth employees.

**Hypothesis 1.** There will be a negative relationship between the age of TriHealth employees and level of Employer Facilitated Health Consumerism.

Since level of EFHC was indicated by award tier reached in the Healthy Living Program (which was treated as ordinal data with award tier 3 considered the best, tier 2 second best and tier 1 the worst), a Spearman’s correlation coefficient was performed to test Hypothesis 1. A significant relationship was found between age and level of EFHC, $r_s = .17, p$ (one tailed) < .001. Therefore, Null hypothesis 1, which stated that there would be no relationship between the age of TriHealth employees and level of EFHC, was rejected. However, even though a statistically significant relationship was found, interpretation of the Spearman’s correlation coefficient

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indicated that the strength of association between age and award tier was weak. As age increased, employees were more likely to reach a higher incentive tier. This was the opposite direction of the linear relationship proposed in Hypothesis 1 in Chapter 1, where it was suggested that as the age of employees increased it would become less likely that they reached a high level of EFHC. For this sample group, as the age of TriHealth employees increased the level of EFHC improved.

**Hypothesis 2.** There will be a positive relationship between the level of education and the level of Employer Facilitated Health Consumerism for TriHealth employees.

A Spearman’s correlation coefficient was run to investigate whether there was a relationship between the ordinal variables of education level and level of EFHC (as indicated by award tier reached in the Healthy Living Program). Raw survey response data showed two employees with less than a high school diploma (0.2%), 171 with a high school diploma/GED (20.7%), 227 with an Associate’s Degree (27.5%), 262 with a Bachelor’s Degree (31.8%), 127 with a Master’s Degree (15.4%), 16 with a Professional degree beyond a bachelor’s degree (1.9%), and 20 with a Doctorate Degree (2.4%). Because of the relatively low count in a few of the educational attainment categories in the original data, a few select groups were combined to allow for testing of Hypothesis 2. As a result of combining the two lowest educational attainment categories and the two highest educational attainment categories, the final data for this variable consisted of 5 groups total with 173 (21%) people reporting a high school diploma/GED or less and 36 (4.4%) individuals with a Professional degree beyond a bachelor’s degree or a Doctorate Degree. Results indicated that there was a significant association between education level and level of EFHC, $r_s = .11$, $p$ (one tailed) < .001. Though statistically significant, the strength of the correlation was low. As level of education increased, a person was significantly more likely to
have a higher level of EFHC. Therefore, Null Hypothesis 2, which stated there would be no relationship between educational level and EFHC scores for TriHealth employees, was rejected. For this sample group, there was a significant positive correlation between educational attainment and level of EFHC.

**Hypothesis 3.** There will be a positive relationship between the level of income and the level of Employer Facilitated Health Consumerism for TriHealth employees

A Spearman’s correlation coefficient was utilized to test whether there was a relationship between the five income categories for TriHealth employees and the level of EFHC (as indicated by award tier reached in the Healthy Living Program). Results indicated that there was a significant correlation between income and level of EFHC, \( r_s = .08, p \) (one tailed) < .05. Though significant, the strength of this correlation was low. As income increased, a person was significantly more likely to reach a higher level of EFHC. Therefore, Null Hypothesis 5, which stated that there would be no relationship between income and level of EFHC for TriHealth employees, was rejected. For this study group, there was a significant positive correlation between income and level of EFHC.

**Difference in Employer Facilitated Health Consumerism based on Employee Characteristics**

A series of statistical tests were performed to investigate whether there was a significant difference in EFHC for TriHealth employees based on gender, race, health plan, type of health care coverage, job type, primary job location, Healthy Living Program premium discount tier reached in 2010, or credit earned for an annual physical in the 2011 Healthy Living Program.
Hypothesis 4. The level of Employer Facilitated Health Consumerism for female TriHealth employees will be higher than the level of Employer Facilitated Health Consumerism for male TriHealth employees.

The researcher performed a Mann-Whitney test to look for a significant difference between female and male TriHealth employees in relation to level of EFHC (as indicated by award tier reached in the Healthy Living Program). Test results indicated that there was a significant difference in level of EFHC for females (Mdn = 3) and males (Mdn = 2), $U = 20959.00$, $z = -6.16$, $p$ (one tailed) < .001, $r = -.21$. The mean ranks for females and males were 430.63 and 537.90 respectively. The mean rank scores were derived by first arranging the scores for both groups as one set of data in ascending order (while paying close attention to which of the two groups owned a particular score). Then, the lowest score was assigned a potential rank of 1 with subsequent rankings going up to the total number of scores for the two groups. Ranks that occurred more than once in the data were considered tied ranks and were assigned a final ranking that was the average of the potential ranks. Finally, the ranks for each of the two groups were added together to generate the two mean rank scores (Field, 2009). The group with the lowest mean rank (males) was the group with the greatest number of lower scores in it. Conversely, the group with the highest mean rank (females) was the group that had the greatest number of high scores within it. As such, Null Hypothesis 2, which stated that there would be no difference in the level of EFHC between male and female TriHealth employees, was rejected.

For this sample group, female employees had a higher level of EFHC than male employees.

Hypothesis 5. The level of Employer Facilitated Health Consumerism for White or Caucasian TriHealth employees will be higher than the level of Employer Facilitated Health Consumerism for non-White or non-Caucasian TriHealth employees.
With level of EFHC indicated by the award tier reached in the 2011 Healthy Living Program (award level 3 corresponded to the highest amount of points earned and the greatest financial incentive, award level 2 resulted in half of the financial incentive associated with award tier 3, and award level 1 resulted in no financial reward earned), a Mann-Whitney test was used to look for significant differences between White or Caucasian and non-White employees. Even though both groups reported the same median award tier reach \((Mdn = 3)\), results indicated that there was a significant differences between White or Caucasian and non-White employees, \(U = 21720.00, z = -2.50, p\) (one tailed) < .01, \(r = -.09\). The mean ranks for White or Caucasian employees and non-White employees were 422.22 and 362.59 respectively. The group with the lowest mean rank (non-White employees) was the group with the greatest number of lower scores in it. Conversely, the group with the highest mean rank (White or Caucasian employees) was the group that had the greatest number of high scores within it. As such, Null Hypothesis 3, which stated there would be no difference in the level of EFHC between White or Caucasian and non-White or non-Caucasian TriHealth employees, was rejected. For this sample group, White or Caucasian employees had a higher level of EFHC than non-White employees.

**Hypothesis 6.** The level of Employer Facilitated Health Consumerism for TriHealth employees who were covered by the employer sponsored high deductible health plan will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who were not covered by the employer sponsored high deductible health plan.

To test whether Null Hypothesis 6 could be rejected, a Mann-Whitney analysis was performed that compared the level of EFHC for employees covered by the HD90 plan to the level of EFHC for employees covered by either of the two more traditional health insurance plans (HMO and POS). Results showed that there was not a significant difference in level of
EFHC between HD90 participants ($Mdn = 3$) and people covered by the other two plan options ($Mdn = 3$), $U = 40588.50$, $z = -.73$, $ns$. Therefore, Null Hypothesis 6, which stated that there would be no difference in the level of EFHC between TriHealth employees who were covered by the employer sponsored high deductible health plan and TriHealth employees who were not covered by the employer sponsored high deductible health plan, could not be rejected. For this study group, there was not a significant difference in the level of EFHC for TriHealth employees based on health plan enrollment.

**Hypothesis 7.** The level of Employer Facilitated Health Consumerism for TriHealth employees who have additional persons covered on their health insurance will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who do not have additional persons covered on their health insurance.

To test whether employees who had additional persons covered on their health plan had higher levels of EFHC than employees who were covered individually, a Mann-Whitney test was performed with type of health care coverage as the grouping variable and the level of EFHC (based on award tier reached in the 2011 Healthy Living Program) as the dependent variable. Results indicated that there was not a significant difference in the level of EFHC between employees who were covered as single ($Mdn = 3$) and employees who had additional persons included on their health plan ($Mdn = 3$), $U = 80965.00$, $z = -.961$, $ns$. Therefore, Null Hypothesis 7, which stated that there would be no difference in the level of EFHC between TriHealth employees who have additional persons covered on their health insurance and TriHealth employees who do not have additional persons covered on their health insurance, could not be rejected. For this study group, there was not a significant difference in the level of EFHC for TriHealth employees based on type of health care coverage.
Hypothesis 8. There will be a difference in the level of Employer Facilitated Health Consumerism for TriHealth employees based on job type.

To be able to determine whether or not Null Hypothesis 8 could be rejected, a Kruskal-Wallis statistic was run to test whether there was a significant difference in the level of EFHC based on type of employment. For the purpose of testing hypothesis 8, the 12 physicians who responded to the survey were added to the managers/directors/vice presidents group, which resulted in a three-group independent variable (since there were no optional employees who responded to the survey). Results indicated that the level of EFHC varied significantly by type of employment, $H(2) = 14.65, p < .001$. Three separate Mann-Whitney tests were used to follow up on this finding to try to identify significant differences between groups in this non-directional hypothesis. A Bonferroni correction was applied so all effects were reported at a 0.0167 level of significance (.05/3). The level of EFHC was not significantly different for standard part-time employees compared to physicians/managers/directors/vice presidents ($U = 10253.50, z = -1.23, ns$) or for standard part-time compared to standard full-time employees ($U = 40384.50, z = -2.31, ns$). However, there was a significant difference in the level of EFHC (as indicated by the award tier reached in the 2011 Healthy Living Program) for standard full-time employees compared to physicians/managers/directors/vice presidents, $U = 29892, z = -3.40, p < .001, r = -.13$.

The 374.82 mean rank for physicians/managers/directors/vice presidents was significantly different that the mean rank of 324.66 for standard full-time employees. The group with the lowest mean rank (standard full-time employees) was the group with the greatest number of lower scores in it. Conversely, the group with the highest mean rank (physicians/managers/directors/vice presidents) was the group that had the greatest number of
high scores within it. As such, Null Hypothesis 8, which stated that there would be no difference in the level of EFHC scores based on job type for TriHealth employees, was rejected.

**Hypothesis 9.** The level of Employer Facilitated Health Consumerism for TriHealth employees whose primary work location is one of two main hospital sites will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees whose primary work location is not one of two main hospital sites.

To determine if Null Hypothesis 9 could be rejected, a Mann-Whitney analysis was performed to test whether job location significantly impacted level of EFHC among TriHealth employees who responded to the survey. Results indicated that level of EFHC was not significantly different for people who worked at the main hospital sites compared to other locations, $U = 74967, z = -1.12, ns$. Therefore, Null Hypothesis 9, which stated that there would be no difference in the level of EFHC between TriHealth employees whose primary work location is one of two main hospital sites and TriHealth employees whose primary work location is outside of the two main hospital sites, could not be rejected. For this study group, there was not a significant difference in the level of EFHC for TriHealth employees based on primary work location.

**Hypothesis 10.** The level of Employer Facilitated Health Consumerism for TriHealth employees who reached insurance premium discount tier one or tier two in the Healthy Living Program year 2010 will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who did not reach insurance premium discount tier one or tier two in the Healthy Living Program year 2010.

To test Null Hypothesis 10, a Mann-Whitney analysis was conducted to investigate whether earning an award the previous Healthy Living Program year (reaching award tier 3 or 2
in 2010) was associated with a higher level of EFHC than not earning an award (tier 1) the previous program year. Test results indicated that those employees who qualified for an incentive in 2010 ($Mdn = 3$) were significantly more likely than those employees who did not qualify for an incentive in 2010 ($Mdn = 2$) to have a higher level of EFHC, $U = 20715$, $z = -13.32$, $p$ (one tailed) $< .001$, $r = -.48$. The mean ranks for the two groups were 419.53 and 216.86 respectively. The group with the lowest mean rank (those who did not earn an award in 2010) was the group with the greatest number of lower scores in it. Conversely, the group with the highest mean rank (those who did earn an award in 2010) was the group that had the greatest number of high scores within it. As such, Null Hypothesis 10, which stated that there would be no difference in the level of EFHC between TriHealth employees who reached insurance premium discount tier one or tier two in the Healthy Living Program year 2010 and TriHealth employees who did not reach insurance premium discount tier one or tier two in the Healthy Living Program year 2010, was rejected. For this sample group, those who earned an award the previous program year were significantly more likely to have a higher level of EFHC.

**Hypothesis 11.** The level of Employer Facilitated Health Consumerism for TriHealth employees who received credit for an annual physical in the Healthy Living Program year 2011 will be higher than the level of Employer Facilitated Health Consumerism for TriHealth employees who did not receive credit for an annual physical in the Healthy Living Program year 2011.

To determine whether obtaining a physical exam in the 2011 Healthy Living Program was associated with overall higher levels of EFHC, a Mann-Whitney test was executed to compare employees who received program credit for an annual physical against employees who did not. Results indicated that those employees who received Healthy Living Program credit for
an annual physical in 2011 ($Mdn = 3$) were significantly more likely to have a higher level of EFHC than those employees who did not receive Healthy Living Program credit for an annual physical in 2011 ($Mdn = 2$), $U = 42352.50$, $z = -10.55$, $p$ (one tailed) < .001, $r = -.38$. The mean ranks for the two groups were 458.13 and 303.39 respectively. The group with the lowest mean rank (those who did not earn credit for a physical) was the group with the greatest number of lower scores in it. Conversely, the group with the highest mean rank (those who did earn credit for a physical) was the group that had the greatest number of high scores within it. Based on these results, Null Hypothesis 11, which stated that there will be no difference in the level of EFHC between TriHealth employees who received credit for an annual physical in the Healthy Living Program year 2011 and TriHealth employees who did not receive credit for an annual physical in the Healthy Living Program year 2011, was rejected. For this sample group, those who received credit for completing an annual physical in 2011 were significantly more likely to have a higher level of EFHC.

**Association between Employer Facilitated Health Consumerism and Social Cognitive Theory Constructs**

A series of statistical tests were performed to investigate whether there was a relationship between the level of EFHC (as indicated by award level reached in the 2011 Healthy Living Program) and the Social Cognitive Theory (SCT) constructs of situation, behavioral capability, behavioral capability, expectations, expectancies, self-control, observational learning, or self-efficacy for TriHealth employees.

**Hypothesis 12.** There will be a positive relationship between level of agreement that the work environment (situation) supports Healthy Living Program participation and the level of Employer Facilitated Health Consumerism for TriHealth employees.
To test this hypothesis, a 3-item situation survey scale with a range of scores between 3 and 12 was used as the independent variable and 2011 Healthy Living Program award tier reached represented the dependent variable of level of EFHC. Since level of EFHC was an ordinal variable (reaching tier 3 resulted in the highest incentive level, reaching tier 2 resulted in a smaller incentive than what was earned by reaching tier 3, and tier 1 resulted in no incentive earned), investigating whether agreeing that the work environment (situation) supported Healthy Living Program participation required a non-parametric statistic. Spearman’s correlation coefficient results indicated that there was a significant relationship between situation and level of EFHC, $r_s = .08, p < .01$. Though statistically significant, the strength of the correlation between situation and level of EFHC was low. The negative $r_s$ number indicated that there was an inverse relationship between situation score and award tier reached. This meant that survey respondents were more likely to reach award tier 3 (associated with the highest EFHC scores) compared to award tier 2 and award tier 2 compared to award tier 1 as situation score increased. Based on these results, Null hypothesis 12, which stated that there will be no relationship between level of agreement that the work environment (situation) supports Healthy Living Program participation and the level of EFHC scores for TriHealth employees, was rejected. For this sample group, as level of agreement that the work environment supports Healthy Living Program participation increased, the award tier reached as a result of level of EFHC increased as well.

**Hypothesis 13.** There will be a positive relationship between level of agreement of having the knowledge and skills needed to take part in the Healthy Living Program (behavioral capability) and level of Employer Facilitated Health Consumerism for TriHealth employees.

To test this hypothesis, a 3-item behavioral capability survey scale with a range of scores between 3 and 12 was used as the independent variable and 2011 Healthy Living Program award
tier reached represented the dependent variable of level of EFHC. Spearman’s correlation coefficient results indicated that there was a significant relationship between behavioral capability and level of EFHC, $r_s = .26, p < .001$. Based on these results, Null hypothesis 13, which stated that there would be no relationship between level of agreement of having the knowledge and skill needed to take part in the Healthy Living Program and the level of EFHC for TriHealth employees was rejected. For this sample group, as level of agreement of having the knowledge and skill needed to take part in the Healthy Living Program increased, the level of EFHC increased as well.

**Hypothesis 14.** There will be a positive relationship between level of agreement that Healthy Living Program participation will lead to positive outcomes (expectations) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

To test this hypothesis, a 3-item expectations survey scale with a range of scores between 3 and 12 was used as the independent variable and 2011 Healthy Living Program award tier reached represented the dependent variable of level of EFHC. Spearman’s correlation coefficient results indicated that there was not a significant relationship between expectations and award tier, $r_s = .05, ns$. Therefore, Null hypothesis 14, which stated that there would be no relationship between level of agreement that Healthy Living Program participation will lead to positive outcomes and the level of EFHC for TriHealth employees, could not be rejected. For this sample, there was no linear relationship between level of agreement that Healthy Living Program participation will lead to positive outcomes and the level of EFHC.

