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Regular Issue Papers

Two Year Sustainability of the Effect of a Financial Education Program on the Health and Wellbeing of Single, Low-Income Women

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Financial stress is implicated in poor health and decreased Quality of Life (QOL). The purpose of this project was to assess the 2-year effect of a financial education program on the health of single, low-income women. A total of 30 women were enrolled and 20 continued through follow-up. Two years following intervention, women demonstrated a $8,026 increase in mean annual income and significant improvements in health-related QOL and hopefulness. Half of the participants lost weight, and while not statistically significant, mean weight decreased by 2.2 pounds. Trends in decreased fast food consumption were observed. The results suggest that financial education has a significant, sustained effect on the health and health-related QOL of single, women of low income.

Keywords: quality of life, health, financial education, low-income, health promotion

Health and personal finance are interrelated. Good health (the absence of disease or infirmity and a high state of physical, mental, and social well-being) plays a major role in wealth creation (O'Neill, Sorhaindo, Xiao, & Garman, 2005). Good health is associated with increased productivity at the workplace, which in turn results in higher earnings and more saving (Lee & McKenzie, 1999). In addition, good health is associated with longer life expectancy, which allows for optimized collection of compound interest on invested assets, retirement, and social security (Lee & McKenzie, 1999). Alternatively, poor health results in greater medical spending, forcing families to choose between spending money on healthcare or basic necessities (Kissel, 30 June 2004). This can result in delayed or inadequate treatment. Literature suggests an association between poverty and health, with financial stress being a major cause (CareerBuilder, n.d.; Eaker, Pinsky, & Castelli, 1992; O'Neill et al., 2005; Packard et al., 2014; Rosengren et al., 2004). Financial stress was associated with coronary artery disease and predicted cardiac death in women in the Framingham study (Eaker et al., 1992). Persons under financial stress are more likely to engage in tobacco use, alcohol consumption, overspending, poor diet, reduced exercise, and increased work absenteeism (Kim & Garman, 2003; Vohs, 2013). The limited resource model can be used to explain this (Vohs, 2013). The model suggests that self-control is a limited resource and depletion of self-control leads to greater difficulty regulating behavior and resisting urges. This contributes to unhealthy behaviors and ultimately, poor health outcomes. Having low-income imposes a cognitive load (Mani, Mullainathan, Shafir, & Zhao, 2013). The poor tend to fall short of full consideration to long term

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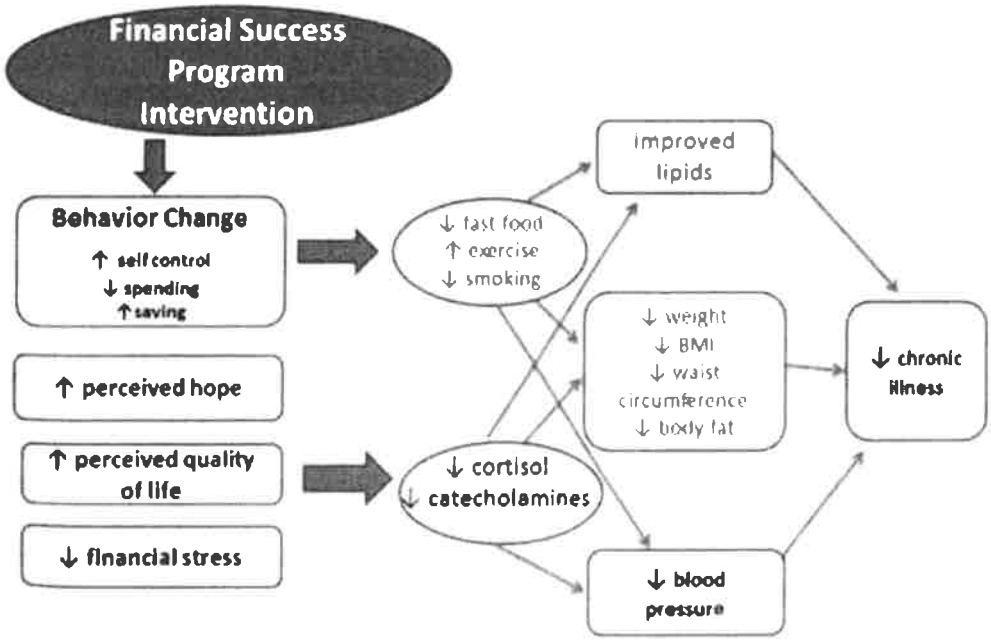
financial goals and problems outside of finances as they are preoccupied with pressing budgetary concerns (Hogarth & Anguelov, 2003). People of low-income must overcome more urges and make more difficult decisions more often than individuals with higher incomes. This increased regulation of behavior depletes mental function, exhausts self-control, and leads to behaviors that are harmful to health and long-term success.

