

FOCUSING ON EXCESSIVE GESTATIONAL WEIGHT GAIN THROUGH EDUCATION

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The link between pregnancy, obesity and periconceptional health

- Obesity rates in the US are still high.
- Women of reproductive age are particularly vulnerable because of excessive gestational weight gain (GWG) and postpartum weight retention.
- High GWG set the stage for suboptimal pre- and perinatal health, increasing the health risks for both mothers and their infants.

The potential of the WIC program for effective preventive intervention

- Wide reach to low-income population, who are disproportionately affected by obesity.
- Recent findings showed that certain subgroups within the PHFE WIC population appear to be at a greater risk of excessive GWG and may benefit from preventive interventions.

Approach

- To develop an individual education for pregnant women regarding weight gain during pregnancy.
- This was accomplished by conducting focus groups with English and Spanish speaking participants and staff in October 2012.

Focus Group Results



Qualitative Evaluation of Barriers to Appropriate Gestational Weight Gain Among Participants in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC)

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Abstract:
Objective: The purpose of this formative study was to assess the challenges and barriers women experience in maintaining appropriate weight gain during pregnancy.
Methods: We conducted eleven focus groups with a total of 76 women, who are all WIC pregnant women (ages 18-45) in the WIC program. Focus group interviews were designed to elicit culturally relevant information on how best to adapt evidence-based interventions to assist WIC participants to gain weight within BMI weight gain guidelines.
Results: Sixty percent (60%) and 48 percent (48%) of women reported difficulty in developing, preparing, and eating a generalizable and sustainable intervention to prevent excessive (OVD) among WIC participants in Southern California.
Conclusions: Focus group results have provided a nuanced understanding of the challenges and barriers to appropriate gestational weight gain, which have important implications for future work in the WIC program.

Introduction:
 Although mean gestational weight gain is increasing, the rate of obesity remains high, the mean high rate of obesity is still a concern of great concern. Women of reproductive age are particularly vulnerable for becoming obese because of excess or OVD and failing to lose the weight after delivery. Therefore, high OVD along with postpartum weight retention at the stage for subsequent gestational weight gain, increasing the health risks for both mother and her future.
 In response to the evidence, the Institute of Medicine released its 1990 recommendations and released new OVD recommendations in 2009. Despite these guidelines, almost one half of women exceed the recommendations, increasing their risk of adverse health outcomes during pregnancy (gestational diabetes, hypertensive disorders, excessive fetal size and operative complications), and postpartum (obesity and overweight). The postpartum period is often the inter-point period, the time between OVD during or earlier pregnancy to a significant gestational weight gain before subsequent pregnancies. In addition to impacts on mothers, excess OVD may also lead to adverse health outcomes in the offspring, including increased risk of excessive and abnormal obesity. Thus, increasing weight of maternal weight and excessive OVD may create a true generational cycle of obesity in future children given both to future daughters, who are at increased risk of becoming obese themselves during their reproductive years.
 The WIC program is uniquely positioned to improve post-natal health outcomes given the wide reach to the low-income population, who are disproportionately affected by obesity. WIC programs have the potential to influence weight gain during pregnancy and reduce the incidence of overweight and obesity in a substantial proportion of low-income women and children. Through monitoring and giving appropriate advice about OVD, WIC providers have the capacity to alter individual risk factors and improve a woman's nutrition and health before a subsequent pregnancy and later in life.

Materials and Methods:
Focus Group Design & Development: Between March to December, 2011 we conducted a total of 11 FGDs in the PHFE/WIC program. See Table 1 below for a summary of these group participants. The research team developed FGD guides to explore participants' perceptions about weight gain during pregnancy and barriers to appropriate OVD. The FGD guides were then translated to Spanish and Irish to recruit to assess cultural appropriateness and acceptability.
Sampling and Participants: A total of 76 pregnant participants who were between ages 18-45 in the PHFE/WIC program were recruited to participate. WIC research staff worked with the nutritionist personnel, which assisted with eligible life criteria, explaining the purpose, requirements, risks and benefits of participation, and obtaining verbal consent. FGD interview guides and all content related to research development in both English and Spanish. Written informed consent will be obtained at the beginning of each FGD. We then recruited the groups with a bilingual WIC research staff as co-moderators. At the end of each FGD, participants received an \$20 Target gift card as a token of appreciation for their participation.

Data Analysis: Data were analyzed inductively (from Spanish to English) and reported in ATLAS.ti v.11.2. Data from WIC staff and analyzed using the content analysis or thematic, which identifies patterns and relationships between concepts.

References: There is open link to abstract references on website upon request. Please visit www.loankim.com

Results:

Table 1: Summary of Focus Group by Demography

	# FGDs Conducted	# Participants
Hispanic Speaking	3	18
Hispanic Speaking	2	8
Spanish	4	20
White	2	13
TOTAL	11	59

Table 2: Demographic Summary of Focus Group Participants

Average age of participants	30.3 yrs
Average years in U.S.	14.3 yrs
Years in WIC	2.6 yrs
Time in pregnancy	37%
Percent born outside U.S.	33%

Marital status

Divorced	5
Separated	7
Married	10
Never married	36

Ethnicity

City in U.S.	27
Suburban	21
Suburban	16
Rural	10

Employment Status

Unable to work	5
Self-employed	10
Student	13
Unemployed	18
Employed by wage	12
Out of work	42

Table 3: BMI Distribution of Focus Group Participants

	Percentage
Underweight	7%
Normal weight	41
Overweight	36
Obese	13

Focus Group Results:

General perceptions of health challenges: "Not in 'good' " "Not", "Not eating what they eat, not eating 'healthy' and not exercising."
 - "Over", "Trying to eat healthy, exercising, drinking water, and getting enough sleep."
 - "Disorder", "Try the doctors like (no stress)."
 - "Lenses had to do with not eating healthy, being overweight and exercising (or being close to normal)."
 - "Dietary health/behavior", "Not food, drinking water and sleep, eating 'healthy' and not exercising at home."