**Hypothesis 15.** There will be a positive relationship between level of agreement that the positive outcomes that will result from Healthy Living Program participation are important
(expectancies) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

To test this hypothesis, a 3-item expectancies survey scale with a range of scores between 3 and 12 was used as the independent variable and 2011 Healthy Living Program award tier reached represented the dependent variable of level of EFHC. Since the dependent variable was an ordinal variable, investigating whether a higher level of EFHC was associated with employees who agreed that positive outcomes resulting from Healthy Living Program participation were important (expectancies) required a non-parametric statistic. Spearman’s correlation coefficient results indicated that there was a significant relationship between expectancies and the level of EFHC, $r_s = .10, p < .01$. The analysis showed that the strength of the correlation between expectancies and award tier was weak. Based on these results, Null hypothesis 15, which stated that there would be no relationship between level of agreement that the positive outcomes that will result from Healthy Living Program participation are important (expectancies) and the level of EFHC for TriHealth employees, was rejected. For this sample group, as level of agreement that the positive outcomes that will result from Healthy Living Program participation are important increased, level of EFHC increased as well.

**Hypothesis 16.** There will be a positive relationship between level of agreement of regulating behaviors related to Healthy Living Program participation (self-control) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

To test this hypothesis, a 3-item self-control survey scale with a range of scores between 3 and 12 was used as the independent variable and 2011 Healthy Living Program award tier reached represented the dependent variable of level of EFHC. A Spearman’s correlation coefficient analysis indicated that there was a significant relationship between self-control and
award tier, $r_s = .30$, $p < .001$. Based on these results, Null hypothesis 16, which stated that there would be no relationship between level of agreement of regulating behaviors related to Healthy Living Program participation and the level of EFHC scores for TriHealth employees, was rejected. For this sample group, as level of agreement of regulating behaviors related to Healthy Living Program participation increased, the level of EFHC increased as well.

**Hypothesis 17.** There will be a positive relationship between level of agreement of knowing of other TriHealth employees who successfully participate in the Healthy Living Program (observational learning) and the level of Employer Facilitated Health Consumerism for TriHealth employees.

To test this hypothesis, a 3-item observational learning survey scale with a range of scores between 3 and 12 was used as the independent variable and 2011 Healthy Living Program award tier reached represented the dependent variable of level of EFHC. Spearman’s correlation coefficient results indicated that there was not a significant relationship between observational learning and award tier, $r_s = .03$, ns. Therefore, Null hypothesis 17, which stated that there would be no relationship between level of agreement of knowing of other TriHealth employees who successfully participate in the Healthy Living Program and the level of EFHC for TriHealth employees, could not be rejected. For this sample group, there was no relationship between level of agreement of knowing of other TriHealth employees who successfully participate in the Healthy Living Program and the level of EFHC.

**Hypothesis 18.** There will be a positive relationship between level of agreement of being confident participating in the Healthy Living Program (self-efficacy) and the level of Employer Facilitated Health Consumerism for TriHealth employees.
To test this hypothesis, a 3-item self-efficacy survey scale with a range of scores between 3 and 12 was used as the independent variable and 2011 Healthy Living Program award tier reached represented the dependent variable of level of EFHC. A Spearman’s correlation coefficient analysis indicated that there was a significant relationship between self-efficacy and award tier, $r_s = .13$, $p < .001$. The analysis also indicated that the correlation between self-efficacy and award tier was weak. Based on these results, Null hypothesis 18, which stated there would be no relationship between level of agreement of being confident participating in the Healthy Living Program and the level of EFHC scores for TriHealth employees, was rejected. For this sample group, as level of agreement of being confident participating in the Healthy Living Program increased, the level of EFHC increased as well.

**Odds of Reaching a Desirable level of Employer Facilitated Health Consumerism based on Employee Characteristics and Social Cognitive Theory Constructs**

A multinomial logistic regression model was developed to test to what extent employee characteristics (age, gender, race, education, income, health plan, type of health care coverage, job type, primary job location, Healthy Living Program premium discount tier reached in 2010, or credit earned for an annual physical in the 2011 Healthy Living Program) and SCT constructs (situation, behavioral capability, expectations, expectancies, self-control, observational learning, and self-efficacy) could be used to predict level of EFHC among TriHealth employees. This was an appropriate statistic to employ based on the outcome variable being ordinal in nature (award tier one, two, or three) and the presence of both categorical and continuous potential predictors. Decisions for what variables to include in the model and the format of various data were made based on initial descriptive statistics run for this study and results of previous hypotheses testing, theoretical considerations, and potential practical applications. To start with, all potential
predictors that were previously shown through hypotheses testing to have a non-significant individual association with the outcome variable were removed from consideration for inclusion in the model. This included health plan (HD90 vs. other), type of health care coverage (individual vs. other people included in coverage), job location (main hospital vs. other), expectations, and observational learning. In addition, a few of the variables that had previously been shown to be significantly associated with 2011 Health Living Program award tier reached were also removed from consideration for inclusion in the model to be tested. These included:

- **Age**: As previously discussed, normality of this continuous variable could not be assured; there was no obvious practical option to split data into two or more groups for possible inclusion as a categorical variable; there was limited practical application of discussing a potential increase in odds of reaching award tier 1 compared to 3 or award tier 2 compared to 3 based on the increase of one unit of the predictor (1 year); relatively low effect size

- **Race**: Because of the wording of Hypothesis 3 as well as the breakdown of the data provided by TriHealth HR for this independent variable, the practical implications of statistical findings based on a White or Caucasian versus non-White comparison can be considered limited in this setting or beyond; relatively low effect size

- **Income**: This data were provide by TriHealth HR in ordinal format (5 answer options) and, as such, could not be used as a continuous predictor in a multinomial logistic regression model; there was no obvious practical option to further combine income into three or four categories or split data into two groups for possible inclusion as a dichotomous variable without losing vital distinction within the data; information related
to one salary without further consideration of other sources of income or family finances can be argued to have limited practical implications; relatively low effect size.

- **Job type:** The original format of the data shared by TriHealth HR (13 categories), the consolidation of data into three groups for testing of Hypothesis 8, and results leading to the rejection of Null Hypothesis 8 based on comparisons of these three groups all indicated that this variable should not be prioritized for inclusion in a multinomial logistic regression model intended to predict award tier membership for TriHealth employees; relatively low effect size.

- **Credit earned for an annual physical in the 2011 Healthy Living Program:** Though this variable showed a moderate to strong association with the outcome variable in individual testing, including this predictor in the final regression model, though statistically intriguing, would likely have limited practical significance. In the 2011 Healthy Living Program, an annual physical was worth 325 points, which would by itself bring a participant half-way to reaching award tier two. Therefore, though it would be reasonable to assume that a model which encompassed this measure would explain a significant amount of variability in the data and be a good fit to the data, when answering Research Question 4 this variable should be considered more of a partial measure of the outcome than a potential significant predictor.

The remaining variables that had previously been shown to be significantly associated with the outcome data were entered into an initial multinomial logistic regression model (sex, education, 2010 Healthy Living credit, behavioral capability, self-control, situation, self-efficacy, and expectancies). Before running the analysis, the five educational categories were consolidated into two groups (less than a Bachelor’s degree compared to a Bachelor’s degree or higher). This
resulted in 400 (48.5%) placing in the lower educational group and 425 (51.5%) placing in the higher educational group. Even though the two groups displayed the same median award tier reached ($Mdn = 3$), preliminary testing of this new variable indicated that those employees who had earned a Bachelor’s degree or higher were significantly more likely than those employees who had not earned a Bachelor’s degree or higher to have a higher level of EFHC, $U = 76868, z = -3.07, p$ (one tailed) $< .01, r = .11$. The mean ranks for the two groups were 432.13 and 392.67 respectively. For this sample group, employees with a bachelor’s degree or higher had a higher level of EFHC than those employees with less than a Bachelor’s degree.

For multivariate analyses, behavioral capability as well as expectancies were transformed from continuous data into dichotomous variables with scores of 3 to 7 indicating generally disagree and 8 to 12 indicating generally agree. For behavioral capability, this resulted in 62 (7.6%) individuals placing in the generally disagree group and 758 (92.4%) individuals placing in the generally agree group. Preliminary testing of this new variable indicated that those employees who had higher behavioral capability scores were significantly more likely to have a higher level of EFHC ($Mdn = 3$) than those employees who had lower behavioral capability scores ($Mdn = 2$), $U = 12854.50, z = -7.71, p$ (one tailed) $< .001, r = -.27$. The mean ranks for the two groups were 424.54 and 238.83 respectively. For this sample group, those employees with a behavioral capability score that put them in the generally agree category had a higher level of EFHC than did those employees with a behavioral capability score put them in the generally disagree category.

For expectancies, the same transformation resulted in 84 (10.4%) individuals placing on the generally disagree group and 726 (89.6%) individuals placing in the generally agree group. Even though the two groups had the same median EFHC level reached ($Mdn = 3$), preliminary
testing of this new variable indicated that those employees who had higher expectancies scores had significantly higher levels of EFHC than those employees who had higher expectancies scores, $U = 25973$, $z = -2.88$, $p$ (one tailed) < .01, $r = -.10$. The mean ranks for the two groups were 411.72 and 351.70 respectively. For this sample group, those employees with an expectancies score that put them in the generally agree category had a higher level of EFHC than did those employees with an expectancies score put them in the generally disagree category. Initially, all eight variables were used in a forced entry (main effects) multinomial logistic regression model (Table 4.2). Based on the change in log likelihood and the corresponding chi-square test, this generated a model that explained significantly more of the variability in the data than the model that included only the intercept. Also, as far as the fit of the model to the data, both the Pearson and Deviance statistics were non-significant ($p > .05$), indicating that the predicted values were not significantly different than the observed values.
Table 4.2

*Forced Entry (Main Effects) Multinomial Logistic Regression Model*

<table>
<thead>
<tr>
<th>Award Category 3 vs. 1</th>
<th>B (SE)</th>
<th>Lower</th>
<th>Odds Ratio</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.76 (1.00)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Control</td>
<td>.39 (0.10)**</td>
<td>1.13</td>
<td>1.40</td>
<td>1.73</td>
</tr>
<tr>
<td>Situation</td>
<td>-.11 (0.10)</td>
<td>.73</td>
<td>.89</td>
<td>1.09</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.04 (0.09)</td>
<td>.81</td>
<td>.96</td>
<td>1.13</td>
</tr>
<tr>
<td>2010 Award Earned (1)</td>
<td>2.63 (0.29)***</td>
<td>7.83</td>
<td>13.86</td>
<td>24.51</td>
</tr>
<tr>
<td>2010 Award Not Earned (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex, Female (1)</td>
<td>1.48 (0.38)***</td>
<td>2.08</td>
<td>4.41</td>
<td>9.35</td>
</tr>
<tr>
<td>Sex, Male (2)</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Behavioral Capability, Low (1)</td>
<td>-1.75 (0.46)***</td>
<td>.07</td>
<td>.17</td>
<td>.43</td>
</tr>
<tr>
<td>Behavioral Capability, High (2)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Less than a Bachelor's Degree (1)</td>
<td>-.63 (0.29)*</td>
<td>.30</td>
<td>.54</td>
<td>.95</td>
</tr>
<tr>
<td>Bachelor's Degree or higher (2)</td>
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<td></td>
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</tr>
<tr>
<td>Expectancies, Low (1)</td>
<td>-.05 (0.42)</td>
<td>.42</td>
<td>.96</td>
<td>2.19</td>
</tr>
<tr>
<td>Expectancies, High (2)</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Award Category 2 vs. 1</th>
<th>B (SE)</th>
<th>Lower</th>
<th>Odds Ratio</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.48 (1.22)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Self-Control</td>
<td>-.12 (0.13)</td>
<td>.69</td>
<td>.89</td>
<td>1.16</td>
</tr>
<tr>
<td>Situation</td>
<td>.14 (0.13)</td>
<td>.86</td>
<td>1.15</td>
<td>1.47</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>-.03 (0.10)</td>
<td>.79</td>
<td>.97</td>
<td>1.18</td>
</tr>
<tr>
<td>2010 Award Earned (1)</td>
<td>1.00 (0.36)**</td>
<td>1.37</td>
<td>2.72</td>
<td>5.40</td>
</tr>
<tr>
<td>2010 Award Not Earned (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex, Female (1)</td>
<td>1.12 (0.49)*</td>
<td>1.18</td>
<td>3.07</td>
<td>7.94</td>
</tr>
<tr>
<td>Sex, Male (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral Capability, Low (1)</td>
<td>-.59 (0.51)</td>
<td>.20</td>
<td>.56</td>
<td>1.52</td>
</tr>
<tr>
<td>Behavioral Capability, High (2)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Less than a Bachelor's Degree (1)</td>
<td>-.23 (0.35)</td>
<td>.40</td>
<td>.80</td>
<td>1.59</td>
</tr>
<tr>
<td>Bachelor's Degree or higher (2)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expectancies, Low (1)</td>
<td>-.83 (0.54)</td>
<td>.15</td>
<td>.44</td>
<td>1.26</td>
</tr>
<tr>
<td>Expectancies, High (2)</td>
<td></td>
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</tr>
</tbody>
</table>

Note: $R^2 = .27$ (Cox & Snell), .36 (Nagelkerke). Model $\chi^2(16) = 216.47, p < .001.$

* $p < .05$, ** $p < .01$, *** $p < .001$

After reviewing each predictor included in the forced entry (main effects) model, it became apparent that a good fitting model may be able to be maintained while still eliminating variables that lacked significant individual contribution to a person placing in award tier 3 or 2 compared to award tier 1. As a result, a custom backwards elimination model was created where
the same set of predictors were tested for main effects (Model 0). In the final custom backwards elimination model, the self-efficacy score (Model 1) as well as two-group expectancies variable (Model 2) were removed without significantly decreasing the log likelihood from the full model, \( \chi^2(2) = 3.29, p > .05 \) (Table 4.3). In addition, the final backwards elimination model had slightly better (lower) Akaike’s information criterion (AIC) as well as Schwartz’s Bayesian information criterion (BIC) values than the full model, indicating a better fit to the data. The change in log likelihood and the corresponding chi-square test indicated that the model with two less predictors explained significantly more of the variability in the data than the intercept only model. For the model with self-efficacy and expectancies removed, both Pearson and Deviance statistics were non-significant \((p > .05)\), indicating that the predicated values were not significantly different than the observed values.

By reviewing Table 4.3, it is possible to comment further on the impact of individual predictors on the odds of a person placing in award tier 3 compared to tier 1 and award tier 2 compared to tier 1. For the tier 3 versus tier 1 comparison, self-control significantly predicted group membership, \( b = 0.33, \text{ Wald } \chi^2 (1) = 11.46, p < .001 \). Based on the odds ratio it can be determined that as self-control increased one unit, the odds of earning award tier 3 compared to award tier 1 was 1.38. In short, as self-control increased the likelihood of reaching the best award category compared to earning no award consistently and significantly improved. In addition, earning an award in the 2010 Healthy Living Program significantly predicted award level reached in 2011, \( b = 2.63, \text{ Wald } \chi^2 (1) = 81.81, p < .001 \). Based on the odds ratio it can be determined that earning an award the previous program year increased the odds of earning award tier 3 compared to award tier 1 in 2011 by 13.86. Whether a person was female or male also
significantly predicted award level reached in 2011, \( b = 1.50 \), Wald \( X^2 (1) = 15.45, p < .001 \). The odds of reaching award tier compared to tier 1 were 4.49 higher for females than males.

Generally disagreeing or generally agreeing to having a sense of behavioral capability as it related to the Healthy Living Program was also a trait that significantly predicted award level reached in 2011, \( b = -1.74 \), Wald \( X^2 (1) = 14.62, p < .001 \). Having a behavioral capability score that indicated general agreement increased the odds of reaching award level 3 compared to award level 1 by 5.56 (1/0.18). Finally, level of education significantly predicted award level reached in 2011, \( b = -0.59 \), Wald \( X^2 (1) = 4.14, p < .05 \). For this sample group, having a Bachelor’s degree or a higher level of education increased the odds of reaching award level 3 compared to award level 1 by 1.82 (1/0.55).

