Published in final edited form as:

Am J Health Behav. 2017 November 01; 41(6): 803–809. doi:10.5993/AJHB.41.6.14.

Discrepancy in Motivation for Weight Loss and Exercise in Rural Patients

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Abstract

Objectives—To explore the extent to which discrepancy between motivation for weight loss and exercise is related to obesity among rural patients with chronic disease, and to identify the psychosocial correlates of this discrepancy.

Methods—497 patients with diabetes and/or hypertension were recruited from a network of Federally Qualified Health Centers in the rural South and completed a battery of assessments.

Results—The vast majority (83.1%) of the sample was overweight and 65.0% was obese. For motivation for change, 70.8% reported being in the Action stage or higher for weight loss, while only 24.9% reported being in the Action stage or higher for motivation for exercise. When controlling for age, education level, income, sex, and race/ethnicity, individuals who were motivated for weight loss but not exercise were twice as likely to be obese ($p = 0.005$). Race and sex were significantly associated with this discrepancy, with African-American patients 1.7 times as likely ($p = 0.05$) and women 2.3 times as likely to be discrepant ($p = 0.001$).

Conclusions—Findings underscore the importance of focusing not simply on weight loss among rural patients with chronic disease, but rather to simultaneously incorporate specific activities designed to build motivation for engaging in exercise.

Keywords

motivation; exercise; weight loss; rural; chronic disease

Human Subjects Statement

All study procedures were reviewed and approved by the Institutional Review Boards of both Mercer University (H1308213) and Georgia Southern University (H12111 and H15354).

Conflict of Interest Statement

The authors have no conflicts of interest to disclose.

INTRODUCTION

Obesity is currently a major public health concern in the United States, with an estimated 34.9% of adults considered to be obese.¹ This high rate of obesity is coupled with the fact that 1 out of 4 (ie, 26.2%) adults is physically inactive (ie, does not engage in any type of physical activity and/or exercise outside of their regular job),² despite the common knowledge that regular physical activity and exercise (in addition to regulating energy intake) is a crucial component of healthy weight loss and control. One population that appears to be doubly burdened by the current obesity and related physical inactivity epidemic is rural residents.³ More specifically, research has consistently demonstrated that, when compared to their urban counterparts, rural residents have significantly higher body mass indexes (BMIs) and prevalence rates of obesity (ie, an estimated 40% of rural residents are obese⁴); with obesity rates rising with increasing levels of rurality (ie, across the rural-urban continuum⁵). Likewise, due to a variety of cultural and structural barriers, rural residents have also been found to engage in significantly less physical activity and exercise (ie, rural residents have an estimated 43% higher odds of being physically inactive⁶), which further exacerbates their risk for obesity.^{3,5,7-9} Therefore, there is a dire need for weight loss intervention efforts in these areas that not only take into consideration the unique cultural experiences of rural communities, but are also informed by rural-focused research.

When considering weight loss, exercise, and diet related behavior change, it has been well-recognized that an individual's underlying motivation for change is a critical component of any intervention or program.¹⁰⁻¹⁴ Therefore, one particular theory that has been applied extensively to weight loss management is the Transtheoretical Model.¹⁵ According to the Transtheoretical Model (TTM; also known as the "Stages-of-Change Model"¹⁶), the majority of people that would benefit from some type of behavioral change (ie, smoking cessation, medication adherence, weight loss) are not ready to actually change their behavior and therefore would not initially benefit from action-oriented interventions.¹⁷ In this way, the TTM sees behavioral change as a complex and gradual process requiring different types of interventions and strategies depending on an individual's motivation and readiness to change.

Much of the TTM research centering on weight management has focused on interventions and strategies that are designed to increase motivation and help individuals move into an action (and eventually a maintenance) stage of change for weight control.¹⁷⁻¹⁹ However, being motivated for weight loss may not mean that an individual is also in an action stage of change to engage in all of the behaviors necessary for weight loss to be successful (ie, changes in diet and increases in physical activity and exercise²⁰). Although little research has been conducted that specifically examines incongruences in motivation for weight loss and weight-related behaviors, this possible discrepancy in motivation may help explain previous findings that motivation for weight loss (ie, being in a higher stage of change for weight control) alone does not always predict one's engagement in weight management programs and ultimate weight loss success.²¹⁻²⁴ Likewise, one may be motivated for one type of weight-related behavioral change without the other. For example, Boudreaux and colleagues²⁵ examined potential discrepancies in the readiness for diet and exercise change among a sample of rural and urban primary care patients and found that 35% of their sample

revealed substantial incongruences (ie, more than one stage difference) between their readiness to decrease dietary fat and their readiness to exercise (eg, being in a precontemplation stage for decreasing dietary fat and a maintenance stage for exercise), with only 27% of the sample evidencing no discrepancies in stages of change across behaviors.