The purpose of the current study is to determine whether financial education in women under significant financial stress results in sustainable improvements in health and well-being. This evaluation is important because 40% of households in the United States report living paycheck to paycheck and 20% report being unable to make ends meet, both potentially leading to significant financial and economic stress (CareerBuilder, n.d.). The investigators hypothesized that financial education would increase financial stability, perceived hope, and perceived quality of life. In addition, financial education would decrease financial stress and assist in diminishing the exhaustion of self-control low-income imposes. Increased reserves of self-control would allow women to successfully adopt healthy behaviors including decreased fast food consumption, increased exercise, and decreased smoking. This would lead to improvements in health outcomes including weight, blood pressure, and cholesterol. Decreased stress and improvements in perceived hope and quality of life would decrease the release of stress hormones including cortisol, norepinephrine, and epinephrine. This too contributes to improvements in health outcomes and overall well-being. Figure 1 depicts the conceptual framework describing the relationship between financial education and health indicators (Packard et al., 2014).

Background

Individual health can be achieved through investment at the community level, particularly in areas with great need. The Omaha, Nebraska metropolitan area, specifically, women of low income (households with incomes of up to 300% of the federal poverty level) residing in the area, is one such example. Compared to a matched cohort of women from the state of Nebraska, women of low-income residing in the Omaha metropolitan area are almost twice as likely to have hypertension (50% vs. 25.3%), metabolic syndrome (58.3% vs. 32.6%), report smoking (33.3% vs. 16.2%), and display obesity (66% vs. 25.5%) (Gillespie et al., 2012). This population is also more likely to be sedentary and have diabetes than matched state data (Gillespie et al., 2012). The Financial Success Program (FSP) was developed and is currently

Figure 1. Conceptual framework.



directed by individuals affiliated with the Creighton University College of Business Administration. The goal of the program is to reduce financial stress and improve money management skills in this disparate population. The FSP was initially funded by a grant from the Financial Industry Regulatory Authority (FINRA) Investor Education Foundation in 2010 to explore what financial education program components are most effective in creating behavior change for low income single mothers.

During the FSP, participants meet weekly for 9 weeks and attend monthly group meetings for the remainder of 1 year. During the 9-week didactic component of the program, live, interactive educational sessions take place covering topics such as saving for emergencies, repairing credit reports, taxes, insurance, predatory lending, legal issues, and the psychology of money. Enrollees are provided a meal for themselves and their children and free childcare during each of the 9-week educational classes. Enrollees are required to track spending and save receipts, which are reviewed one-on-one with a financial coach. This coach provides long-term financial guidance and advice to each FSP participant. The FSP curriculum has been described in detail previously (White et al., 2014).

Financial education through the FSP led to significant improvements in measurements of financial outcomes as well as improvements in social and physical well-being following 1 year of program participation (Packard et al., 2014). Following 1 year of FSP participation, women reported a significant reduction in the mean annual number of overdrawn bank accounts, shut off notices, pay day lender utilization, and annual bills paid late. Participants also experienced significant improvements in mean annual medical care access and reductions in annual community agency use. Survey data indicated that the participants significantly reduced their financial stress including lost sleep over money, fighting with their partner about money, and allowing financial stress to affect health, relationships, and their ability to work (Packard et al., 2014).

