Recognizing the Weight of Apathy and Level of Readiness to Change in Evaluating Feasibility of a Weight Management Program for Individuals with a Severe Mental Illness

Melinda Lalonde

Medical University of South Carolina

Follow this and additional works at: https://medica-musc.researchcommons.org/theses

Recommended Citation
Lalonde, Melinda, "Recognizing the Weight of Apathy and Level of Readiness to Change in Evaluating Feasibility of a Weight Management Program for Individuals with a Severe Mental Illness" (2016). MUSC Theses and Dissertations. 405.
https://medica-musc.researchcommons.org/theses/405

This Dissertation is brought to you for free and open access by MEDICA. It has been accepted for inclusion in MUSC Theses and Dissertations by an authorized administrator of MEDICA. For more information, please contact medica@musc.edu.
Recognizing the Weight of Apathy and Level of Readiness to Change in Evaluating Feasibility of a Weight Management Program for Individuals with a Severe Mental Illness

Mélinda Lalonde

A dissertation submitted to the faculty of the Medical University of South Carolina in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the College of Nursing

2016

Approved by:

______________________________
Gail W. Stuart, PhD, RN FAAN, Chairman, Advisory Committee

______________________________
Teresa Kelechi, PhD, RN

______________________________
Martina Mueller, PhD

______________________________
Mary Weber, PhD, RN

______________________________
Mathew Gregoski, PhD, MS
Acknowledgements

My doctoral journey began a decade ago when I was introduced to academic research. I was immediately fascinated by the phenomenon of discovering something new and disseminating the information. Subsequently, after exploring the fields of computer science, art, graphics design, architecture, advertising, business, linguistics, psychology, and anthropology, I discovered my true interest in psychiatric nursing. It was after becoming a nurse practitioner that I made full circle and enrolled in a doctoral program. I have countless individuals to thank at Western Kentucky University and Vanderbilt University with whom I have had numerous formal and informal discussions about undertaking this extremely demanding and rewarding journey.

First and foremost, my fiancé, Todd, has been the most supportive person in this process. He has listened to me talking and working on this incessantly and now I am happy to report that I am done! I also very much appreciate all of the feedback and help he provided me both in looking at this dissertation from another angle and also as the best partner any one could ever have.

I would like to thank the members of my dissertation committee: Gail Stuart, PhD, RN, FAAN, Teresa Kelechi, PhD, RN, Martina Mueller, PhD, Mary Weber, PhD, RN, and Mathew Gregoski, PhD. I am extremely grateful to have had Dr. Stuart as a mentor from the beginning. Dr. Kelechi has been extremely supportive and patient with me throughout the development and conduction of my intervention. I really appreciated our discussions about real world expectations and struggles as a researcher. I am thankful for Dr. Mueller for having the patience to guide me throughout the development of various portions of my proposal and feasibility manuscript. I am very appreciative that Dr. Weber agreed to become my external dissertation committee member.
as her published research was part of my “golden articles”: articles which demonstrated exactly my research interest and were a source of guidance during my entire doctoral journey.

Most supportive, at a peer level, I would like to thank my PhD cohort of 2012. I would, specifically, like to thank Drs. Michael Johnson, Jama Goers, and Becky Walker for our daily encouragement and support to one another over the years.

I would also like to thank the University of Colorado Helen and Arthur E. Johnson Depression Center for letting me use the depression center for conducting my study. Moreover, they were extremely supportive in my dissertation journey and am very appreciative of their experience and feedback. I would also thank one of the creators of the Cromwell House Weight Management program, John Pendlebury, CPN, for providing me more information on the program as well as being supportive of my research and being excited for the feasibility study.
Table of Contents

COPYRIGHT..................................................................................................................2

ACKNOWLEDGEMENTS..................................................................................................3

TABLE OF CONTENTS.....................................................................................................5

LIST OF TABLES................................................................................................................7

LIST OF FIGURES............................................................................................................8

ABSTRACT.......................................................................................................................9

CHAPTERS

1 INTRODUCTION ...........................................................................................................11

2 MANUSCRIPT 1............................................................................................................22

Apathy: Who Cares? A Concept Analysis

3 MANUSCRIPT 2............................................................................................................39

Instruments to Measure Readiness to Lose Weight: An Integrative Review

4 MANUSCRIPT 3............................................................................................................69

Feasibility of a Weight Management Program for Individuals with a Severe Mental Illness

5 SUMMARY....................................................................................................................91

APPENDICES

Appendix A. MUSC IRB approval letter for study reported in manuscript 3 .................99

Appendix B. UC IRB approval letter for study reported in manuscript 3 .....................100

Appendix C. Informed consent for manuscript 3.............................................................101

Appendix D. Permission letter from Issues in Mental Health Nursing for manuscript 1107

Appendix E. Permission letter from Journal of Nursing Measurement for manuscript 2108
Appendix F. Instrument: Evaluation to Sign Consent .......................................................... 109
Appendix G. Instrument: TREatment MOtivation and REadiness ...................................... 110
Appendix H. Instrument: Patient Satisfaction ...................................................................... 113
Appendix I. Instrument: Decisional Balance Measure ............................................................ 115
Appendix J. Instrument: Participant Demographic Questionnaire ......................................... 116
Appendix K. Instrument: Participant Baseline Anthropometric Measurements ............... 118
Appendix L. Instrument: References .................................................................................... 119
Appendix M. Advertisement .................................................................................................. 120
Appendix N. Schedule of A-CHWM to Intervention Participants ....................................... 121
Appendix O. Pamphlet to Control Group .......................................................................... 122
List of Tables

Manuscript 1

Manuscript 2

Table 1. Data extraction and psychometric properties...........................................58

Manuscript 3

Table 1. Cromwell House Weight Management session. Adapted from Holt et al. (2010)86
Table 2. Components examined in feasibility of A-CHWM. Adapted from Leon et al. (2011)
................................................................................................................................................87
Table 3. Demographic information of study sample .........................................................88
Table 4. Baseline anthropometric measurements and motivational assessments ..........89
List of Figures

Manuscript 1

Manuscript 2

Figure 1. Five distinct time frames ................................................................. 67
Figure 2. Appendix A. Search strategy process .................................................. 68

Manuscript 3

Figure 1. CONSORT tree for a feasibility study of A-CHWM for overweight and obese US adults with a severe mental illness ................................................................. 90
Abstract

**Background**: Individuals with a severe mental illness (SMI) have obesity rates that are nearly double the levels of those of the general population. Individuals with SMI have health disparities that have additional physical, behavioral, social, and medication-related risk factors. Weight management efforts are affected by altered levels of motivation and apathy.

