

# Northern Illinois Food Bank Diabetes Prevention Program Report 2015



# **Abstract for Northern Illinois Food Bank Diabetes Prevention Program 2015-2016**

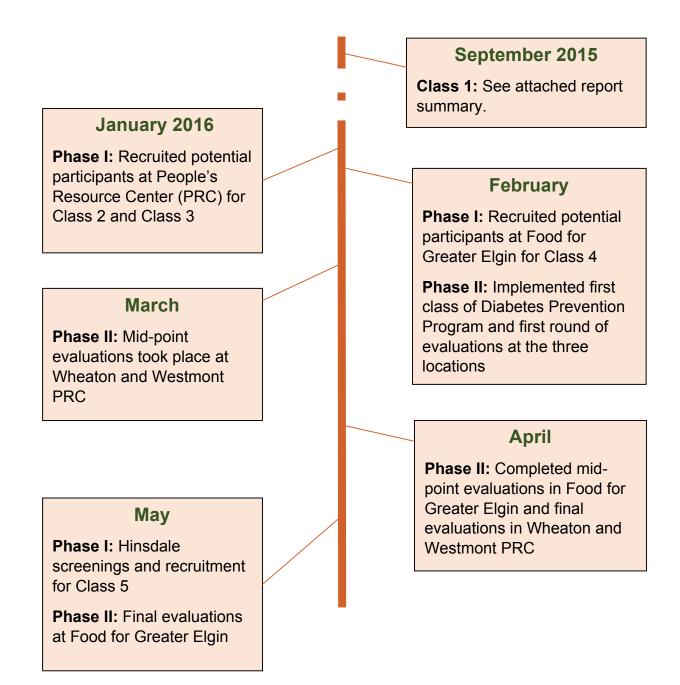
Pantry populations appear to be at high risk for pre-diabetes. The Northern Illinois Food Bank saw this as a need in their pantries and identified the Centers for Disease Control Diabetes Prevention Program (DPP) to be an appropriate screening process and intervention to target this at risk population. After assessing the needs of the audience and identifying evidence based research, the DPP curriculum was tweaked to include the Health at Any Size ® concepts of mindful eating and moving more. This is a paradigm shift away from weight as the primary indicator of success and a focus on one's internal cues.

Thus, an intervention study was implemented, that over the course of two years, included five different classes. These classes were one-hour sessions that took place weekly for ten weeks. Concepts such as stress management, mindful eating, and moving were addressed. Out of 248 participants, 70.5% (n=175) screened at risk for prediabetes. Out of 47 who started the classes in the Diabetes Prevention Program, 28 completed the program (a 59.6% overall retention rate) all of who were female.

Significant changes, as assessed using aggregate data from all 5 classes, were seen in the Appearance construct of the MPAM-R indicating that participants started to change their perception about motives to move more. Research indicates that when this change happens, more sustainability with moving more is achieved. Additionally, Awareness improved significantly for Mindful Eating indicating that participants started to be conscious of internal states of hunger and fullness and of the senses. Research indicates that when this happens, individuals have a greater sense of honoring internal cues when eating. Included also in this report are qualitative statements from participants that were overwhelmingly positive. Overall, the Food Bank's DPP proved to be a non-traditional program that spoke to participants and changed behavior that potentially could lower risk for Type 2 diabetes. Limitations of this study include the small sample size and inconsistent training for instructors. However, because these were pilot studies, improvements based on research findings are currently being implemented.

Additionally, the curriculum has been updated based on pilot results and is being reviewed by experts on Health at Every Size®.

# **Diabetes Prevention Program 2015-2016 Timeline**



# **Summary**

#### Purpose & Goal

The purpose of Phase I of this project was to screen food pantry clients for pre-diabetes to determine eligibility for a diabetes prevention program. Then in Phase II, eligible participants were invited to take a ten-week nutrition education program to evaluate how a lifestyle intervention could improve factors associated with a lower risk of diabetes in a pantry population, who are at a higher risk of prediabetes.