As for as looking at what predictors influenced reaching award level 2 compared to award level 1, only two independent variables included in the model significantly impacted the odds of earning an award. Earning an award in the 2010 Healthy Living Program significantly predicted award level reached in 2011, \( b = 1.02 \), Wald \( X^2 (1) = 8.57, p < .01 \). Based on the odds ratio it can be determined that earning an award the previous program year increased the odds of earning award tier 2 compared to award tier 1 in 2011 by 2.77. Whether a person was female or male also significantly predicted award level reached in 2011, \( b = 1.16 \), Wald \( X^2 (1) = 5.76, p < .05 \). The odds of reaching award tier 2 compared to tier 1 were 3.19 higher for females than males for this sample group.
Table 4.3

Backwards Elimination (Main Effects) Multinomial Logistic Regression Model

<table>
<thead>
<tr>
<th>Award Category 3 vs. 1</th>
<th>B (SE)</th>
<th>Lower</th>
<th>Odds Ratio</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-.97 (0.87)*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Control</td>
<td>.33 (0.10)***</td>
<td>1.15</td>
<td>1.38</td>
<td>1.67</td>
</tr>
<tr>
<td>Situation</td>
<td>-.13 (0.10)</td>
<td>.73</td>
<td>.88</td>
<td>1.06</td>
</tr>
<tr>
<td>2010 Award Earned (1)</td>
<td>2.63 (0.29)***</td>
<td>7.85</td>
<td>13.86</td>
<td>24.53</td>
</tr>
<tr>
<td>2010 Award Not Earned (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex, Female (1)</td>
<td>1.50 (0.38)***</td>
<td>2.12</td>
<td>4.49</td>
<td>9.50</td>
</tr>
<tr>
<td>Sex, Male (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral Capability, Low (1)</td>
<td>-1.74 (0.45)***</td>
<td>.07</td>
<td>.18</td>
<td>.43</td>
</tr>
<tr>
<td>Behavioral Capability, High (2)</td>
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<td></td>
</tr>
<tr>
<td>Less than a Bachelor’s Degree (1)</td>
<td>-.59 (0.29)*</td>
<td>.31</td>
<td>.55</td>
<td>.98</td>
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<td>Bachelor’s Degree or higher (2)</td>
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</table>

<table>
<thead>
<tr>
<th>Award Category 2 vs. 1</th>
<th>B (SE)</th>
<th>Lower</th>
<th>Odds Ratio</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-.30 (1.06)*</td>
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<tr>
<td>Self-Control</td>
<td>-.07 (0.12)</td>
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<td>.93</td>
<td>1.16</td>
</tr>
<tr>
<td>Situation</td>
<td>.14 (0.12)</td>
<td>.91</td>
<td>1.15</td>
<td>1.46</td>
</tr>
<tr>
<td>2010 Award Earned (1)</td>
<td>1.02 (0.35)***</td>
<td>1.40</td>
<td>2.77</td>
<td>5.47</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sex, Female (1)</td>
<td>1.16 (0.48)*</td>
<td>1.24</td>
<td>3.19</td>
<td>8.22</td>
</tr>
<tr>
<td>Sex, Male (2)</td>
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<td></td>
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</tr>
<tr>
<td>Behavioral Capability, Low (1)</td>
<td>-.58 (0.50)</td>
<td>.21</td>
<td>.57</td>
<td>1.51</td>
</tr>
<tr>
<td>Behavioral Capability, High (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than a Bachelor’s Degree (1)</td>
<td>-.20 (0.39)</td>
<td>.41</td>
<td>.82</td>
<td>1.63</td>
</tr>
<tr>
<td>Bachelor’s Degree or higher (2)</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Note: $R^2 = .27$ (Cox & Snell), .35 (Nagelkerke). Model $\chi^2(12) = 212.92, p < .001.$

* $p < .05$, ** $p < .01$, *** $p < .001$

Comparison of Quantitative and Qualitative Data for Factors Influencing Employer Facilitated Health Consumerism

Facilitated Health Consumerism

To be able to answer how quantitative and qualitative findings of personal, behavioral, and environmental factors related to EFHC compared, six focus groups were conducted at four TriHealth sites in late 2012 and early 2013. These groups were conducted to collect qualitative information on employees’ general thoughts on health, how their thoughts on health were incorporated into being a TriHealth employee, and what factors influenced participation in the
Healthy Living Program. In total, 49 employees took part in the focus groups, with each group consisting of between six and ten employees. Each group was around 45 minutes long and six questions were asked of group participants. Questions were constructed to start out general and progressively become more specific to the Healthy Living Program. The questions were:

Introduction:

1. What do you think of when you hear the word health?
2. How does being a TriHealth employee fit with your thoughts on health?

Main:

3. Do you believe the Healthy Living Program offers you a chance to be healthy?
4. What, if any, are the reasons you take part the Healthy Living Program?
5. What, if any, are the reasons you do not take part in the Healthy Living Program?

Conclusion:

6. Is there anything else you would like to say about the Healthy Living Program?

All six groups were recorded and transcribed. Transcripts were later examined using constant comparison analysis. Texts were separated into smaller sections and codes were developed to describe the data. Categories and themes were then generated. Though constant comparison analysis originates from grounded theory and is often a tool used to develop or refine theory, in this case it was used to investigate whether focus group recordings could be broken down and interpreted using SCT. Transcripts were analyzed independently as well as across groups to ensure saturation of data and themes. Also, efforts were made to examine to what extent qualitative and quantitative information overlapped and to explore whether narratives could be coupled with statistical findings to add depth and contrast to results. Each recording was transcribed and analyzed as soon as possible after a group was conducted. As additional
conversations were broken down to smaller pieces of text and assigned codes, the researcher was able to progressively decrease the number of new descriptors to use and instead accommodate pertinent information from later focus groups with existing codes. At the point of going through the transcripts from the fifth and sixth group, no new codes were being generated. Throughout the process of transcribing group one to group six, codes used to describe small pieces of text were continuously refined and updated as a better understanding of employee feedback was developed. Many of the codes generated could be applied to describe both positive and negative program discussions (as indicated by plus and minus signs next to the codes in the thematic map below).

Using SCT as the framework for putting codes into categories (constructs) and categories into themes, the final report for the six focus groups contained codes that fit each of the major SCT constructs mentioned in the professional literature. With more than one code being assigned to each theory construct, the constructs were then placed into the themes of person, behavior, or environment. Since a code could reasonably be thought to fit well with more than one category and a category with one or more themes, the exact organization of the three levels of grouping can be considered to be highly dependent on the exact research questions for this study. The final thematic map developed as a result of the qualitative investigation included in this study is presented below. Codes are indicated by free text, categories are enclosed in boxes, and the three themes are showed in circles.
Figure 4.1

*Codes, Categories, and Themes of Focus Group Data Generated through a Constant Comparison Analysis and Organized According to Social Cognitive Theory*

- **PERSON**
  - **Expectations**
    - Maintain health (+)
    - Earn financial reward (+)
    - Being aware of personal exemption (+/-)
  - **Self-Efficacy**
    - Scheduling preventive exams (-)
    - Submitting form (-)
    - Spouse participation (-)
  - **Expectancies**
    - Improve health (+/-)
    - Extent of financial incentive (+/-)
  - **Behavioral Capability**
    - Confirmations (-)
  - **Emotional Coping**
    - Behavioral Capability
  - **Behavior**
    - 12 week exercise log (+/-)
    - Wait until the last minute (-)
    - Roles away from work (-)
    - Talk to co-workers (+/-)
    - Give up (-)
    - Contact program staff (+/-)
  - **Reinforcement**
    - Next step directions (-)
    - Confirmations (-)
  - **Environment**
    - On-site screenings (+)
    - Health coaching (+)
    - On-site fitness centers (+/-)
  - **Situation**
    - Support for participation on work time (-)
    - Changes in program design (-)
    - Direct and indirect costs (-)

*Key:
- (+): Positive correlation
- (-): Negative correlation
- (±): Mixed correlation*
In addition to being displayed visually in the thematic map above, there were a few major findings of the qualitative part of this study that needed to be highlighted in-text. First of all, in developing the thematic map, multiple codes to describe small pieces of text were easily generated to fit all SCT constructs. This was interesting since the constructs of environment, emotional coping, and reinforcement were not measured on the survey used for this study. In addition, even though the interest of this study was employer facilitated health consumerism, several focus group discussions centered on roles fulfilled by TriHealth employees away from work. These factors that influenced participation in the Healthy Living Program were not accounted for in the quantitative data.

Like previously mentioned, the same codes were frequently found to fit multiple group recordings, and by the time the last two recordings were transcribed, no new codes were generated. In each group as well as across groups, each construct had more than one code assigned to it. Though hypotheses testing could show a statistically significant relationship, qualitative information added information on how specifically demographics and SCT constructs impacted Healthy Living Program participation in this group. For example, level of behavioral capability was significantly associated with award level (as behavioral capability increased, award level improved). Even with this being known, a health education specialist would not necessarily know how to apply this information to try to increase program participation. Because of the focus group discussions and the constant comparison analysis of transcripts, it was possible to say that being aware of a personal exemption, knowing the program time-line, and knowing the exact credit process were all concepts related to behavioral capability. It was even possible to use focus group data to identify specific resources or skills that those employees who
took part in groups said were desired to address problems related to participation (such as clear and consistent communications or high-touch participant support).

There were narratives produced from focus group recordings that exemplified the complex relationships between various personal, behavioral, and environmental factors. From a social cognitive theory standpoint, such quotes could be thought of as examples of reciprocal determinism. Though not necessarily a construct that is directly measured through traditional quantitative means, reciprocal determinism has been defined as “the dynamic interaction of the person, the behavior, and the environment in which the behavior is performed” (Glanz, Lewis, & Rimer, 1997, p. 157). Examples of reciprocal determinism were able to provide context on how independent variables may influence program participation. This may certainly be considered to be a very interesting piece to add to quantitative results since several of the codes that were generated were used by employees both in a positive and negative fashion. A few examples of quotes that exemplify reciprocal determinism are provided below:

This year, because of all the appointments I have to set for both myself and my husband and the days that I would have to come in late or leave early, it has brought it to the point where I am overwhelmed with it all. As a result, I am not paying attention to it.

It creates a lot of conversation when they offer the biometrics screenings and the other services on-site. People will come back and compare numbers. Sure, the focus is on the points and all that, but it does create a sense of awareness and maybe a little motivation behind it as well.
Some of the things like mammograms and those things, if I wasn’t in the program I would keep putting it off. Because I am in the program I tell myself I have to get certain things done, not just because of the points but because it is important to take care of on a regular basis. The older I get the more I realize that this is important.

You have a family and other responsibilities that make it very difficult to have a structured pattern and do these wellness things that you like and enjoy doing. The organization is promoting wellness, but you also have a job to do and sometimes you have to put your own wellness aside.

This study contained several examples that highlighted how valuable it may be to have access to both quantitative and qualitative data as well as how difficult it may be to decide how to best position the two sources of information to truly enrich study results and conclusions. Since the study eligibility criteria only stipulated that a TriHealth employee had to be eligible to earn points in the Healthy Living Program and be 18 years of age or older, information was not collected from focus group participants that made it possible to directly comment on whether statistically significant demographic predictors were supported by the qualitative data. Also, no attempts were made to keep track the number of times text for a certain code was repeated in a group or between groups. As such, even an anecdotal comment on the possible strength of predictors for program participation mentioned during the focus groups could not be provided.

Though testing of hypotheses were not able to show that all measured demographics and SCT constructs had a statistically significant association with the outcome variable, qualitative data indicated that the full range of suggested predictors should be considered when trying to account for Healthy Living Program participation. The difference between quantitative findings
(what statistically held true for the sample as a whole) and what the coded focus group recordings showed may have been due to influential cases that were present during the qualitative data collection phase. Though groups were moderated, there was always an attempt to let the participants dictate the direction of discussions. Sometimes, depending on the composition of a group, it became clear that both the time and topic of a session were dominated by a few influential participants.

Also, for proposed relationships that were not shown to be statistically significant (but still appeared in the thematic map), qualitative data were able to bring to light factors that may have exerted a greater influence on participation for certain undefined subpopulations (based on significant personal, behavioral, or environmental factors that were not or could not be measured for this study). For example, there were several instances in focus group discussions where the positive as well as negative influence of role models and wellness champions was mentioned, especially as it came to completing biometric screenings. If trying to position this code based on the constructs of SCT, it could be argued to fall under observational learning. Observational learning was not shown to be significantly associated with award tier reached for the group as a whole in hypothesis testing. The difference between the qualitative and quantitative data may indicate that there were specific examples of role models (based on the structure of a particular department and work roles and responsibilities), specific situations in which roles models work better (with immediate access to program activities), or specific participant characteristics that make role models influential (perhaps health status or family history of certain disease).

Summary

From a participant perspective, it was determined that the group of survey respondents was significantly different than survey non-respondents related to a majority of demographics.
and program participation measures. From the group of independent variables that were accessible with information for survey respondents as well as survey non-respondents, only type of health care coverage could not be said to be significantly different for the two groups. It was also found that only about 15% of survey respondents failed to earn an incentive in 2011 (placing in award tier 1). This was not the case for the survey non-respondent group, in which more than half of employees earned no award in 2011.

Individual hypothesis tests were able to show that for the survey respondents, there was a significant positive relationship between EFHC score (as indicated by Healthy Living Program award level reached) and age, education, and income. Null hypothesis tests looking for differences between groups for the remaining demographic and program participation indicators also showed that level of EFHC was significantly higher for women, white employees, physicians/managers/directors/vice presidents compared to standard full-time employees, those who earned a Healthy Living award the previous program year, and for those who earned program credit for completing a physical in 2011. Bivariate analyses also included a series of correlational tests intended to determine whether the dependent variable was significantly associated with measured SCT constructs. Situation, behavioral capability, expectancies, self-control, and self-efficacy were all constructs that showed a statistically significant association with EFHC.

A selection of participant demographics, indicators of Healthy Living Program participation, and SCT constructs were combined to test to what extent they, as a group, were able to predict level of EFHC among TriHealth employees. The final custom backwards elimination multinominal logistic regression model generated included the independent variables of sex, education, 2010 Healthy Living Program credit, behavioral capability, self-control, and
situation. This model accounted for a significant amount of variability in the data and showed to be a good fit overall to the data. The backwards elimination procedure also allowed for the exclusion of two non-significant independent variables without a significant loss of fit to the data.

Several focus groups were conducted at various TriHealth sites to ask employees about what influenced participation in the Healthy Living Program. It was found that all SCT constructs described in the professional literature could be identified from the coded focus group transcripts. This included constructs not measured on the survey as well as those constructs that failed to show a statistically significant association with EFHC. Recorded discussions built on quantitative data by offering practical ways constructs could be operationalized and possibly addressed through health education initiatives. Lastly, qualitative information revealed the importance of roles fulfilled by employees away from work on level of EFHC.
Chapter 5

Conclusions and Recommendations

Several reports described how access, cost, and quality of health care in the US fell well below desired benchmarks (Commonwealth Fund Commission on a High Performance Health System, 2011; World Health Organization, 2000). Public health experts argued that the Patient Protection and Affordable Care Act (ACA) would eventually lead to overall system improvements in health care availability and delivery. Not only would health reform extend health care coverage to people traditionally at risk for being uninsured, but the ACA also contained a range of efforts intended to improve how care was made available and accessed by people who had health care coverage (Commonwealth Fund Commission on a High Performance Health System, 2011; Kaiser Commission on Medicaid and the Uninsured, 2010).

To support large scale efforts to improve public health, there were several methods the employer, the provider of insurance, or the health care provider could use to encourage behaviors that were shown to promote health or the selection of high quality, relatively low cost health care services. One example would be to offer high deductible health plans to encourage health care consumerism (Guo, 2010). Consumer driven health plans, often structured around high deductible health plans and health savings options, were intended to make people more carefully consider of what health care services they purchased (Robinson, 2005). Conceptually, the suggested positive impact of consumer directed health care on health care cost and quality could also depend on where services were purchased, how often services were purchased, and whether there were self-care behaviors that people could engage in that had the potential to eliminate or delay the need to seek medical care. Worksite health promotion programs could be integrated with benefits to promote health consumerism among employees (Chapman, 2008). Early
findings on the impact of high deductible and consumer driven health plans on select indicators of health care cost and quality seemed to be mixed (Butin et al., 2006; Fronstin & Collins, 2005). One consideration of why the literature showed inconsistencies in outcomes attributed to high deductible and consumer driven health plans may have been that not all people behaved the same way with this type of health care coverage. There may have been population characteristics, other than type of health care coverage that influenced whether people engaged in desired health behaviors and health care consumerism (Hardie et al., 2011; M. Johnson, 2011). Relative contribution of individual, behavioral, and environmental factor on engagement in healthy behaviors and recommended access of health care services promoted through the workplace needed to be further explored.

The purpose of this study was to establish the level of employer facilitated health consumerism (EFHC) among employees of a large health system and to investigate whether EFHC differed among these employees based on individual and environmental factors. EFHC was developed as a unique operational definition to measure to what extent employees of a large health system took advantage of health care services and engaged in health behaviors that were promoted by the employer through cost and quality means.

The value of this study came from the ability to identify individual and environmental influences that were associated with employees being more likely to engage in EFHC. Employees who took a proactive role in managing health specifically through recommended access of health care services and healthy lifestyles were healthier and improved the capacity of an organization to manage health care costs (Goetzel & Ozminkowski, 2008). Findings from this study would assist health education specialists in incorporating and properly positioning considerations of health care cost and quality in individual or group health improvement efforts.
As professionals, health education specialists are uniquely qualified to work with health insurance providers, care givers, and employers in translating technical medical information for patients and assisting individuals who engage in healthy behaviors or need to seek out medical care.