Perceptions of health during pregnancy: Majority of women indicated they are HEALTHY due to WIC program.
 - Being careful of baby's health and responsibility to help baby grow to healthy as possible.
 - Women indicated trying to be healthy from food, eating less or 'have food' and working out less, less junk food, drinking water and eating less or water.
 - "I think I'm healthier because I eat like I've got to do for the baby more than me."
 - "I think I'm healthier just in the moment, my doctor told me at 13 weeks 'be healthy, healthy'.
 - "I think my own health because you have the responsibility to take care of yourself and your baby about getting healthy for you. Do more a healthy baby."

Challenges in obtaining healthy weight:
 - Overweight
 - "I eat right but see, I'm not in 'good' or not more healthy. But this time around, I'm not exercising, the babies all that sugar stuff."
 - "I think other family members are eating and being careful."
 - "It's harder because I love my food and my husband. They want to get burgers and fries I can eat things, maybe smoothies. If I eat my food, pregnancy it isn't for me, it's harder because my husband wants I don't give them that, but sometimes just a cup of milk. I can eat my milk but I don't. It's harder on the husband of my husband."
 - "Eating what is not."
 - "Well, maybe because when you eat, because when I think my husband thinks, he would eat like of me, but he would make like of vegetables. So when I'm on my own, I think in the pregnancy and in life, well, what do I eat? I think I'm not, but I just don't have to eat or when I'm healthy, or I think the pregnancy will be like, 'how do I make that?'"
 - "Not exercising."

Challenges in losing weight: Majority of women were all multi-ethnic groups are concerned about gaining TOO much weight.
 - "I'm not exercising and eating."
 - "I'm actually very concerned about (I gain a lot of weight) because my doctor said you gain a lot more than you should, it will be very hard for the delivery and."
 - "I think I'm not eating."
 - "I think so much, that's not how the weight after the time in child of the pregnancy because you're not eating what you're not eating."
 - "I'm not eating."
 - "I think (you gain too much weight) after your body is getting in the bigger and then in my own (I gain too much, then I can get pregnant, which I want but not my own pregnancy)."



Focus Group Results:

High knowledge during pregnancy:
 - Some are weighing themselves regularly to know, especially close to risk of gestational diabetes (the doctors say 'you want to know' how 'big' they were becoming).
 - Majority of women did know to know their weight & why get weighed to doctor's office or WIC.
 - "Special diet", "I think from experience that's what is better."
 - Some already knew they are 'big' as an issue in staying on water.
 - Doctors believe that they are 'big' with weight as an issue to worry.
 - All women are receiving prenatal care.
 - Some that prefer some (maternity), especially when it's almost (prenatal) regular monitoring of weight by doctors.

Women's knowledge and understanding of BMI Guidelines: Most women know of groups. Participants receive their information from:
 - Doctor's office.
 - On themselves (pregnant women).
 - Education or pamphlets about pregnancy.
 - Family members or 'body' tone.
 - Some had some with the guidelines but 'know' the weight gain goals for their pregnancy.
 - Some had some with these guidelines but had some 'how much' 'how much' they should gain during pregnancy.
 - Most women did not know ranges of BMI based on their pre-pregnancy weight (under, normal or overweight).

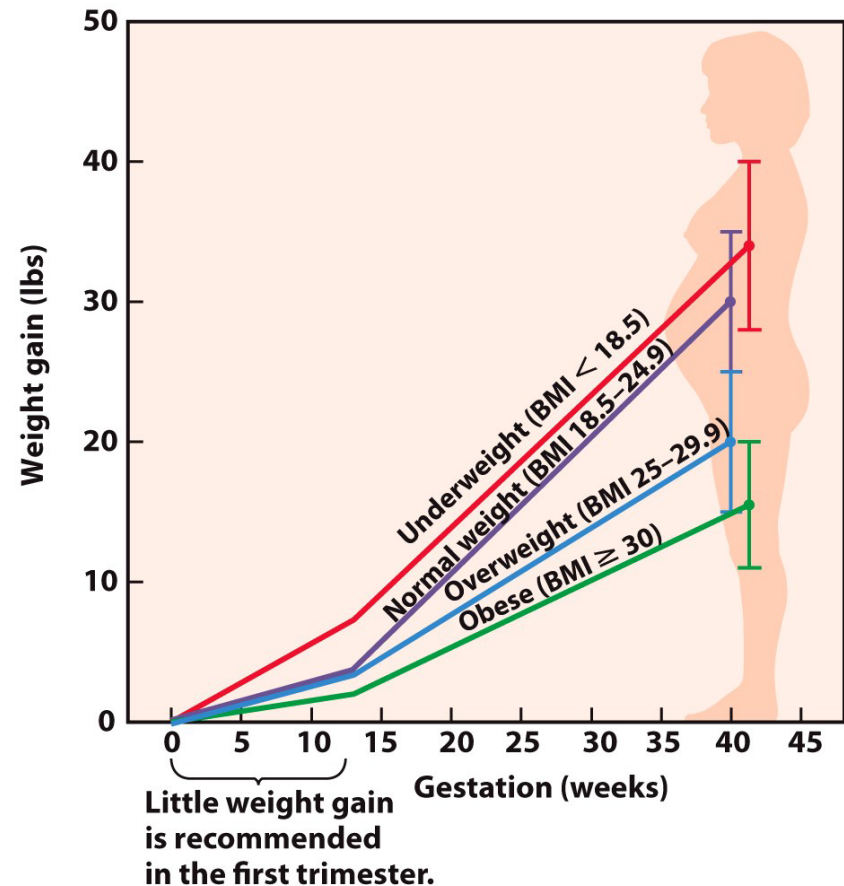
Health/Behavior Weight Issues as Obstacles:
 - Majority of health issues related to eating outside of 'normal' as OVD include:
 - "I think because I love life, it's better than being inside or big or fat. But when you are big, doctor wants that you think 'Well, maybe in this pregnancy I need to really think about' 'Be healthy weight' matter."
 - "I think as that much in my life, the doctor wants to get a check and I'll like, 'oh my god' I'm not!"
 - "I think and when women were asked to know about 'obese' as OVD include:
 - "I think I don't see, I think it would be a matter because that you're not eating the right amount, the right weight (pregnant) is better."
 - Participants were asked about WIC staff.
 - Follow up with intake during their visits. It indicates that there is a way to meet with weight.