While exercise is only one of 2 essential components of achieving and maintaining a healthy weight (in addition to a healthy diet), physical inactivity remains a public health crisis in the United States that merits specific investigation, particularly regarding the role that motivation for exercise may have in individuals' weight loss goals. Given that rural culture is often associated with a more sedentary lifestyle and rural residents have consistently been found to engage in less physical activity and exercise than urban residents, it could be that rural residents are sufficiently motivated to lose weight, but not adequately motivated to engage in one of the actual behaviors important in achieving and maintaining that goal,²⁶ thus significantly decreasing their weight loss success while also perpetuating the rural-urban obesity disparity. While weight-related TTM research focusing specifically on rural populations is scarce, there are 2 previous studies that provide some preliminary information on the motivation for exercise of rural residents. First, utilizing a random sample of 418 rural Midwesterners, Tai-Seale²⁷ found that 47% of participants were in the precontemplation stage for regular physical activity, which is over 3 times the national estimate (ie, 14%). Secondly, among their rural Louisiana community sample, Naquin, Gillan, and Humphries²⁸ found that, compared to their normal weight counterparts, obese men and women were more likely to be in earlier stages of change for physical activity. Thus, while dietary factors certainly play a role in rural obesity, it could be that there are also specific factors related to exercise that merit deeper investigation.

Overall, these studies support the need for further research that specifically explores the potential discrepancy between motivations for weight loss and exercise among rural residents and how this incongruence may be related to obesity in order to better inform rural-focused weight management programs. Therefore, the purpose of the current study was threefold: 1) Examine the prevalence rates of obesity, motivation for weight loss and exercise, and motivation discrepancy (ie, motivated for weight loss, but not exercise) among a diverse clinical sample of rural residents; 2) Explore the extent to which the discrepancy between motivation for weight loss and exercise is related to obesity; and 3) Identify potential psychosocial correlates of this discrepancy.

METHODS

Participants

A total of 497 participants were recruited from the patient population at a network of Federally Qualified Healthcare Centers (FQHCs) serving a 9-county region of the rural South. All participants were active patients at one of the FQHC's 6 main adult-serving locations, and were recruited to be approximately proportionate to the relative patient volume at each location (eg, approximately 40% of participants were recruited from one location that sees approximately 40% of the FQHC's overall patient volume). Inclusion criteria were: 1) aged 18 years or older; 2) diagnosed with diabetes, hypertension, or both; and 3) able to understand spoken or written English.

Procedure

Participants were recruited from the patient population through flyers posted within the clinics, through referral by clinic front-desk staff, and through direct approach by study staff. Following an initial description of the study, eligibility screening, and informed consent, participants completed a series of questionnaires using audio computer assisted self-interviewing (ACASI), which allowed participation regardless of literacy. Following completion of the survey, participants were compensated \$15 for their time and effort. All data collection was anonymous.

Measures

In addition to other measures not relevant to the current study, participants completed a background assessment of demographic characteristics and health history, in addition to motivation for change assessments and self-reported height and weight (subsequently used to calculate BMI). Motivation for change was assessed using measures developed by the Cancer Prevention Center at the University of Rhode Island, led by James Prochaska (one of the originators of the Transtheoretical Model). Separate questionnaires developed by Prochaska's team were used for exercise²⁹ and weight control³⁰ to independently determine stage of change for both exercise and weight loss.