Participants in this study were all TriHealth employees who participated in the Healthy Living Program in 2011. TriHealth was a full-service, not-for-profit health system that provided a wide range of clinical, educational, preventive and social programs at more than 80 sites in and around Cincinnati (TriHealth, n.d.). TriHealth was the 5th largest employer in the region with approximately 10,000 employees. To be eligible to take part in this comprehensive workplace health and wellness initiative, TriHealth employees had to be enrolled in an employer sponsored medical plan the same calendar year. Data for EFHC, which was the dependent variable in this study, as well as for several independent variables were continuously tracked by Healthy Living Program administrators and could be shared by request with the investigator. Data were also collected by issuing an electronic survey to people enrolled in the program and conducting multiple focus groups. Data from multiple sources were able to be matched by the employee id provided by study participants who agreed to take the survey.

The electronic survey was intended to collect employment and demographic data as well as data related to personal, behavioral and environmental factors that may have influenced participation in the Healthy Living Program. The survey instrument used was developed specifically for this study. Based on guidelines provided by McKenzie, Wood, Kotecki, Clark, & Brey (1999), survey development included a modified expert panel content validity process. The researcher also established test-retest reliability of social cognitive theory (SCT) scales using a sample of TriHealth employees. The quantitative data collection in this study included issuing
the electronic survey twice in the span of two weeks to all eligible employees using the email addresses on-file with the Healthy Living Program. Six focus groups were also conducted at four different TriHealth sites to collect qualitative data. Employees who were eligible to take part in the Healthy Living Program were allowed to sign up for a group. Questions asked in focus groups progressed from general to specific with a focus on health and Healthy Living Program involvement.

Since the dependent variable in this study was treated as ordinal data, quantitative data were analyzed using nonparametric statistics. Depending on the number of groups and whether an association or difference was investigated, bivariate analyses were conducted using Spearman’s r correlation coefficient, Mann-Whitney tests, and a Kruskal-Wallis test. A multinomial logistic regression (MNLR) model was later tested to discover whether selected significant bivariate relationships were maintained in multivariate setting. Finally, qualitative data from the six focus groups were examined and organized by constant comparison analysis. Codes, categories, and themes derived from the transcripts were arranged using the structure of SCT.

The group of survey respondents was found to be significantly different than survey non-respondents related to a majority of demographics and program participation measures. Age, education, and income were independent variables found to have a statistically significant positive correlation with level of EFHC (as indicated by award level attained in the Healthy Living Program). In tests between groups, EFHC level was also shown to be significantly higher for women, white employees, physicians/managers/directors/vice presidents compared to standard full-time employees, those who earned a Healthy Living award the previous program year, and for those who earned program credit for completing a physical in 2011.
A series of correlational tests were able to determine that level of EFHC had a significant positive relationship with the SCT constructs of situation, behavioral capability, expectancies, self-control, and self-efficacy among participating TriHealth employees. The independent variables of sex, education, 2010 Healthy Living Program credit, behavioral capability, self-control, and situation were used in a custom backwards elimination MNLR model that showed to be a good fit to the data and accounted for a significant amount of variability.

Focus group qualitative information organized by codes, categories, and themes showed that all SCT constructs commonly described in the professional literature could be identified in transcripts. This included constructs not incorporated into the electronic survey used for this study as well as those constructs that did not show a significant association with the dependent variable in statistical tests. In addition to showing that all SCT constructs were related to level of EFHC for group participants, discussions provided practical advice on how theory constructs could be operationalized and addressed through health education initiatives. Qualitative information also revealed the importance of roles fulfilled by employees away from work on level of EFHC.

Conclusions

Survey respondents were found to be significantly different than survey non-respondents related to a majority of demographics and program participation measures. From the group of independent variables that were accessible with information for survey respondents as well as survey non-respondents (age, gender, race, income, health plan, type of health care coverage, job type, primary job location, Healthy Living Program premium discount tier reached in 2010, and credit earned for an annual physical in the 2011 Healthy Living Program), only type of health care coverage could not be said to be significantly different for the two groups. It was also found
that only about 15% of survey respondents failed to earn an incentive in 2011 (placing in award tier 1). This was not the case for the non-respondent group, in which more than half of employees earned no award in 2011. These differences between survey respondent and non-respondents had a significant impact on ability to generalize results from the sample group to the entire TriHealth employee population. Those persons who responded were more vested in the Healthy Living Program than were those who did not respond.

Individual hypothesis tests were able to show that for the survey respondents, there was a significant positive relationship between EFHC score (as indicated by Healthy Living Program award level reached) and age, education, and income. Older employees, those with a higher level of education, and those in higher income categories were more likely to reach a higher award level in the Healthy Living Program. To be able to test the null hypotheses for the remaining demographic and program participation indicators (gender, race, health plan, type of health care coverage, job type, primary job location, Healthy Living Program premium discount tier reached in 2010, and credit earned for an annual physical in the 2011 Healthy Living Program), Mann Whitney and Kruskal-Wallis tests that looked for significant differences between groups were applied. EFHC score (indicated by award level reached) was shown to be significantly higher for women, white employees, physicians/managers/directors/vice presidents compared to standard full-time employees, those who earned a Healthy Living award the previous program year, and for those who earned program credit for completing a physical in 2011. Hypothesis tests were unable to identify a significant difference in EFHC score based on type of health plan, health care coverage, and primary job location.

To determine whether EFHC was significantly associated with the SCT constructs of situation, behavioral capability, expectations, expectancies, self-control, observational learning,
and self-efficacy among TriHealth employees a series of correlational tests were run. Weak, though statistically significant, relationships were found between EFHC and the SCT constructs of situation, behavioral capability, expectancies, self-control, and self-efficacy while only expectations and observational learning lacked a significant linear relationship with EFHC.

After testing the hypotheses established for this study, a selection of participant demographics, indicators of Healthy Living Program participation, and SCT constructs were combined to test to what extent they were able to predict level of EFHC among TriHealth employees. Sex, education, 2010 Healthy Living Program credit, behavioral capability, self-control, situation, self-efficacy, and expectancies were included in an initial MNLR model.

Though the forced entry model that included all of these variables showed to be a good fit to the data and accounted for a significant amount of variability in the data, there were a few independent variables that were not significantly related to award tier reached. As a result, the same set of predictors were tested a second time in a custom backwards elimination model. This resulted in a model that still fit the data well and accounted for significant amount of variability in the data, but the non-significant individual predictors of self-efficacy and expectancies were able to be removed without decreasing the log likelihood from the full model.

Several focus groups were conducted at various TriHealth sites to ask employees about what influenced participation in the Healthy Living Program. This qualitative information also allowed the researcher to reflect on how quantitative and qualitative findings of personal, behavioral, and environmental factors related to EFHC compared. It was found that all SCT constructs commonly described in the professional literature could be identified from the coded focus group transcripts. This included constructs not measured on the survey, as well as constructs that failed to reveal a statistically significant relationship with EFHC in bivariate
analyses. Several of the group discussions provided clues to the fact that even independent variables that were shown to be non-significantly related to the outcome variable for the group as a whole may be vital for EFHC among certain subgroups of employees not defined in this study.

Recorded discussions built on quantitative data by offering practical ways constructs could be operationalized and possibly addressed through health education initiatives. Information gained from focus groups was also able to provide examples of reciprocal determinism, which were highly complex situations where the person, behavior, and environment interacted to influence health behaviors. Lastly, qualitative information was able to highlight the importance of roles fulfilled by employees away from work on level of EFHC.

**Discussion**

**The Healthy Living Program.** For this study, EFHC was indicated by award tier reached in the 2011 Healthy Living Program. As a comprehensive worksite health and wellness initiative, the Healthy Living Program contained a range of activities that were assigned individual scores. An employee could earn between 0 and 3500 points by completing up to 28 activities. If the total number of points accumulated was between 1000 and 3500, an employee reached the highest award tier (tier 3) and earned $360. If the total number of point collected was between 650 and 999, the employee reached award tier 2 and earned $180. Any point total less than 650 (award tier 1) resulted in an employee not earning a financial reward associated with the Healthy Living Program.

Activities that traditionally were considered more important based on organizational health experts were assigned higher scores to encourage greater use. In 2011, completing a physical resulted in 325 points earned. This was the greatest number of points for a single activity in the program that year. The cost for many recommended preventive services included
in the program were either fully covered or heavily discounted by TriHealth. Some program activities were exclusively available at the worksite while other points could be earned by employees taking advantage of recommended health care services offered in the community or scheduled on an individual basis. The type of activities included in the program ranged from highly independent logs that participants completed and submitted on their own to highly structured condition management programs that reported directly to program administrators. Some program activities had to be reported by the participant to the program administrators using set procedures, while others were automatically credited through medical or dental claims data.

Employees who purchased a health insurance policy through TriHealth were automatically enrolled in the Healthy Living program and could potentially earn points without initially knowing that some health behaviors were tracked for incentive purposes. If enough points were earned to reach an award level that corresponded with a financial incentive, the reward was issued six months after the completion of a calendar year. The reward was issued in the form of a discount on insurance premium costs. The discount was split between all planned premium payments for that fiscal year, and it was the same dollar amount for all who reached a certain award tier. The program, both the type of activities offered and the incentives, was completely funded by the organization’s health plan.

**Points earned in the Healthy Living Program and Employer Facilitated Health Consumerism.** Though there was previous published peer reviewed research related to worksite health promotion program participation, many of these articles dealt with tracking single events that were promoted through the workplace such as completing a health risk assessment (McLellan et al., 2009; Seaverson, Grossmeier, Miller, & Anderson, 2009; Taitel, Haufle, Heck,
Loeppke, & Fetterolf, 2008). Discussing the dependent variable in this study as simply points earned in a program, as well as comparing it to studies that presented this as their main outcome variable, would not have taken into account the comprehensive nature of the program. It also would not have done justice to what activities were promoted and why, how they were offered and tracked, and how the format of the program incentive was tied to future health care costs. For example, Healthy Living Program activities were available for healthy individuals as well as those with chronic conditions, activities were weighted by importance and could be accessed at work or on an employee’s spare time, cost related to access were fully covered or shared, much of the reporting was automatic and electronic, and the incentive was tied to future health care costs.

Considered altogether, the structure, execution, and desired outcomes of the Healthy Living Program indicated it represented a much more complete effort to positively impact access, use, and quality of health care for employees. Considering current legislative efforts, major public health recommendations, and industry attempts to improve U.S. public health, it would have been shortsighted not to try to discuss the Healthy Living Program with an eye to health care reform. As such, it was reasoned that the purpose of this study as well as suggested value of study findings should be presented relative to peer reviewed literature that looked at reasons related to cost and quality for engaging in positive health behaviors and taking advantage of recommended health care services. These thought processes combined to conceptually position the study described in this text as examining personal, behavioral, and environmental factors related to health consumerism.

In this study, level of EFHC was treated as ordinal data. Since the intent was that results from this study would add to the professional literature that discussed cost and quality reasons
for consuming health services and engaging in health behaviors, there was an explicit effort not to delineate between different point totals in the same award category. Based on individual recommendations, a person earning 1100 points in the Healthy Living Program may be just as wise of a consumer of health care service and health behaviors as a person who earned 3000 points. Since this was the approach that was taken to infer the actual meaning of what was measured as the dependent variable, the data analysis plan had to account for the fact that though the three award tiers had a distinct order, the distance between tiers was not equal.

Much of the supporting literature for this study focused on health actions related to consumer directed health care (Buntin, Haviland, McDevitt, & Sood, 2011; Dixon, Greene & Hibbard, 2008; Hardie, Kyanko, Busch, LoSasso, & Levin, 2011). The reason why these types of studies were frequently included in Chapter 2 was that there was not much published research available for how facilitated health consumerism had previously been measured. Except for a few sources available in the literature that dealt conceptually with how value-based benefits design was expected to have a positive impact on health care cost and quality (Lee & Hoo, 2006; Vitt & Werntz, 2008), health consumerism that was promoted by the employer seemed to be a rarely applied and poorly standardized research variable. Chapman’s (2008) definition of health consumerism and Johnson’s (2009) explanation for how health consumerism can be promoted through work were the only peer reviewed sources found that suggested comprehensive workplace health promotion programs as a way to promote health consumerism among employees. As summarized in the first two paragraphs of this section, it was quite reasonable to think of the Healthy Living Program as a part of a value-based benefits design intended to promote wise consumption of health care and encourage healthy behaviors. This, in turn, was
projected long term by the employer to improve employee health, curve health related costs, and contribute to an overall high level of job satisfaction.

**Bivariate analyses of demographic and program participation indicators and Employer Facilitated Health Consumerism.** A significant difference in level of EFHC was found based on gender, with female survey respondents reporting higher levels of EFHC than male respondents. This finding was what was expected when constructing the relevant hypothesis in Chapter 1. The Healthy Living Program issued points that contributed to reaching a certain award tier for completing preventive care activities, the results of certain preventive screenings, and healthy behaviors that may have contributed to good health. Part of the justification for the directional prediction in Hypothesis 1 was that many of the activities that resulted in significant point accumulation were tied to utilization of preventive care. It has previously been shown that women were more likely than men to take advantage of recommended preventive health services (Vaidya, Partha, & Karmakar, 2012). Also, though the conceptual approach to this study was that the award tier reached in the Healthy Living Program ultimately represented something much more significant than just program participation, the literature review identified women as consistently more likely to take part in workplace health promotion initiatives (Robroek et al., 2009).

Among survey respondents, it was found that there was a statistically significant positive correlation between age and level of EFHC. This was the opposite direction than what was predicted in Chapter 1. Though it was initially surprising that the data collected in this study supported the alternative hypothesis, subsequent deliberation on the relationship between age and Healthy Living reward level lent some support to a prediction of increasing age being associated with a higher level EFHC. In this study, level of EFHC represented a collection of behaviors
performed over the course of a calendar year. Ultimately, this collection of behaviors represented more than naturally being healthier or choosing to engage in planned physical activity. For example, the greatest number of points to be gained was through having a yearly physical and older participants might have been more likely to schedule a physical than younger participants.

The motivation for trying to reach a certain level of EFHC may have been critical to predicting the direction of a relationship between age and level of EFHC. In fact, most hypotheses tested in this study were written in a way that predicted higher levels of EFHC among groups that could have been argued to have a greater awareness of financial as well as health reasons for taking part in the Healthy Living Program. Even though young adults may have been more likely to exercise or have relatively lower medical costs because of the absence of various chronic conditions associated with older age, it was debatable whether these conditions would naturally translate into a relatively high level of EFHC as measured in this study. It was questionable whether deliberate health behaviors of young adults were consistent enough or if they were reported for the purpose of accumulating points in a workplace health and wellness program. It could be argued that older adults may have had a relatively greater motivation for participation both from a financial as well as health perspective. As far as the financial incentive, older adults could have been more likely to have additional people covered on their health plan, which would have resulted in a higher premium cost. Also, it was possible that an increase in age for survey respondents was positively correlated with experience of using health insurance as well as educational level. If one was to consider that education was positively associated with maximizing health plan benefits, this would be another reason for predicting age to be positively associated with level of EFHC.
Study results indicated that White survey respondents had a significantly higher level of EFHC as compared to non-White respondents. While the Mann-Whitney procedure used to test Null Hypothesis 5 did not allow for statistical control of potentially influential social determinants of health that may have impacted the relationship between race and EFHC, there was other peer reviewed literature available that reported racial differences in behaviors related to health consumerism. In the case of diabetics, Whites were found to be significant more likely than minorities to take advantage of health care services such as vaccinations or biometric readings (Oster et al., 2006). Also, compared to Blacks or Hispanics, Whites were often reported to be more likely to engage in recommended levels of physical activity as well as healthy eating practices (Nwasuruba, Khan, & Egede, 2007). Though the research presented in this text did not assess whether Healthy Living Program participants had been diagnosed with one or more chronic conditions, the studies referred to above measured many of the same activities that were tracked in the Healthy Living Program. Also, the populations described in these peer-reviewed articles were presented with similar reasons related to cost and quality for using preventive services and engaging in self-care behaviors.

Lucove, Huston, and Evenson (2007) provided literature support for the hypothesis posted in this study that stated that there was a significant difference in EFHC based on work location. The authors reported that worksite policies and environments that were intended to promote health were statistically related to increased leisure-time physical activity among a randomly selected sample of employed adults. On-site fitness facilities and subsides for health clubs were among the factors that showed the strongest association with physical activity. Both of these conditions were part of how the Healthy Living Program intended to promote health consumerism among TriHealth employees. In this study, the researcher believed that the access
to resources and services that presumably came with working at one of the two main hospitals would be a significant benefit related to Healthy Living Program participation. However, study results showed that there was no difference in level of EFHC between those survey respondents who were located at either of the two major hospital sites as compared to those respondents who were located at other TriHealth satellite sites. Though this result could be considered reasonable based on the characteristics of the survey respondents and the way EFHC was measured, it was still possible that the two options for job location used as a categorical independent variable did not offer enough data groupings to detect significant differences among employees. There may have been particular conditions that differed between the two major hospital sites, or there may have been attributes associated certain satellite sites that deserved a unique focus.

The dependent variable utilized in this research could be thought of as a combination indicator of employees taking advantage of health care services and engaging in health behaviors that were promoted by the employer through cost and quality means. As such, there should theoretically have been both health and cost reasons for why employees reached a certain level of EFHC. Several of the hypotheses proposed for this study were written with the idea of testing whether various measures associated with financial benefits and barriers could be used to identify significant group differences in EFHC among TriHealth employees.