**Aims**: This compendium seeks to (1) clarify the definition of clinical apathy, (2) compare and contrast available instruments measuring readiness to lose weight, and (3) explore the feasibility of an adapted, theory-based weight loss program for overweight and obese individuals with SMI.

**Design**: This compendium is comprised of a concept analysis of apathy, an integrative review of instruments measuring readiness to lose weight, and a randomized controlled feasibility trial of an adapted weight management program.

**Findings**: Attributes of apathy included lack of motivation, initiative, and interest. Antecedents included psychiatric disorders and medical comorbidities such as diabetes mellitus. Eleven instruments measuring readiness to lose weight were compared and contrasted in the integrative review. Instruments can be utilized for various settings and purposes, though a lack of generalizability was found. Ten participants were recruited in the feasibility study. The attrition rate for these 10 patients was 60%.

**Conclusion**: Apathy is an independent clinical syndrome and a psychological factor predicting more inactive approaches to weight management. Nurses have available instruments to measure readiness to lose weight pending on purpose. Pilot study did not demonstrate feasibility to conduct the adapted weight loss program with individuals with SMI in the tested setting. Several additional adaptations are needed for successful future implementation.
Keywords – apathy; feasibility; motivation; readiness to change; severe mental illness;

Transtheoretical Model; weight
Introduction

Currently, two-thirds of American adults are considered at least overweight, of which approximately 35% are obese (Flegal, Carroll, Kit, & Ogden, 2012). Physiological comorbidities of obesity include: coronary artery disease, hypertension, type II diabetes mellitus, and sleep apnea (Melamed et al., 2008) as well as increased sensitivity to pain and poorer overall health status (Fred-Jimenez, Arroyo-Avila, Mayor, Rios, & Vila, 2016). The effects of obesity can also cascade into negative psychological affect; it can decrease a person’s self-esteem and ability to participate in daily activities reducing their quality of life, which results in poorer mental health outcomes (Mahony, Haracz, & Williams, 2012).

Individuals with a severe mental illness (SMI) have obesity rates that are nearly double the levels of those of the general population (Naslund et al., 2016). Individuals with SMI have health disparities that have additional physical, behavioral, social, and medication-related risk factors that elevate their risk for unhealthy body mass indices (BMI) and visceral adiposity accumulation (Álvarez-Jiménez, Hetrick, Gonzalez-Blanch, Gleeson, & McGorry, 2008; Methapatara & Srisurapanont, 2011). Although some psychiatric medications such as antipsychotics may induce some weight gain (Álvarez-Jiménez et al., 2008), there are other factors affecting weight management in individuals with SMI (Lee, Choi, & Kwon, 2008).

In 1999, researchers initially began to explore non-pharmacological interventions in weight management programs for individuals with SMI (Wirshing et al., 1999). Since May 2000, a British weight management program, Cromwell House Weight Management (CHWM), has functioned as a voluntary and self-referring weekly group in the United Kingdom (UK) (Holt, Pendlebury, Wildgust, & Bushe, 2010). It is the longest running weight management program in the world. Shorter weight management programs, however, have been found to be effective. A
quasi-experimental study conducted by Chen, Chen, and Huang (2009), for example, found a 10-week group weight control program for individuals with schizophrenia or schizoaffective disorder could motivate individuals to continue to lose weight for up to 6 months and longer after the end of the intervention.

**Manuscripts**

This dissertation is centered on three manuscripts relating to motivation, the lack thereof, and its effect on a weight management program. The first manuscript is a published concept analysis piece on apathy. The second manuscript is a published integrative review of the instruments utilized to measure readiness to lose weight. The third manuscript describes the feasibility implementing a weight management program for individuals with a severe mental illness. This third manuscript used the tools identified from the second manuscript to measure readiness to lose weight.

**Gaps in Knowledge**

Studies of behavioral interventions for persons with SMI provide evidence of positive outcomes on weight loss, yet effective implementation and adoption of those interventions remain untested in real world settings (Cabassa, Ezell, & Lewis-Fernandez, 2010). In the UK, the CHWM clinic has been identified as a successful service program for persons with SMI (Holt et al., 2010). Despite evidence of the program’s effectiveness in helping individuals achieve statistically significant weight loss; it has not been replicated as an intervention in the United States (US). The characteristics of the US health system, variations on infrastructure support, and differences in social system networks require adaption of this intervention for use in the US. With modification, the CHWM program may offer a promising weight reduction intervention for
individuals with SMI residing in the US. Success of any weight management strategy requires a readiness to modify lifestyle behaviors (Rao et al., 2011).

Due to the widespread obesity prevalence, approximately 50% of the U.S. population is trying to lose weight at any given time (Annesi & Whitaker, 2010). Effective programs aimed to lose weight are readily available but require active efforts and can be time-consuming (Cresci et al., 2011). Nursing recommendations for weight reduction strategies for overweight or obese patients should incorporate the degree of motivation, or readiness, to lose weight in order to recommend or deliver appropriate nursing care or interventions. Though there are numerous instruments available for this purpose, there was no review available examining such instruments found when conducting a literature review. Given this gap in the literature, the goal of manuscript 2 was to compare the available instruments aimed at readiness to lose weight in order to provide guidance on which instrument or instruments are likely to be appropriate across different nursing education, research and practice settings. This review found eleven instruments measuring readiness to lose weight. This review of studies revealed little to no variation in population, which greatly reduces generalizability of these instruments. Most instruments, for example, examined these instruments with a sample of participants that were primarily obese, middle-aged, female and predominantly White. This review also aided the reader in choosing an appropriate instrument dependent upon the reason of measuring readiness to lose weight.