The Packard study was the first published study to report the positive health effects of a financial education intervention in low-income single women. While there were no significant changes found in biometric data, many women participating in the program experienced weight loss, reductions in Body Mass Index (BMI), waist circumference, and body fat percentage. The purpose of the current study was to determine the sustainability of these effects as well as explore any additional changes in health and well-being experienced by participants 2 years following the intervention.

Methods

This study was approved by the Creighton University Institutional Review Board and all participants provided written informed consent. All women (n = 30) who completed the initial year-long study were approached for participation in the extended follow-up study. To qualify for the FSP and thus the extended follow-up study, women had to be 19 years of age or older, employed and not pregnant, planning to become pregnant, or abusing drugs or alcohol. The study focused on low-income families, so only households with incomes of up to 300% of the federal poverty level were included in the sample. National poverty thresholds are determined as a function of income and household size (U. S.Census Bureau, 2014). The 300% cutoff is often used to designate low-income as it is the highest percentage observed in welfare eligibility programs (Heckman & Hanna, 2015; Hogarth & Anguelov, 2003). A total of 20 women completed the extended per protocol follow-up study.

Prior to the FSP educational intervention, baseline data were collected including age, race, annual household income, smoking status, marital status, number of children, type of healthcare coverage, occupational status, frequency of exercise, consumption of fast food, current medications, and diagnosed chronic conditions. Table 1 describes the baseline demographic information for the extended-study population.

In addition to demographic data, clinical and quality of life data were also obtained at baseline. Point of care clinical data included blood pressure, weight, body mass index (BMI), waist circumference, hemoglobin A1c, total cholesterol, low density lipoprotein cholesterol (LDL-C), high density lipoprotein cholesterol (HDL-C), triglycerides, and body fat percentage. Point of care measurement equipment and procedures have been described previously (Packard et al., 2014). Perceived hopefulness and quality of life were measured by the Trait Hope Scale and World Health Organization Quality of Life (WHOQOL)-BREF surveys, respectively (Harper & Powers, 1998; Snyder et al., 1991).

TABLE 1. Baseline Demographics in Mothers (n = 20)

Mean baseline age (years)	34.5 ± 6.0
Race	African American 10 (50%), White 9 (45%), Asian 1 (5%)
Mean baseline annual household income (dollars)	$28,800 ± $12,518
Education	College graduate 10 (50%), some college 8 (40%), some high school 1 (5%), high school graduate 1 (5%)
Marital status	Never married 12 (60%), divorced 4 (20%), separated 3 (15%), married 1 (5%)
Mean number of children living with mother	2.0 ± 1.3

The initial study followed participants for 1 year, assessing the aforementioned clinical markers and quality of life indicators immediately preceding enrollment in the FSP (baseline) and 1 year later (year one data). Enrollment for the initial study took place from September 2011 to May 2012 with 1 year assessments taking place from September 2012 to May 2013. To assess the sustainability of the initial study findings, a third set of data was collected 2 years after enrollment in the FSP program (year two data). This assessment took place from September 2013 to May 2014.

Statistical analyses were performed using SPSS Statistics (version 2.0) (I. B. M. Corporation, 2011). Descriptive statistics were used to describe most baseline demographics. Mean and standard deviations were calculated for continuous variables while a number and a percentage are reported for categorical variables. Comparisons of outcomes pre- and postintervention were conducted using the repeated measures ANOVA test. A p value less than 0.05 was considered statistically significant.

Results

Two years following enrollment in the FSP, women demonstrated an increase of $8,026 in mean annual income (p = .003). No significant changes were seen in blood pressure, fasting blood sugar, A1c, or the lipid profile. While significant changes were not observed, trends in decreased fast food consumption were seen over the 2-year follow-up. In addition, 65% (n = 13) of women reported an increase in physical activity, with a mean increase of 107 minutes per week (p = .353). Changes in biometric, lifestyle, and income are described in Table 2.