Income, health plan, and type of health coverage within a plan could all reasonably be considered directly connected to perceptions of cost. The independent variable of income for this study was thought to be correlated with level of education and professional attainment. As such, it was assumed that as income increased so would EFHC, since level of education had previously been shown to have a positive influence on healthy lifestyles and the use of preventive health care services (Hughes, Hannon, Harris, & Patrick, 2010). Though the effect
size was relatively small, this investigation showed income as having a statistically significantly positively correlation with level of EFHC in a bivariate analysis.

Even with this result allowing for the rejection of the Null Hypothesis 3, the connection between income and various health indicators that contributed to EFHC should be considered vague at best. In their systematic review of the literature, Gunasekara, Carter, and Blakely (2011) reported that a majority of studies examined found only a weak association between income and self-reported health. The authors also found that this association was further reduced after considering how health may lead to higher income as well as often unmeasured potentially influential factors, such as employment status, whether a person was married or not, and family structure. In addition, Larrimore (2011) provided an in-depth discussion of the potential hypothetical relationships between income and health. Besides the possibility that unknown factors caused the positive association between health and income, the author explained how increased income may indeed have allowed individuals to purchase more health services. However, it was also suggested by the researcher that healthier individuals make more money. This scenario would have supported a relationship between income and EFHC in a correlational study, but would not have proved that higher income leads to better health. Though neither of the two dependent conditions used in the two studies introduced above were true equivalents of EFHC, they do provide support for cautioning practitioners who consider using income as a strong consideration for how to offer health education programming.

As far as health plan and whether a plan covered just one individual or multiple persons, neither of these independent variables could be used to identify significant differences between EFHC level groups. Though no professional literature could be located to substantiate this assumption, it was thought that the increased cost of health insurance that was associated with
coverage beyond the individual would be related to a relatively higher level of EFHC. In other words, those paying higher insurance premiums would be more likely to participate in a program that could lower their costs.

Since CDHP often were structured to limit the premium costs for enrollees, the researcher was not able to extend the same line of reasoning to the directional prediction of participants in the TriHealth offered high deductible health plan having a higher level of EFHC. However, though the consideration of premium costs as a potential motivator for EFHC did not fit with the study hypothesis written regarding health plan enrollment, there was professional literature available that pointed to CDHP participants as likely to spend more out of pocket for health care (Fronstin & Collins, 2005). This would have been a strong incentive to use discounted or free services that were offered through work. Also, people enrolling in CDHP have been found to be more likely to take an active role in managing their health as well as becoming more active as a result of CDHP enrollment (Dixon, Greene, & Hibbard, 2008).

Conceptual considerations for why there was no difference in level of EFHC based on health plan have previously been introduced in this chapter. These all question whether a variable like health plan could reasonably be expected to be a strong, as well as consistent enough, predictor to independently be related to level of EFHC. It is certainly possible that moderating personal or behavioral factors of enrollees in a CDHP limits the ability to identify a significant bivariate relationship between plan selection and EFHC. Another cost consideration to add to what was outlined earlier was that though the eligibility for employer sponsored health insurance was based on number of hours worked per week, there were several other factors that could influence the cost of a particular health plan. For example, though eligible, a person who was not a scheduled fulltime employee may have paid significantly more per month for health
insurance. Also, there were differences in the health insurance premium an employee paid based location or department. As such, two people in this study who were both categorized as being covered by the CDHP could pay a different amount for health insurance each month based on how many hours they were scheduled or where they worked. If attempting to say that level of EFHC is influenced by the cost of health care and the perceived value of financial rewards or discounted services, then these factors were intervening variables in this study and were likely to impact the ability of this study to identify consistent statistical relationships.

An argument could be made for education and type of employment being two additional variables that were indirectly tied to financial reasons for trying to reach a certain level of EFHC. With an improvement in educational attainment and job title, greater opportunities should reasonably have been presented in terms of earning potential. This research found a statistically significant positive correlation between level of education and level of EFHC. Education has previously been discussed in the professional literature as a variable positively associated with health consumerism behaviors as they are conceptualized in this study (Hughes et al., 2010). Though it was not specifically evaluated for this study and no such sources could be located in the professional literature, it was thought that increased education was related to a greater appreciation of health and a stronger reason for trying to reach a higher level of EFHC. It is likely that as a person obtained higher levels of education, that person was exposed to an increased amount of health information and activities that promoted recommended health behaviors.

This study found a significant difference in the level of EFHC based on type of job. Physicians, managers, directors, and vice presidents had higher levels of EFHC than did standard full-time employees. Though no literature could be located that used a similar set of categories
for the independent variable of job type as well as for how various self-care behaviors and preventive services were combined into the dependent variable of EFHC, this finding was not surprising when considering the previously presented findings related to income and education.

The researcher believed that certain job categories would consistently be associated with higher levels of income or educational attainment among TriHealth employees. In turn, it was hypothesized that the financial and health motives that were thought to contribute to EFHC would be found more consistently among employees with specific types of jobs. The fact that there was not a significant difference in level of EFHC between part-time employees and standard full-time employees or between part-time employees and physicians, managers, directors, and vice presidents was somewhat unexpected. However, there were several reasons for why the assumed connection between the independent variable of type of job, as organized for this study, and motivators for EFHC may have been shortsighted. For example, it is certainly possible that some part-time employees were in fact physicians or other respected health professionals with relatively high incomes and levels of educational attainment. In addition, income from a part-time job may not have reflected combined household income. Without further information such as household financial status or job title combined with job type, the prediction for type of job being consistently associated with a certain level of EFHC was premature.

This study found a higher level of EFHC for those employees who completed a physical in the Healthy Living program as well as for those who previously earned a Healthy Living Program award. Though it was possible to use the indicator of earning an award the previous program year in the Healthy Living Program to identify significant group differences in level of EFHC, future research would be well suited to further dissect this relationship.
Recommendations presented later in this chapter suggest trying to identify perceptions and attitudes that contributed to this difference.

Completing a physical resulted in earning 325 points, which by itself brought a participant halfway to the first award level associated with a dollar incentive amount. As such, completing a physical could potentially have been treated as a partial indicator of the outcome variable in this study. This was part of the reason for why this variable was excluded from later multivariate analyses. When applied as an independent variable in a bivariate analysis intended to discover significant differences in level of EFHC among TriHealth employees, it was theorized that interactions with the doctor and other professionals who were part of a health care team would expose a person to additional advice related to healthy behaviors and recommended health care. If this was true, then completing a physical could be a direct predictor for completing other activities that resulted in points earned in the Healthy Living Program. It was thought that the type of patient-doctor relationship necessary for advice to turn into action would be more likely to be found with employees who had usual place and person they visited when they were sick or needed to access other health care services. Having a usual provider and place of care has previously been identified in the professional literature as predictive of taking advantage of preventive services (Blewett, Johnson, Lee, & Scal, 2008).

In terms of the quality of the care encounter, specific pathways for how patient-centered communication practiced by a care provider may positively have impacted the health of a patient have been proposed. These included increased access to care, greater knowledge and understanding of health, higher quality decision making, patient and care provider working towards the same treatment goals, social support, empowerment, and accounting for emotional aspects of health (Street, Makoul, Arora, & Epstein, 2009). Many doctors that would have
performed a physical for employees would have been TriHealth employees themselves. It was reasonable to think that this would have increased the likelihood that they already knew about the Healthy Living Program. As such, they could have been more receptive to constructive conversations about what activities to complete in the program based on patient health needs as well as behaviors and attitudes tied to a healthy lifestyle. Again, this may have created a situation where those employees who completed a physical received encouragement for further program involvement or even instructions on how to engage in specific activities that resulted in Healthy Living Program credit. As a result, employees who completed a physical would have been more likely to reach a high level of EFHC.

**Bivariate analyses of Social Cognitive Theory constructs and Employer Facilitated Health Consumerism.** As far as SCT constructs tested individually for a relationship with level of EFHC, expectations and observational learning were not significantly related to levels of EFHC among survey respondents. This meant that for survey respondents, it was not possible to say that the level of EFHC consistently increased as the scale scores for these two constructs improved.

The SCT construct with the highest mean score in this study was expectations and the construct with the lowest mean score was observational learning. With other words, both those with high and those with low levels of EFHC tended to agree that participation in the Healthy Living Program would lead to improved physical and mental health. This also meant that both employees with high and employees with low levels of EFHC generally disagreed that they completed activities in the Healthy Living Program because they observed that behavior from other people at work. This was interesting, considering observational learning has previously been discussed in the professional literature as a vital theoretical component to programs that
aimed to prevent diabetes and cardiovascular risk factors (Artinian et al., 2010; Baker, Simpson, Lloyd, Bauman & Singh, 2011). Perhaps this indicated that survey respondents either did not see or did not relate the behaviors of fellow employees to the Healthy Living Program.

Tested separately, the constructs of situation, expectancies, and self-efficacy were all shown to have statistically significant relationships with level of EFHC among survey respondents. However, the relationships between EFHC and these three constructs were relatively weak from a statistical perspective. This indicated that while differences existed, there was not consistently a great deal of difference in level of EFHC based on the scale scores of these three constructs. Self-efficacy has previously been found to be directly and indirectly tied to healthy behaviors such as physical activity and healthy eating (Anderson et al., 2007; Ayotte et al., 2010). In addition, outcome expectancies were found to be influential in the decision making process to take part in medical research (Sinicrope et al., 2009). The SCT construct of outcome expectancies has also been found to be positively correlated with self-care behaviors among diabetics (Williams, & Bond, 2002). The current study tends to corroborate these earlier findings.

Compared to the results of the other five SCT tested, behavioral capability and self-control showed relatively robust statistical relationships with level of EFHC among study participants. Both of these constructs were discussed in the professional literature in relation to health behaviors attempted to be addressed through the employer. Hallam and Petosa (2004) found that a worksite health promotion program was effective in increasing the use of self-regulation skills such as proper goal setting or monitoring progress. Self-regulation was also the only construct in the study that was discovered to mediate exercise behaviors among study participants. As for behavioral capability, LeCheminant and Merrill (2012) were able to show
that a worksite health promotion program intended to build behavioral capability and self-efficacy resulted in long term improvements in health behaviors. The program was structured to build applicable skills and provide behavioral tools, and the behavior change process was addressed in manageable weekly segments. Among 276 employees studied between 2009 and 2011, significant improvements were observed in the frequency and volume of exercise, as well as consumption of fruits and vegetables.

**Multivariate analyses of personal, behavioral, and environmental factors associated with Employer Facilitated Health Consumerism.** Following the testing of each hypothesis included in this study, a multivariate analysis was performed to assess how a collection of predictors impacted the odds of reaching a certain level of EFHC. Independent variables considered for inclusion in a MNLR model had to be significantly related to the outcome variable in bivariate testing. The researcher also considered how the data for potential predictors were formatted in previous testing, descriptive data on variables, health education theory, and potential practical applications before making a final list.

The final MNLR model generated in this research was able to shed some light on how individual variables that were significantly associated with EFHC were able to maintain their level of significance when tested as part of a group of predictors. The model was also able to provide an indication of how much of the variance in the data could be accounted for by the final model. In the first model generated, a model in which all of the chosen predictors were tested simultaneously, several independent variables were shown to no longer significantly impact whether a person reached award level 2 or 3 as compared to award level 1 (the reference category). As a result, a second model was generated by the help of a custom backwards elimination procedure to see whether certain independent variables could be removed without
significantly impacting the amount of variability in the data accounted for by the model. This resulted in the removal of the dichotomized expectancies variable as well as self-efficacy. Situation, though non-significant, was not able to be removed through this process without significantly impacting the overall quality of the model. The variables that still showed a strong predictive ability in the MNLR model were those who also showed relatively strong bivariate results.

It was also important to mention that the type of multivariate statistics used in this research looked at the impact of individual predictors on reaching the highest level of EFHC compared to not reaching an incentive. It also measured the likelihood of reaching the intermediate level of EFHC as compared to not reaching any incentive level. Only being female and earning a previous award in the 2010 Healthy Living Program were significant in the low versus intermediate comparisons. Though statistically significant, the odds ratio generated for the two variables did not show a large difference between the two groups, which indicated that it may have been hard to isolate what characteristics and personal traits separated a person with low EFHC and a person with intermediate EFHC. Comparing these two groups without the consideration of the employees with a high level of EFHC may allow for a more constructive discussion of initiation of behavior or perhaps why behaviors were not maintained long enough or were diverse enough to reach the intermediate or high incentive levels. There was also no comparison between the intermediate and the high level of EFHC. This type of analysis may have been interesting if one would like to formulate an educated discussion on certain activities being completed or if the literature indicates that only a very high level of EFHC has a measurable impact on employee health and is financially sound for the employer.
Though the statistical approach of MNLR represented a more comprehensive investigation than bivariate hypothesis testing, there were still potential interactions between demographics and SCT constructs that the final MNLR model generated did not assess. Though MNLR technically allowed for the inclusion and analysis of interaction between predictor variables, no such considerations were applied in this study. Based on the advice of Field (2009), since there was no previous research that dealt with how a collection of predictors impacted the level of a dependent variable that was established based on a multitude of behaviors, only main effects of variables included in the model were examined. The best examples of research presented in the professional literature that had similar research questions as those posed in this study, dependent variables that could at least be partial indicators of health consumerism, similar methodological approach, and similar theoretical foundation were those studies that analyzed data using structural equation modeling (SEM). Using SEM, Anderson and colleagues (2007) as well as Ayotte and colleagues (2010) were able to address direct as well as indirect influences of demographics and theoretical constructs on physical activity as well as a healthy diet. Considering the fact that there were several constructs tested in this study that showed a relatively weak direct relationship compared to what would have been expected based on information available in peer reviewed journals, subsequent studies that use a SEM approach may be shed some light on the exact paths through which SCT constructs influence level of EFHC.

**Focus group data and Employer Facilitated Health Consumerism.** Results of the focus groups showed that all traditionally considered measurable SCT constructs listed by Glanz and colleagues (1997, p 157) could reasonably be identified in the categories developed through the constant comparison analysis. No codes were developed by the researcher that did not have a
natural position within one of the SCT constructs. Even though this research attempted to try to fit codes, categories, and themes to the SCT, if qualitative data reviewed did not fit this theory the researcher would have been forthcoming and explicit in presenting those findings. If that would have been the case, the research results and conclusions would have had an added dimension of suggestions for new theory development or reformulation of the existing theory.

Since the procedures followed for assessment of the qualitative data did not allow for any sort of evaluation of strength of influence, this meant that both statistically significant and non-significant independent variables (labeled as such based on procedures applied when answering research questions two, three, and four for this study) were consistently brought up by employees as being somehow related to Healthy Living Program participation. Transcripts also showed several instances where the concepts of environment, reinforcement, and emotional coping were mentioned by employees as influencing the level of EFHC reached. These SCT concepts were all left off the quantitative survey issued to employees in this study. For example, employees discussed how the availability of on-site fitness centers impacted their involvement in the Healthy Living Program. They also mentioned that seeing points posted online in a timely manner provided encouragement for further program participation, and that talking to co-workers helped deal with stress that prevented engagement in certain program activities. Even examples of reciprocal determinism, a concept not very easily gaged through quantitative data sources, could be identified by the researcher through critical review of group transcripts.

It was not possible to say that findings from focus groups were applicable to any individuals except those who chose to participate in this component of the study. However, it was possible to use information gained from the focus groups to suggest specific types of situations, actions, or perceptions that contributed to high or low levels of SCT constructs. From
the perspective of transitional research, this information could potentially have been highly useful when deciding on educational interventions intended to positively impact certain SCT constructs that were associated with high levels of EFHC in other study steps. For example, though it was possible to conclude that a sense of self-efficacy regarding successful program participation had a statistically significant positive association with level of EFHC, survey data did not allow for the evaluation of conditions within the program that improved self-efficacy. Because of information gained from the focus groups, it was possible to make an informed recommendation to program administrators to try to promote a high level of self-efficacy by improving processes surrounding the submission of forms for credit in the Healthy Living Program. That could include simplifying the form itself, offering additional submission options, or automatically collecting data on program activities in addition to completion of a physical or a dental visit.

The qualitative part of this study was conceptually sound. Procedures were comparable to what was reported by Sinicrope and colleagues (2009) in their qualitative assessment of participation in medical studies. However, there was a need to replicate the qualitative data collection and analysis that took place for this research to validate the fit of the data to SCT. This particular study could also have been improved if other researchers completed the full constant comparison analysis. Since this was the first time the researcher collected and analyzed qualitative data, it would have been very useful to see whether other investigators found the same codes, categories and themes. If findings were consistent from researcher to researcher, that would have added an additional degree of reliability to the results and conclusions. On the other hand, if the outcomes of the constant comparison analysis differed between researchers, then the resulting process of trying to articulate reasons for coding and categorization and relate decisions
to previously published research or theoretical expertise would surely have improved the credibility to the final report.

