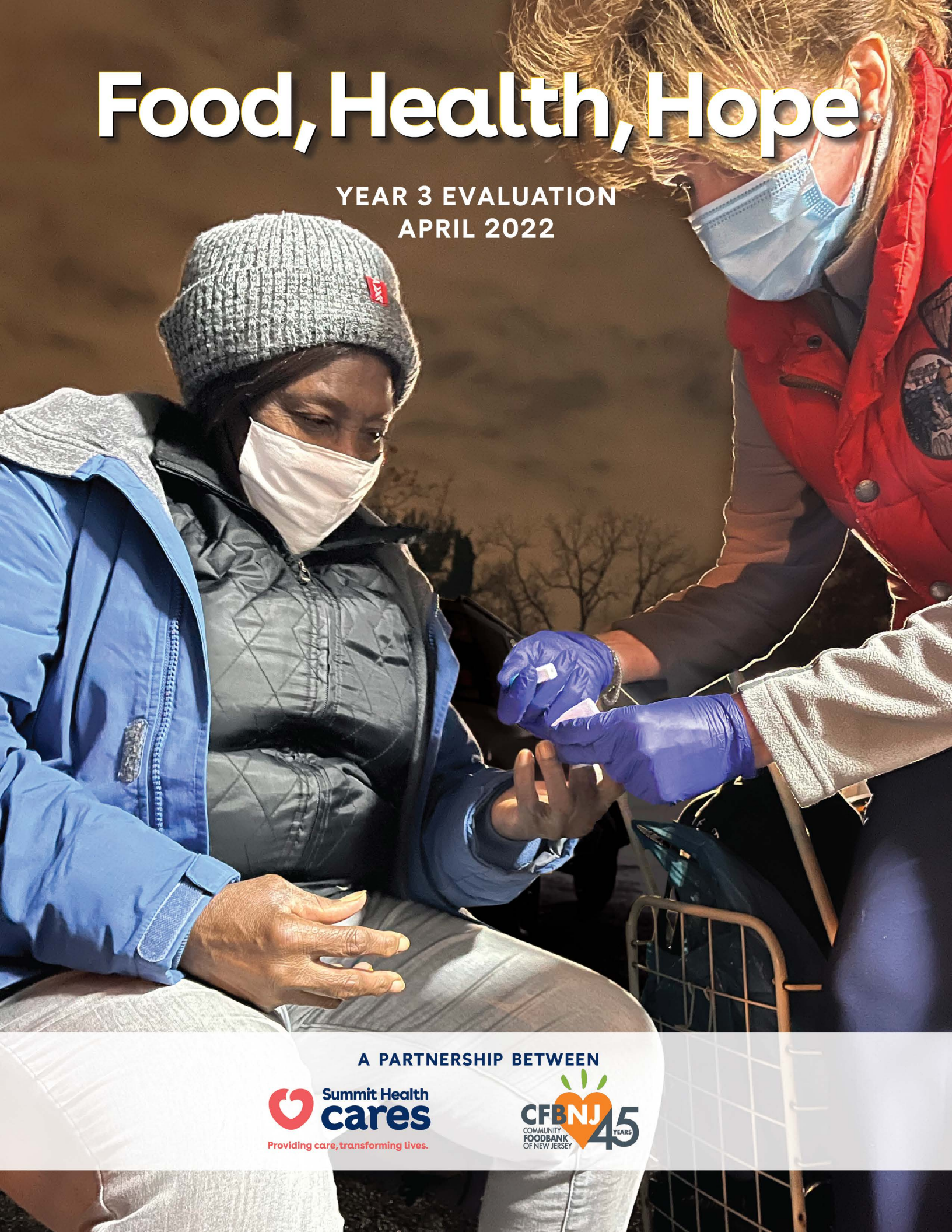


Food, Health, Hope

YEAR 3 EVALUATION
APRIL 2022



A PARTNERSHIP BETWEEN



COMMUNITY SUPPORT

Support for FHH Year 3 was provided through the fundraising efforts of SH-Cares and CFBNJ through events, donations, and grants from institutional funders.

SH-Cares would like to thank our major funding partners:



CFBNJ wishes to thank these additional major project funders:



We also extend special thanks to the many volunteers who donate hundreds of hours to SH-Cares and CFBNJ each year to ensure that our communities have food, health, and hope.



Finally, we thank the Rutgers University School of Social Work for the comprehensive evaluation report included in this document.

CONTACT INFORMATION:

Julienne Cherry

Executive Director, Summit Health Cares

908.367.6175 office | 908.464.6546 fax

PO Box 992

New Providence, NJ 07974-1557

email: jcherry@sh-cares.org

Website: www.sh-cares.org

Lindsey Kennedy, RD

Director of Nutrition, Community FoodBank of New Jersey

908.355.3663 Ext 134

Karen A. Zurlo, PhD & Addam Reynolds, MSW

Rutgers University School of Social Work

kzurlo@ssw.rutgers.edu

addam.reynolds@rutgers.edu

Food, Health, Hope

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Food, Health, Hope

A Community Outreach Program Designed to Positively Impact New Jersey's Food Insecure Adults

Food, Health, Hope (FHH) was created in 2017 by Summit Health Cares (then Summit Medical Group Foundation) and the Community FoodBank of New Jersey as a



three-year pilot of mobile outreach delivering health screening/ health literacy to food insecure adults at Essex, Union, and Passaic County food pantries.

UNDERSTANDING THE NEED

Diabetes ranks as the sixth leading cause of death in NJ. It disproportionately impacts those with low incomes and people of color. A significant percentage of adults with diabetes have poorly controlled disease and are considered at risk for heart disease, stroke, hypertension, eye damage, and foot problems. What's more, according to an American Diabetes Association expert panel, up to 70% of people with pre-diabetes will eventually develop diabetes – underscoring the importance of early intervention and education to help prevent the onset of disease.

Therefore, the Program was designed to integrate efforts of anti-hunger, health care, and community-based organizations to provide diabetes-appropriate foods and educational programs for food pantry clients identified with pre-diabetes, diabetes, hypertension, and/or obesity through monitoring participants' blood sugar levels and other health indicators. Through client screenings, SH-Cares has identified the high incidence of obesity, hypertension, and diabetes among pantry clients affirming the

urgent need for prevention/intervention. Independent evaluation teams were retained by Summit Health Cares each of the three years of the pilot.

Summit Health Cares (SH-Cares) is a 501 (c) 3 organization created in 2013 by Summit Medical Group (rebranded Summit Health). This partnership allows SH-Cares to engage employees of Summit Health/City MD to volunteer together to strengthen communities around us, providing care and transforming lives. Our mission is to help our neighbors in underserved communities gain access to the medical, educational, and social services they need to live healthier lives. Outreach efforts are focused on underserved communities - primarily Black, Haitian Creole, and Latino/ Hispanic adults living in Northern NJ - specifically, Essex, Union, and Passaic counties, by collaborating with food pantries, soup kitchens, and local governments.

Community FoodBank of New Jersey (CFBNJ) is the state's largest anti-hunger, anti-poverty organization. It addresses hunger as a health issue and

seeks long-term solutions to food insecurity, which can have severe and lasting effects on our neighbors in need. CFBNJ is also on the front lines of policy and collaboration to enact lasting change. In FY21, CFBNJ distributed over 102 million pounds of nutritious food, enough for more than 85 million meals. Approximately one-quarter of all food distributed was fresh produce, and nearly 70% of all food was from highly nutritious “foods to encourage” categories.

Food is distributed via CFBNJ’s network of more than 800 partner organizations (soup kitchens, food pantries, shelters, child and senior nutrition programs, etc.) that serve people in need in their individual communities. CFBNJ provides food to 15 out of 21 New Jersey counties and is a member of Feeding America, the nation’s largest domestic hunger-relief organization with a nationwide network of 200 food banks.

A FLEXIBLE, NIMBLE PROGRAM DESIGNED TO MEET REAL COMMUNITY NEEDS

Over the course of three years, the pilot expanded in size and scope: from seven pantries to nine, enrolling more than 1,000 food insecure adults. Enrollment criteria evolved over the three-year pilot from a focus on those with diabetes (Year 1) to those with pre-diabetes (Years 2 & 3). Finding high rates of hypertension and obesity among pantry participants, in Year 3,

admission criteria expanded to include those without diabetes with blood pressure of >140/90 or Body Mass Index (BMI) of >30 with diabetes risk factors. In each pilot year, approximately 50% of those completing the program demonstrated statistically significant improvement in biometric outcomes in diabetes status.