Participants also experienced significant improvements in Quality of Life (QOL) and hopefulness. Specifically, improvements were seen in the physical, psychological, and environment QOL domains and mean Trait Hope Scale scores. Changes in QOL and hopefulness are described in (Table 3).

Discussion

Women in the FSP experienced a greater than average increase in annual income. The mean increase in income after 2 years was $8,026 (range -$12,000–$30,000), a 28.5% improvement from the $28,158 base. According to the Seventh Annual Compensation Planning Survey by Buck Consultants, average pay increase for both 2013 and 2014 was at 3% annually (Miller, 2013). Interestingly, analysis of income data indicated a significant increase in income from baseline to year 2 regardless of educational status. That is, education status did not have a statistically significant impact on that rate of increase and the improvement in income was not driven solely by college graduates. While participants with a college degree experienced a mean increase in salary of $9,250 versus a mean increase of $6,667 for those without a college degree, a repeated ANOVA test revealed that the effect of education on income was not significant (p = .227). However, it should be noted, this analysis was based on a small sample size and not powered to detect the impact of educational status on income.

Women in the FSP also experienced improved health-related quality of life and hopefulness. Health-related quality of life is multidimensional and includes domains related to physical, mental, emotional, and social functioning as well the environment in which people live. Participating in the FSP improved well-being in the physical domain, which relates to vigor, vitality, feeling healthy, and full of energy.

TABLE 2. Biometric, Lifestyle, and Income Data

	Pre-Intervention	Post-Intervention Year 1	Post-Intervention Year 2	*p*-Value
Mean weight (pounds)	175.4 ± 51.0	176.5 ± 50.1	173.2 ± 46.2	0.718
Mean body mass index	30.0 ± 8.4	30.3 ± 8.0	30.0 ± 8.2	0.992
Mean waist circumference (inches)	36.6 ± 6.4	37.7 ± 6.5	35.9 ± 5.5	0.318
Mean systolic blood pressure (mmHg)	116.4 ± 17.5	117.6 ± 17.0	122.5 ± 18.0	0.094
Mean diastolic blood pressure (mmHg)	81.3 ± 14.7	82.2 ± 14.0	80.6 ± 12.9	0.731
Mean hemoglobin A1C %	5.6 ± 0.3	5.8 ± 0.9	5.6 ± 0.9	0.976
Mean total cholesterol mg/dl	181.2 ± 23.9	170.8 ± 22.4	187.1 ± 29.2	0.165
Mean low-density lipoprotein cholesterol mg/dl	93.5 ± 27.0	92.2 ± 23.0	96.8 ± 27.3	0.565
Mean high-density lipoprotein cholesterol mg/dl	52.9 ± 14.3	49.5 ± 12.2	56.1 ± 19.1	0.284
Mean triglycerides mg/dl	138.0 ± 72.7	129.7 ± 54.6	142.1 ± 67.4	0.754
Mean exercise per week (minutes)	141.5 ± 277.1	242.9 ± 474.9	248.5 ± 429.7	0.353
Mean weekly fast food consumption (visits)	2.2 ± 1.6	1.5 ± 1.1	1.5 ± 1.0	0.072
Mean annual income (dollars)	28,158 ± 12,518	31,016 ± 16,118	36,184 ± 16,863	0.003

Program participation also resulted in improvements in psychological well-being, which includes being satisfied with life, balancing positive and negative emotions, self-acceptance, finding purpose and meaning in life, seeking personal growth, believing one's life and circumstances are under one's control, and generally experiencing optimism. The most pronounced change in health-related quality of life was in the domain of environment. This domain includes financial resources, information and skills, recreation and leisure, home environment, access to health and social care, physical safety and security, physical environment, and transport.