Key Concepts

Because of the lack of literature around motivation, weight loss and the SMI population, the concept of motivation was chosen as a key area of interest. Specifically, this dissertation focused on readiness to change, in this case, readiness to lose weight. Readiness was chosen because it is the first action towards behavior change (Kvalem et al., 2015). Readiness to lose
weight was explored and measured through the use of a theoretical model, the Transtheoretical Model which focuses on expanding willingness to change a behavior from a bifurcated viewpoint to an array of potential options (Tuah et al., 2011).

On the other side of exploring readiness, this dissertation also focused on apathy. A concept analysis of apathy, manuscript 1, was created to fully explore the concept and its implications. Apathy and depression are related concepts, and can be misattributed for one or other (Cheng & Chan, 2007). Apathy’s relevance to weight management is that it is a barrier to weight management as apathy also embodies attributes such as having a lack of motivation, interest, initiative, and level of activity (McCusker, 2015). Apathy has also been identified as a psychological factor predicting the choice of bariatric surgery as opposed to choosing a more conservative and active approach in weight management (Ahnis et al., 2015).

**Transtheoretical Model**

The Transtheoretical Model (TTM) is a stage theory identifying the barriers of changing a health behavior as one moves from one stage to another (Glanz, Rimer, & Viswanath, 2008). The stages of, or “readiness to change,” can be assessed in five distinct time frames: precontemplation, contemplation, preparation, action, and maintenance (Andrés, Saldaña, & Gómez-Benito, 2009). Whereas these stages of change describe when an individual will change, the processes of change describe how an individual will change (Hasler, Delsignore, Milos, Buddeberg, & Schnyder, 2004). Processes of change are the overt and covert activities and experiences, such as stimulus control and self-reevaluation, utilized by individuals moving from one stage to another (Andrés et al., 2009). The markers of change include a decisional balance component which is used to identify the pros and cons of changing a particular behavior at each stage (Nidecker, DiClemente, Bennett, & Bellack, 2008).
Apathy specifically can be partly defined as having a lack of motivation (McCusker, 2015). The level of motivation can have an impact on behavior, cognition, and affect (Mulin et al., 2011). A lack of motivation to change is a factor related to high attrition rates or lack of engagement (Hötzel, von Brachel, Schlossmacher, & Vocks, 2013). Thus, the concept of apathy fits in the TTM because it negatively correlates with the stages of change.

There are several reasons why the TTM was utilized in this dissertation. First, nursing recommendations for weight reduction strategies for overweight or obese individuals should incorporate the degree of readiness to lose weight in order to recommend or deliver appropriate nursing care or interventions (McCusker & Gregoski, 2015) and avoid prescribing interventions that are incongruent with an individual’s level of readiness. Lack of consideration of readiness to lose weight causes an over-utilization of services, higher attrition rates, and access to care barrier to those that are adequately motivated to lose weight.

Second, in congruence with the fundamentals of the TTM, use of this model in research enhances the quality and thoroughness of gathering information. Again, as opposed to gathering information in a dichotomous manner, researchers can collect information from an array of potential levels of readiness options.

**Design and Method**

Apathy is negatively related to being able to manage weight and participation in weight management approaches. Readiness to change, and in the context of weight loss in a weight management programs, has available instruments that are reliable and valid. Considering the long-standing effectiveness of CHWM in the UK (Holt et al., 2010), it was decided to conduct a feasibility study of this program, adapted, in the US.
In the feasibility study, participants were recruited using a purposive sampling method. Participants who provided informed consent were randomized to either the intervention or the control group. Groups were stratified by BMI category (overweight or obese) to balance the intervention and control groups.

The Adapted-CHWM (A-CHWM) intervention group participants presented at the center weekly for 8 weeks for the intervention. There were five adaptations to CHWM: setting of the program in the US, fixed length of the program at 8 weeks, assessing readiness to lose weight, measuring waist circumference as an outcome and implementation of the decisional balance component of the TTM in the discussion section of the intervention.
References


Methapatara, W., & Srisurapanont, M. (2011). Pedometer walking plus motivational interviewing program for thai schizophrenic patients with obesity or overweight: A 12-


*Journal of Clinical Psychiatry, 60*(6), 358-363.
Manuscript 1

Apathy: Who Cares? A Concept Analysis

Abstract

**Background:** Apathy has been identified as an independent clinical syndrome. As prevalent and problematic as it is in the field of neuropsychiatry, apathy has not reached a fully accepted definition.

**Materials and Methods:** A concept analysis utilizing Rodgers’ evolutionary approach was used. Database search included the use of Cumulative Index of Nursing and Allied Health Literature Plus with Full Text.

**Results:** Altogether, 36 publications were identified for the concept analysis. Psychometric scales may have resulted in an inappropriate diagnosis of depression instead of apathy. As a whole, apathy was defined in comparison to depression as well as altered motivation, emotionality, activity, interest, and initiative.

**Conclusions:** Advances in the development of apathy as an evolutionary concept are discussed. As consistent with Rodgers’ evolutionary method, these findings are not an endpoint.

*Keywords* – apathy; concept analysis; dementia; depression
Apathy: Who Cares? A Concept Analysis

Apathy is one of the most troublesome syndromes in neuropsychiatry (Lane-Brown & Tate, 2009a). It occurs in over half of individuals diagnosed with a neuropsychiatric disease, such as Alzheimer’s disease and dementia (Mulin, Leone, et al., 2011). Chronic apathy accelerates the struggles of completing activities of daily living independently (Lechowski et al., 2009). Apathy negatively affects the caregiving relationship and causes caregiver distress (Politis et al., 2004). It is also considered a negative symptom in individuals with schizophrenia and worsens daily functioning (Faerden et al., 2009). Despite its pervasive influence and detrimental effects, apathy continues to be ill-defined throughout the literature (Mortby, Maercker, & Forstmeier, 2012). Understanding the concept of apathy and its implications embodies important care considerations for nurses.