Conclusions & Implications:
 We are currently analyzing data in this formative phase, with results are forthcoming in 2013. Given the wide reach of WIC program, this work is an opportunity for WIC to provide relevant and much needed education to appropriate WIC program women to work for obesity reduction.

Acknowledgements:
 This study was funded by (PHFE) UCLA, additional funding is provided from groups among the WIC participants via opportunity for the Pepperdine Science Research Council Grant, 2011-12.

Description of the Intervention

- **Goal:**
 - To support pregnant WIC participants to gain the appropriate amount of weight based on IOM recommendations for GWG.
- **Intervention:**
 - Weight gain guidance and monthly monitoring by a nutritionist using a visual GWG tracker.



PATIENT EDUCATION COMPONENT

Identifying an Appropriate Weight Gain Goal at Enrollment

WEIGHT CATEGORIES For Women

According to Height and Pre-Pregnancy Weight (lbs)


HEIGHT	UNDER WEIGHT (BMI < 18.5)	NORMAL WEIGHT (BMI 18.5-24.9)	OVER WEIGHT (BMI 25-29.9)	OBESE (BMI ≥ 30)
47"	<80	80-107	108-128	>128
48"	<83	83-111	112-133	>133
49"	<86	86-115	116-138	>138
4'0"	<89	89-119	120-143	>143
4'1"	<92	92-123	124-148	>148
5'	<95	95-127	128-153	>153
5'1"	<98	98-132	133-158	>158
5'2"	<101	101-136	137-163	>163
5'3"	<105	105-140	141-169	>169
5'4"	<108	108-145	146-174	>174
5'5"	<111	111-149	150-179	>179
5'6"	<115	115-154	155-185	>185
5'7"	<118	118-159	160-191	>191
5'8"	<122	122-164	165-196	>196
5'9"	<125	125-168	169-202	>202
5'10"	<129	129-173	174-208	>208
5'11"	<133	133-178	179-214	>214
6'	<137	137-183	184-220	>220
6'1"	<140	140-189	190-227	>227
6'2"	<143	143-194	195-233	>233
6'3"	<148	148-199	200-239	>239

BMI = Weight (lbs)/Height (in)² X703

Recommended Pregnancy Weight Gain

	SINGLE	TWINS
UNDERWEIGHT	28-40 lbs	Talk to RD
NORMAL	25-35 lbs	37-54 lbs
OVERWEIGHT	15-25 lbs	31-50 lbs
OBESE	11-20 lbs	25-42 lbs

WEIGHT GAIN* During Pregnancy



- Gaining the right amount of weight is important for a healthy pregnancy and a healthy baby.
- Eating well in pregnancy means **eating twice as healthy**, not eating twice as much.
- Look inside to learn more.

Reasons to stay on TRACK with your weight during pregnancy

Do I need to gain a lot of weight to have a healthy baby?

Not really. You should gain weight gradually during your pregnancy. Your baby will weigh about 6 to 8 pounds. The rest of the weight is important for getting your body ready to breastfeed your baby after birth. Any extra weight becomes fat that is harder to lose after delivery.



- High blood pressure
- Gestational diabetes
- Need for C-section
- Extra weight to lose after delivery
- Early delivery (pre-mature baby)
- A very large baby
- Your child to become overweight

Not gaining enough weight during pregnancy can also be a problem. Ask WIC or your doctor if you have questions about your weight gain.

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Tips to stay on TRACK with your weight during pregnancy

What should I eat during my pregnancy?

A healthy diet is important during pregnancy. WIC foods will help you and your growing baby get the nutrition you need. Here are some healthy meal ideas using WIC foods:

	SAMPLE 1	SAMPLE 2	SAMPLE 3
BREAKFAST	<ul style="list-style-type: none"> WIC cereal Non-fat milk 	<ul style="list-style-type: none"> Eggs Whole wheat tortilla Non-fat milk Fresh fruit 	<ul style="list-style-type: none"> Oatmeal with raisins Nuts Non-fat milk
SNACK	<ul style="list-style-type: none"> Yogurt Fresh fruit 	<ul style="list-style-type: none"> Cottage cheese Fresh fruit 	<ul style="list-style-type: none"> Peanut butter Crackers
LUNCH	<ul style="list-style-type: none"> Grilled cheese sandwich on whole wheat bread Sliced tomatoes Non-fat milk 	<ul style="list-style-type: none"> Tuna salad Fresh vegetables Non-fat milk 	<ul style="list-style-type: none"> Egg salad Whole wheat bread Fresh vegetables Non-fat milk
SNACK	<ul style="list-style-type: none"> Peanut butter Celery 	<ul style="list-style-type: none"> Cheese Carrot sticks 	<ul style="list-style-type: none"> Frozen fruit smoothie
DINNER	<ul style="list-style-type: none"> Chicken orzo salad Green salad Non-fat milk Canned fruit 	<ul style="list-style-type: none"> Stir fry vegetables Tofu Brown rice Non-fat milk 	<ul style="list-style-type: none"> Eaten and cheese burrito with whole wheat tortilla Broccoli Non-fat milk

I can't fight the cravings, what should I do?

IF YOU CRAVE	TRY EATING
Ice cream →	Non-fat frozen yogurt or a popsicle
Soda/cola/pop →	Fruit juice or flavored water
Doughnuts/cookies/cake →	Whole-grain bread with fruit jam
Sugar-coated cereals →	WIC cereals
Potato chips →	Popcorn or pretzels
Sour cream →	Non-fat sour cream or non-fat plain yogurt

Can I exercise when I am pregnant?