Similar to the results of the year-long study, the current extended follow-up study did not find statistically significant changes in mean body weight, blood pressure, A1c, or the lipid profile. Despite no significant reductions in weight, half of the participating women (n = 10, 50%) lost weight at the 2-year follow-up, with an average weight loss of 2.2 pounds. This finding is noteworthy considering adult

TABLE 3. Quality of Life and Hopefulness Data

	Pre-Intervention	Post-Intervention Year 1	Post-Intervention Year 2	*p*-Value
Mean domain 1: Physical health[a]	21.1 ± 3.0	23.6 ± 3.0	23.8 ± 2.8	<0.001
Mean domain 2: Psychological[a]	20.4 ± 3.2	21.5 ± 3.4	23.1 ± 2.9	0.001
Mean domain 3: Social relationships[a]	10.6 ± 2.3	11.1 ± 3.0	11.4 ± 3.2	0.092
Mean domain 4: Environmental[a]	27.8 ± 4.9	31.2 ± 6.1	33.4 ± 4.6	<0.001
Mean trait hope scale score[b]	50.4 ± 8.7	55.2 ± 8.1	55.6 ± 7.3	0.011

[a]World Health Organization Quality of Life-BREF raw score range Domain 1: 7-35, Domain 2: 6-30, Domain 3: 3-15, Domain 4: 8-40

[b]Trait Hope Scale Score Range: 8-64

women gain, on average, 0.3 kg or 0.7 pounds each year according to data collected from the Behavioral Risk Factor Surveillance System (Wetmore & Mokdad, 2012).

There are various reasons why a change in blood pressure, cholesterol, and A1c may not have been seen. First, the intervention has very limited direct health-related aspects. Outside of a discussion on health insurance options, fast food consumption, and generic drug utilization, health-related topics are not addressed. Effects of financial education as a component of a multi-faceted health promotion program should be studied further. Secondly, the optimal amount of follow-up has yet to be determined.

Our study found that financial education improved financial status and decreased financial stress. As proposed in the limited resource model, these changes assist in diminishing the exhaustion of self-control low-income imposes. Increased reserves of self-control allow women to successfully adopt healthy behaviors, as displayed in the current study. Our study found upward trending income, health-related quality of life, hopefulness, exercise, and downward trending consumption of fast food over the 2-year follow-up. While improved money management behaviors may be in place immediately following the FSP intervention, financial success may take longer to achieve and continue to improve over time. As financial success is achieved overtime, it is possible that additional benefits may be seen in the health profile. Further study is necessary to determine this.

Limitations

There are several limitations to the current study. First, women enrolled in the FSP on a volunteer basis and thus may be more motivated to make changes than women in the general population. Additionally, the mean income and education level of the women enrolled in the program is important to note. The mean income exceeds that of the 2014 poverty line ($19,790) for a family of three (the average family size of women enrolled in the program) and nearly half of the program participants (n = 10, 48%) were college graduates (United States Department of Health and Human Services, 2014).

Program effects on women of lower income and less education have yet to be determined. Point of care biometric testing occurred during a nonfasting state. While not ideal, the health assessments took place during a regularly scheduled FSP meeting time, which was most convenient for those participating. Though appropriate for an exploratory study, the small sample size of our study limits the generalizability of the results. Lastly, lack of control group and inability to control for outside influences limits the interpretation of the follow-up data. A larger, randomized controlled study is currently underway to further evaluate these findings.

Conclusions

Financial stress is a nontraditional risk-factor for heart disease and affects more than half of the adults in the United States (American Psychological Association, 2015). The results of the current study suggest financial education is associated with significant, sustained effects on the health-related quality of life of single, women of low income. This shifts the perception of financial education to a health intervention as a part of an interdisciplinary care team, with a financial coach or counselor providing the education. The idea of financial counselors as part of the healthcare team is novel. Findings from this exploratory study suggest medical referral of appropriate patients to a financial coach or counselor may contribute to improving overall health. With further scientific support, these services may even warrant reimbursement from health insurance companies. This is the first study to assess the effects of financial education as an intervention for improved health and wellbeing. The results of this exploratory study warrant further evaluation to improve understanding of these relationships and their implications for reducing health disparities and the role of consumer financial counseling. A randomized controlled trial is currently underway to further examine this relationship through a rigorous study design.

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