THE PROGRAM MODEL, AS ORIGINALLY CONCEIVED AND IMPLEMENTED FROM SEPTEMBER 2017 TO MARCH 2020, INCLUDED THE FOLLOWING COMPONENTS:

- Recruitment of CFBNJ member food pantries in the tri-county area wishing to participate
- Regularly scheduled collaboration meetings between the partnering organizations
- Initial biometric screening of any food pantry participant voluntarily presenting for screening
- Enrollment of the food pantry participants meeting admission criteria to receive:
 - Twice monthly supplements of diabetes-appropriate foods, in addition to normal food pantry distribution
 - Monthly group format evidence-based diabetes/nutrition/lifestyle education
 - Quarterly screening and re-screening of blood glucose, blood pressure, and weight /BMI
 - Individual goal setting/biometric change monitoring and one-on-one education about findings
 - Group chronic disease management and prevention education, three times annually
 - Podiatry screening and foot care education by Summit Health podiatry team
- Vision screen by NJ Division for the Blind and Visually Impaired
- Referral to primary care for those without a provider
- Referral to local community resources for those needing diabetes prescription assistance
- Mid-year status meetings with the partnering organizations and participating CFBNJ member food pantries

ADAPTING DURING A GLOBAL PANDEMIC

By mid-March 2020, the rapid spread of COVID-19 had, by order of the Governor of New Jersey, shut down much of the State as the greater New York area had become the epicenter of the pandemic in America. After a shutdown lasting until the end of May 2020, the in-person components of the program that could be delivered in accordance with CDC guidelines for re-opening were resumed. This not only impacted delivery of the original program model but also limited the participation of enrollees, who were and are among the most vulnerable. All indoor services were halted. CFBNJ and the pantries modified service delivery on both an interim basis and then under new protocols beginning in late May when contact, following guidelines, was allowed. This had challenges as virtual education was not accessible to all participants. CFBNJ worked around this to find creative ways to provide nutrition education materials to participants through handout drop-offs at the pantry sites, nutrition education via Zoom and phone, as well as recipes being sent via email. CFBNJ also continued to provide nutrition education offering a hybrid of in-person and virtual classes. Towards the end of Year 3, classes were primarily hosted outdoors.

SH-Cares delivered in-person health screenings outdoors in their Mobile Medical Outreach van, no matter the weather, with SH-Cares staff and volun-

teers in full PPE, and participants masked and socially distanced through the end of Year 3 of FHH. Since all group education had to be suspended, SH-Cares developed a chronic disease prevention and management workbook that was translated into Spanish and Haitian Creole. The workbook, with accompanying interactive education lessons, was distributed during the first screening of Year 4.

Screening of the general food pantry community for enrollment in Year 3 of FHH began in July of 2020 and continued through September 2020.

Volume increased dramatically at pantries as a new cohort of people found themselves out of work and without resources to secure food. SH-Cares staff saw increasing numbers of people sharing their concerns about visiting traditional health care facilities during the pandemic.

Realizing a profound need to provide COVID-19 screenings for participants, SH-Cares secured funding from the Healthcare Foundation of New Jersey (HFNJ), allowing the ability to offer free COVID-19 screenings at participating pantries, as well as additional neighborhood locations - altogether providing more than 1,000 COVID screenings at a time when they were not easily accessible, especially by those with limited transportation.

Health care and food pantry volunteers were in short supply as a result of the pandemic's impact on daily life. Before the availability of vaccines, there were additional demands on partner staffing which was exacerbated by school closings, higher demand for staff in medical settings, and fear of contracting COVID.

Despite these adversities, both organizations rose to the occasion to service those in need.

LOOKING BACK AND MOVING FORWARD

Over the three years of our FHH pilot, 70%-80% of food pantry clients requesting cardio-metabolic screening had at least one chronic condition (diabetes/pre-diabetes, hypertension, and/or obesity). On pre-post surveys, 46% reported that the pandemic impacted their ability to take care of their health.

The compelling findings of our evaluators have affirmed the need to continue to offer FHH for a fourth year, continuing to make program modifications to adapt to the evolving pandemic climate, as well as an annual analysis of outcomes.

RUTGERS UNIVERSITY SCHOOL OF SOCIAL WORK EVALUATION

EXECUTIVE SUMMARY REPORT

This report presents results from the evaluation of Year 3 of The Food, Health, Hope (FHH) Program in New Jersey. The Program enrolled 344 participants from June 2020 at nine food pantry sites. Participation in Year 3 of the Program concluded in October 2021. The number of participants at each of the nine sites ranged from 28 to 50, with an average number of 38 participants per site. Enrollment increased by 43% from Year 2.

The Program serves predominantly African American and Latino individuals, who are at greater risk for chronic diseases, such as diabetes, hypertension and obesity. The Program provides healthy foods and health screenings to individuals living in underserved communities. At the start of Year 3, 85% of the participants were prediabetic or diabetic. Additionally, 89% were overweight or obese. Blood pressure readings revealed that 51% were diagnosed with Hypertensive Stage 1 or Stage 2.

SIGNIFICANT IMPROVEMENTS FOR PARTICIPANTS

One of the major successes of Year 3 of the Program is that a majority of Program participants showed an improvement in at least one biomarker. For example, half of the participants showed an improvement in HbA1c levels, with 90% of those changes being clinically significant. Half of the participants had improvements in their BMI, with 23% of clients demonstrating a clinically significant weight loss. Fifty-five percent and 46% of the participants had improvements in their systolic and diastolic blood pressure, respectively.

Additional Program highlights included 92% of the participants indicated a high level of satisfaction with the Program across multiple domains. Ninety-seven percent of the participants indicated that the Program improved their quality of life. Participants were satisfied with the Program and appreciated its impact on their health. Additionally, participants

were most likely to adhere to health screening requirements and food box pick-ups. Nutritional education adherences were a challenge in Year 3; however, this was likely due to the impact of COVID-19. In response to the suspension of cohort education sessions, a chronic disease management

workbook was developed to provide one-to-one education with specific lesson plans implemented to promote health literacy.

One of the major successes of Year 3 of the Program is that a majority of Program participants showed an improvement in at least one biomarker.

SATISFIED PANTRY MANAGERS

Pantry managers rated their satisfaction (1~5) with the Program elements. They indicated an above average level of satisfaction with nutrition education (4.3), health screenings (3.9), health education (3.8), and food boxes and produce (3.5). Pantry managers reiterated the importance of current health offerings, such as podiatry screenings and suggested additional service offerings, if possible, that include vision screenings, COVID-19 testing and vaccinations.

KEY LEARNINGS IN THE WAKE OF COVID-19

In Year 3 of the Program, nutritional education classes weren't offered in person until the third quarter. While the Program offered remote-education, participants were not likely to participate, due to barriers in access to remote technology. While in-person education offerings led to higher education uptake, the offerings were likely limited due to participants' fears/worries related to COVID-19. Lower than expected education uptake may have had a blunting effect on biomarker changes, as education is considered a critical element of the Program. Despite the limitations of COVID-19 on the Program, the data suggest that the Program had a meaningful impact on participants' lives and health. The successes of the Program are notable, especially within the context of the need to adjust Program delivery to conform to CDC and state COVID-19 restrictions.

ABOUT THE PROGRAM EVALUATION

The FHH Program is a multidimensional intervention that includes periodic health screenings for diabetes, hypertension and obesity. These critical measures include: HbA1c levels, Body Mass Index (BMI), weight, and systolic and diastolic blood pressure. Eligibility for enrollment is based on HbA1c levels that indicate pre-diabetes or diabetes status, hypertensive status or being over-weight or obese. *For definitions of these cardiometabolic health indicators please refer to the Appendix.* FHH staff, volunteers and Program partners collected data from participants that measured cardio-metabolic health. Summit Health Cares (SH-Cares) was responsible for performing health screenings, determining eligibility, providing informed consent, collecting biomarker data and collecting demographic data from participants (i.e., race/ethnicity, age and gender). Participating food pantries and the Community FoodBank of New Jersey (CFBNJ) staff members were responsible for maintaining participant attendance records, Program elements, which were used for data analysis. Data was maintained both in electronic spreadsheets and in participant electronic health records (EHRs). Data from these sources were used in data analysis.

Based on evolving Centers for Disease Control (CDC) and State of NJ COVID-19 guidelines, participants in Year 3 of the pilot program were offered a combination of remote-access and in person nutrition/lifestyle education.

GATHERING SURVEY DATA FROM PARTICIPANTS AND FOOD PANTRY MANAGERS

In May of 2021 and at the culmination of the Program year, enrollees were invited to complete comprehensive surveys, which assessed nutritional behaviors, self-reported health status, knowledge about diabetes and hypertension, medications prescribed and taken, COVID-19 impact, participants' food sources and additional questions specific to their nutritional habits and health rating. Surveys were administered in English and Spanish, and data were collected by SH-Cares. Creole speaking partici-

pants were surveyed with the assistance of a translator. Rutgers University – School of Social Work was responsible for data management and analysis.