The lack of operational definition for apathy (Lane-Brown & Tate, 2009a) has resulted in an ambiguous concept with ambiguous implications (Rodgers, 1989). This is particularly important to address in psychiatric nursing care. The purpose of this study is to address this gap in knowledge clarifying the concept of apathy with a theoretical application of Rodgers’ evolutionary method. The objective of this study is to inform nurses of the attributes, antecedents, consequences of apathy within the context of the research literature and, thus, to develop clear nursing care implications for patients with clinical apathy.

Theoretical Framework

The theoretical framework of this analysis is provided by Rodgers’ evolutionary method of concept analysis (Rodgers, 1989) which allows researchers to explore and comprehend a concept’s dynamic development and applications over time (Rodgers & Knafl, 2000). The evolutionary analysis provides the opportunity to identify attributes and other features of the
WEIGHT OF APATHY AND LEVEL OF READINESS TO CHANGE

concept while minimizing the potential for bias. Rodgers’ evolutionary method for a concept analysis consists of six phases:

1) Identification of the concept
2) Identification of the setting and sample
3) Collection of data for identification of attributes
4) Collection of antecedents, consequences, and related concepts
5) Analysis of the data
6) Identification of a model case
7) Identification of implication and further research for concept development

This analytical method uses “phases” instead of “steps” to especially emphasize the nonlinear process of this analysis of evolutionary concept development (Rodgers, 1989). A concept is a combination of its attributes (Rodgers & Knafl, 2000). Thus, the goal of this type of concept analysis is to discover the attributes, consequences and meanings utilized in the current literature and develop a setting around those as well as promote future inquiry (Rodgers, 1989).

The contextual basis of a concept includes antecedents which incorporate the events often found to precede a concept’s situational use, and consequences, the events that follow a concept’s use in particular context. Related concepts are concepts that are similar, and perhaps even confused, but have distinct and separate combination of attributes (Rodgers & Knafl, 2000). The results should not be interpreted as an endpoint: It reveals a prominent direction toward future exploration of the concept (Tofthagen & Fagerstrøm, 2010).

**Methods**

A comprehensive literature search was completed utilizing a multidisciplinary database to identify research related to nursing knowledge of the concept apathy. The Cumulative Index of Nursing and Allied Health Literature Plus with Full Text (CINAHL) was searched utilizing solely the term “apathy.” This search retrieved 653 results. As the goal of this concept analysis was to explore apathy from an evolutionary standpoint, no date range was selected. As the
concept of “apathy” can be widely used, the concept was additionally selected to be in the title. Non-peer reviewed journal articles, dissertations, editorials, literature reviews, and commentaries were excluded. The search excluded electronic retrievals without full-text versions available through either the hospital system or the Medical University of South Carolina medical libraries. Thirty-six articles resulted from the search and exclusion criteria. When using the Rodgers' evolutionary method, no fewer than 30 articles should be reviewed for a valid concept analysis (Rodgers & Knafl, 2000). This sample is adequate to identify a consensus of the concept of apathy. Publications ranged from 2001 to 2012. Articles was analyzed critically and those best addressed the concept were selected for this analysis. Articles were coded and defining characteristics were extracted in search for attributes, antecedents, consequences, and implications.

**Identification of the Concept**

**Defining Apathy**

Using Google search engine, a recent search of the term “apathy” produced 20 million results exemplifying the commonality of "apathy." According the Merriam-Webster dictionary, the origin of the word derives from the Greek word and the first known use of the Greek word dates back to 1594 (Apathy, 2014). The origin of the Greek word derives from apatheia and disassembles into two parts: a- and pathos. As pathos means emotion, apathy quite literally translates to without emotions. Apathy has been described as either a lack of emotion or concern. Synonyms for apathy as defined by emotion include emotionlessness, impassivity, insensibility, and numbness. Synonyms for apathy as a lack of concern, on the other hand, include disregard, incuriosity, nonchalance, and unconcern. A small collection of its related words are carelessness, lethargy, and stoicism.
Contextual Basis of Apathy

The goal of investigating the contextual basis of a concept is to gain an understanding of the related environmental factors (Rodgers & Knafl, 2000). This analysis revealed several factors for the concept in question. Apathy is common in patients with dementia (Chen, Yeh, Chang, & Huang, 2011; Rapoport et al., 2001). In individuals with Alzheimer’s disease, apathy is reportedly one of the earliest symptoms to manifest (Mulin, Zeitzer, et al., 2011; Waldemar et al., 2011) as well as the most frequent (Cacciari et al., 2010). Approximately 92 per cent of patients with progressive Alzheimer’s disease experience apathy (Lerner, Strauss, & Sami, 2007). Thus, apathy is the most prominent indicator to evaluate the severity of dementia (Lam, Tam, Chiu, & Lui, 2007). Apathy can also occur in patients with various neurological disorders, such as Alzheimer's disease and dementias, unrelated to a diagnosis of depression (Feil, Razani, Boone, & Lesser, 2003). Apathy can also be identified neurologically as it is associated with a dysfunction of the prefrontal cortex or its subcortical connections (Faerden et al., 2009). With regards to the research literature, Marin (1991) initiated the movement to differentiate apathy and its unique characteristics as separate concept. A significant breakthrough was the study by Robert et al. (2009) that identified a diagnostic criterion for the clinical use of apathy.

Data Analysis

Attributes of Apathy

The data analysis phase of Rodgers evolutionary concept analysis requires an exploration of each retrieved articles from the literature to identify attributes, antecedents, consequences, and related concepts (Rodgers & Knafl, 2000). Attributes are the defining characteristics of a concept (Rodgers & Knafl, 2000). A set combination of attributes serves to identify appropriately
situations in which the concept applies. The concept analysis identified altered levels of motivation, emotions, interest, initiative, and activity as attributes of apathy.

Apathy can be defined as a lack of motivation relative to the previous level of functioning or the standards of the age and culture of the individual (Benoit, Clairet, Koulibaly, Darcourt, & Robert, 2004). Apathy affected individuals with various types of neurodegenerative diseases, including fronto-temporal dementia, dementia with Lewy bodies, and Parkinson's disease. Lack of motivation was not attributable to diminished level of consciousness, cognitive impairment, or emotional distress (Faerden et al., 2009; Glenn et al., 2002). Several authors applied level of motivation to measurements of behavior, cognition, and affect (David et al., 2011; Mulin, Leone, et al., 2011).