Data Analysis

To determine discrepancy between motivation for weight loss and motivation for exercise, stages of change were collapsed into a "motivated" category (representing individuals in the action stage of change or higher) separately for weight and exercise. Individuals were classified as "discrepant" if they indicated being motivated for weight loss but not for exercise. A series of 2 multivariate logistic regressions was then conducted. The first logistic regression examined the degree to which discrepancy between motivation for weight loss and motivation for exercise was related to obesity, while controlling for age, education level, income, race/ethnicity, and sex. The second logistic regression examined the correlates of having a discrepancy between motivation for weight loss and motivation for exercise, examining the simultaneous effects of age, education level, income, race/ethnicity, and sex.

RESULTS

Sample Characteristics

A total of 497 rural-residing FQHC patients (72.2% female; 27.8% male) participated in the current study. The mean age of the sample was 52.98 years (SD = 12.37). The majority of the sample identified their racial/ethnic background as either African-American (48.1%) or Caucasian (44.1%), 0.6% as Asian, 1.2% as Native American, 0.6% as Indian, and 5.4% as other or unreported. In addition, 5.8% of the sample identified as Hispanic. In terms of socioeconomic status, 60.2% self-described their socioeconomic status (SES) to be "lower class", with 64.6% report household incomes under \$20,000. Of the total sample, 57.6% were not currently employed either due to disability, retirement, or some other form of unemployment. Many of the participants were currently uninsured (55.9%). Almost half of the sample (ie, 46.1%) had a comorbid diagnosis of diabetes and hypertension, with 46.5%

having hypertension only and 7.4% diabetes only. An examination of BMI revealed that 83.1% of the sample was overweight and 65.0% was obese. Lastly, with regards to motivation for change, 70.8% endorsed stages of change in the Action stage or higher for weight loss (ie, “motivated”), while only 24.9% were in the Action stage or higher for motivation for exercise, resulting in 75.0% of the sample being categorized as “motivation discrepant” (ie, motivated for weight loss, but not exercise). See Table 1 and 2 for additional sample demographics and health characteristics.

Motivation Discrepancy

Results of the first logistic regression revealed that, even when controlling for age, education level, income, sex, and race/ethnicity, individuals who were motivated for weight loss, but not exercise, were twice as likely to be obese ($OR_{ADJ} = 2.02$; $p = 0.005$). See Table 3 for adjusted odds ratios and p-values. Next, the second logistic regression revealed that both race and sex were significantly related to this discrepancy. Namely, after controlling for other demographic factors, African-Americans were 1.7 times as likely to be discrepant ($OR_{ADJ} = 1.72$; $p = 0.05$) and women were 2.3 times as likely to be discrepant ($OR_{ADJ} = 2.31$; $p = 0.001$). See Table 4 for the adjusted odds ratios and p-values associated with the demographic correlates of the motivation discrepancy.

DISCUSSION

Our findings suggest that 1) motivation for weight loss is frequently not associated with motivation for exercise; and 2) motivation for exercise may be a more important factor than motivation for weight loss with respect to reducing obesity among rural-residing FQHC patients with chronic diseases. Specifically, individuals who were motivated for weight loss but not motivated for exercise were actually twice as likely to be obese than their counterparts who were simultaneously motivated both to lose weight and to engage in exercise activities. It is important to keep in mind that all individuals who were discrepant between the 2 were motivated to lose weight – therefore, it appears that a critical component of weight loss may not in fact be motivation to lose weight, but rather motivation to engage in exercise (one of the actual activities necessary to achieve and maintain weight loss). This is further supported by the fact that while over 70% of patients were motivated to lose weight (ie, at the action stage of change or higher), less than 30% of patients were motivated to exercise. When combined with the very high levels of BMI shown in our sample (83% overweight and 65% obese), there appears to be an important and under-recognized need to focus specifically on encouraging and supporting patients in their desires to exercise. Although not examined in the current study, there could be a similar need to focus specifically on motivation to engage in balanced energy intake behaviors, given previous findings that motivation for diet and exercise behaviors frequently are not aligned and thus may follow different motivational pathways.²⁵

Unfortunately, in an effort to combat obesity and related chronic conditions such as diabetes and hypertension, a great deal of literature and intervention-building research has focused on improving motivation to lose weight^{11,18,31–32} – in essence, focusing on the outcome rather than the process. In fact, it has been shown that physician recommendations for weight

control tend to focus more on the outcomes of pounds lost rather than the processes by which to achieve the recommended weight loss.³³ Our findings suggest that this failure to simultaneously motivate for exercise may in fact be doubling the risk of obesity, and thus may set up patients for a failure that can further diminish their self-efficacy for sustained weight loss.^{34–35} This is consistent with health behavior change theories that hold that motivation (and self-efficacy) for the actual processes of change associated with an outcome can be much more powerful than motivation to reach an outcome itself.^{17, 36–38} Our findings highlight that the vast majority of individuals who are in fact successfully motivated to achieve weight loss goals (and are thus actively engaging in what they believe are weight loss behaviors) are not engaging in at least one of the critical components of successful, long-term weight loss.