**Recommendations for Practice**

Using demographic and program participation data to improve levels of Employer Facilitated Health Consumerism among TriHealth employees. Though there were several potentially influential extraneous factors that should be carefully considered, knowing that level of EFHC in this sample consistently increased with level of income and education indicated that limited resources related to program components may be constructed or targeted in a way that accounted for this relationship. For example, job categories or departments with employees who reported a higher income or could be expected to have greater educational attainment may not be immediately prioritized when it comes to high-touch efforts to improve program participation. It may also be valuable to collect qualitative information from high income earners to try to examine subjective reasons for why this relationship was found. Conceptually, there are potential counterarguments for why high income earners would be consistently expected to display high levels of EFHC as measured by points earned in the Healthy Living Program. Qualitative information will help assign relative weight to cost and health reasons for striving to earn points in the Healthy Living Program by high income earners and people with significant educational attainment.

Recommendations for future research provided in subsequent sections of this text suggest modifying how some of the variables are measured in an effort to maximize the potential practical impact from study findings. However, demographic indicators that were found to be statistically significantly associated with EFHC in this study should still be used when deciding on program communications as well justifying possible program redesign. For example, since age was found to be positively correlated with levels of EFHC, it may be wise for program
administrators to develop a tiered promotional campaign intended to increase the level of EFHC among younger employees. It is possible that such a campaign would include a higher number as well as diverse selection of communications for younger program participants. It could also include messages promoting the completion of specific program activities. One medium to strongly consider in such an approach would be social media. Considering the significant difference in EFHC between males and females, the same type of plan could be developed by segmenting the program population based on sex.

Program services could also be heavily promoted or made uniquely available for groups that were found to have lower levels of EFHC. One suggestion could be to have designated biometric screening session for male or minority TriHealth employees. Though program administrators would have to be careful to stay away from potential legal issues related to discrimination, it is still possible that this type of approach may have a significant positive impact on program involvement by groups of employees discovered to generally have low levels of EFHC in this study. Even educational components in the Healthy Living Program, such as group weight management programs or individualized health coaching sessions, could fairly easily be reformatted so they included versions intended for employee groups with lower levels of EFHC. These versions should be highlighted in promotional language for the Healthy Living Program. For example, it is reasonable to assume that reasons for why overweight or obese male employees would consider taking part in a group weight management intervention would be vastly different than reasons listed as important by females.

Considering the strong bivariate statistical relationship found in this study between completing a physical and an overall high level of EFHC, it is possible that certain aspects of the health care encounter contributed to further healthy behaviors among program participants. If
Healthy Living Program administrators were able to somehow further incentivize the completion of a physical in the program, this may lead to additional people completing this program activity. In turn, this new group of employees who go through the process of completing a physical may be exposed to the same beneficial advice or instructions that potentially contributed to a high level of EFHC among those who completed a physical in 2011.

To increase the likelihood that the health care encounter consistently promotes further Healthy Living Program participation, administrators may want to communicate directly with the physicians. This communication should attempt to inform doctors of why some of their patients may be having a physical completed and what they can do to help TriHealth employees earn further points in the program. This could include very specific information on the fact that this is a preventive measure fully covered in all offered employer sponsored medical plans. It may even be useful to somehow publically recognize or offer incentives to doctors who are instrumental in actively reaching out to patients in an effort to get them to complete recommended medical exams (similar to what is done in a patient-centered medical home model). At the very least, making this type of information available within the program population may result in spotlighted medical offices experiencing a significant number of requests to establish primary care from program participants and their families.

In addition to findings related to observational learning suggesting that using wellness champions may increase EFHC among TriHealth employees, decisions for how to best use such persons in the Healthy Living Program may very well be informed by the finding that employees who previously earned a financial award in the program had significantly higher levels of EFHC in 2011 than those who had not previously earned a financial award. From a program administration perspective, one way to find a practical use of this study result would be to
purposely incorporate previous award earners into roles that support the Healthy Living Program and promote EFHC among employees. Though it is unlikely that all previous award earners could function as official wellness champions, one suggestion might be to create a mentor program where those people who have previously successfully navigated the Healthy Living Program can volunteer to be matched up with employees who have no record of program participation. Mentors could be matched with mentees based on one or more potentially important professional or personal characteristics, such as sex, race or ethnicity, department, or job location.

**Using Social Cognitive Theory data to improve levels of Employer Facilitated Health Consumerism among TriHealth employees.** Expectations and observational learning were constructs found not to be significant associated with EFHC in bivariate analyses. However, observational learning still warrants serious consideration for inclusion in health education programming efforts to raise levels of EFHC. This is because of employee feedback that was coded as being part of observational learning and how frequently some of those perceptions or actions were mentioned in the professional literature. For example, wellness champions were consistently mentioned by employees as a positive influence on Healthy Living Program participation and level of EFHC. The concept of wellness champions has previously been reported in the professional literature as an essential part of a workplace culture associated with high levels of program participation (Seaverson et al., 2009; Taitel, et. al., 2008).

From an administration perspective, it may be wise to try to further utilize wellness champion to improve participation among employees as well as the design of the program. Though it is not uncommon that early adopters of healthy behaviors are intrinsically motivated in their behavior change, it is possible that there would have to be various incentives available to
these employees for their work as wellness champions. Administrators should also consider using these employees who have been identified as frequent program participants on wellness committees. It is reasonable to think that this group would be able to shed light on what employees think of the program. They would be able to offer suggestions for how the program can be improved both from their own ideas as well as based on what is told to them by other employees, many of whom may not have a high level of EFHC. Advice could be sought by the program administrators on anything from what activities to build into the program, how those activities should be valued, what format of incentive is most highly valued, when and where activities should be offered on-site, how program results are communicated, how the program timeline and requirements can be kept at the forefront of the mind of the employees etc. If there are major program design changes planned, this employee group could also provide a pilot testing population to see whether the idea behind the change is well conceptualized. They could also provide constructive feedback on how to best communicate changes to employees and what resources need to be in place for program participants to take full advantage of a redesigned program.

It is also worth mentioning that the positive relationship between level of EFHC and constructs such as behavioral capability, self-control, and self-efficacy could be a positive finding from the perspective of what may be more easily modifiable by a health education specialist. Though it is possible to incorporate the constructs of situation and expectancies into health education programming, positively impacting perception of environmental conditions and value assigned to expected program outcomes may take a long time and require significant resources. Focus group members mentioned situation as being related to availability of large on-site screenings and fitness centers, and examples of expectancies discussed by focus group
members included feeling like the financial incentive was insignificant and not believing that program participation would lead to health improvements. Trying to address these types of predictors of EFHC would likely require large scale changes to how the Healthy Living Program is delivered, as well as multiple employee resources focused on cognitive as well as affective attributes.

Constructs related to employee knowledge and skills have obvious and immediate avenues of addressability. Also, several of the learning activities that could be attempted to try to promote behavioral capability and self-control would be geared toward practicing and successful completion of behaviors that result in earned points in the Healthy Living Program. As such, these exercises would also help promote a sense of self-efficacy among employees. From a programming perspective, the statistical findings related to how behavioral capability and self-control was associated with EFHC can be of immense importance, especially if combined with some of the in-depth information generated by conducting multiple focus groups. Though statistical analysis is able to show that those with greater scores in these scales are more likely to have higher levels of EFHC, qualitative information is needed to understand specifically how these constructs are conceptualized or operationalized by employees.

If health education specialists are able to fully appreciate why employees with high behavioral capability and self-control scale scores are more likely to have a high level of EFHC, then that knowledge can be incorporated into programming efforts to get the rest of the employee population to develop the same positive behaviors. Health education specialists should use focus group data to try to determine how exactly behavioral capability is displayed among employees in the Healthy Living Program. Codes tied to categories in transcripts consistently showed that examples of behavioral capability included knowing rules for earning points and timelines.
associated with the program, as well as having the skills to submit the required paperwork. The impact on programming from such findings could include providing ongoing communications for when forms need to be submitted. It could also be operationalized by a health education specialist by structuring individual coaching sessions in the program around indicators of behavioral capability.

Another example of how focus group data collected in this study could offer suggestions for how to try to positively influence a SCT construct that was found to be significantly associated with level of EFHC can be found in the case of self-control. Codes that fell into the category of self-control included waiting until the last minute, using the exercise log, as well as roles and responsibilities away from work. If a health education specialist would consider how to address these codes to try to positively influence level of self-control, possible efforts could include incentivized interactive trainings on how to reach the highest level of program participation while at the same time being able to take care of responsibilities away from work. It could also mean program administrators ensuring that the Healthy Living Program exercise log is made available in a fully electronic tracking and submission format.

**Recommendations for Research**

**How to treat data and examine relationships in a study of Employer Facilitated Health Consumerism.** Independent variables used in this research were tested to ensure that bivariate correlations were not high enough to indicate that they measured the same concept. However, with the dependent variable treated as ordinal data, bivariate statistics applied in this research did not allow the investigator to specifically control for certain covariates when analyzing a relationship between an independent variable and EFHC. It is possible that future studies would benefit from additional focus being placed on research design aspects that assures that the impact of extraneous variables is minimized. Such design approached could include
excluding a variable (for example just studying females), random selection of study participants from a population, or matching participants by some characteristic before assigning them to a treatment or control condition.

Though there were clear reasons for why the dependent variable was treated as ordinal data in this study, it would have been interesting from a statistical perspective to work with the raw point totals earned in the Healthy Living Program. This would have allowed the researcher to initially test bivariate relationships while accounting for the potential influence of other significant factors. Since the MNLR model generated in this study allowed the researcher to assess previously established bivariate relationship between a predictors and level of EFHC under multivariate conditions, it is thought that this analysis provided many of the same answers that would initially have be pursued with a continuous dependent variable. It is also worth asking the question whether parametric statistics represent procedures that tend to be better known in the field of health education and health promotion. If this is the case, it is possible that studies applying these types of procedures are more easily and more widely disseminated in relevant professional circles.

It is suggested that investigators in future studies select statistical tests that allow for the assessment of both direct and indirect impact of independent variables on EFHC. As presented previously in this text, a study utilizing SEM would fulfill that need. For example, in the case of SCT constructs that were shown to have a weak statistically significant individual association with EFHC, future studies should try to determine whether additional constructs influenced this relationship. A person may generally have disagreed that the situation supported a high level of involvement in the Healthy Living Program. However, that person may still have had a high level of EFHC because of high behavioral capability or self-control. This would theoretically
have allowed such a person to overcome perceived lack of positive environmental factors as a result of being aware of how the program worked and having positive habits related to tracking program related activities. At the same time, another person who had a low a level of EFHC may also have disagreed that the situation supported a high level of involvement in the Healthy Living Program. However, in this second scenario, this person may have lacked behavioral capability or self-control that contributed to a high level of EFHC. As a result, even though these two people would have had very similar situational scale scores, they would have had significantly different levels of EFHC.

There were several SCT concepts applied as categories in the constant comparison analysis that were mentioned both as contributors to and retractors of program participation and EFHC level reached. In addition to statistical means of accounting for relationships between independent variables previously suggested, it will be important that future studies take additional steps to further decode these qualitative findings. Since focus group data did not separate group participants based on demographics or personal characteristics, it would be recommended that future studies try to determine why a SCT construct may be a positive influence on level of EFHC for one person at the same time as it is a barrier for another. Perhaps researchers could offer focus groups with very explicit eligibility criteria. If group participants are more homogenous than what was possibly the case for this study, perhaps additional employees would have considered taking part, additional information would have been shared, and information would have been be more consistent.

Future studies linking salary and EFHC should consider examining whether the financial incentive offered through the Healthy Living Program, if viewed independent of other potential benefits, became relatively less important as income increased. If such a relationship was found,
subsequent investigations should also try to determine if it was maintained while controlling for potentially influential demographic factors such as education or type of job. Though it could be reasoned that a higher income would lessen the financial motivation for a high level of EFHC, a higher education level could potentially moderate that relationship by positively influencing health reasons for participation. Future studies should aim to determine whether cost and quality reasons for EFHC were significantly different based on a combined independent variable of education and income.

If it was true that both employees with a low a level of EFHC and employees with a high level of EFHC scored similarly on the scales attempting to measure expectations and observational learning, changing the type of investigation from a relationship to differences would likely have shown similar results to what is presented in this study. However, it is possible that looking at mean score for these two scales at a linear level was not the correct approach to take to reveal a consistent relationship with EFHC. Alternate means of investigation may reveal a more complicated pattern in the data, such as a curvilinear relationship. Investigating the level of EFHC between a few different survey respondent groups based on means scores in these two scales could give a preliminary indication of such a situation.

It was interesting that some of the predictors tested in the MNLR model that were found to be non-significant represented perceptions or attributes that health education programs are often designed around. If these preliminary findings were to be further validated by subsequent research, it could serve as a caution for practitioners to not just simply assume that what is written in the literature transfers seamlessly to their population and area of health concern. For example, though often one of the centerpieces of health education programs, in this research self-efficacy was not significant in multivariate analyses and was removed from the final MNLR
model. Because of how data were collected and variables defined and measured, this finding does not mean that self-efficacy is irrelevant in health education programming. It does not even mean that it is of low importance in health care organizations that offer a comprehensive employee health and wellness program. What it does mean is that in this convenience sample with this dependent variable, self-efficacy when analyzed as part of a group of predictors, did not significantly impact the likelihood of a person reaching an intermediate or high level of EFHC as compared to a low level of EFHC.

This finding should be seen as preliminary and something that needs to be investigated further. For example, is self-efficacy truly not significant and is this finding consistent over time and with different populations? Or, are there indications that how self-efficacy was measured in this research was not able to fully capture this construct? Or, does the unique dependent variable used in this study somehow impact the importance of self-efficacy? Or, were there characteristics of the survey respondents that increased the likelihood that self-efficacy would be of less importance when it came to high levels of EFHC? These are examples of new research questions that are important to answer if a health professional is interested in offering programs that have a high likelihood of success and makes the best use of resources that are often few and far between.

**Evolution of the indicators of Employer Facilitated Health Consumerism.** The professional literature provided a justification for the need for this study as well as the specific methodological approach utilized. However, the decision to look at EFHC as a certain level of points reached as a result of the completion of multiple program activities made study results difficult to directly tie to the professional literature. For example, there is a substantial discussion in the public health field regarding personal and environmental factors that may make people
more likely to take advantage of recommended preventive care or engage in healthy behaviors. However, completing recommended preventive care is just one of the types of measures that would earn a person points in the Healthy Living Program. It is also unlikely that preventive care alone allowed a participant to reach the highest level of EFHC. Therefore, without being able to tell exactly where the points came from for a person in the Healthy Living Program, the researcher in this study was forced to frequently clarify the type of behaviors that contributed to a high level of EFHC. Also, throughout this text, continuous suggestions have been made for what type of health consumerism related behaviors discussed in the professional literature that may be comparable to EFHC.

Based on how activities in the Healthy Living Program were assigned different amounts of points, there could certainly be an argument made for why it would be relevant to look at completion of a single activity for defined at-risk groups. For example, study results that specified personal, behavioral, or environmental predictors of having a physical or getting a colonoscopy would be much easier to relate to the professional literature. If the dependent variable was reformatted in such a way, this would also require that independent variables were investigated to see whether differences in the new outcome variable were consistent across groups. Looking at single preventive or self-care behaviors would also require an ongoing critical assessment of what preventive health care services and health behaviors are recommended by leading professional organizations and how well those are tied to cost and quality outcomes.

Another important consideration for improvements of future research will be whether points recorded in the Healthy Living Program are a complete enough indicator of overall wise consumption of health care services and engagement in health behaviors. Also, for this to be an
accurate representation of EFHC, any such assessment needs to be tied to cost and quality means provided by the employer. There are some activities in the program that must be self-reported by employees. It is possible employees forget or choose not to report certain behaviors, even though activities were completed as a result of employer provided cost and quality incentives. There is also a possibility that employees report completing activities that were in fact not performed. In addition to considering whether what is measured is an accurate representation of EFHC from a research perspective, program improvement efforts should take a close look at how to best track activities selected for program inclusion. Possible improvements may include recording most program activities based on data provided by a third party in an automated fashion. However, such changes should be made only if they do not detract from a sense of ownership in the program among employees, which is crucial to high levels of participation.

Future research also needs to consider whether there are employee health behaviors that are motivated factors that are not being tracked in the Healthy Living Program. This is certainly the case if you extend the definition of EFHC to include health behaviors that come about as a result of spousal or child health needs. Any comprehensive attempt at measuring wise consumption of health care services and engagement in health behaviors should at least extend to the level of the immediate family. Often times, there will be additional people covered on a health plan. This will impact how cost is perceived through an initiative like the Healthy Living Program. One of the preeminent themes that was discovered in focus groups data were that health behaviors are often much more immediate and consistent when it comes to the wellbeing of those we love. Further, if communications around comprehensive workplace health and wellness programs are focused around genuine caring for employees and the desire to build a culture of wellness, then the family unit should be a strong point of emphasis for employers.
Format of independent variables in a study of Employer Facilitated Health

Consumerism. It is possible that handling the independent variable of age as a categorical variable with a limited number of groups representing certain age ranges would allow for an analysis to more distinctly identify significant changes in the level of EFHC. In fact, this consideration can be applied for all independent variables treated as continuous data in bivariate as well as multivariate analyses in this study. MNLR findings may become much more manageable from a practical recommendation standpoint when dealing with odds ratio between two or three groups as compared to discrete age.