Various applications of emotions were identified. In this attribute, the most frequent descriptor of apathy was as a reduced display of emotion (Maas, van der Mast, & de Craen, 2009). Others described it as having a flat affect (Glenn et al., 2002). Apathy was also defined as a lack of emotional responsiveness (Benoit et al., 2004). Level of interest was defined broadly when applied to apathy. Descriptors of interest ranged from diminished (Lerner et al., 2007) to no interest at all (Politis et al., 2004). It was also described as a loss (Benoit et al., 2008). One study identified a lack of concern specifically for their own obstacles (Palmer et al., 2010). Quite similarly to interest, initiative was defined as lacking (Müller, Czymmek, Thone-Otto, & von Cramon, 2006), decreased (Tate et al., 2003), or a loss altogether (Maas et al., 2009). Initiation was also defined in terms of a lack of effort and productivity (Jorge, Starkstein, & Robinson, 2010). Lack of initiation was also defined as a lack or decreased curiosity of the self and environment (Tate et al., 2003). Significant lack of initiation diminished goal-directed behavior. Apathy referred to a decreased or diminished level of activity (Benoit et al., 2008). This
decreased activity affected behavioral, cognitive, and psychological domains (Tate et al., 2003). Activity level referred to participation as well as starting an activity (Lane-Brown & Tate, 2009b).

**Antecedents of Apathy**

Antecedents are characteristics that precede or have been associated, in the past, with the concept of interest (Rodgers, 1989). Neurologically, apathy is caused by lesions of the frontal lobes (Lerner et al., 2007) and/or some involvement of the limbic system (Lane-Brown & Tate, 2009b). Though most prominent in the literature as resulting from neuropsychiatric disorders, apathy can also be affected by other psychiatric disorders (Müller et al., 2006) as well as mild cognitive impairment (Palmer et al., 2010). Brain-related insults, such as traumatic brain injury, are also antecedents to apathy (Newburn & Newburn, 2005). Alterations of the dopaminergic and cholinergic pathways can also cause apathy (Lerner et al., 2007) as well as medical comorbidities such as diabetes mellitus (Palada et al., 2012) and stroke (Lane-Brown & Tate, 2009b).

**Consequences of Apathy**

Consequences are the phenomena that result from the effects of the concept (Rodgers, 1989). Apathy can reduce quality of life and functional performance in individuals with Alzheimer's disease and cognitive impairments (Lam et al., 2007). When patients with dementia have apathy, they have poorer outcomes on activities of daily living which can contribute to caregiver stress (Tunnard et al., 2011). Persistent apathy contributes to an accelerated loss of independence (Lechowski et al., 2009). Similarly, apathy in patients after a stroke significantly delays the advancement of rehabilitation (Hama et al., 2007).

**Related Concepts of Apathy**
Related concepts are closely related but have their own separate combination of attributes (Rodgers & Knafl, 2000). Depression was the most common related concept. Apathy and depression have been identified as separate syndromes but are frequently confused (Cheng & Chan, 2007). Apathy may also have coexisted with depression (Müller et al., 2006). Symptoms had the potential to overlap or co-exist (Lavretsky et al., 2008). As a result, psychometric scales may have resulted in overestimation of depression instead of clinical apathy resulting in an inappropriate diagnosis of depression (Sugawara et al., 2011). Apathy and depression were both characterized by loss of interest and reduced activity (Benoit et al., 2008). Additional co-existing symptoms included fatigue, hypersomnia, lack of insight, and psychomotor retardation (Lerner et al., 2007) as well as poor executive functioning (Maas et al., 2009).

Some researchers evaluating neurocognitive diseases such as Alzheimer's, argued that apathy and depression were different (Palada et al., 2012). Apathy was manifested by a diminished emotionality and lack of concern while depression constituted presence of elevated levels of emotion, such as dysphoria (Lerner et al., 2007). Apathy was considered the absence of sadness, hopelessness, suicidal ideations, and worthlessness (Maas et al., 2009). For some researchers, apathy corresponded to the negative symptoms of depression (Mehta et al., 2008). Lack of, or diminished initiation in, motor, gait, or cognitive activities suggested apathy instead of depression (Lerner et al., 2007).

Another related concept to apathy is anhedonia. Clinically, depressed mood, anhedonia and apathy share similar features and are difficult to differentiate (Lavretsky et al., 2008). Anhedonia is defined as primarily having diminished interest or pleasure in response to an incentive (Scheggi, Pelliccia, Ferrari, De Montis, & Gambarana, 2015). From a neurobiological standpoint, anhedonia does not include having a lack of motivation. Anhedonia
neurobiologically differs from apathy (Lavretsky et al., 2008). Unlike anhedonia, apathy encompasses having a lack of motivation as a core attribute of this concept. Further, apathy is more than having a lack of pleasure, it is having a lack of a range of emotional responsiveness (Maas et al., 2009) to the severity of displaying a flat affect (Glenn et al., 2002).

**Model Case of Apathy**

The goal of illustrating a model case in Rodger's evolutionary analysis is to display a practical representation of the concept within a contextual basis (Rodgers & Knafl, 2000). Robert et al. (2009) proposed a diagnostic criteria for apathy for individuals suffering from Alzheimer's disease as well as other neurocognitive disorders. These criteria included four categories including altered motivation, deficit in one of three domains, clinical impairment in various areas of functioning, and not explained by physical disabilities. The domains include a behavioral, cognitive, or emotional component. Lack of motivation must persist over time and recognized for at least one month. These proposed criteria were evaluated by (Mulin, Leone, et al., 2011) and deemed useful in the clinical setting as well as research.

**Implication and Further Research for Concept Development**

The last phase of Rodgers evolutionary concept analysis include a discussion of the implications of the concept analysis itself (Rodgers & Knafl, 2000). Based on the current review of the literature, an evolutionary concept analysis of apathy defines this concept as a combination of attributes including lack of motivation, emotionality, interest, initiative, and activity. More research is warranted regarding the definition and assessment of the concept.