Additionally, food pantry managers were surveyed and interviewed in a joint effort by SH-Cares and CFBNJ. Some of the interviews were conducted in person and the others were conducted virtually or via electronic survey. Surveys were anonymously administered to food pantry managers via Survey Monkey. Survey Monkey results were analyzed and the content from the interviews of food pantry managers were documented and used for thematic analysis.

QUANTITATIVE AND QUALITATIVE DATA ANALYSIS

This report includes a quantitative analysis that describes participant demographic characteristics, assesses changes in biomarkers and estimates the level of program adherence. A qualitative analysis comprises a thematic analysis of food pantry manager interviews. To supplement these analyses, participant perspectives were elicited by FHH Program staff and are provided as illustrative quotes throughout this report.

Quantitative data (i.e., numerically coded data) were analyzed using descriptive statistics, inferential statistics, and an assessment of clinical significance, as appropriate. Analysis for quantitative data was performed using Stata (College Station, TX) Version 17.0. Qualitative data (i.e., text data) were analyzed for themes. Data analysis was performed by Rutgers University – School of Social Work under the direction of the Principal Investigator (PI) Karen Zurlo, PhD and in collaboration with the SH-Cares' team.

REPORT GENERATION

A community-based participatory model approach was used in generating this report. While Rutgers University – School of Social Work is primarily responsible for data analysis, this report was generated as part of a collaborative effort with SH-Cares, CFBNJ and Rutgers University – School of Social Work.

RESULTS

PARTICIPANT DEMOGRAPHICS AND BASELINE STATISTICS

Among the 344 participants enrolled in the FHH Program, a majority were women (75%). The majority of Program participants were 50 years of age and older (82%). Participants were mostly African American (45%) and Latino (34%). The remaining 21% of the participants either declined to provide

race/ethnicity, identified as White or had an invalid response. At baseline, 85% were classified as pre-diabetic or diabetic. Sixty-five percent had hypertension status that included elevated blood pressure or Hypertensive Stage 1 or 2. Eighty-nine percent were classified as overweight or obese.

TABLE 1. PARTICIPANT BIOMARKER DATA

Diabetes Status (HbA1c Levels)	Percentage of Participants at Baseline
Normal (<5.7%)	15%
Prediabetic (5.7%~6.4%)	48%
Diabetic (6.5% or higher)	37%
Hypertension Status (Blood Pressure)	
Normal (\leq 120/80mmHg)	35%
Elevated (120~129/ \leq 80mmHg)	14%
Hypertensive Stage 1 (130~139/80~89mmHg)	25%
Hypertensive Stage 2 ($>$ 140/ $>$ 90mmHg)	26%
Obesity Status (BMI)	
Normal (<25)	11%
Overweight (25~30)	27%
Obese (30+)	62%

SECTION 2. BIOMARKER IMPROVEMENTS

REDUCED A1C LEVELS, IMPROVED BMI, LOWERED BLOOD PRESSURE = HEALTHIER PARTICIPANTS

Improvements in biomarkers are a key component to the positive health outcomes of the Program participants. To measure these improvements, we compared baseline measurements (June~September 2020) to the measurements of participants who completed Year 3 of the Program (May~October 2021). When available, improvements were further classified into clinically significant improvements.

A reduction in HbA1c level is an indicator of lower levels of blood sugar, which is the goal for those living with pre-diabetes or diabetes. Among participants with pre-diabetes or diabetes, 49% of participants showed improvement, or 44% of the total sample, in HbA1c levels over their baseline scores (Figure 1). Ninety percent of participants with improvements in Year 3 had clinically significant improvement, which is defined as a 0.5%-point decrease. This data provide evidence that a large majority of improvements were clinically important.

FIGURE 1. PERCENTAGE WITH IMPROVED A1C LEVELS

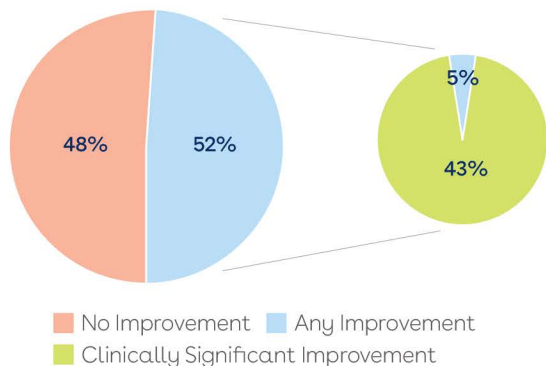


FIGURE 2. PERCENTAGE IMPROVEMENT IN BMI

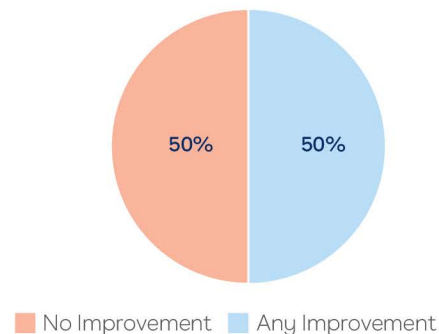


FIGURE 3. PERCENTAGE IMPROVEMENT IN WEIGHT

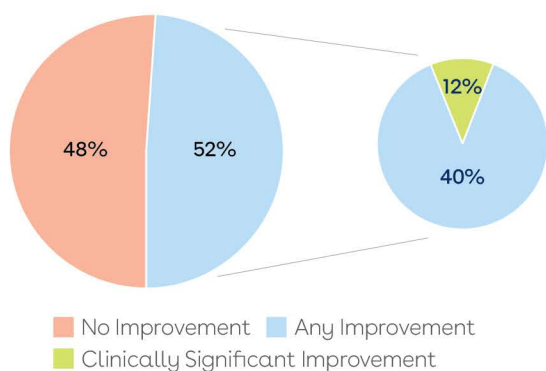
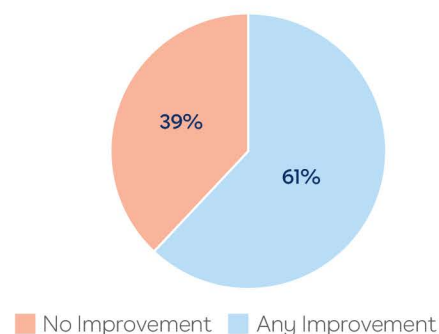


FIGURE 4. PERCENTAGE IMPROVEMENT IN SYSTOLIC AND/OR DIASTOLIC BLOOD PRESSURE



Reductions in weight, resulting in improvements in BMI, are indicators of positive changes in one's body composition and are useful measures when considering participants' risk for health complications. Compared to their baseline BMI and weight, approximately 50% of the participants lost weight and had an improved BMI (Figure 2). A clinically significant loss in weight is defined as a 5% reduction in body weight or more. Among those exhibiting a weight loss, 23% of the participants, or 12% of the total sample experienced a clinically significant loss (Figure 3).

Among the benefits of lowering blood pressure are fewer heart

"This program is very good for me because it helps me control my sugar. And some things that I buy in the store, I read, and I never read anything before. If I know it's good for me, I take it now. I don't know what happened to me last time--my A1C was 13 and they told me to go to my doctor. When I went there they gave me some medicine and then my blood sugar is normal. When they called me last time, they told me my blood sugar is very good. This program is good for me! Very, very good!"

attacks and strokes. In Year 3, 55% and 46% of the participants improved their systolic and diastolic blood pressure readings, respectively. Sixty-one percent of the sample had either improvements in systolic and/or diastolic blood pressure (Figure 4).

Overall, 50% of the participants with an abnormal biomarker at baseline, who completed the Program, showed an improvement in any one biomarker measure between May and October of 2021. Program participants have attributed their improvement to FHH Program participation. One program participant stated the paragraph to the left.

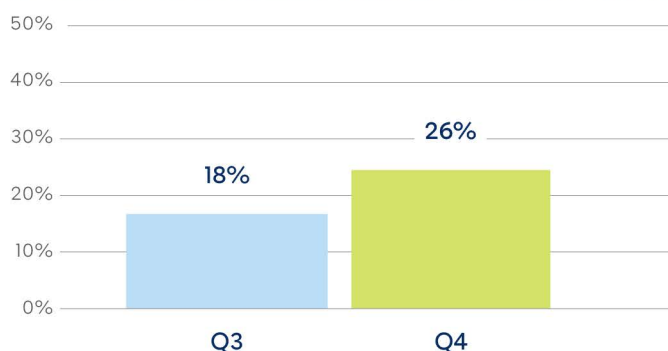
SECTION 3. PROGRAM ADHERENCE

THE EFFECT OF THE PANDEMIC

In addition to assessing cardio-metabolic health, FHH Program participants were invited to attend education classes, pick up food boxes and attend health screenings as part of the Program. Gathering as a group for disease education was not feasible due to CDC and state guidelines during the COVID-19

pandemic. As an alternative, one-on-one instruction was provided during all health screenings. Among the 344 participants, 18% and 26% of the participants attended nutrition education classes, in quarters 3 and 4 respectively. Quarter three represents April~June 2021 and quarter four reflects July~September 2021.