The way race was eventually applied in this study did not allow for a targeted investigation into differences between specific racial groups. Though the number of survey respondents from each racial group would have been a complicating factor for such an analysis in this study, future studies should aim to be able to go further than simply commenting on a majority versus minority analysis. A different proposed sampling approach would be a valuable first step in such an undertaking. If one were to offer suggestions for how to improve program participation, the potential of tying specific barriers or benefits to a group labeled as a minority will be fairly limited as compared to being able to speak to a specific racial or ethnic group. Being able to possibly identify differences in the level of EFHC or types of activities completed based uniquely on race will be of tremendous assistance to health education specialists trying to improve program participation through targeted interventions. Such an analysis would give at the very least rough suggestions as to how to target promotion of the program, attempt to maintain involvement, and aim to maximize the likelihood that the program will have the desired long term impact on employee health and organizational health care costs. In addition, there may very
well be high value activities in the program, such as age or gender specific recommended preventive care, that show a completely different completion pattern based on race.

Regardless, any attempt to discuss race as a basis for significant differences in outcomes variables tied to health will necessitate the control for potentially significant confounding factors. For example, the question needs to be asked whether significant differences were detected because of differences in health literacy between certain groups. Or, perhaps the lack of availability of culturally sensitive program materials and services significantly influenced EFHC for one or more groups. It is also possible that a difference in EFHC between certain racial groups would be mostly a reflection of differences in income or education levels. All of these intervening variables would need to be carefully controlled before any conclusions could be made related to race.

It is possible that the way the hypothesis was written for testing job location against EFHC did not allow for enough distinction in the data to locate differences among employees who work at different TriHealth facilities. At the very least, future studies should look at major work sites independently. This is especially pertinent if a program development conversation needs to be had regarding resources that may come with working at a specific location. Also, it could be interesting to split the category of “other sites” into a few specific locations, perhaps based on number of employees, how long a site has been associated with the organization, or what the work responsibilities or job titles are for a majority of employees at a particular site. Further the presence of an onsite fitness facility could greatly impact the involvement of employees in a program intended to promote EFHC.

Though no such guidelines were immediately available in the literature reviewed for this study, one could also consider looking at the independent variables of income and education as
consisting of a few select groups based on nominal data. Similar to how education was reformatted for the MNLR model, health education specialists could possibly use wisely constructed categorical indicators to compare groups to identify employees in higher need of resources that support EFHC. Even with the dependent variables staying the same, this would allow for an investigation of significant differences instead of associations between EFHC and education or income.

From the perspectives of type of health plan as well as coverage within a plan, future studies may benefit from categorizing independent variables in a way that allows for a more careful separation of the data. Instead of comparing high deductible plan participants to enrollees in all other plans, it may be interesting to split the Health Maintenance Organization (HMO) and Preferred Provider Organization (PPO) participants into two groups. Depending on how this is done specifically, it may help identify specific plan design features that are significantly associated with EFHC. Also, it is possible that using additional categories than just single versus multiple people covered on a health insurance policy would allow for the identification of a significant relationship with level of EFHC. For example, whether a spouse was covered on a plan, whether that spouse had access to other health insurance, if children were covered, or if family coverage was selected could all be considerations that impact what a person pay for health insurance.

For the independent variable of type of job, from an initial set of 13 categories, survey respondents were placed into one of three groups as the researcher tested whether Null Hypothesis 8 could be rejected. The rational for this grouping was based on the number of survey respondents who placed in each category and efforts to treat the independent variable in a way that allowed for a statistical analysis that reflected the consideration of cost and quality.
emphasized throughout the rest of the study. Future studies may be wise to group the survey respondents into just part-time and full time employees. This may allow for a more direct association with the cost of health reasons for a high level of EFHC. The applied study variable of job type may also become a better statistical predictor of EFHC if it included considerations of job responsibilities and flexibility in how time at work is spent. In the Healthy Living Program, there were several activities that could be pursued at work. No matter which job category a person was placed into, how time is spent at work may very well have a significant influence on level of EFHC as it was indicated in this study.

**Novel and reformatted independent variables in a study of Employer Facilitated Health Consumerism.** It could also be suggested that if considerations of cost were to be incorporated into future studies looking at predictors of EFHC, it would be essential to try to evolve income as measured in this study by assessing total family income and expenses. It would be reasonable to assume that this type of measure would have greater predictive association with EFHC than just what was earned by one person from one employer. Another thought from the perspective of the independent variable of

Study results showed that survey respondents who had previously earned an incentive in the Healthy Living Program had a relatively higher level of EFHC. Future research should put forth efforts to identify perceptions and attitudes in this group that may account for this statistically significant difference. If it was possible to show that such SCT constructs as self-efficacy or outcome expectancies is what led to this result, then program administrators could use this information in a transitional research sense in considering using education interventions to improve these personal aspects for people with low levels of EFHC. It is possible that this
could contribute to higher levels of EFHC in groups previously seen as unlikely to reach a desired award tier.

As one of the conditions often brought up in the professional literature as critical to the use of preventive health care services and self-care behaviors, future researchers should include a true and tested measure of health literacy as a predictor for EFHC. This would allow for the initial assessment of whether this concept is connected with EFHC. It also has the potential to provide several preliminary suggestions for what health education programming and services can be offered to promote health literacy in an employee population specifically for the purpose of increasing levels of EFHC. In addition, including health literacy in future studies will give the concept of EFHC further credibility. It will allow researchers to connect a relatively poorly established indicator of wise consumption of health care services and engagement in health behaviors with major public health efforts to eliminate population health disparities. This type of study could also help make the connection between EFHC and favorable health care costs and selection of high quality health care services, which in turn will allow for a debate on the role of EFHC as a critical step to successful health care reform.

In addition to the demographic variables collected for this study, it would be interesting for future research to try to tie self-rated health status and the health history of a participant to EFHC. It would be reasonable to assume that these aspects of health, analyzed independently or combined, could influence how a person perceives cost and health reasons associated with levels of EFHC. Also, looking at the perceived health of a person and possible preexisting health conditions could provide guidance for how to assist certain groups in the program at high risk for low levels of EFHC. For example, research may investigate whether persons participating in one of the chronic condition management offerings in the Healthy Living Program had a harder time
reaching a desired level of EFHC. If that was the case, it may be suggested through further assessment that additional program activities are offered to these individuals to help them reach a level of program participation that is associated with a financial incentive. This type of research could also offer suggestion on whether program activities should be weighted differently based on the presence of high cost or health limiting chronic conditions. Such and argument could be possible if an organization is interested in involving a part of the employee population that is likely to be cause of a majority of high cost medical claims.

Future research should investigate whether EFHC is related to favorable health care costs as well as good health. Because of the complexity collecting and formatting data associated with EFHC, such studies should emphasize the value of analyzing an indicator of a collection of health behaviors as compared to single actions. On the surface, this would require that EFHC is classified as an independent variable when designing these studies. In addition to a consistent conceptualization and operationalization for what constitutes EFHC, the literature on the topic must also investigate how this concept is related to commonly utilized indicators of health care cost and quality. Public health professionals certainly want to agree on what EFHC is and what environmental and personal characteristics may be consistently associated with higher levels of this type of health outcome. However, if the aim is to tie research in this area to what is currently being written and practiced in the area of health reform and public health, then it will be critical that EFHC is tested as a predictor for traditional measures of health care cost and use of quality of health care services. There is no question that it will be useful for health education specialists to point to EFHC as an accurate collective indicator of recommended health behaviors and to be able to say what factors may be associated with higher level EFHC. However,
professional recognition of the true value of this measure, both from a research and practical perspective, will not be achieved until it can be showed to be tied to cost and quality.

**Conceptualization and measurement of theoretical constructs in a study of Employer Facilitated Health Consumerism.** Based on findings from the focus groups that pointed to the potential impact of all SCT constructs on EFHC, future research attempting to accomplish similar goals to those stated in this study should carefully consider how to best select theoretical constructs to measure quantitatively. Though a researcher would always like to have as much data as possible available, there is a fine line between how much data to try to collect and what you think research participants are willing to contribute. A survey that is extremely comprehensive will be of no use if potential study participants decide it is too difficult and long to complete. In the case of this study, because of the uniqueness of the dependent variable, no existing instrument could be identified that would fit the data collection needs. Perhaps studies subsequent to this research would benefit from collecting and analyzing qualitative data in an initial step as part of the development of quantitative data collection tools. This could help identify those SCT constructs or other theoretical models that are seen as most critical to program participation among employees. It could also help provide situational awareness in terms of how survey items can be written in a way that accurately reflect the influence of SCT constructs on EFHC in this population.

Future studies will benefit greatly from collecting quantitative data in a way that maximizes the likelihood that a sample is representative of the overall population. Ability to generalize results is one of the core ways to show the value of research conducted as well as justify proposed future research activities. Of course, random sampling will take care of this concern from a statistical perspective. However, true random samples are not very common in
health education research. Future research should aim to collect data in a ways that encourage participation from groups that could be expected to be underrepresented in a study relying just on an electronic survey for data collection. One way this study could potentially have focused on diversity among survey respondents would have been by offer multiple opportunities to complete and return a hard copy survey both while on the job and away from work. A strong incentive could be provided that would encourage all employees to complete the survey. A follow-up interview with randomly selected non-survey participants would also be a way to generate data that could be compared with those that did respond to the survey.

Researchers would also be wise to continue to improve the reliability and validity of instruments intended to capture indicators of SCT constructs as they relate to EFHC. A critical review of this research shows that both of these study aspects have room for improvements. Test-retest reliability for this research was deemed acceptable to move forward with the study. Though Nunnally (1978) originally offered much more of a measured discussion on what should be thought of as acceptable levels of reliability than the all-or-nothing .7 value often found in the professional literature today, some of the SCT scale correlations found in this study should still be considered to be at the low end of what is consistently reported as desired levels of test-retest reliability.

In this study, there were of the test-retest employee sample that had the potential to impact the ability of the procedure to show desirable results. The researcher was known to some of the test-retest survey sample and the test-retest process was highly supported by employees in leadership positions. It is possible that some employees who were offered the chance to take part in the test-retest reliability process completed the request because they felt it was the nice thing to do to support the researcher. If this was the case, it is also possible that these employees
believed that the value of their participation came from simply returning both competed copies of the survey. Though this type of scenario would provide a desirable number of pre and posttest surveys that could be matched and used to generate reliability statistics, it is possible that not enough focus was being placed on answering questions thoughtfully and honestly on both survey occasions.

In terms of validity, it would be useful to take an in-depth critical look at the survey scales. Though this research utilized a fairly extensive construct validity process and the results of this process were favorable, the fact remains that each SCT scale only contained three items. The researcher decided not to use statistical procedures that would have allowed for an analysis of internal consistency between scale items. This decision was made because of concerns presented previously in the professional literature related to how reliability results may be negatively impacted by a low number of items for a scale and the inclusion of items that could be considered to measure multiple dimensionalities (Cortina, 1993). Also, it is possible that the perceived validity of the data collection tool could be improved through factors analysis. This procedure would allow all theoretically based survey items to be tested to see if questions that were designed to fit under a certain scale statistically group together. This type of additional testing of data collection tools would help refine the conceptualization of SCT as it comes to relationships with EFHC. It will also assist in providing recommendations for how to standardize research efforts to ensure that future studies contribute to the same aspects of the professional literature.

Since the unique dependent variable used in this study complicated efforts of finding support in the literature for how this study was to be conducted and reasons for what the results were, future research should consider investigating EFHC within the framework of other health
education theories and models. Though there is plenty of research grounded firmly in theory that investigate the use of health information, physical activity or healthy eating, or access of recommended health services or self-care behaviors, very few studies apply a dependent variables that is a combination of all of these behaviors. Much of the conceptual justification for the use of SCT this study came from a few select literature sources that pointed to how environment, person, and behaviors may contribute to actions that collectively result in level of EFHC (Hibbard, Mahoney, Stock, & Tusler, 2007; Hibbard, Mahoney, Stockard, & Tusler, 2005; Hibbard, Stockard, Mahoney, & Tusler, 2004). However, there are still other health education theories that contain constructs that could potentially be very useful when analyzing employer promoted wise consumption of health care services and health behaviors.

For example, transtheoretical model could potentially be very useful from an EFHC programming perspective. Future research might be able to confirm that people in the action stage are significantly more likely to have high levels of EFHC compared to employees in any previous stage. Additional data collected in such a study may indicate that people move into the action stage and are able to prevent relapse to a previous stage by taking part in an individual health counseling session. Though this scenario clearly is an oversimplification of what most studies are able to show conclusively, one can still see how the use of a different health education theory could potentially have immediate practical implications.

**Research setting and design in a study of Employer Facilitated Health Consumerism.** Future research should aim to replicate parts of this study using different populations and focusing on alternate physical and social environments. Since this research was conducted at the workplace using employees of a large health system, it would not be unreasonable to assume that many of the study participants have opinion regarding health and
report motivators for health behaviors that are influences by their place or employment. It would bring great value to efforts focused on a comprehensive discussion on EFHC if future investigations can be implemented in setting different than the one examined here, such as perhaps manufacturing, education, or government. The degree to which such studies can be said to show similar results as what is reported in this study will help clarify the contribution of various personal, behavioral, and environmental factors to EFHC.

One way future research on the concept of EFHC could be expanded is by conducting randomized control trials (RCTs) intended to investigate what may cause an increase in this type of collective indicator of a number of healthy behaviors. Instead of trying to discover whether there is a difference in the dependent variable based on one or more population characteristics, investigators should design experiments that allow them to make conclusions related to cause and effect. For example, based on results from this study, experiments could be put in place to test whether certain best practices health education interventions are able to increase selected SCT constructs that were found to be associated with high levels of EFHC. In such a scenario, it would be important to measure whether a randomized group receiving the experimental treatment go on to be consistently more heavily involved in EFHC than the control subjects.

Another point to keep in mind is that dissemination of research results from RCTs may be more readily accepted by various health professions. This would assist in building a consensus in the literature for how to conceptualize and measure EFHC. If a preliminary professional consensus is reached, health education specialists may see an increased value from a professional advancement perspective from trying to circulate findings from research that focuses on this type of a dependent variable. RCTs will require a significant amount of time and effort by researchers, which should be a reason for multiple professionals from different fields to
contribute to the research and share both the burden of execution as well as the reward possible with a completed project. Certainly, many health education specialists would benefit greatly from being able to implement a study with experienced investigators from other health and non-health fields. For example, an economist could provide assistance in examining the economic consequences of a EFHC program; a marketing specialist could examine the ways in which the program is promoted and determine if there are better approaches; a psychologist might be able to shed more light on why people participate or refuse to participate in such programs, a physician might be able to analyze the physician-patient interactions to determine if the physician is effectively promoting the EFHC program and so forth.

**Summary**

This research found that a variety of demographic factors as well as personal, behavioral, and environmental theoretical constructs were statistically associated with level of EFHC among study participants. Further, focus group data helped offer suggestions for exactly how employee characteristics or theoretical constructs may have an impact on levels of EFHC.

The strength of discovered statistical relationships in this study varied greatly. This provided direction for how program activities focused on improving levels of EFHC may be prioritized. The combination of quantitative and qualitative results offers a variety of ways that program administrators can use when trying to support employees completing activities that result in a higher level of EFHC. Also, quantitative data that shows how certain employees groups are more or less likely to have desirable levels of EFHC should be incorporated into modifications to how the Healthy Living Program is communicated to TriHealth employees and how specific program services are offered.
With a unique dependent variable like EFHC, additional multivariate research is needed to determine direct and indirect influences of carefully selected and formatted independent variable. Future studies should use sampling procedures that allow for generalizable results, and populations and settings different than what was accessed for this study should be pursued. Additional research is also needed to further establish the value of a variable like EFHC that is derived from data representing several different health behaviors. Though this study was interested in what factors were associated with higher levels of EFHC, future research should test this variable as a possible predictor for favorable health care costs and selection of high quality health care services.
References


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Appendix A

Information Sheet for Research: Electronic Healthy Living Program Survey

Information Sheet for Research: Electronic Healthy Living Program Survey
University of Cincinnati
Department of Health Promotion & Education
Principle Investigator: Anders Cedergren, M.Ed., CHES
Faculty Advisor: Randall Cottrell, DEd, MCHES

Title of Study: Individual, Behavioral, and Environmental Influences of Employer Facilitated Health Consumerism among Employees of a Large Health System: A Mixed Methods Study

Introduction:
You are being asked to take part in a research study. Please read this information carefully and ask questions about anything that you do not understand.

Who is doing this research study?
The person in charge of this research study is Anders Cedergren of the University of Cincinnati (UC) Department of Health Promotion & Education. He is being guided in this research Dr. Randall Cottrell.

What is the purpose of this research study?
The purpose of this study is to establish the level of employer facilitated health consumerism among TriHealth employees and to investigate whether the level of employer facilitated health consumerism differs among employees based on individual, behavioral, and environmental factors.

Who will be in this research study?
All TriHealth employees who can earn points in the Healthy living program have the opportunity to be part of this research study. To be eligible to participate in this research study, you must be 18 years of age or older.

What if you are an employee where the research study is done?
Taking part in this research study is not part of your job. Refusing to be in the study will not affect your job. You will not be offered any special work-related benefits if you take part in this study.