Most pregnant women can exercise. Walking and other activities such as swimming can help you feel good and keep your weight under control. Physical activity is also good for your growing baby. Talk with your doctor about what is best for you.

Stay on TRACK with your weight

Based on my pre-pregnancy weight of _____ my weight gain goal for my pregnancy is **25-35 lbs.**

TODAY'S DATE	WEEKS OF PREGNANCY	TODAY'S WEIGHT	AMOUNT OF WEIGHT GAIN

*Amount of weight gain = Today's weight minus pre-pregnancy weight

If you're in the green zone, your weight gain is on track.



Stay on **TRACK** with your weight

Based on my pre-pregnancy weight of _____
my **weight gain goal** for my pregnancy is **25-35 lbs.**

TODAY'S DATE	WEEKS OF PREGNANCY	TODAY'S WEIGHT	AMOUNT OF WEIGHT GAIN *

*Amount of weight gain = today's weight minus pre-pregnancy weight

If you're in the green zone, your weight gain is on track.



If you're in the green zone, your weight gain is on track.



Adapted from IOM, 2009 and IOM, 2008

WEIGHT GAIN

During Pregnancy

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- Look inside to learn more.



Reasons to stay on TRACK with your weight during pregnancy

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Not really. You should gain weight gradually during your pregnancy. Your baby will weigh about 6 to 8 pounds. The rest of the weight is important for getting your body ready to breastfeed your baby after birth. Any extra weight becomes fat that is harder to lose after delivery.



What happens if I gain too much weight while I am pregnant?

Gaining too much weight during your pregnancy might cause:

- High blood pressure
- Gestational diabetes
- Need for C-section
- Extra weight to lose after delivery
- Early delivery (premature baby)
- A very large baby
- Your child to become overweight

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Tips to stay on TRACK with your weight during pregnancy

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BREAKFAST	• WIC cereal • Non-fat milk	• Eggs • Whole wheat tortilla • Non-fat milk • Fresh fruit	• Oatmeal with raisins • Nuts • Non-fat milk
SNACK	• Yogurt • Fresh fruit	• Cottage cheese • Fresh fruit	• Peanut butter • Crackers
LUNCH	• Grilled cheese sandwich on whole wheat bread • Slice of tomatoes • Non-fat milk	• Tuna salad • Fresh vegetables • Non-fat milk	• Egg salad • Whole wheat bread • Fresh vegetables • Non-fat milk
SNACK	• Peanut butter • Celery	• Cheese • Carrot sticks	• Frozen fruit smoothie
DINNER	• Chicken quesadilla • Green salad • Non-fat milk • Canned fruit	• Stir fry vegetables • Tofu • Brown rice • Non-fat milk	• Bean and cheese burrito with whole wheat tortilla • Broccoli • Non-fat milk

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Stay on TRACK with your weight

Based on my pre-pregnancy weight of _____, my weight gain goal for my pregnancy is **15-25 lbs.**

TODAY'S DATE	WEEKS OF PREGNANCY	TODAY'S WEIGHT	AMOUNT OF WEIGHT GAIN

Amount of weight gain = Today's weight minus pre-pregnancy weight

If you're in the yellow zone, your weight gain is on track.



Stay on **TRACK** with your weight

Based on my pre-pregnancy weight of _____,
my **weight gain goal** for my pregnancy is **15-25 lbs.**

TODAY'S DATE	WEEKS OF PREGNANCY	TODAY'S WEIGHT	AMOUNT OF WEIGHT GAIN*

*Amount of weight gain = Today's weight minus pre-pregnancy weight


If you're in the yellow zone, your weight gain is on track. 



Adapted from IOM, 2002 and CDC, 2002

WEIGHT GAIN*

During Pregnancy



- Gaining the right amount of weight is important for a healthy pregnancy and a healthy baby.
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PHFE WIC

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Tips to stay on TRACK with your weight during pregnancy

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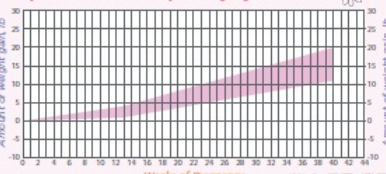
Stay on TRACK with your weight

Based on my pre-pregnancy weight of _____
my **weight gain goal** for my pregnancy is **11-20 lbs.**

TODAY'S DATE	WEEKS OF PREGNANCY	TODAY'S WEIGHT	AMOUNT OF WEIGHT GAIN

*Amount of weight gain = today's weight minus pre-pregnancy weight

If you're in the pink zone, your weight gain is on track.



Adapted from CDC, 2002 and IOM, 2009

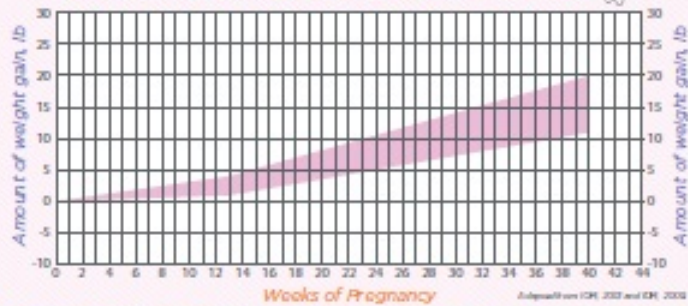
Stay on **TRACK** with your weight

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TODAY'S DATE	WEEKS OF PREGNANCY	TODAY'S WEIGHT	AMOUNT OF WEIGHT GAIN*

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If you're in the pink zone, your weight gain is on track.



Adapted from IOM, 2002 and IOM, 2009

Study Design

- To pilot the intervention at a PHFE WIC site and evaluate its impact by comparing women receiving the intervention to matched historical controls who did not receive the intervention.
 - We conducted a prospective cohort pilot study comparing two groups of pregnant PHFE WIC participants who enrolled at first trimester:
 - Intervention group (n =348).
 - Control group: n= 168 women from the same PHFE WIC site who were pregnant and delivered full term infants in the months prior to the start of the intervention, therefore did not receive the intervention.
 - Analytical samples included those who enrolled at WIC at first trimester: 126 for the intervention group and 92 for the control group.