Our findings also show interesting results in examining the factors related to having a discrepancy between motivation for weight loss and motivation for exercise. Namely, African-American participants were 70% more likely than their non-Hispanic White counterparts to be motivated for weight loss but not exercise (even when controlling for age, sex, education level, and income). This suggests there may be powerful cultural factors impacting the perceived importance of exercise, similar to well-established cultural factors impacting desired body shape.^{39–42} The development of culturally-tailored and culturally-driven interventions for increasing exercise motivation may be essential in impacting the disparate rates of obesity present in the African-American community^{43–44} – keeping in mind, however, that our study did not demonstrate significant differences in obesity across racial/ethnic groups (discussed in more detail below). Similar culturally-tailored interventions that focus on promoting balanced energy intake may also be important in addressing this disparity.

In addition, women were found to be over twice as likely as men to be motivated for weight loss in the absence of motivation for exercise (again, controlling for race/ethnicity, age, education level, and income). Frequent barriers to exercise reported by women include a lack of time and a lack of resources^{45–46}; therefore, weight loss interventions need to specifically address ways to counteract these barriers particularly among women. The time and financial constraints frequently reported by women may be exacerbated among our rural sample, as rural women have been shown to face increased financial stressors and decreased supportive resources in comparison to their urban counterparts^{26,47–50}; future research investigating rural/urban differences in the barriers and facilitators for exercise may be particularly helpful in developing rural-specific exercise-promotion interventions to reach women.

Interestingly, there were no significant effects demonstrated for either education or income on either obesity or on motivation discrepancy, and there were no differences by race or ethnicity in likelihood of being obese (once controlling for age, sex, education, and income). This is contrary to previous research that has shown significant differences particularly across education, income, and race/ethnicity with regards to obesity.^{44,51–52} It could be that given our sample's location of medical treatment (within an FQHC designed as a healthcare safety net), many sociodemographic differences seen in the general population are inherently controlled. It could also be that documented rural/urban differences in obesity outweigh

national differences on these other demographic factors. Future research in more geographically diverse areas should further explore if this phenomenon is unique to the rural South or if it is also found in other FQHC populations.

Limitations

The study's findings should be interpreted in light of its design and data limitations. First, given the cross-sectional nature of the study, conclusions regarding causality cannot be drawn and results can only be interpreted as correlational – for example, the past weight status of participants and the role that plays in motivation is unclear. Second, due to a limitation in the measure of stage of change for weight which only classifies individuals in the precontemplation, contemplation, action, or maintenance stages, we were unable to examine individuals in the preparation stage of change for weight. To account for this, we dichotomized “motivation” using a cutoff level of action or higher. Third, motivation by necessity was assessed using self-report and may not accurately reflect underlying motivation or actual exercise behaviors. Fourth, we did not assess physical impairments that may have impacted individuals' ability to engage in exercise regimens; given the entire sample had an active chronic disease, this may influence our results. However, the magnitude of difference between motivation for exercise and motivation for weight loss is not likely accounted for simply by physical impairments. Fifth, while our study did focus on an essential component of healthy weight – exercise – it did not simultaneously examine dietary behaviors. Given the well-recognized role of energy balance in successful weight loss, future research should examine if these findings repeat when examining dietary behaviors. Next, our sample did not have a substantial Hispanic population, which limits the ability to generalize results to rural Hispanic populations. In addition, the study relied upon self-reported weight. While this could be subject to error, prior research has indicated a high degree of reliability between self-reported and actual weight (with a 1.6 kg difference on average between self-reported and actual weight for women and less for men⁵³). Finally, our sample was drawn from a single FQHC network in the rural south using convenience sampling approaches and may not be representative of other FQHC populations in different areas of the country.