What will you be asked to do in this research study, and how long will it take?
You will be asked to complete a survey for this research study. The survey will take about 15 minutes to complete. The survey will ask about your level of agreement with statements regarding individual, behavioral, and environmental influences on Healthy Living Program participation. The survey will also ask for demographic information and health experiences, behaviors, and perceptions. The survey is electronic, and you can complete the survey using any computer with Internet access.

Are there any risks to being in this research study?
The risk associated with participating in this study is not expected to be more than you would experience in daily life.

**Are there any benefits from being in this research study?**
You will probably not get any benefit from taking part in this study. But, being in this study may help health promotion and education researchers understand what individual, behavioral, and environmental factors influence Employer Facilitated Health Consumerism among employees of a large health system.

**What will you get because of being in this research study?**
You will not be paid to take part in this study.

**Do you have choices about taking part in this research study?**
If you do not want to take part in this research study you may simply not participate.

**How will your research information be kept confidential?**
Information about you will be kept private by using your employee identification (id) number instead of your name on the survey. Employee id will only be collected for the purposes of combining multiple data sources. The researcher will not have access to any information that could reveal the id of an individual employee. Any TriHealth entity with access to a master list of employee id numbers will not have access to data collected for this research study. The data from this study may be published; but employee id will not be part of any report generated from this research. Only the Principle Investigator (PI) will have access to the password protected survey tool used to collect this data. Data will be downloaded by the PI through a secure internet connection and stored as a password protected file on a computer requiring individual log in credentials. Information collected will be kept for 3 years as a password protected file. After 3 years, all data will be deleted and erased from the deleted files on the computer used for this study and the associated network.

Agents of the University of Cincinnati may inspect study records for audit or quality assurance purposes.

The researcher cannot guarantee that information sent by the internet or email will be private.

**What are your legal rights in this research study?**
Nothing in this consent form waives any legal rights you may have. This consent form also does not release the investigator, the institution, or its agents from liability for negligence.

**What if you have questions about this research study?**
If you have any questions or concerns about this research study, you should contact Anders Cedergren at 513-923-0876 (cedergas@mail.uc.edu). Or, you may contact Dr. Randall Cottrell at 513-556-3861 (cottrer@ucmail.uc.edu).

The UC Institutional Review Board reviews all research projects that involve human participants to be sure the rights and welfare of participants are protected.
If you have questions about your rights as a participant or complaints about the study, you may contact the UC IRB at (513) 558-5259. Or, you may call the UC Research Compliance Hotline at (800) 889-1547, or write to the IRB, 300 University Hall, ML 0567, 51 Goodman Drive, Cincinnati, OH 45221-0567, or email the IRB office at irb@ucmail.uc.edu.

**Do you HAVE to take part in this research study?**
No one is required to be part of this research study. Refusing to take part will NOT cause any penalty or loss of benefits that you would otherwise have. You may start and then change your mind and stop at any time. Only surveys that are completed by clicking the submit button at the end will be used for this study.

**BY SUBMITTING YOUR COMPLETED SURVEY YOU INDICATE YOUR CONSENT FOR YOUR ANSWERS TO BE USED IN THIS RESEARCH STUDY.**

**PLEASE PRINT OR COPY AND SAVE THIS INFORMATION FOR YOUR RECORDS.**
Appendix B

Healthy Living Program Survey

HEALTHY LIVING PROGRAM SURVEY

**Program Participation Information**

*Directions:* Thank you for taking the time to complete this survey. Please answer each question honestly. Check the answer option that best represents how strongly you agree or disagree with each statement. Please choose only one answer for each statement.

**Healthy Living Program: Perception of the Environment**

1. TriHealth wants me to complete activities that earn points in the Healthy Living Program
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

2. It is difficult for me to complete activities that earn points in the Healthy Living Program where I work
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

3. The people I work with are supportive of me completing activities that earn points in the Healthy Living Program
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

**Healthy Living Program: Knowledge and Skills to Perform Healthy Behaviors**

4. I am aware of activities to complete that earn points in the Healthy Living Program
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

5. I do not have the skills (for example scheduling a physical exam, taking an online quiz, or contacting LifeStyles to sign up for a program) to complete activities that earn points in the Healthy Living Program
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

6. I know how to best use my scorecard to check if I earned points for activities I completed in the Healthy Living Program
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

**Healthy Living Program: Expected Outcomes of Healthy Behaviors**

7. Completing activities that earn points in the Healthy Living Program is good for my physical health
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

8. Completing activities that earn points in the Healthy Living Program is good for my mental health (for example makes me feel better about myself and helps manage stress, depression, or anxiety)
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree
9. Completing activities that earn points in the Healthy Living Program will help me save money on my health insurance
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

10. The physical health benefits that can come from completing activities that earn points in the Healthy Living Program is an important reason for me to take part in the program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

11. The mental health benefits (for example feeling better about myself and managing stress, depression, or anxiety) that can come from completing activities that earn points in the Healthy Living Program is an important reason for me to take part in the program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

12. The money I can save on my health insurance by completing activities that earn points in the Healthy Living Program is an important reason for me to take part in the program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

13. I set goals related to the activities I complete that earn points in the Healthy Living Program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

14. I do not closely monitor points earned from completing activities in the Healthy Living Program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

15. I reward myself for the activities I complete that earn points in the Healthy Living Program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

16. I complete activities that earn points in the Healthy Living Program because other TriHealth employees take part in the program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

17. I complete activities that earn points in the Healthy Living Program because other TriHealth employees have improved their health by taking part in the program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

18. I complete activities that earn points in the Healthy Living Program because other TriHealth employees have saved money on their health insurance by taking part in the program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

19. I am confident I can complete activities that earn points in the Healthy Living Program
     ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree
20. I am confident I can complete enough activities that earn points in the Healthy Living Program to qualify for a program award at the end of the year
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

21. I am confident I can find answers to questions or concerns I may have about the activities I complete that earn points in the Healthy Living Program
   ___Strongly Disagree   ___Disagree   ___Agree   ___Strongly Agree

**Demographic Information**

**Directions:** Thank you for again for taking the time to complete this survey. Please check or write in one answer for each of the following questions.

22. What is your 5 digit TriHealth employee id? Please do not include any letters in your response (for example 12345).
   (Please note that the researcher is not able to use this information to identify individual employees. Employee id will only be used to combine data from multiple sources.)
   ________________

23. What is the highest degree or level of school you have completed?
   ___Less than a high school diploma/GED
   ___A high school diploma/GED
   ___Associate’s degree
   ___Bachelor’s degree
   ___Master’s degree
   ___Professional degree beyond a bachelor’s degree (MD, DDS, DVM, LLB, JD)
   ___Doctorate degree (PhD, EdD, DPH)

24. How often do you have someone help you read medical materials?
   ___Never   ___Occasionally   ___Sometimes   ___Often   ___Always

25. How often do you need help filling out medical forms?
   ___Never   ___Occasionally   ___Sometimes   ___Often   ___Always

26. How often do you have problems learning about your medical conditions because of difficulty understanding written information?
   ___Never   ___Occasionally   ___Sometimes   ___Often   ___Always

27. On how many days in an average week do you do at least 30 minutes of moderate-intensity aerobic activity (i.e., brisk walking at least 10 minutes at a time) or 15 minutes of vigorous-intensity aerobic activity (i.e., jogging or running), or a comparable mix of moderate and vigorous-intensity aerobic activity?
   ___0 days
   ___1 day
   ___2 days
   ___3 days

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28. On how many days in an average week do you do muscle-strengthening activities (such as lifting weights, using resistance bands, doing exercises with your body weight as resistance, heavy gardening, or yoga) that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms)?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

29. During the past 12 months, how many times have you seen a doctor or other health care professional about your own health at a doctor’s office, clinic, or some other place? Do not include times you were hospitalized overnight, visits to hospital emergency rooms, home visits, dental visits, or telephone calls.

- None
- 1 time
- 2-3 times
- 4-5 times
- 6-7 times
- 8-9 times
- 10 or more times

30. How long has it been since you last saw or talked to a doctor or other health care professional about your own health? Include doctors seen while a patient in a hospital.

- Never
- 6 months or less
- More than 6 months, but not more than 1 year ago
- More than 1 year, but not more than 2 years ago
- More than 2 years, but not more than 5 years ago
- More than 5 years ago

31. In general, how would you rate your overall health?

- Very Poor
- Poor
- Fair
- Good
- Very Good

Thank you very much for completing this survey 😊
Appendix C

Adult Consent Form for Research: Healthy Living Program Focus Groups

Adult Consent Form for Research: Healthy Living Program Focus Groups
University of Cincinnati
Department of Health Promotion & Education
Principle Investigator: Anders Cedergren, M.Ed., CHES
Faculty Advisor: Randall Cottrell, DEd, MCHES

Title of Study: Individual, Behavioral, and Environmental Influences of Employer Facilitated Health Consumerism among Employees of a Large Health System: A Mixed Methods Study

Introduction:
You are being asked to take part in a research study. Please read this paper carefully and ask questions about anything that you do not understand.

Who is doing this research study?
The person in charge of this research study is Anders Cedergren of the University of Cincinnati (UC) Department of Health Promotion & Education. He is being guided in this research Dr. Randall Cottrell.

What is the purpose of this research study?
The purpose of this study is to establish the level of employer facilitated health consumerism among TriHealth employees and to investigate whether the level of employer facilitated health consumerism differs among employees based on individual, behavioral, and environmental factors.

Who will be in this research study?
All TriHealth employees who can earn points in the Healthy living program have the opportunity to be part of this research study. To be eligible to participate in this research study, you must be 18 years of age or older.

What if you are an employee where the research study is done?
Taking part in this research study is not part of your job. Refusing to be in the study will not affect your job. You will not be offered any special work-related benefits if you take part in this study.

What will you be asked to do in this research study, and how long will it take?
You are one of 36-60 TriHealth employees who will be asked to take part in one of 6 focus groups to provide qualitative data for this research study. The focus group will take between 45-60 minutes to complete. The focus group will be conducted at a TriHealth location. During the focus group, you will be asked about your thoughts on health in general as well as what individual, behavioral, and environmental factors you believe influence Healthy Living Program participation. Focus groups will be audio recorded. If you do not wish to be recorded, you will not be able to participate in this phase of the research study.
Are there any risks to being in this research study?
The risk associated with participating in this study is not expected to be more than you would experience in daily life.

Are there any benefits from being in this research study?
You will probably not get any benefit from taking part in this study. But, being in this study may help health promotion and education researchers understand what individual, behavioral, and environmental factors influence employer facilitated health consumerism among employees of a large health system.

What will you get because of being in this research study?
You will not be paid to take part in this study.

Do you have choices about taking part in this research study?
If you do not want to take part in this research study you may simply not participate.

How will your research information be kept confidential?
Audio from focus groups will be recorded and transcribed to allow the researcher to use exact narratives in study reports. Though signed informed consent documents will be collected from all participants in focus groups, confidentiality of data will be assured by transcripts from the groups not having any personal information assigned to a specific comment. Digital recordings will be moved from the recording device to a password protected file on a computer requiring log-in credentials the same day as a group was conducted. Once a transcript has been generated electronically, the transcript will be kept as a password protected file on a password protected computer. Hard copies of the signed informed consent documents will be kept a locked cabinet in the principle investigator’s campus office for 3 years. After 3 years, the signed informed consent documents will be shredded. Electronic files of focus group transcripts will be kept for 3 years. After 3 years, records will be deleted and erased from the deleted files on the computer used for this study. The data from this research study may be published; but you will not be identified by name.

Agents of the University of Cincinnati may inspect study records for audit or quality assurance purposes.

What are your legal rights in this research study?
Nothing in this consent form waives any legal rights you may have. This consent form also does not release the investigator, the institution, or its agents from liability for negligence.

What if you have questions about this research study?
If you have any questions or concerns about this research study, you should contact Anders Cedergren at 513-923-0876 (cedergas@mail.uc.edu). Or, you may contact Dr. Randall Cottrell at 513-556-3861 (cottrer@ucmail.uc.edu).

The UC Institutional Review Board reviews all research projects that involve human participants to be sure the rights and welfare of participants are protected.
If you have questions about your rights as a participant or complaints about the study, you may contact the UC IRB at (513) 558-5259. Or, you may call the UC Research Compliance Hotline at (800) 889-1547, or write to the IRB, 300 University Hall, ML 0567, 51 Goodman Drive, Cincinnati, OH 45221-0567, or email the IRB office at irb@ucmail.uc.edu.

Do you HAVE to take part in this research study?
No one is required to be part of this research study. Refusing to take part will NOT cause any penalty or loss of benefits that you would otherwise have. You may decide not to take part in this focus group by leaving before we begin. Only discussions from group participants with a signed informed consent document will be recorded.

Agreement:
I have read this information and have received answers to any questions I asked. I give my consent to participate in this research study. I will receive a copy of this signed and dated consent form to keep.

Participant Name (please print) ____________________________________________

Participant Signature _____________________________________________ Date _______

Signature of Person Obtaining Consent __________________________ Date _______
Appendix D

Healthy Living Program Focus Group Questions

Healthy Living Program Focus Group Questions

Introduction Questions:
1. What do you think of when you hear the word health?
2. How does being a TriHealth employee fit with your thoughts on health?

Main Questions:
3. Do you believe the Healthy Living Program offers you a chance to be healthy?
4. What, if any, are the reasons you take part the Healthy Living Program?
5. What, if any, are the reasons you do not take part in the Healthy Living Program?

Conclusion Question:
6. Is there anything else you would like to say about the Healthy Living Program?
## Wellness Measure

<table>
<thead>
<tr>
<th>Wellness Measure</th>
<th>Frequency/Range</th>
<th>Points</th>
<th>My Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEDICAL HOME &amp; PREVENTIVE SCREENINGS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Examination</td>
<td>Annually or on Doctor’s recommendation</td>
<td>325</td>
<td></td>
</tr>
<tr>
<td>PSA</td>
<td>Dr. Recommendation</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Pap Smear</td>
<td>Annually after 18, or Dr. Rec.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colonscopy</td>
<td>Age 50 and older, or Dr. Rec.</td>
<td>100</td>
<td></td>
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<tr>
<td>Mammogram</td>
<td>Age 40 and older, or Dr. Rec.</td>
<td>200</td>
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<tr>
<td>Eye Exam</td>
<td>Annually</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Dental Cleaning (1)</td>
<td></td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Dental Cleaning (2)</td>
<td></td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Flu Shot</td>
<td></td>
<td>150</td>
<td></td>
</tr>
<tr>
<td><strong>BIOMETRICS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biometric Screening (BP, TC, LDL, HDL, GLU, Triglycerides)</td>
<td>Annually</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>&lt;120/80; annually</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Blood Glucose</td>
<td>65-99 mg/dl; annually</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Total Cholesterol</td>
<td>&lt;200 mg/dl; annually</td>
<td>100</td>
<td></td>
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<tr>
<td>LDL Cholesterol</td>
<td>&lt;100 mg/dl; annually</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>HDL Cholesterol</td>
<td>&gt;= 50 mg/dl; annually</td>
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<td></td>
</tr>
<tr>
<td>Triglycerides</td>
<td>&lt;150mg/dl; annually</td>
<td>100</td>
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<tr>
<td><strong>HEALTH &amp; WELLNESS PROGRAM PARTICIPATION</strong></td>
<td></td>
<td></td>
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<tr>
<td>Personal Wellness Profile</td>
<td>Annually, Available online</td>
<td>200</td>
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<tr>
<td>Exercise Tracking Program</td>
<td>50 events in 12 weeks</td>
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<tr>
<td>Exercise Event Participation</td>
<td>Approved event</td>
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<tr>
<td>Health/Wellness Coaching</td>
<td>Complete Program Requirements</td>
<td>200</td>
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<tr>
<td>Health For Everybody Course</td>
<td>Complete Program Requirements</td>
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<tr>
<td>Weight Management Program</td>
<td>Complete Program Requirements</td>
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<tr>
<td>Medical Condition Management Program</td>
<td>Complete Program Requirements</td>
<td>Up to 300</td>
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<tr>
<td>Fitness Assessment</td>
<td>Annually, Measures current fitness capability</td>
<td>50</td>
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<tr>
<td>Fitness Consultation</td>
<td>Annually, Develop a personal fitness program</td>
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<tr>
<td>Health Education Series (1)</td>
<td>Annually, Available online and in class options</td>
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<td></td>
</tr>
<tr>
<td>Health Educational Series (2)</td>
<td>Annually, Available online and in class options</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Volunteer/Spiritual Options</td>
<td>Volunteering at TriHealth, blood donation, spiritual options (see approved list)</td>
<td>Up to 100</td>
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### MY TOTAL POINTS

<table>
<thead>
<tr>
<th>Tier 1 - Highest Discount</th>
<th>≥ 1000 points out of 3,500 possible points</th>
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</thead>
<tbody>
<tr>
<td>Tier 2 - Discount</td>
<td>650 to 999 points out of 3,500 possible points</td>
</tr>
<tr>
<td>Tier 3 – No discount</td>
<td>&lt; 650 points out of 3,500 possible points</td>
</tr>
</tbody>
</table>