Study Site

- WIC Hawthorne
- Located in southwestern Los Angeles County, California.
- Caseload ~ 5000
- Prenatal enrollment between 80 and 90

Data Collection and Outcome Measures

- Two methods of data collection were used:
 - At enrollment and at 6-month postpartum, women completed questionnaires that collected data on behavioral variables before and during pregnancy.
 - Body weight and height were measured according to WIC protocol by PHFE WIC staff.

Questionnaires

Codebook


Today's date: ___/___/___

WIC ID#: _____

Congratulations on your pregnancy!
baby

This survey is about your overall health BEFORE you became pregnant and around the time when you first realized you were pregnant. WIC would like to understand your needs before and during pregnancy, so we can provide the best services possible. We encourage you to provide your opinions, but your participation is entirely voluntary.

Please remember that your answers are completely confidential.



Codebook

Today's date: ___/___/___

Postpartum Survey: ENGLISH


WIC ID#: _____

Congratulations on your baby!

This survey is about your overall health BEFORE and DURING your last pregnancy.

We encourage you to provide your opinions, but your participation is entirely voluntary.

Please remember that your answers are completely confidential.



Code Book 19:
Interaction Postpartum

STAFF USE ONLY

Today's date: ___/___/___

WIC ID#: _____

Postpartum Survey: ENGLISH


POSTPARTUM WOMEN NUTRITION QUESTIONS ATTACHED

Congratulations on your baby!

This survey is about your overall health DURING and AFTER your most recent pregnancy.

We encourage you to provide your opinions, but your participation is entirely voluntary.

Please remember that your answers are completely confidential.



RESULTS

Characteristics of women in control and intervention groups (1 of 4)

	Intervention group (n= 126)	Control group (n= 90)	<i>P</i> *
Early pregnancy BMI % (n)			0.99
Underweight	6.35% (8)	6.67% (6)	
Normal	38.10% (48)	38.89% (35)	
Overweight	27.78% (35)	27.78% (25)	
Obese	27.78% (35)	26.67% (24)	

**P* value represents the results of a Chi-Square test.

Characteristics of women in control and intervention groups (2 of 4)

	Intervention group (n= 122)	Control group (n= 89)	<i>P</i> *
Marital Status % (n)			0.99
Single, never married	40.16% (49)	39.33% (35)	
Married or domestic partnership	53.28% (65)	53.93% (48)	
Widowed	0% (0)	0% (0)	
Divorced	2.46% (3)	2.25% (2)	
Separated	4.10% (5)	4.49% (4)	

**P* value represents the results of a Chi-Square test.

Characteristics of women in control and intervention groups (3 of 4)

	Intervention group (n= 124)	Control group (n= 88)	<i>P</i> *
Ethnicity % (n)			0.129
Latina	70.16% (87)	73.86% (65)	
African-American	10.48% (13)	2.27% (2)	
Asian	4.03% (5)	4.55% (4)	
White	4.03% (5)	5.68% (5)	
American Indian	0% (0)	0% (0)	
Pacific Islander	0.81% (1)	3.41% (3)	
Other	1.61% (2)	4.55% (4)	
Multiracial	8.87% (11)	5.68% (5)	

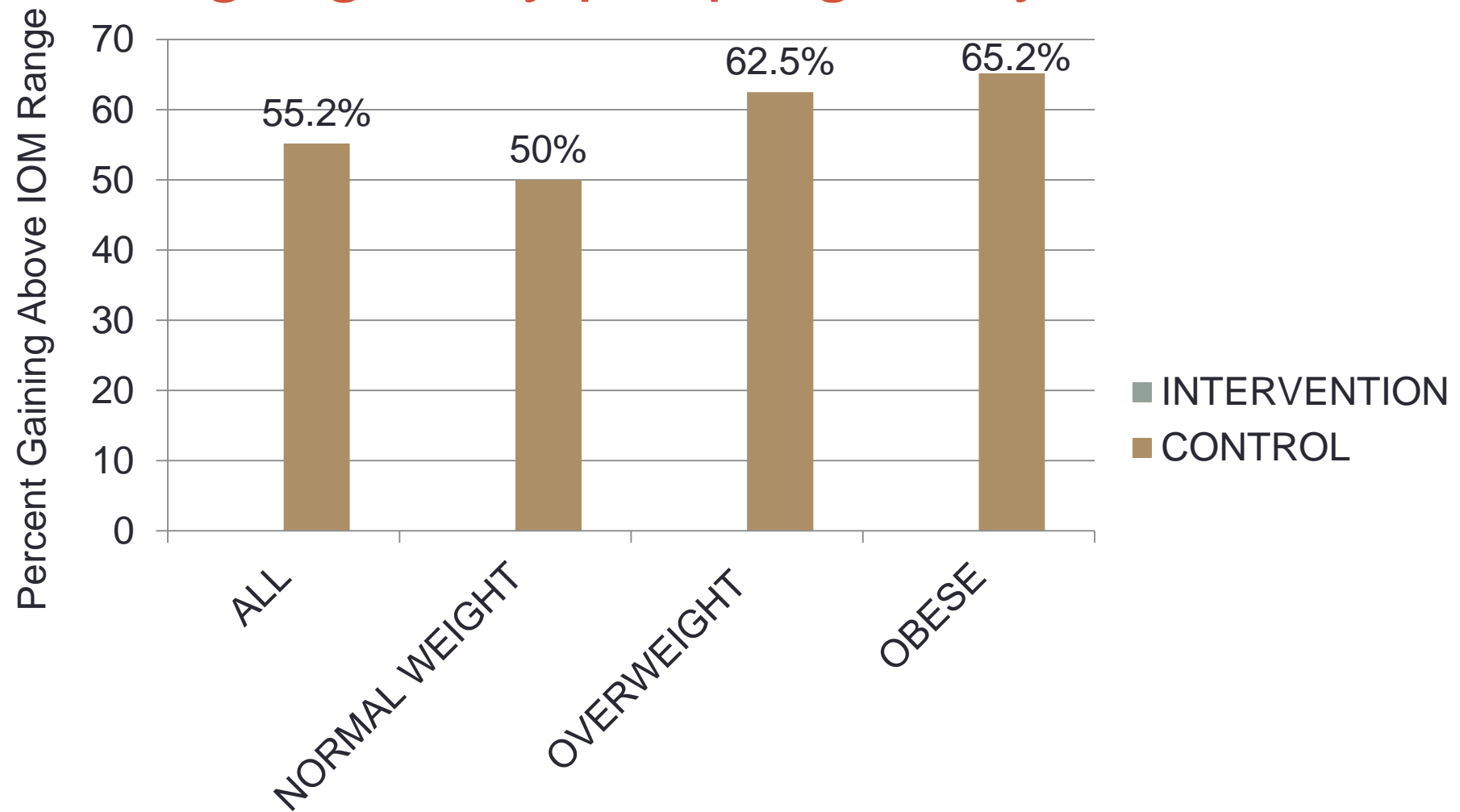
**P* value represents the results of a Fisher' s exact test.