#### **Background**

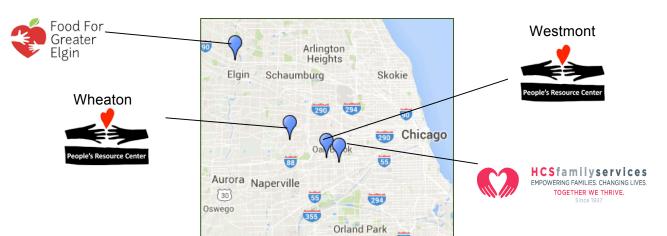
In 2016, Northern Illinois Food Bank collaborated with the Northern Illinois University (NIU) Nutrition & Dietetics team to conduct a diabetes prevention program. Lesson plans were developed by the Food Bank in collaboration with NIU and incorporates curricula adapted from the CDC Diabetes Prevention Program and Health at Every Size®.

#### **Locations and Continuation**

The program was implemented at three food pantries in Northern Illinois:

- People's Resource Center in Wheaton (Class 1 and 2)
- People's Resource Center in Westmont (Class 3)
- Food for Greater Elgin (Class 4)
- HCS Family Services in Hinsdale (Class 5)

Wheaton held their 1<sup>st</sup> class in the fall of 2015, repeated a second class in January 2016. They are starting their 3<sup>rd</sup> class continuing the program with a volunteer instructor and produce from the Food Bank. The Elgin Location continued with a 2<sup>nd</sup> class using volunteer hospital instructors.



## **Implementation**

#### **Phase I: Participant Recruitment**

Screening and program implementation took place in four food pantries in northern Illinois: People's Resource Center in Wheaton and Westmont, Food for Greater Elgin, and HSC Family Services in Hinsdale. Patrons were asked to take the CDC prediabetes screening test while they were waiting in line for food. The inclusion criteria for potential participants included being 18 years or older not having diabetes. Consent and voluntary participation was explained. Surveys were offered in both English and in Spanish, with a translator available for assistance. Researchers explained individual 'risk' scores to patrons and those with scores  $\geq 9$  were invited to sign up for the lifestyle intervention program. Names and phone numbers were collected for enrollment and were then contacted via phone to confirm interest in the program.

#### **Phase II: Diabetes Prevention Program**

The diabetes prevention program consisted of a ten-week lifestyle education curriculum to evaluate how a lifestyle intervention improved lifestyle factors associated with a lower risk of diabetes in a pantry population, which is at a higher risk of prediabetes. The instruments used for evaluation were Motivates for Physical Activities Measure – Revised (MPAM-R) survey, a Self-Efficacy survey on fruit and vegetable intake, and a Mindful Eating Questionnaire (MEQ). Lessons were taught by a Registered Dietitian and a Certified Diabetes Educator. Participants received additional food and produce each week as well as Pampered Chef items in raffles based on attendance at the mid and end point.



#### Results

# Phase I CDC Pre-Diabetes Screening: Summary by Location

# **Wheaton PRC**

#### Class 1

- Screenings = 69
  - English = 40
  - Spanish = 29
- Participants at risk = 48
  - Average risk score = 9.6
- Participants first night of class = 9
- Participants finished the class = 5

# **Wheaton PRC**

#### Class 2

- Screenings = 44
  - English = 18
  - Spanish = 26
- Participants at risk = 33
  - Average risk score = 10.7
- Participants first night of class = 13
- Participants finished the class = 8

# Westmont PRC Class 3

- Screenings= 41
  - o English = 34
  - Spanish = 7
- Participants at risk = 28
  - Average risk score = 10.2
- Participants first night of class = 8
- Participants finished the class = 4

## Food for Greater Elgin Class 4

- Surveys Taken = 52
  - English = 25
  - Spanish = 27
- Participants at risk = 35
  - Average risk score = 9.9
- Participants first night of class = 8
- Participants finished the class = 5