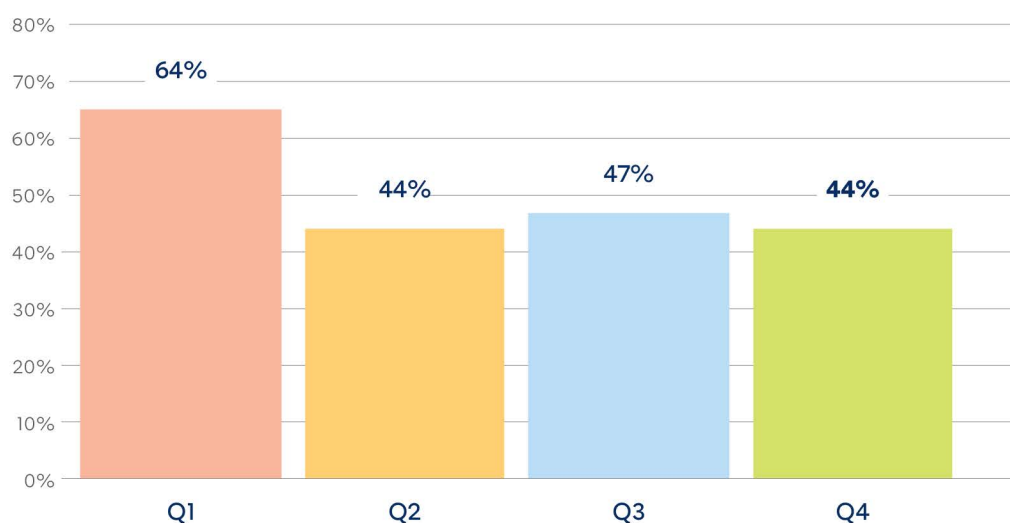
FIGURE 5. PERCENTAGE OF ELIGIBLE ENROLLEES THAT ATTENDED NUTRITION EDUCATION CLASSES BY QUARTER OF THE 344 PARTICIPANTS



In the first quarter of Year 3, 64 % of the participants picked up specialty food boxes. In the remaining

three quarters (Q2-4), the following percent of participants retrieved food boxes respectively, Q2: 44%, Q3: 47%, and Q4: 44% (Figure 5).

FIGURE 6. PERCENTAGE OF ELIGIBLE ENROLLEES THAT PICKED-UP SPECIALITY FOOD BOXES BY QUARTER OF 344 PARTICIPANTS



Participation in health screenings was calculated for participants who completed 60% and 80% of all eligible screenings. Seventy-nine percent of partici-

pants completed 60% or more health screenings and 59% of participants completed 80% or more of health screenings offered.

COVID-19 restrictions existed throughout Year 3 of the FHH Program, which may have contributed to lower percentages of food box pick-ups and participation in the nutritional education

"The Diabetes Program is really good! We have people that don't have insurance-- people who can get checked for high blood pressure and diabetes through this program...We need this program and many more like it! The people are nice, they respect us, and help us a lot. It's a great program! Thank you!"

program. Overall, participants were most likely to attend health screenings, underscoring the importance of this element of the program. As one participant said,

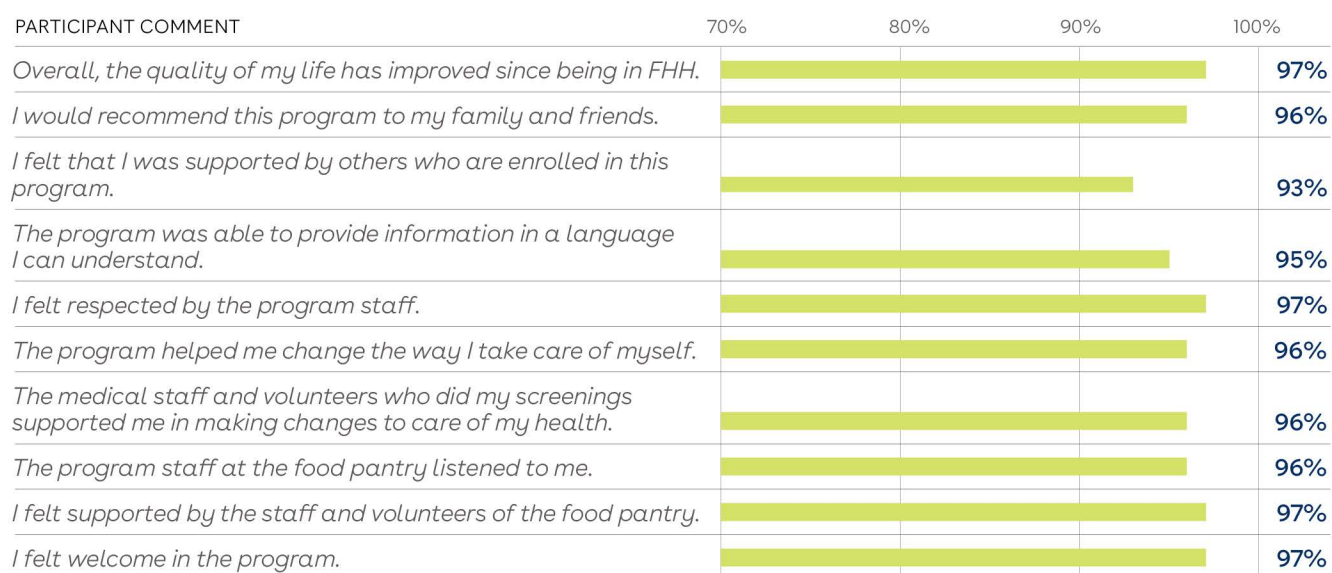
SECTION 4. PARTICIPANTS' PERSPECTIVES

IMPROVED QUALITY OF LIFE COUPLED WITH A WELCOMING PROGRAM AND SUPPORTIVE STAFF

Participants were asked a variety of questions during the midpoint of the FHH Program and at the end of the Program. The overwhelming majority of

participants reported high levels of satisfaction with the Program across multiple domains. As Figure 6 indicates, across each item, more than 92% of the participants reported high levels of satisfaction.

FIGURE 7. PROGRAM SATISFACTION



While survey items that measure program satisfaction are extremely important, it is also important to hear directly from clients. The following quotes supplement the descriptive statistics:

"I'm doing so much better. My sugar and blood pressure are way down. The staff taught me different ways to prepare food and that has really helped me change the way I eat. I am steaming my vegetables and juicing every morning. Thank you."

"I'm calling to thank you for helping me. [SH-Cares Staff Member] not only helped me get an appointment to see a doctor for my blood sugar, but once I was there, they were able to help me get medication for my diabetes. I'm even scheduled for mammography and an appointment at the dental clinic. I'm so lucky that I saw the van and came for a screening."

HEALTHIER EATING HABITS AND INCREASED EXERCISE

At the midpoint and end of the Program, the majority of participants (65%) experienced some level of difficulty in affording food. These data provide evidence that the FHH Program continues to address an important, unmet need of the participants. Complementary to providing nutrition, the Program is designed to facilitate uptake of healthier food options. Approximately half of participants reported eating fruits and vegetables four or more times per week. More than 85% of the participants consumed water four or more times per week at the midpoint and end of the Program.

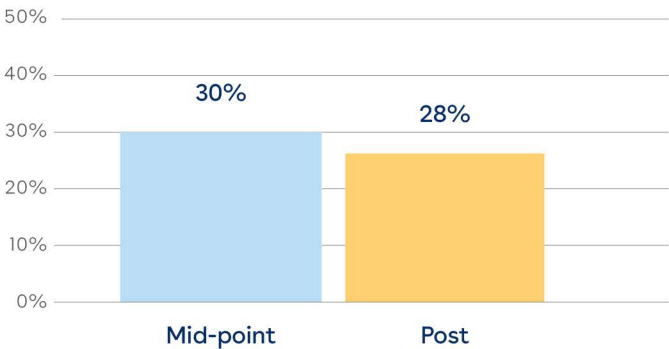
Approximately 75% of the participants consumed sweetened beverages two or less times per week at

“I was waiting online at the food pantry when the nurse came up to me and asked if I was feeling alright. I felt like I was going to pass out. She checked me out and I told her that I haven’t been taking my medication lately and my blood sugar and blood pressure were high. She explained the importance of taking my medicine every day at the same time. She had me make an appointment to follow up with my doctor. I’m grateful they took the time to care for me.”

the midpoint and end of the Program. Eighty-seven percent (87%) of the participants in both midpoint and post surveys consumed sugary foods less than two times per week. Overall, Program participants are consuming healthier foods each week compared to high glycemic foods.