Characteristics of women in control and intervention groups (4 of 4)

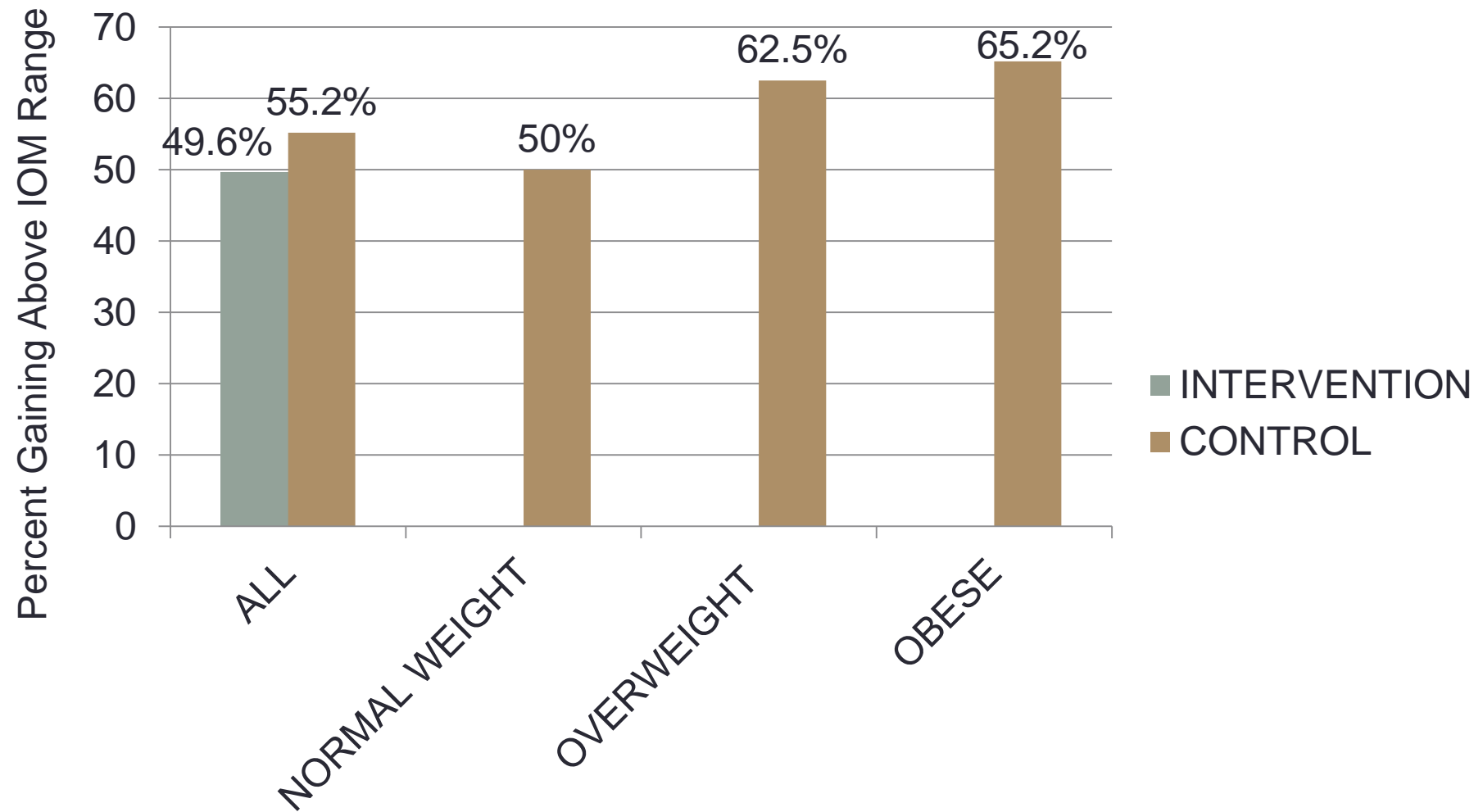
	Intervention group	Control group	<i>P</i>
Age; mean, std (n)	29.6 ± 5.8 (125)	30.16 ± 6.5 (92)	0.49
Number of years of school completed; mean & std (n)	12.8 ± 2.6 (116)	13.2 ± 3.5 (84)	0.36

P value represents the results of a t-test.