# HCS Family Services Class 5

- Surveys Taken = 42
  - English = 32
  - Spanish = 10
- Participants at risk = 31
  - Average risk score = 11.2
- Participants first night of class = 9
- Participants finished the class = 6

#### **TOTAL**

- Screenings = 248
  - English = 149
  - Spanish = 99
  - Participants at risk = 175
    - Average risk score = 10.3
- Participants first night of class = 47
- Participants finished the class = 28
- Overall retention = 59.6%

# **Phase II: Survey Measures Overview**

Three surveys were used to gauge participant behavior change throughout the 10-week class. These surveys have been validated in previous studies individually, but have not been used together in the same curriculum before the Northern Illinois Food Bank's Diabetes Prevention Program. The three surveys were:

- The **Self-Efficacy questionnaire** asked four questions regarding the participant's confidence in being about to provide and eat fruits and vegetables at meals each day.
- The Motives for Physical Activity Measure (MPAM-R) is a tool that asks about one's motives for physical activity and determining whether they are intrinsic motivators vs. extrinsic.
- The Mindful Eating Questionnaire measures one's ability to eat mindfully – a non-judgmental awareness of physical and emotional sensations associated with eating.



### **Overall Quantitative Summary**

The Northern Illinois Food Bank started this lifestyle change program in September of 2015 and ended in June 2016. Altogether, this program has impacted 28 people through our classes. However, we know that the impact stretches far beyond the classroom and is shared with family and friends. The results reported below all have an impact on reducing the risk of Type 2 diabetes by the influence on behavior change.

- Self-efficacy Questionnaire: Although self-efficacy for eating more healthfully did not obtain significance, all numbers increased indicating that the change in participants' confidence became stronger by the end of the program (Table 1).
- Motives for Physical Activity Revised (MPAM-R): The construct of Appearance on the MPAM-R achieved significance. The change from a higher to lower number is preferable for this concept. As an example, the Likert scale on the MPAM-R ranges from 1-7 with 1 being "not at all true for me" and 7 being "very true for me" and participants must keep their reason for being physical activity in mind. One of the question items for Appearance states "Because I want to be attractive to others". Thus, their motive for being physically active moved away from the external cue of appearance. Research indicates this is a favorable result helping individuals to move more based on internal motivation rather than external (Table 2).
- Mindful Eating Questionnaire: Awareness improved significantly for Mindful Eating indicating that participants started to be conscious of internal states of hunger and fullness and of the senses. Research indicates that when this happens, individuals have a greater sense of honoring internal cues when eating (Table 3).

Table 1. Self-Efficacy Questionnaire Results (n=28)\*

Question	<b>Pre-Intervention</b>	Post-Intervention	Difference	P-values
1. How sure are you that you can eat fruits or vegetables at every meal every day?	2.61	2.76	0.14	0.35
2. How sure are you that you can eat fruits or vegetables as a snack even if everybody else were eating other snacks?	2.39	2.52	0.07	0.69
3. How sure are you that you can fill half of your plate with fruits and/or vegetables at every meal every day?	2.58	2.76	0.17	0.26
4. How sure are you that you can feed your family balanced meals every day?	2.52	2.72	0.21	0.14
Overall Self-Efficacy	10.09	10.76	+0.59	0.10

Table 2. Motives for Physical Activity Measure Results (MPAM-R) (n=28)\*

Motive		Pre-Intervention	Post-Intervention	Difference	P-value
INTRINSIC	Interest/ Enjoyment	5.12	5.27	0.04	0.81
INTRINSIC	Competence	5.23	5.32	0.01	0.98
	Social	4.28	4.19	-0.30	0.18
EXTRINSIC	Appearance	4.64	3.97	-0.80	<0.001
LATRINGIC	Fitness	6.53	6.56	-0.14	0.21

Table 3. Mindful Eating Questionnaire Results (n=28)\*

Domain	<b>Pre-Intervention</b>	Post-Intervention	Difference	P-value
Awareness	2.37	2.84	0.30	0.03
Distraction	2.23	2.48	0.22	0.18
Disinhibition	2.33	2.24	-0.10	0.46
Emotional	2.00	1.93	-0.08	0.75
External	2.48	2.43	-0.09	0.58
Summary	2.28	2.39	0.11	0.45

<sup>\*</sup>These results are analyzed with aggregate data from all 5 classes.