Exercise is an important component of maintaining optimal health. As Figure 7 indicates, approximately 30% of the participants at midpoint and at the conclusion of the Program participated in exercise five or more times per week. Because exercise is associated with reductions in relevant biomarkers, a potential enhancement to the FHH Program will include an exercise component.

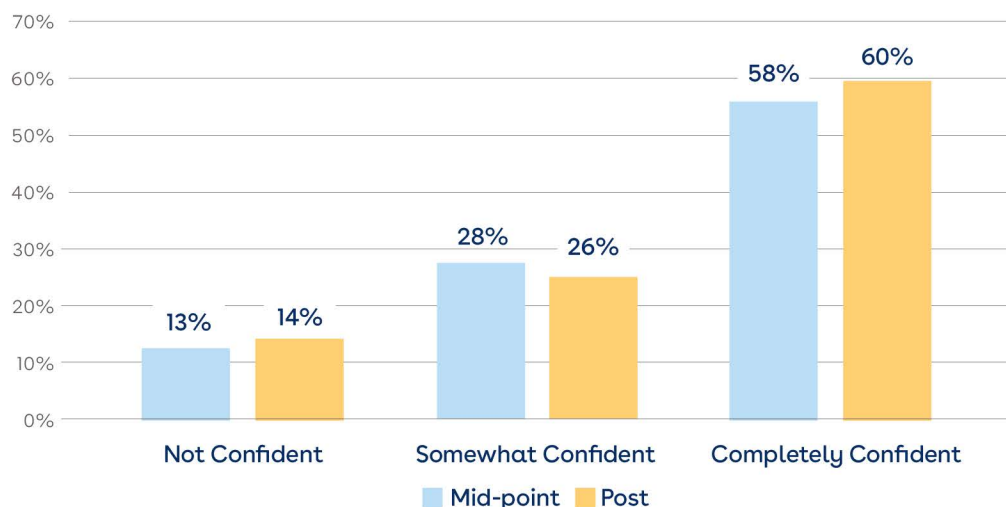
FIGURE 8. PHYSICAL HEALTH: PERCENTAGE OF THE 344 PARTICIPANTS THAT EXERCISE 5+ TIMES PER WEEK



In terms of knowledge about chronic health conditions, 60% of Program participants feel confident in identifying when they need to follow-up with a physician (refer to Figure 8). Approximately 30% of partici-

pants can identify symptoms of low blood sugar, 40% feel confident in identifying blood sugar abnormalities and 40% feel confident that they can eat every four to five hours.

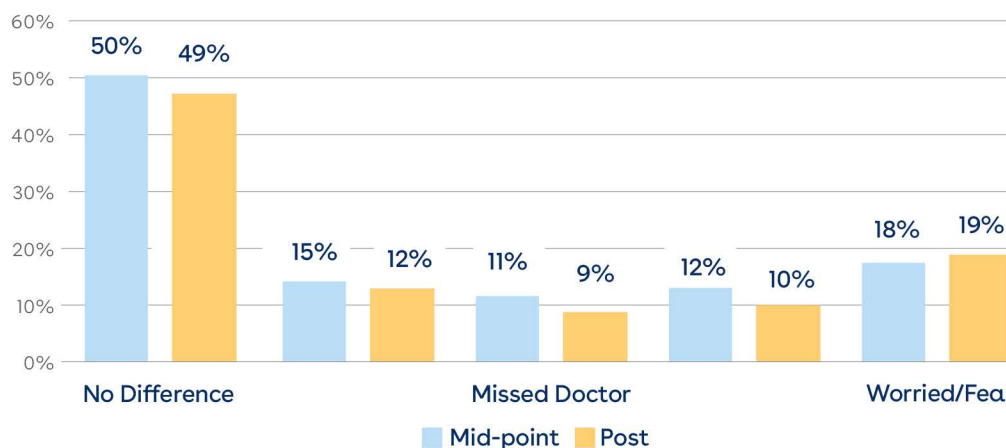
FIGURE 9. PARTICIPANTS' CONFIDENCE IN IDENTIFYING THE NEED FOR PHYSICIAN FOLLOW-UP



Half of the participants in midpoint and post program surveys reported barriers attributable to COVID-19. The remaining half of participants reported having a lack of access to the right foods, delays in

obtaining healthcare, increased worries/fears related to COVID-19 and difficulties in adhering to the Program. Refer to Figure 9 below for a more detailed reporting on COVID-19 attributable barriers.

FIGURE 10. COVID-19 EFFECTS: PARTICIPANTS WHO REPORTED BARRIERS



SECTION 5. FOOD PANTRY MANAGERS' PERSPECTIVES

CRITICAL FEEDBACK TO ENHANCE FHH

Food pantry managers were interviewed by FHH Program staff and were asked to complete a survey

in Survey Monkey. Pantry managers were asked to assess their satisfaction with Program elements on a scale of 1~5, where higher scores indicate higher levels of satisfaction. Table 3 indicates the scores.

TABLE 3. FOOD PANTRY MANAGER SURVEY RESULTS

Program Element	Average Score
Food Boxes and Produce	3.5
Health Screenings	3.9
Nutrition Education	4.3
Health Education	3.8

Food pantry managers iterated the importance of additional FHH Program offerings, such as vision testing, COVID testing, vaccinations, podiatry screenings for diabetic clients and blood pressure screening for all clients. An emergent theme identified from the data stressed the importance of podiatry screening for participants, indicating that food pantry managers saw this as a vital program offering. They also suggested that the FHH Program could be enhanced by facilitating enrollment in SNAP (Federal food stamp program) and they felt that providing excellent customer service and making a positive impact on client lives is a critical component of the Program's success. For example, one site coordinator said what is quoted above in red.

"The importance of this program was made especially apparent to us today as we learned that one of our Diabetes 3.0 clients was unable to come in person because she is on dialysis and just had both legs amputated. We fervently hope that our future 4.0 FHH participants will learn how to healthfully manage their life with diabetes so that this will not happen to them!"

Managers suggested the FHH Program enhance the methods utilized to facilitate program adherence and underscored the need to return to in-person education. Although COVID-19 restrictions necessitated certain Program adaptations for client safety, managers felt education was a vital program element and stressed in-person education. Food pantry managers also suggested increased advertisements and incentives for participation be used to facilitate adherence. The final theme identified was the importance of providing fresh produce instead of canned goods as part of food box offerings. They also suggested food boxes could be improved by providing greater variety of foods and tailoring the food items to the cultural needs of participants.

SECTION 6. ATTRITION

POOR HEALTH STATUS CONTRIBUTED TO ATTRITION

To investigate the selective attrition during Year 3, an attrition analysis was performed. The percent of participants who completed the Program were defined as those having a baseline biometric screening between June and November 2020, and a final screen between May and September 2021. Non-completers had a baseline screen, but did not have a second screen after April 2021, therefore, they did not receive a significant dose of the program. Approximately 72% of individuals who completed baseline health screenings, completed health screenings between May 2021 and October of 2021.

On average and compared to non-completers, **completers** had:

- **Lower HbA1c levels** (6.64% vs. 7.26%)
- **Lower diastolic blood pressure measure** (75.44mmHg vs. 79.28mmHg)
- **Lower systolic blood pressure measure** (127.28mmHg vs. 131.79mmHg)

There was no difference in weight or BMI between completers and non-completers. Overall, participants with poor health status (i.e., less regulated blood sugar, higher blood pressure) were less likely to complete the program. Future evaluations may consider a qualitative component to assess why participants leave the program and how retention can be enhanced.

SECTION 7. ESSEX COUNTY BIOMARKER CHANGES

IMPROVEMENT IN A1C LEVELS, BMI & BLOOD PRESSURE

The majority (six out of nine) food pantries are located in Essex County. A supplementary analysis was performed only using data collected from food pantries located in Essex County. In this analysis, we compared participants' baseline biomarkers to their biomarkers obtained in May~October of 2021.

Approximately half of the participants with abnormal A1C levels showed any improvement over

their baseline values. Of those with improved A1C levels, 93% had a clinically significant improvement. A majority of participants (57%) had any improvement in their BMI. 57% of participants had any improvement in their weight, while 24% of these individuals had clinically significant weight loss. Approximately 46% and 59% had any improvement in their systolic and diastolic pressure, respectively.