As implicated in Rodgers evolutionary method, the results of the concept analysis should not be interpreted as an endpoint: It reveals a prominent direction toward future exploration of
the concept (Toft Hansen & Fagerstrøm, 2010). There continues to be a need to identify an operational definition of the concept of apathy.
References


http://dx.doi.org/10.1016/j.neuroscience.2015.02.006

WEIGHT OF APATHY AND LEVEL OF READINESS TO CHANGE


Manuscript 2

Instruments to Measure Readiness to Lose Weight: An Integrative Review


http://dx.doi.org/10.1891/1061-3749.23.3.E142
Abstract

**Background and Purpose:** Obesity is a modifiable risk factor associated with multiple disease states. The purpose of this integrative review is to synthesize instruments measuring participants' readiness to lose weight.

**Methods:** The CINAHL, MEDLINE, and PsycInfo databases were searched; a total of 1,048 manuscripts were initially retrieved.

**Results:** Eleven studies were retained. Eight reported moderate to strong validity; however, reliability was not reported in two studies. Overall, sample heterogeneity was limited, reducing generalizability across more diverse populations. In conjunction with readiness to lose weight, some instruments focused on additional attributes.

**Conclusions:** An overview of instruments for assessing or monitoring readiness to lose weight is provided. Gaps in the literature included a lack of scales focusing on overweight, but not obese individuals, and male participants.

**Keywords** – diet; measurement; obesity; physical activity; psychometric; readiness to change; Transtheoretical Model; weight
In America, over 30% of adults are overweight (body mass index [BMI] $\geq 25 - <30$ kg/m$^2$), and over 40% are obese (BMI $\geq 30$ kg/m$^2$) (Megna, Schwartz, Siddiqui, & Herrera Rojas, 2011). Physiological comorbidities of obesity include: coronary artery disease, hypertension, type II diabetes mellitus, sleep apnea, osteoarthritis, certain types of cancers (Melamed et al., 2008), and musculoskeletal injury (Somerset, Graham, & Markwell, 2011). The effects of obesity can also cascade into negative psychological affect; it can decrease a person’s self-esteem and ability to participate in daily activities reducing their quality of life, which results in poorer mental health outcomes (Mahony, Haracz, & Williams, 2012). Nationally, obesity is a financial burden on the healthcare system. The most common reason for primary care referrals is obesity; making it one of the nation’s most expensive public health problems (Gusi, Reyes, Gonzalez-Guerrero, Herrera, & Garcia, 2008). Annually, $100$ billion is spent on obesity-related disease management costs in the United States (Seals, 2007), with an additional $117$ billion being spent on weight reduction treatment (Donnelly et al., 2009).

Due to the widespread obesity prevalence, approximately 50% of the U.S. population is trying to lose weight at any given time (Annesi & Whitaker, 2010). Effective programs aimed to lose weight are readily available but require active efforts and can be time-consuming (Cresci et al., 2011). Nursing recommendations for weight reduction strategies for overweight or obese patients should incorporate the degree of motivation, or readiness, to lose weight in order to recommend or deliver appropriate nursing care or interventions. Though there are numerous instruments available for this purpose, to the best of our knowledge, we have not found a review examining these instruments. Given this gap in the literature, the goal of this review is to compare the available instruments aimed at readiness to lose weight in order to provide guidance.
on which instrument or instruments are likely to be appropriate across different nursing education, research and practice settings.

Theoretical Framework

The Transtheoretical Model (TTM) has helped clinicians and researchers expand a targeted change of a behavior from a dichotomous view to a process of change (Tuah et al., 2011). The TTM has three dimensions: stages, processes, and markers of change. “Stages of”, or “readiness to change” can be assessed in five distinct time frames (Figure 1) (Andrés, Saldaña, & Gómez-Benito, 2009). Whereas these stages of change describe when an individual will change, the processes of change describe how an individual will change (Hasler, Delsignore, Milos, Buddeberg, & Schnyder, 2004). Processes of change are the overt and covert activities and experiences, such as stimulus control and self-reevaluation, utilized by individuals moving from one stage to another (Andrés et al., 2009). The markers of change include decisional balance and self-efficacy (Nidecker, DiClemente, Bennett, & Bellack, 2008). Decisional balance refers to identifying the pros and cons of a particular behavior at each stage. Self-efficacy can be defined as an individual’s perception of confidence to be competent to change behavior when confronted by challenging circumstances (Ames, Heckman, Grothe, & Clark, 2012).

The TTM can be useful for assessing readiness to change to a healthier lifestyle and significantly reducing the risk of dropout in weight loss programs (Andrés, Saldaña, & Gómez-Benito, 2011). In addition, the use of the TTM in weight loss management has been shown to be an effective theoretical model in aiding to deliver stage-appropriate information or interventions to overweight and obese individuals by a nurse practitioner (Seals, 2007). In addition to stage identification, this model is beneficial to monitor readiness continuously.

Methods
The Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, and PsycInfo, databases were searched for relevant instruments. To find the appropriate studies corresponding to the aim of this review, four themes (weight, lifestyle, readiness, and instrument) were searched with the builder “AND.” Within each theme, all terms were searched with the builder “OR.” Weight-related terms included “weight gain,” “weight loss,” “weight management,” “weight reduction,” “obesity” and “overweight.” Lifestyle-related terms included “lifestyle,” “health behavior,” “wellness,” “exercise,” “physical activity,” “nutrition” and “diet.” Readiness-related terms included “readiness,” “motivation” and “self-efficacy.” Lastly, instrument-related terms included “instruments,” “tools,” “scale,” “questionnaire” and “measurement.” Inclusion criteria consisted of studies psychometrically evaluating instruments measuring readiness to lose weight. There was no language preference selected, though no non-English instruments met inclusion criteria. No time frame limits were selected. Each article was initially screened by title and abstract and, if deemed appropriate, was then entirely reviewed. The search strategy process is illustrated in Appendix A.