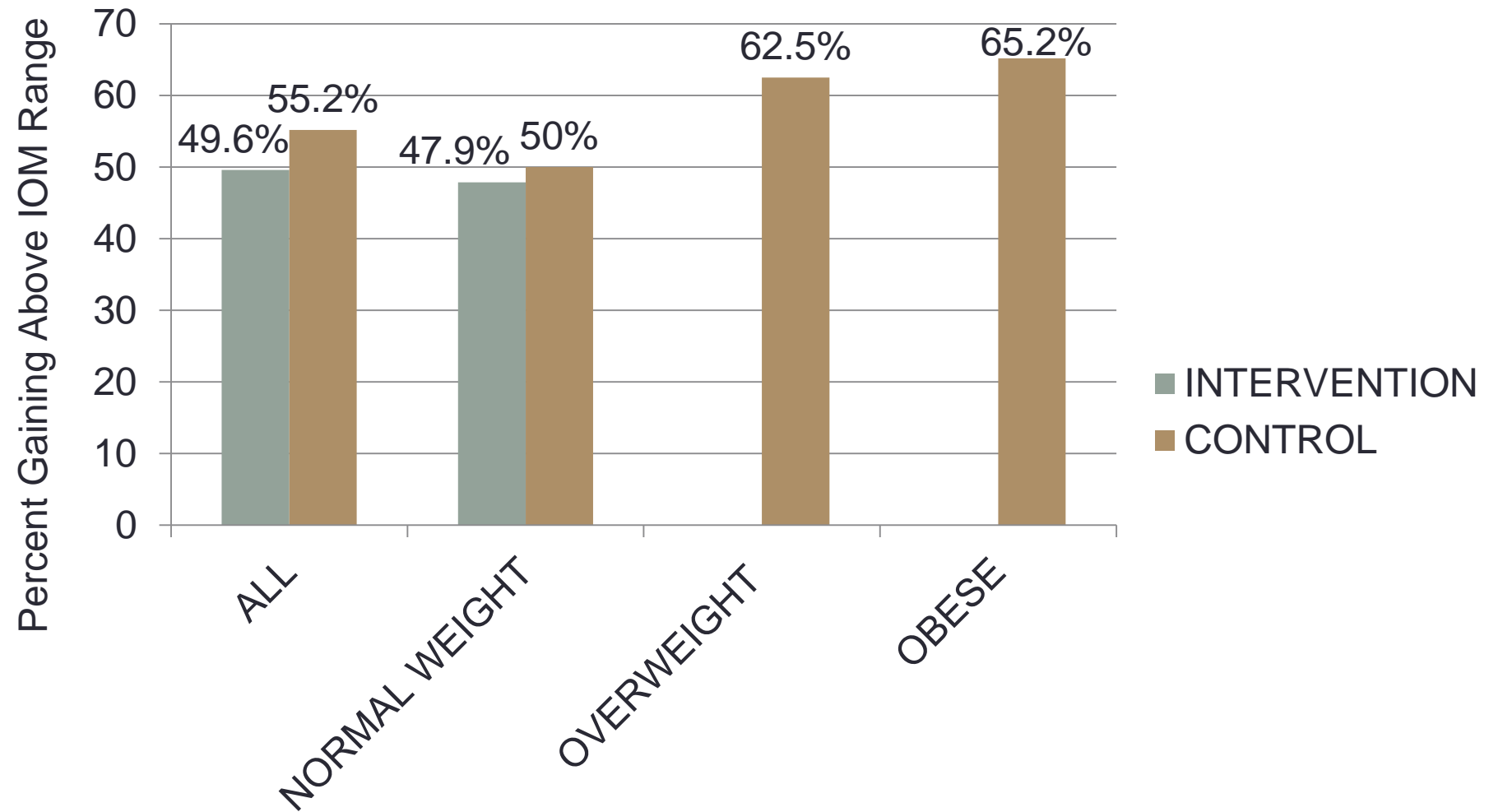
Effect of the intervention on gestational weight gain by pre-pregnancy BMI



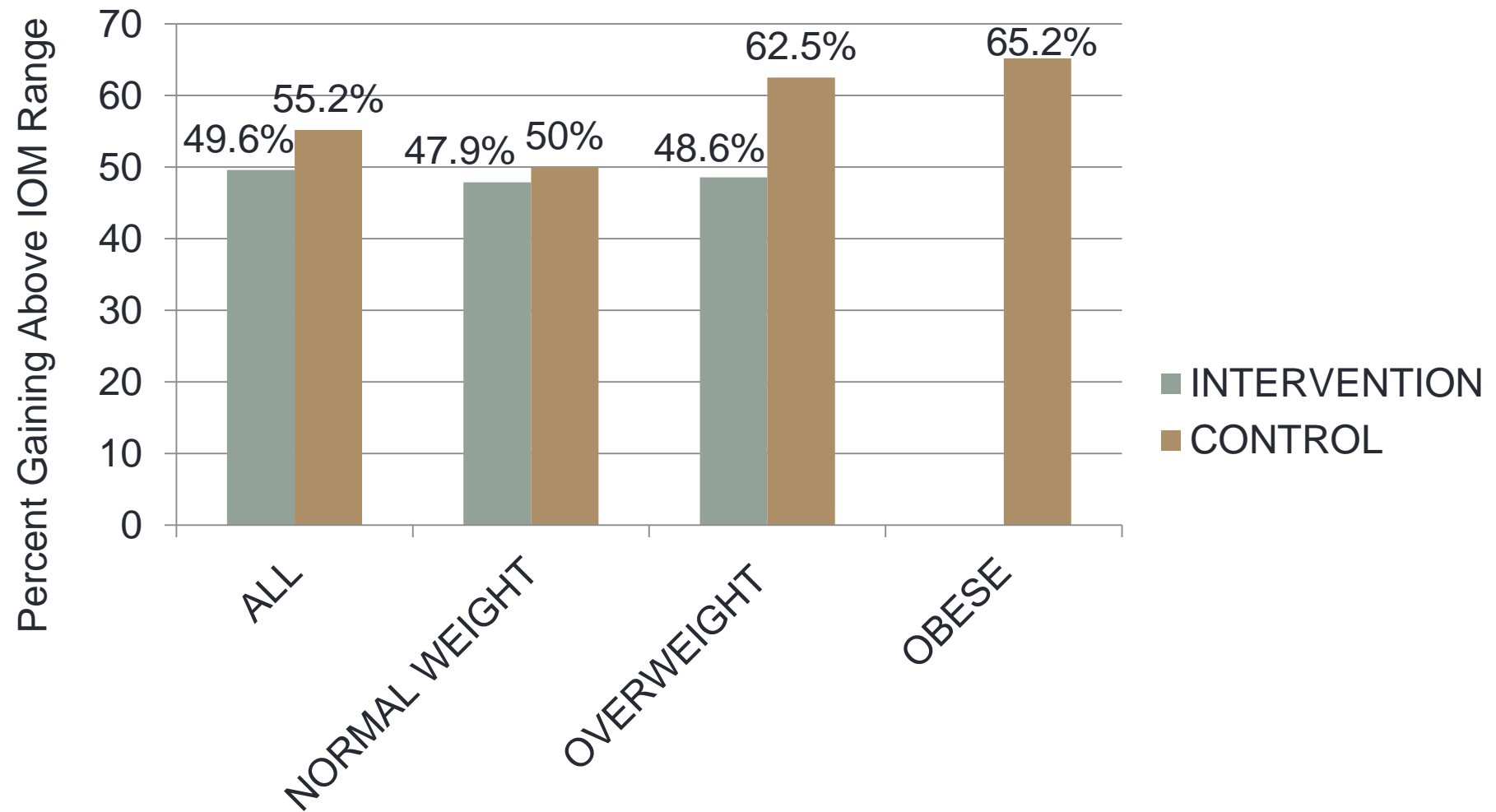
Effect of the intervention on gestational weight gain by pre-pregnancy BMI