SECTION 8. COVID-19 IMPLICATIONS

PANDEMIC IMPEDED OPTIMAL RESULTS, DESPITE PROGRAM CHANGES TO MEET PARTICIPANT NEEDS

These findings are interpreted within the context of two constraints that may impact the enrollees - namely the COVID-19 pandemic and selective attrition. Due to public health measures to mitigate community spread of COVID-19, the FHH Program made design changes. For example, the staff at various food pantries adapted by providing food box pickups to meet social distancing guidelines, which required a transition to curb-side pickup. In addition, the FHH Program did not initially offer group nutritional education programming. Instead, the use of Zoom as a remote technology was offered to provide educational programming electronically. Due to participants' limitations in accessing remote technology, remote education was not effective in reaching sufficient numbers of participants.

As indicated in the pantry managers' surveys,

group educational programming was perceived as a fundamental component of the program. Pantry managers reiterated the continued emphasis on the need to return to in-person learning.

As discussed in Section 4, approximately 50% of participants experienced an adverse impact attributable to COVID-19 restrictions, both in the mid-year and endpoint participant surveys. COVID-19 restricted access to healthy foods, created difficulties in adherence to Program guidelines and increased psychosocial stress (i.e., feelings of worry or fear). Due to relatively low exposures of Program participants to education, improvements in dietary patterns and their impact on biomarkers may have been affected. The COVID-19 pandemic created significant challenges to Program participants, pantry and Program staff and volunteers. While there were numerous adaptations and successes achieved by the Program, the pandemic impeded the opportunity for optimal outcomes.

CONCLUSIONS AND IMPLICATIONS

FHH YEAR 3 DELIVERED SIGNIFICANT IMPROVEMENTS FOR PARTICIPANTS

The FHH Program was able to screen and enroll increasing numbers of eligible pantry participants in Year 3 compared to Years 1 and 2. Half of all the participants experienced **a clinically significant improvement** in at least one of the three biomarkers. As planning for Year 4 of the FHH Program ensued, the survey data results and conclusions of the SH-Cares and CFBNJ staff and RUSSW investigators suggest the following Program changes:

- ✓ **An emphasis on more fresh food and culturally appropriate food offerings**
- ✓ **Greater incentives for participation (to increase consistency of attendance by participants)**
- ✓ **Prioritization of group nutrition and lifestyle education (according to State and CDC guidelines related to COVID-19 pandemic)**
- ✓ **Assessment of the management styles & operational procedures at the nine food pantries to determine best practices. A qualitative study is recommended.**

APPENDIX 1. DEFINITIONS

Clinical Significance: Clinical significance refers to clinically meaningful changes in biomarkers that indicate a positive improvement in health status. Clinically significant changes in HbA1c levels were defined as a 0.5% reduction in HbA1c levels (Lenters-Westra et al., 2014). Clinically significant changes in weight were defined as a 5% reduction in body weight. (Williamson et al., 2015). Cutoffs for determining clinically significant changes in BMI or blood pressure are not available based on a review of the literature.

Program Completers: Participants who participated in any final health screening in May-October of 2021 were defined as “program completers.” Participants who did not have a health screening during this time frame were defined as “non-completers.”

Diabetes: Diabetes is a chronic health condition characterized by abnormal blood sugar regulation (CDC, 2021b). Diabetes is diagnosed based on cutoffs from the hemoglobin A1C test (A1C), a measure of the average blood sugar levels over the past three months (CDC, 2018). Normal A1C levels are defined as less than 5.7%. Pre-diabetes is defined as having an A1C level within the range of 5.7% to 6.4%. Diabetes is defined as having A1C levels of 6.5% or higher (CDC, 2018).

Hypertension: Hypertension is a condition where the force of blood flow throughout blood vessels is higher than normal (American Heart Association, 2022). Normal blood pressure is characterized as having a systolic pressure of less than 120 mm Hg and a diastolic pressure of less than 80 mm Hg. Elevated blood pressure is defined as having a systolic pressure between 120-129mmHg and a diastolic pressure less than 80. Stage 1 hypertension is defined as having a systolic pressure between 130-139mmHg or a diastolic pressure between 80-89mmHg. Stage 2 hypertension is defined as having a systolic pressure of 140mmHg or higher or a diastolic pressure of 90mmHg or higher.

Body Mass Index: Body Mass Index, or BMI, is a measure of a person’s weight in pounds divided by the square of one’s height in inches. Higher BMI levels indicate a higher percentage of body fat (CDC, 2021a). Classifications of BMI have been developed to indicate one’s weight status. BMI scores less than 18.5 are defined as underweight. BMI scores greater than 18.5, but less than 25 are considered normal. A BMI between 25~30 is considered overweight. A BMI of 30 or above indicates obesity (CDC, 2021a).