### **Qualitative Feedback: Participant Satisfaction Survey Results\***

Cla ss#	Meet goals from the start of class?	Have you made changes based on information learned from this program?	Quality?	Encourage others to take class?	Take again?
1	Yes = 5	Yes = 5	Excellent = 5	Very likely =5	Very likely =5
2	Yes = 11	Yes = 11	Excellent = 11	Very likely =11	Very likely =10 Unlikely = 1
3	Yes = 5	Yes = 4 Somewhat = 1	Excellent = 3 Good = 2	Very likely = 3 Somewhat = 2	Very likely = 3 Somewhat = 1 Unlikely = 1
4	Yes =2 ,No = 1	Yes = 4	Excellent = 4	Very likely =4	Very likely =4
5	Yes = 6	Yes = 6	Excellent = 6	Very likely =6	Very likely =6

<sup>\*</sup>While there were 30 participants that fill out satisfaction surveys. Data for participants who did not complete the fill program are not included in aggregate results.

#### **Favorite Part of the Class:**

- Talking about stopping negative thinking
- Learning about new vegetables
- Teaching us about healthy cooking
- Exchanging information
- Discussing food balance and the importance of exercise
- Sharing doubts and concerns and getting answers
- I love all of the classes
- Learning about the importance of our own health and how we should eat

- The guidance we receive to take care of ourselves
- Learning new things
- I love Nancy's energy and positivity.
   The chef was great! She taught many helpful techniques to make preparing vegetables more easily.
   She made it easy and fun
  - Small size, so we can share our concerns and ideas. The teacher is
    - also awesome.
- Eating habits

## **Suggestions:**

- Form a small group/club to meet and discuss and exercise as a follow-up of things studied in the class
- Make it an ongoing class
- I would have liked the lectures to be a supplement to the printouts rather than simply putting the printouts on the screen and reading it. I'd rather read it on my own (before class, preferably) but after is fine. − Thanks so much for having this class. It may prevent me from going pre-diabetic to diabetic ⊕
- Have more people that have diabetes come
- The visuals and paper materials were good. Much of the problems people faces are largely unique with some overlapping issues. Perhaps more interpersonal

communication. Some students did not know what certain items of produce were. Ex: turnips, poblano peppers, etc.

#### Coordinator

The coordinator assisted in the implementation of the diabetes prevention program. The coordinator ensured that food and produce orders were placed each week for each session of the diabetes prevention program. The coordinator directed the graduate assistants and informed them of any changes throughout the program implementation.

#### **Graduate Research Assistants**

The graduate research assistants were in charge of room set up and take down, taking attendance, distributing class handouts, and helping to distribute the food and produce at the end of each session. One of the assistants was responsible for translation of the class handouts used in each session and some of the measuring tools, as well as translating for the dietitians during the implementation of the program. The other research assistants were responsible for putting together the class handouts and measuring tools, as well as picking up food, produce, and participant incentives.

#### **Program Instructors**

The educators ranged from Registered Dietitian Nutritionists and Certified Diabetes Educators. The dietitians were responsible for teaching the diabetes prevention program material and answering participants' questions at each session.

## **Sustainability Effort**

In order to create a more sustainable program, here are a few suggestions for further action:

**Establishing next steps -** What happens when the class completes?

- Initiate an on going support group occurring in Wheaton PRC and Elgin
- Restart the class and offer to new and returning participants occurred in Wheaton PRC and Elgin

**Class instructors** – utilize NIU graduate students and assistants trained in the HAES® curriculum to teach the class. Training is now being scheduled for August 2016.