The purpose of this literature search was to review instruments measuring readiness to lose weight. Instruments not focusing on readiness to lose weight were excluded. Scales focusing on parental readiness, children, or pregnancy were also excluded. One instrument was excluded as it focused only on the weight management of individuals suffering from bulimia. Lastly, three studies were excluded because they focused on instruments already represented in this review (Clark, Abrams, & Niaura, 1991; Dutton, Martin, Rhode, & Brantley, 2004; Pendleton et al., 1998). Of those, we chose the studies that presented the most psychometric data.

Results

Research Sample
The eleven instruments included in this review purported to measure readiness to lose weight by addressing lifestyle behaviors. Lifestyle was defined as increasing physical activity and/or improving eating patterns. Andrés et al. (2009) described the development of two instruments (Processes and Stages of Change in Overweight and Obese People) from an international effort with a majority of experts located in Spain. Seven studies were from the United States and the remaining three studies were from Germany, Austria and Italy. Across ten studies conducting research on the instruments, there were 4,291 research participants. In terms of BMI categories, two studies had a sample of participants with mean normal weights (BMI 18.50 – 24.99 kg/m\(^2\)) and six had a sample of obese participants. One study did not report weight, however, 73% of the participants self-reported to be at least 5 pounds over desired weight. Lastly, one study reported a median of extreme obesity (BMI 45 – 50 kg/m\(^2\)). With regards to age, three studies focused on young adults and six studies reported a mean age range of 41 to 50.9 years. One study reported a median age of 49, with a range of 18 to 80 years old.

Two of the studies were female only and the remaining had a majority of females (range: 53.3 – 85%). Six studies reported a majority of White participants and four did not report race or ethnicity. Of the ten studies that utilized the instruments with participants, six reported ethnicity and, of those, all reported a majority of White participants (range: 61 – 93.8%). In the study with the lowest percentage of White participants, the next highest ethnicity was Hispanic (20%) (Robinson et al., 2008).

**Instrument Description**

The review consists of a mixture of adaption and development of instrument. Instruments are compared against one another here; however, specific components of each instrument are described in Table 1. The Processes and Stages of Change in Overweight and Obese People,
Treatment Motivation and Readiness (TRE-MORE), Questionnaire on Motivation to Maintain Health Weight, and the Decisional Balance Measure and the Stages of Change Model for Weight Loss were newly developed instruments (Andrés et al., 2009; Cresci et al., 2011; Furia, Lee, Strother, & Huang, 2009; O'Connell & Velicer, 1988). One established instrument was adapted for the purpose of weight management adherence, the Compliance Praxis Survey-Diet (COMPASS-Diet) (Janda, Zeidler, Bohm, & Schoberberger, 2013), while three studies utilized an established instrument for testing the reliability and validity in the context of weight loss in the population of overweight and obese adults (Robinson et al., 2008; Sarkin, Johnson, Prochaska, & Prochaska, 2001; Wang et al., 2013). Janda et al. (2013) validated COMPASS-Diet as a self-report instrument as well as a comparable instrument that can be completed by a provider or group facilitator. One study developed a short form to an established instrument, the Weight Efficacy Lifestyle Questionnaire Short Form (WEL-SF) (Ames et al., 2012). Two studies evaluated available instruments, the Dieting Readiness Test (DRT) and the Perceived Self-Regulatory Success in Dieting Scale (PSRS) (Fontaine, Cheskin, & Allison, 1997; Meule, Papes, & Kubler, 2012). Meule et al. (2012) re-analyzed prior data to establish reliability and validity of PSRS; however, two of the four studies utilized were never published. The Processes and Stages of Change in Overweight and Obese People were validated in English and Spanish but not tested (Andrés et al., 2009). Instrument length ranged from 1 item in the Exercise Stage of Change Algorithm for Overweight Population (Sarkin et al., 2001) to 68 items total in the Processes and Stages of Change in Overweight and Obese People (Andrés et al., 2009). Only one study assessed the administration time of an instrument, the DRT, being under 10 minutes (Fontaine et al., 1997).

**Theoretical Framework**
Eight studies reported a theoretical framework for their instruments (Andrés et al., 2009; Cresci et al., 2011; Fontaine et al., 1997; Furia et al., 2009; O'Connell & Velicer, 1988; Robinson et al., 2008; Sarkin et al., 2001; Wang et al., 2013). Of those, six utilized the TTM as a framework. Other theoretical frameworks utilized for instruments assessing readiness to lose weight included the Self-Determinant Theory (Furia et al., 2009), Social Problem-Solving model (Wang et al., 2013) and the Conflict Theory of Decision-Making (O'Connell & Velicer, 1988).

**Reliability**

Nine of the studies addressed the reliability of the scales (Ames et al., 2012; Cresci et al., 2011; Fontaine et al., 1997; Furia et al., 2009; Janda et al., 2013; Meule et al., 2012; O'Connell & Velicer, 1988; Robinson et al., 2008; Wang et al., 2013). Reliability was reported in terms of internal consistency with a coefficient alpha varying from .61 in the DRT to .95 in the WEL-SF and the Social Problem-Solving Inventory-Revised (SPSI-R) (Ames et al., 2012; Fontaine et al., 1997; Wang et al., 2013). In addition, Cresci et al. (2011) conducted test-retest resulting in a highly significant correlation coefficient of $r$: 0.89 in their instrument, TRE-MORE.

**Validity**

The eleven studies explored multiple dimensions of validity. An example of concurrent validity included testing the development of the WEL-SF against the parent well-established instrument ($r = 0.968$) (Ames et al., 2012). Janda et al. (2013) adapted the COMPASS-Diet for both self-report and group facilitator utilizing predictive validity between the two instruments ($r = 0.37$) as well as against achieved weight loss ($r = 0.28$). The WEL-SF and TRE-MORE were the only instruments reporting confidence intervals (Ames et al., 2012; Cresci et al., 2011). Andrés et al. (2009) established content validity of the Processes and Stages of Change in Overweight and Obese People with international experts and identified an 80% agreement on
representativeness of the content in the instrument. Unfortunately, the DRT could not establish predictive validity between the instrument and those who would lose weight initially (Fontaine et al., 1997), and the SPSI-R did not find adequate goodness of fit (Wang et al., 2013). In general validity reported on the PSRS was weak (Meule et al., 2012). Specifically, discriminant validity between PSRS and impulsivity resulted in weak negative correlations ($r = -0.20, p <0.001$); convergent validity showed weak negative correlations on 4 subscales ($r = -0.22 - -0.32, p <0.001$), weak positive correlations on one subscale ($r = 0.26, p <0.001$) and a moderate negative correlation on one subscale ($r = -0.44, p <0.001$).