APPENDIX 2. ADDITIONAL MID AND POST SURVEY DATA

FIGURE 1A. HEALTHY EATING BEHAVIORS: PERCENTAGE INDICATING INTAKE OF 4+ SERVINGS PER WEEK

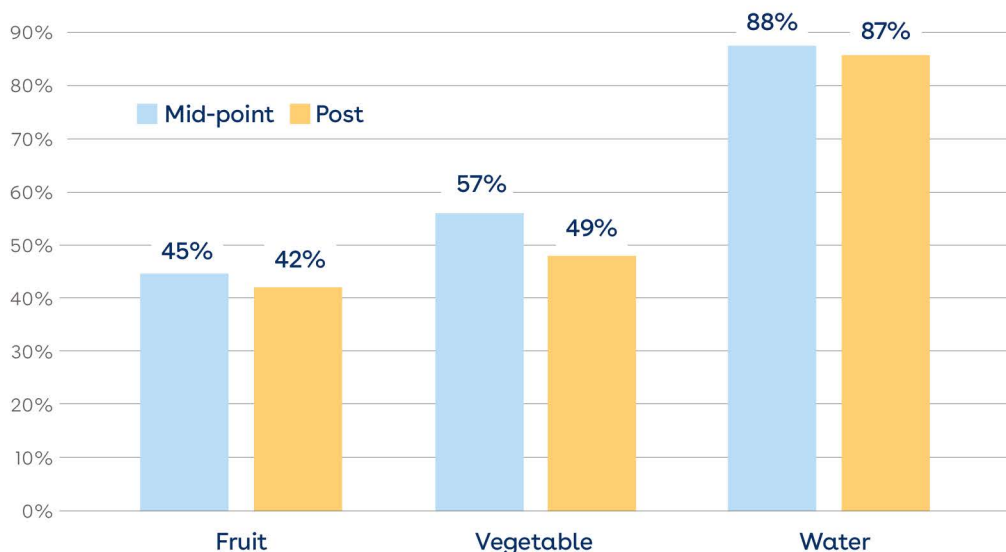


FIGURE 1B. HEALTHY EATING BEHAVIORS: PERCENTAGE INDICATING INTAKE OF ≤ 2 TIMES PER WEEK

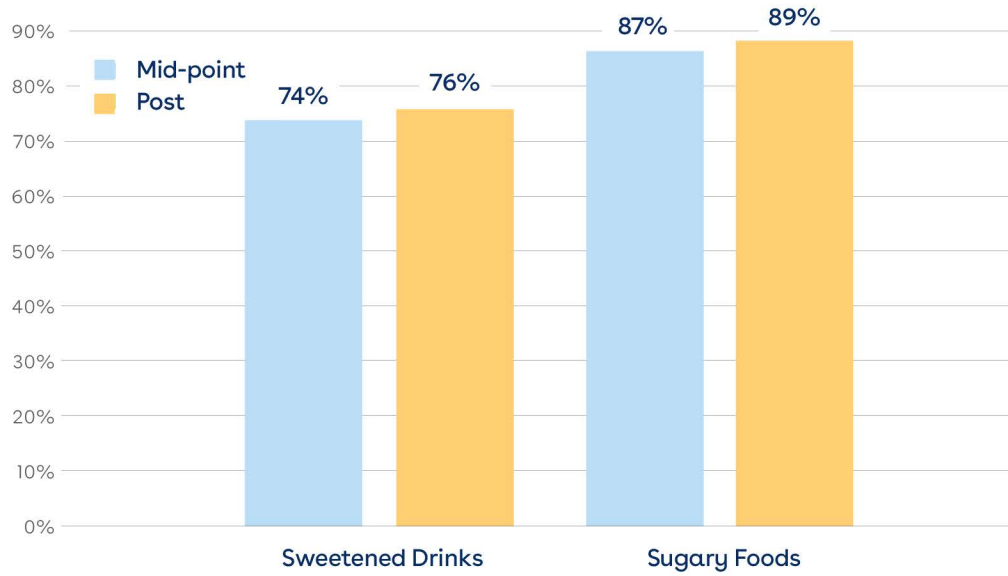


FIGURE 1C. HEALTHY EATING BEHAVIORS: DIFFICULTY AFFORDING MEALS

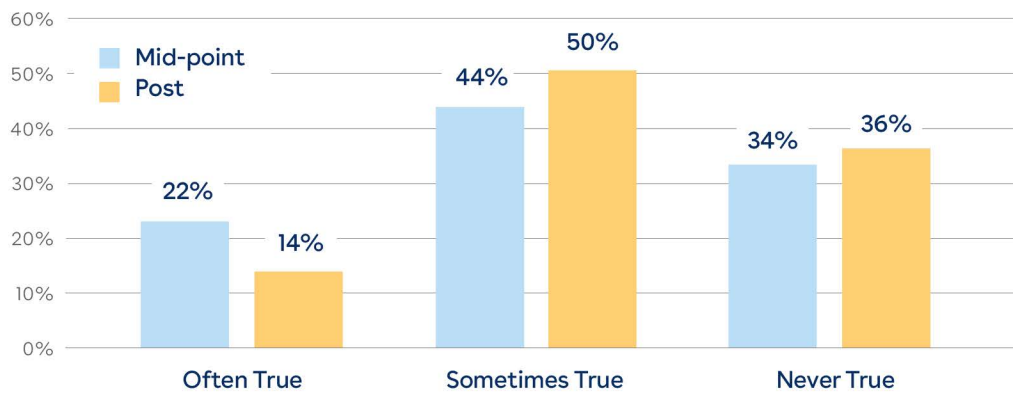


FIGURE 1D. HEALTHY EATING BEHAVIORS: TYPES OF ESTABLISHMENTS WHERE FOOD IS OBTAINED

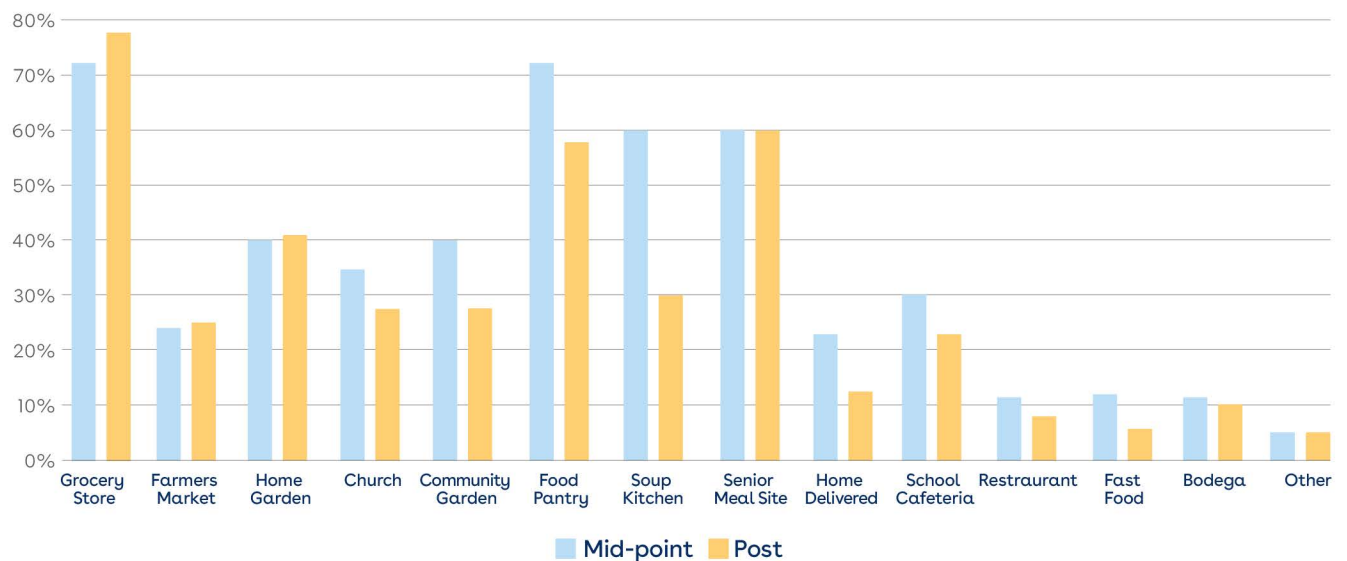


FIGURE 2. SELF-RATED HEALTH RESPONSES

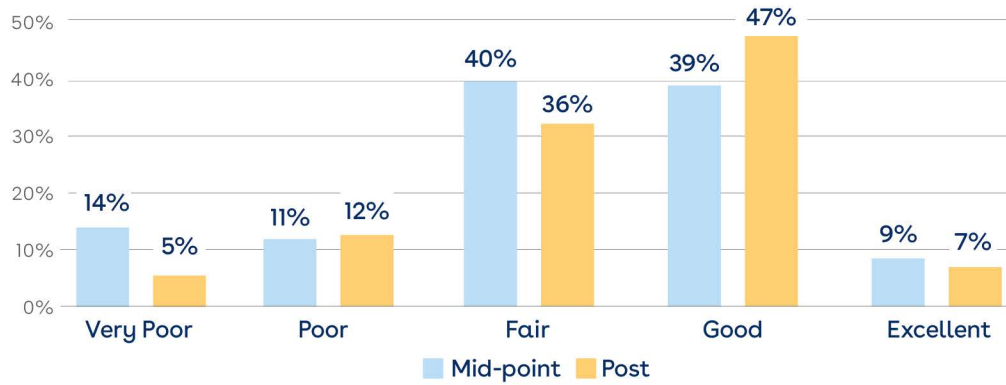


FIGURE 3. HEALTHCARE UTILIZATION OUTSIDE OF FHH