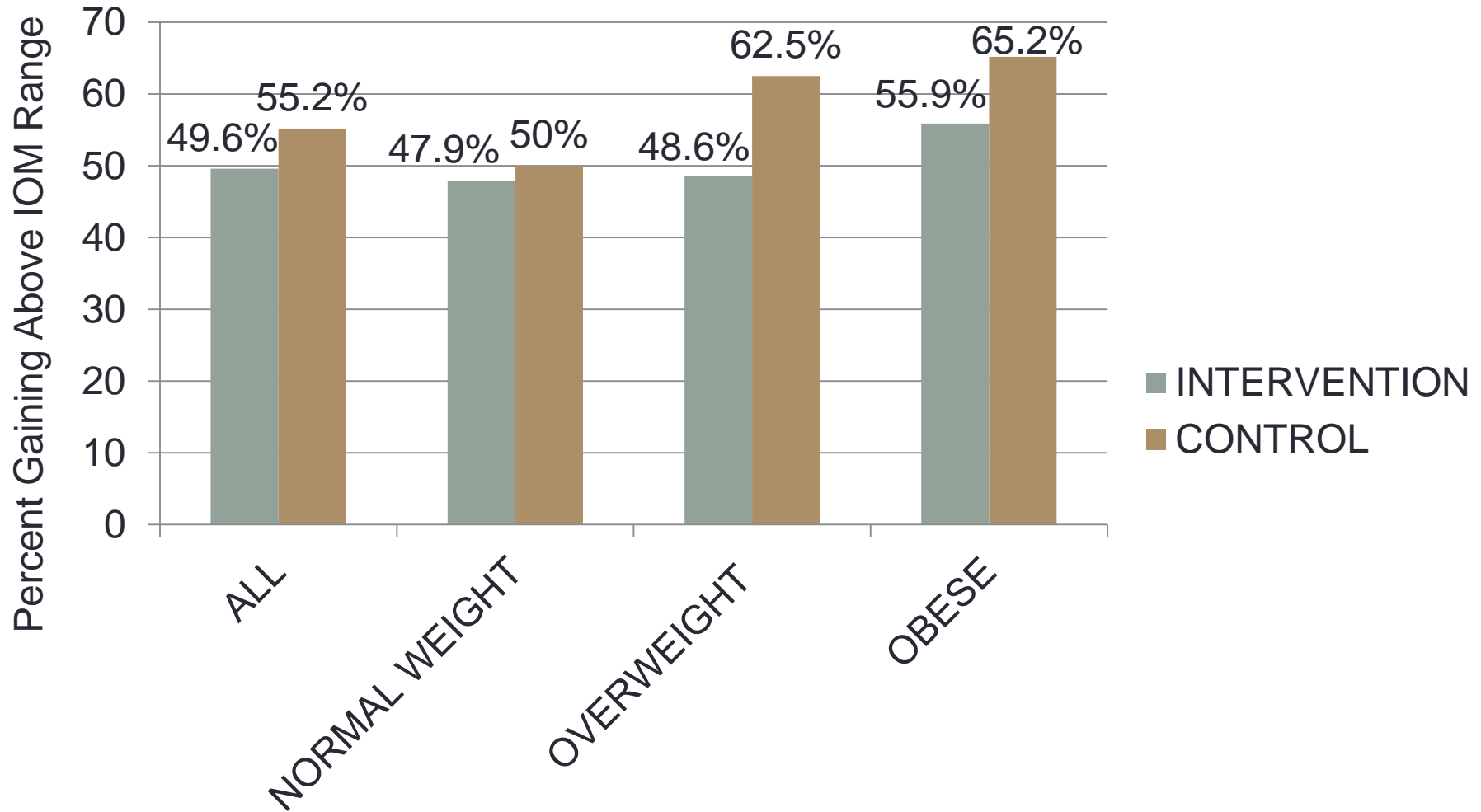
Effect of the intervention on gestational weight gain by pre-pregnancy BMI



Effect of the intervention on gestational weight gain by pre-pregnancy BMI



Effect of the intervention on gestational weight gain by pre-pregnancy BMI



Conclusions

- Women in the control group and intervention group did not differ significantly in demographic characteristics.
- 55.2% of the control group gained more than recommended amount compared with 49.59% in the intervention group.
- Although not reaching statistical significance, the impact of the intervention was strongest for overweight and obese women.

THANK YOU!

Any questions?

You can email me at mariak@phfewic.org.

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