**Evaluation Instruments –** readability and length of current instruments does not meet the needs of this population. A focus group and revised evaluation will be used next time.



# **Summary of Results**

Reported in Averages (Appendix A)

## Wheaton People's Resource Center – Class 1 Participants (n=5)

Average survey scores and difference between pre- and post-intervention survey results.

MPAM-R		Pre-Intervention	Post-Intervention	Difference
Motive	Interest/Enjoyment	5.11	5.43	+0.31
	Competence	5.23	4.74	-0.49
	Social	3.80	3.40	-0.40
	Appearance	4.47	3.57	-0.90
	Fitness	6.60	6.56	-0.04
Self-Efficacy		<b>Pre-Intervention</b>	Post-Intervention	Difference
Question	How sure are you that you can eat fruits or vegetables at every meal every day?	2.4	2.8	+0.4
	2. How sure are you that you can eat fruits or vegetables as a snack even if everybody else were eating other snacks?	2.1	2.8	+0.7
	<ol><li>How sure are you that you can fill half of your plate with fruits and/or vegetables at every meal every day?</li></ol>	2.0	2.8	+0.8
	4. How sure are you that you can feed your family balanced meals every day?	2.4	2.6	+0.2
	Overall Self-Efficacy	8.9	11.0	+2.1
MEQ		Pre-Intervention	Post-Intervention	Difference
Domain	Awareness	2.13	3.31	+1.18
	Distraction	2.44	3.13	+0.69
	Disinhibition	2.46	3.18	+0.72
	Emotional	2.71	3.15	+0.44
	External	2.45	3.13	+0.68
	Summary	2.44	3.18	+0.74

#### Results indicate:

- Interest/Enjoyment showed a positive change for the MPAM-R. The direction of the responses potentially indicates that participants are cuing into moving more for the sake of enjoyment which supports more sustainable movement.
- There was an overall movement towards an increase in confidence for eating more healthfully.

# Summary of Results (Appendix B)

#### Wheaton People's Resource Center (PRC) – Class 2 Participants (n=8)

Average survey scores and difference between pre- and post-intervention survey results.

MPAM-R		Pre-Intervention	Post-Intervention	Difference
Motive	Interest/Enjoyment	4.77	4.80	+0.03
	Competence	5.16	4.69	-0.47
	Social	4.00	4.26	+0.26
	Appearance	4.86	5.52	+0.67
	Fitness	6.50	6.74	+0.24
Self-Efficacy		Pre-Intervention	Post-Intervention	Difference
Question	How sure are you that you can eat fruits or vegetables at every meal every day?	2.6	2.9	+.3
	2. How sure are you that you can eat fruits or vegetables as a snack even if everybody else were eating other snacks?	2.6	2.5	1
	<ol><li>How sure are you that you can fill half of your plate with fruits and/or vegetables at every meal every day?</li></ol>	2.8	3.0	+.2
	4. How sure are you that you can feed your family balanced meals every day?	2.4	2.9	+.5
	Overall Self-Efficacy	10.4	11.3	+.9
MEQ		Pre-Intervention	Post-Intervention	Difference
Domain	Awareness	2.37	2.61	+.24
	Distraction	2.67	2.83	+.16
	Disinhibition	2.67	2.89	+.22
	Emotional	3.19	3.28	+.09
	External	2.04	2.29	+.25
	Summary	2.59	2.78	+.19

<sup>•</sup> Participants show an overall improvement in engaging in mindful eating.

#### Results indicate:

- Scores improved for the Fitness construct of MPAM-R indicating participants' motives to move more related to maintaining physical health and well-being.
- There was improvement in the participant's confidence for eating more healthfully related to fruit and vegetable consumption at every meal, filling half the plate full of fruits and vegetables at every meal, and providing the family with a balanced meal.

# Summary of Results

(Appendix C)

# Wheaton PRC - Class 2 Returning Participants (n=3)

Gray and white boxes indicate class one, orange boxes indicate class two.