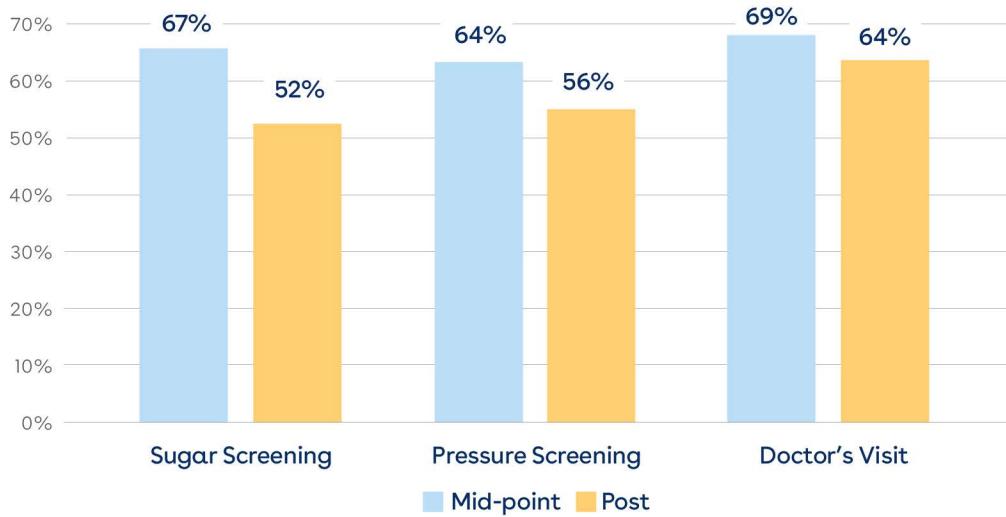


FIGURE 4. REASONS FOR ANY DELAY IN SEEKING HEALTHCARE

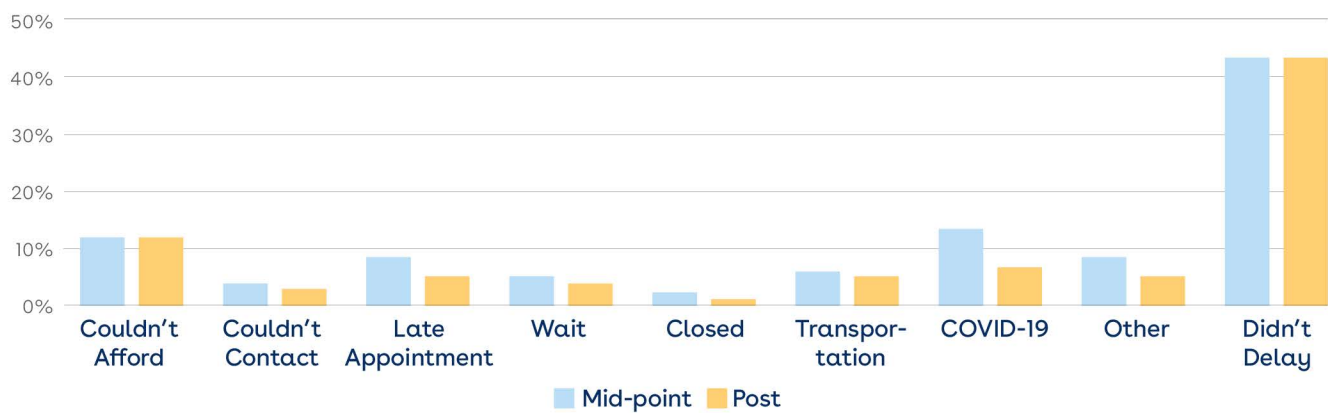


FIGURE 5. PARTICIPANTS HEALTH STATUS: DIABETES DIAGNOSIS AND DIABETES MEDICATION

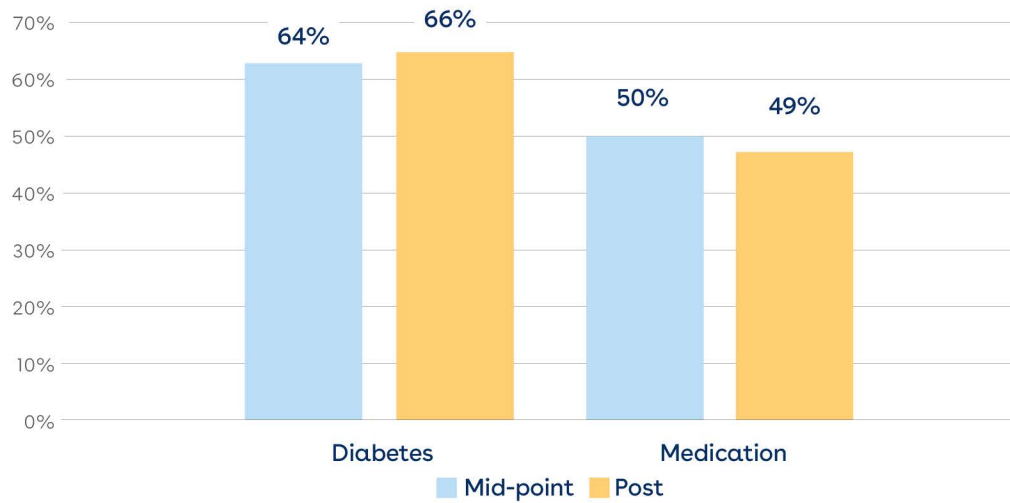


FIGURE 6. KNOWLEDGE OF LOW BLOOD SUGAR

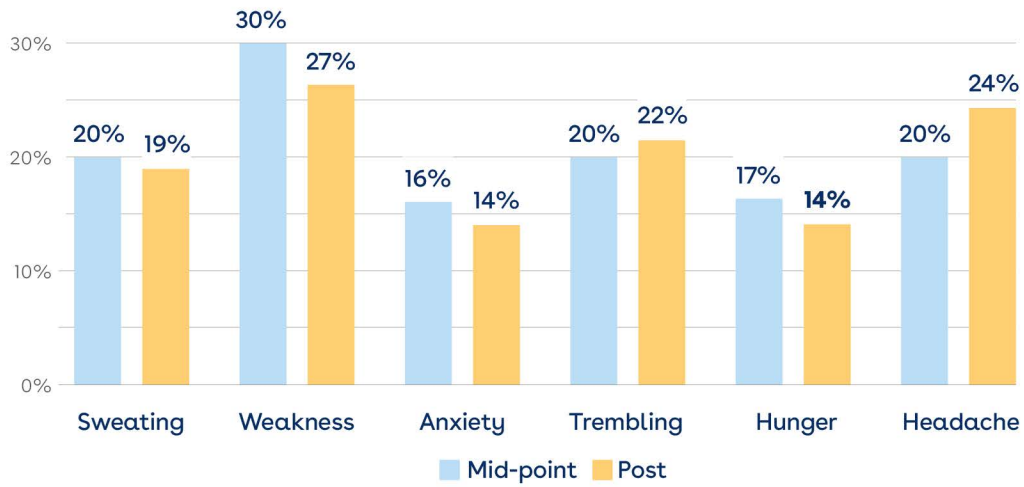


FIGURE 7. CONFIDENCE IN IDENTIFYING BLOOD SUGAR ABNORMALITIES

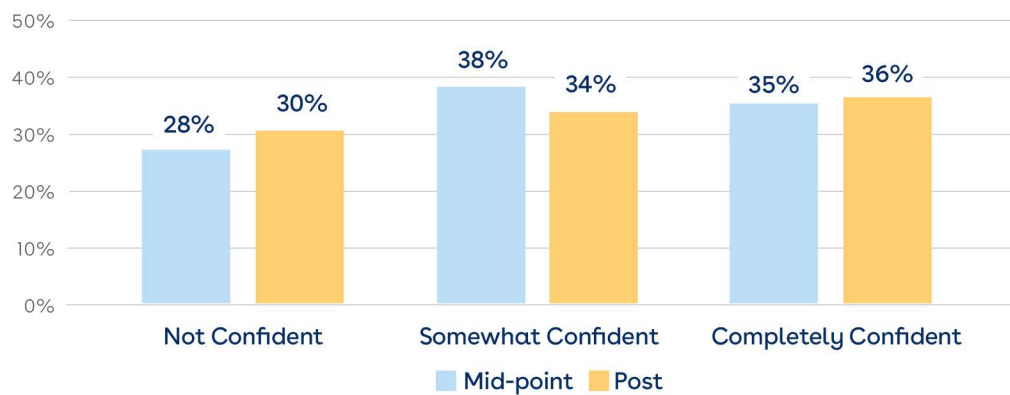


FIGURE 8. EATING BEHAVIORS (EVERY 4~5 HOURS)

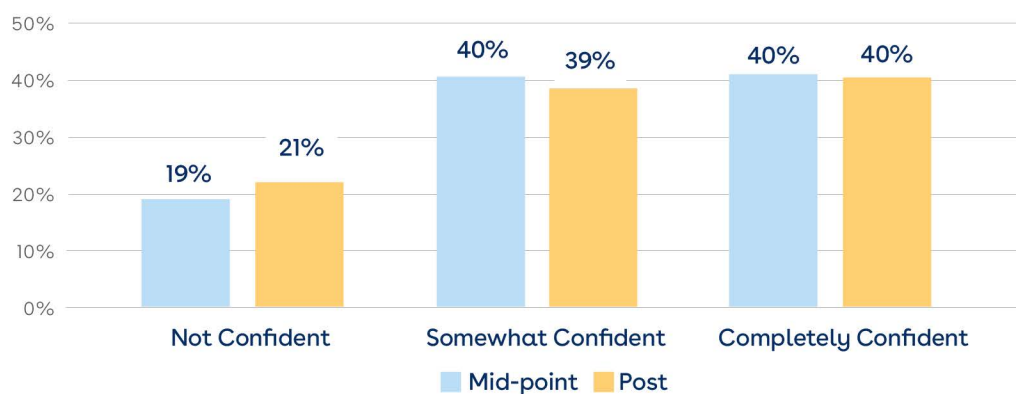


FIGURE 9. PARTICIPANTS HEALTH STATUS: HYPERTENSION DIAGNOSIS AND HYPERTENSIVE MEDICATION

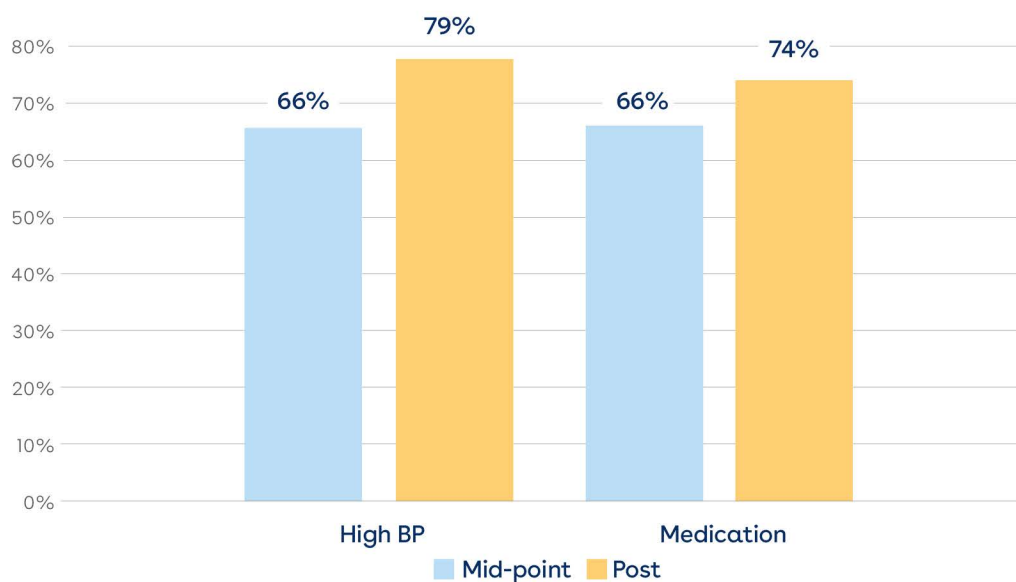


FIGURE 10. QUALITY OF LIFE SCALE (0~10)