Conclusions

In totality, our study suggests that it is imperative to focus not simply on weight loss with regards to chronic disease self-management in rural patients, but rather to simultaneously incorporate specific activities designed to build motivation for engaging in exercise. Future studies are needed that are designed to develop culturally-tailored interventions that take into account the realities of rural living. Particular focus in these studies should be paid to designing ways to counteract barriers to engaging in exercise behaviors for women and African-Americans and identifying which non-exercise related behaviors these individuals are engaging in to attempt to lose weight.

Acknowledgments

This project was supported by grant P20MD006901 through the National Institutes of Health, National Institute on Minority Health and Health Disparities. The views expressed are those of the authors and do not necessarily reflect the views of NIMHD, NIH, or DHHS.

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Table 1

Sample Demographics.

Characteristic	N = 497
Age [†]	52.68 (12.37)
Gender	
Female	72.2%
Male	27.8%
Race	
African-American	48.1%
Caucasian/White	44.1%
Asian	0.6%
Native American	1.2%
Indian	0.6%
Other/Not Reported	5.4%
Ethnicity	
Hispanic	5.8%
Education Level	
Less than High School	10.5%
Some High School	20.7%
High School Diploma/GED	34.4%
Some College or Vocational School	19.5%
Vocational Degree	6.4%
College Degree	4.4%
Some Graduate Work	0.6%
Master's Degree	1.6%
Doctoral Degree	0.4%
Employment Status	
Working Full-Time	21.3%
Working Part-Time	9.7%
Working Equivalent to Full-Time	1.4%
Working as a Day-Laborer	1.0%
Unemployed, Looking	11.5%
Unemployed, Not Looking	8.0%
Disability	25.2%
Retired	12.9%
Household Income	
Under \$20,000	64.6%
\$20,000 to \$39,999	17.5%
\$40,000 to \$59,999	4.2%
\$60,000 to \$79,999	2.2%
\$80,000 to \$99,999	1.8%
\$100,000 or over	0.2%

Characteristic	N = 497
Not Sure	9.3%
Housing	
Homeless	0.6%
Dormitory/Residence Hall	1.2%
Rented Apartment/House	39.4%
In a Hotel	0.2%
Homeowner	39.4%
Drug/Rehab Housing	0.6%
Staying with Friend/Family Member	13.7%
Other	4.8%
Self-Described Socioeconomic Status	
Lower Class	60.2%
Middle Class	38.3%
Upper Class	1.4%

[†] Mean/Standard Deviation

Table 2

Health Characteristics

Characteristic	N = 497
Insurance History	
Currently Uninsured	55.9%
Previously Been without Insurance	83.1%
Never Had Insurance	23.7%
Medical Diagnosis	
Diabetes Only	7.4%
Hypertension Only	46.5%
Comorbid	46.1%
Overweight (BMI > 25 kg/m²)	83.1%
Obese (BMI > 30 kg/m²)	65.0%
Motivation for Change—Weight Loss	
Action or Higher	70.8%
Motivation for Change—Exercise	
Action or Higher	24.9%
Motivation Discrepant[†]	75.0%

[†]Percentage of participants that were motivated for weight loss, but not exercise (N = 352)

Table 3

Discrepancy between Motivation for Weight Loss and Motivation for Exercise as a Correlate of Obesity.

	N = 497
<i>Motivation Discrepancy</i>	p = 0.005
No Discrepancy	referent
Discrepancy	OR _{ADJ} = 2.02
<i>Age</i>	p = 0.007
	OR _{ADJ} = 0.97
<i>Gender</i>	p = 0.51
<i>Race/Ethnicity</i>	p = 0.41
<i>Education Level</i>	p = 0.52
<i>Household Income</i>	p = 0.33

Table 4

Demographic Correlates of Motivation for Weight Loss without Motivation for Exercise.

	N = 497
<i>Age</i>	p = 0.99
<i>Gender</i>	p = 0.001
Male	referent
Female	OR_{ADJ} = 2.31
<i>Race</i>	p = 0.05
Non-Hispanic, White	referent
African American	OR_{ADJ} = 1.72
Hispanic	--
<i>Education Level</i>	p = 0.246
<i>Household Income</i>	p = 0.694