Average survey scores and difference between pre- and post-intervention survey results.

Motive Interest/E Competer Social		5.10	4.60					Posts
· ·	nce		4.62	4.81	4.14	-0.29	-0.47	-0.67
Social		5.29	4.74	3.86	2.76	-1.43	-1.97	-1.1
		4.20	3.74	2.60	2.53	-1.60	-1.20	-0.07
Appearan	ce	3.45	4.30	1.50	1.45	-1.95	-2.85	-0.05
Fitness		6.93	6.41	6.27	6.27	-0.67	-0.14	0
Self-Efficacy		Pre-Inte	rvention	Post-Inte	ervention	Diffe	rence	Difference of Posts
you can e	re are you that eat fruits or es at every meal	2.67	2.7	3	2.7	+.33	0	3
you can e vegetable if everybo	are you that eat fruits or es as a snack even edy else were eer snacks?	2	2.6	2.7	2.7	+.7	+.1	0
you can fi with fruits	s at every meal	1.67	2.8	3	2.7	+1.33	1	3
you can fe	re are you that eed your family meals every day?	2.67	2.5	2.7	2.7	+.03	+.2	0
Overall S	elf-Efficacy	9	10.6	11.33	10.7	+2.33	+.1	63
MEQ		Pre-Inte	rvention	Post-Inte	ervention	Diffe	rence	Difference of Posts
Domain Awarenes	SS	2.53	3.00	3.24	2.90	+.71	10	-0.34
Distractio	n	2.33	3.22	3.44	3.22	+1.11	0	-0.22
Disinhibiti	on	2.14	3.00	3.04	3.18	+.9	+.18	0.14
Emotiona	I	1.72	3.50	3.67	3.83	+1.95	+.33	0.16
External		2.50	2.89	3.06	2.19	+.56	7	-0.87
Summary	/	2.25	3.12	3.29	3.07	+1.04	05	-0.22

<sup>•</sup> Participants show an improvement in engaging in mindful eating.

Results indicate (Significance was measured on all classes combined.):

# Summary of Results (Appendix D)

## **Westmont People's Resource Center Class 3 (n= 4)**

Average survey scores and difference between pre- and post-intervention survey results.

MPAM-R		Pre-Intervention	Post-Intervention	Difference
Motive	Interest/Enjoyment	5.04	4.21	-0.82
	Competence	5.18	4.75	-0.43
	Social	4.75	4.45	-0.30
	Appearance	5.08	3.71	-1.38
	Fitness	6.90	5.15	-1.75
Self-Efficac	у	Pre-Intervention	Post-Intervention	Difference
Question	How sure are you that you can eat fruits or vegetables at every meal every day?	2.5	2.75	+.25
	2. How sure are you that you can eat fruits or vegetables as a snack even if everybody else were eating other snacks?	2.5	2.5	0
	3. How sure are you that you can fill half of your plate with fruits and/or vegetables at every meal every day?	2.5	2.75	+.25
	4. How sure are you that you can feed your family balanced meals every day?	2.25	2.25	0
	Overall Self-Efficacy	9.75	10.25	+.5
MEQ		Pre-Intervention	Post-Intervention	Difference
Domain	Awareness	2.64	2.61	03
	Distraction	3.33	2.83	5
	Disinhibition	3.13	3.13	0
	Emotional	2.94	3.21	+.27
	External	2.29	2.61	+.32
	Summary	2.87	2.88	+.01

- Motives for moving more decreased for Appearance which is a favorable result.
  However, other constructs changes were unfavorable. It was at this point evaluation
  revealed a great need for consistent language among instructors and a better
  understanding of Health at Every Size.
- There was a slight improvement in the participant's confidence for eating more healthfully related to fruit and vegetable consumption at every meal and providing the family with a balanced meal.
- Participants show an improvement in the constructs of Disinhibition and Emotional cues.

Results indicate (Significance was measured on all classes combined.):

- Motives for moving more decreased for Appearance which is a favorable result. However, other
  constructs changes were unfavorable. It was at this point evaluation revealed a great need for
  consistent language among instructors and a better understanding of Health at Every Size.
- There was improvement in the participant's confidence for eating more healthfully related to fruit and vegetable consumption at every meal and filling half the plate full of fruits and vegetables at every meal.
- Participants show an improvement in engaging in overall mindful eating with distinct improvement seen with the constructs of Emotional and External cues.

# Summary of Results (Appendix E)

## Food for Greater Elgin Class 4 (n=3)

Average survey scores and difference between pre- and post-intervention survey results.

MPAM-R		<b>Pre-Intervention</b>	Post-Intervention	Difference
Motive	Interest/Enjoyment	5.62	6.10	+0.48
	Competence	6.29	5.95	-0.33
	Social	5.27	4.60	-0.67
	Appearance	5.28	4.17	-1.11
	Fitness	6.67	7.00	+0.33
Self-Efficacy		Pre-Intervention	Post-Intervention	Difference
Question	How sure are you that you can eat fruits or vegetables at every meal every day?	2.67	3	+.33
	2. How sure are you that you can eat fruits or vegetables as a snack even if everybody else were eating other snacks?	2.67	3	+.33
	3. How sure are you that you can fill half of your plate with fruits and/or vegetables at every meal every day?	2.67	3	+.33
	4. How sure are you that you can feed your family balanced meals every day?	2.67	3	+.33
	Overall Self-Efficacy	10.67	12	+1.33
MEQ		<b>Pre-Intervention</b>	Post-Intervention	Difference
Domain	Awareness	2.30	2.58	+.28
	Distraction	2.67	2.67	0
	Disinhibition	3.02	2.24	78
	Emotional	2.78	2.67	11
	External	1.88	1.83	05
	Summary	2.53	2.40	13

#### Results indicate:

- Interest/Enjoyment, Appearance, and Fitness show favorable changes.
- There was improvement in the participants overall confidence for eating more healthfully for themselves and their family.
- Participants show an improvement in being more aware of eating mindfully in relation to senses and external stimuli.
- While 5 participants completed the class, 2 participants data were incomplete

# Summary of Results (Appendix F)

# **HCS Family Services Hinsdale (n=6)**

Average survey scores and difference between pre- and post-intervention survey results.

MPAM-R		Pre-Intervention	Post-Intervention	Difference
Motive	Interest/Enjoyment	6.37	5.57	-0.8
	Competence	5.94	6.54	+0.6
	Social	5.52	4.76	-0.76
	Appearance	5.93	5.43	-0.5
	Fitness	7.00	6.92	-0.08
Self-Efficacy		Pre-Intervention	Post-Intervention	Difference
Question	How sure are you that you can eat fruits or vegetables at every meal every day?	2.50	2.67	+0.17
	2. How sure are you that you can eat fruits or vegetables as a snack even if everybody else were eating other snacks?	2.17	3.00	+0.83
	3. How sure are you that you can fill half of your plate with fruits and/or vegetables at every meal every day?	2.67	2.50	-0.17
	4. How sure are you that you can feed your family balanced meals every day?	2.67	2.83	+0.16
	Overall Self-Efficacy	10	11	+1
MEQ		Pre-Intervention	Post-Intervention	Difference
Domain	Awareness	2.81	2.98	+0.17
	Distraction	2.56	1.94	-0.62
	Disinhibition	2.77	2.81	+0.04
	Emotional	2.61	1.60	-1.01
	External	2.59	2.57	-0.02
	Summary	2.67	2.38	-0.29

#### Results Indicate:

- MPAM-R results showed favorable changes for Competence and Appearance.
- Confidence increased related to fruit and vegetable consumption at every meal, choosing fruit and vegetables as snacks and feeding her family balanced meals.
- Mindful eating results showed favorable changes for Awareness and Disinhibition.