**Levels of Evidence**

All studies were critically appraised using the Centre for Evidence Based Medicine (Centre for Evidence Based Medicine, 2009) independently by the investigators (MM and MG) to determine the level of evidence and to establish inter-rater reliability. The level of agreement was 100 percent. All studies were within the 2b to 3b range except for the Processes and Stages of Change in Overweight and Obese People (Andrés et al., 2009) scoring a 5. This particular study developed two instruments with the use of international content experts. Though they did not administer the instruments to a sample, testing the instruments was recommended in the future research section. Six of the instruments were administered in relations to a weight loss intervention (Ames et al., 2012; Cresci et al., 2011; Fontaine et al., 1997; Janda et al., 2013; Robinson et al., 2008; Wang et al., 2013), one instrument was mailed to participants (Sarkin et al., 2001) and three instruments were administered to college students (Furia et al., 2009; Meule et al., 2012; O'Connell & Velicer, 1988). More information is provided in Table 1.

**Discussion**
This review found eleven instruments measuring readiness to lose weight. To the best of our knowledge, this is the first review of instruments for this particular purpose. This review of studies revealed little to no variation in population, which greatly reduces generalizability of these instruments. Most instruments, for example, examined these instruments with a sample of participants that were primarily obese, middle-aged, female and predominantly White.

Of those that reported BMI, none of the studies had a mean sample of participants that were overweight but not obese. The BMI ranges were also varied, ranging from a mean BMI of $21.5 \pm 2.7$ kg/m$^2$ in one of the unpublished studies of the PSRS (Meule et al., 2012) to $39 \pm 7.5$ kg/m$^2$ in the TRE-MORE (Cresci et al., 2011). As individuals are overweight before becoming obese, validated instruments are needed for this particular population as readiness to lose weight differences may exist between these groups. Measuring readiness to change and, in a sense, the level of commitment to lose weight, should be a central part of a weight loss program assessment and lifestyle modification counseling. Before individuals become obese, they are overweight; an intervention occurring at this preliminary point may help to prevent additional weight gain that leads to obesity. However, none of the studies included a sample that was predominately overweight.

Out of ten studies testing the instruments with participants, three studies focused on young adults while six studies reported a mean age range of 41 to 50.9 years and the another study reported a median of 49 years. Currently, between one-fourth and one-third of American college students are overweight (Furia et al., 2009). Among the general population, they have the highest prevalence of becoming overweight and obese especially their first year (i.e. “the freshman 15”). Of the instruments included in this review, only three instruments, the Decisional Balance Measure and the Stages of Change Model for Weight Loss, Questionnaire on Motivation
to Maintain Healthy Weight and the PSRS were assessed with a focus on this population (Furia et al., 2009; Meule et al., 2012; O'Connell & Velicer, 1988). Additionally, students are even more vulnerable after they have graduated college as they have less unstructured time and access to physical activity as well as increasing life demands (Furia et al., 2009).

Though the Stages of Change Measures for Physical Activity, Intakes of Fruit and Vegetables, Dietary Fiber, and Dietary Fat was the only instrument designed solely for females (Robinson et al., 2008), all other studies had a majority of women (range: 53.3 - 85%). In a study re-analyzing data, 3 out of 4 studies were females only and the fourth had an 80% majority of females (Meule et al., 2012). Six of the ten studies utilizing the instruments with participants reported a majority of White participants (range: 61 – 93.8%). In this review, the next highest percentage of ethnicity was 20% (Hispanic) in the study with the lowest percentage of White participants (Robinson et al., 2008). The gender and race/ethnicity proportions in the studies validating the instruments are an important factor to consider choosing an appropriate instrument to utilize for a population as accuracy may be reduced or not present when used among other populations or cultures.

One study discussed the response burden of participants completing long scales (Ames et al., 2012). Indeed, long scales can be cumbersome and, consequently may be a determinant in measurement error. Nevertheless, the DRT was the only instrument evaluating administration time (Fontaine et al., 1997). As the instrument items of this review ranged from 1 to 68 items, this is an important factor when considering the utilization and frequency of instrument use.

Two studies, the Exercise Stage of Change Algorithm for Overweight Population (Sarkin et al., 2001) and the Processes and Stages of Change in Overweight and Obese People (Andrés et al., 2009), did not evaluate reliability. The purpose of the study of Sarkin et al. (2001) was to
find the concurrent and construct validity and, similarly, the purpose of the study by Andrés et al. (2009) was to establish the content validity via the Delphi method. However, not establishing reliability does raise some concerns because the concept of readiness to change is a subjective experience that relies on participants to report scores for measurement purposes.

Future research additionally should focus on reducing racial and ethnic disparities; obesity rates are higher for African Americans and Hispanics compared to White Americans (Centre for Evidence Based Medicine, 2009). In addition, though African Americans have higher obesity rates than other ethnicity/race groups in the United States, there is a dearth of studies as they are underrepresented in clinical research (Luebbert & Perez, 2015). The age range of this review did identify a gap in the literature as there were no studies with a mean age in the thirties. As these young adults are either continuing with further education or entering the workforce, they face challenges that may be different from college age and older adults. Additionally, this review revealed a gap in gender disparities with regards to readiness to lose weight in men. Indeed, in the United States, more men are overweight and obese than women (Henry J. Kaiser Family Foundation, 2014).

Valid and reliable instruments measuring readiness to lose weight are a central component to weight loss assessment. The results can also aid in tailoring stage-appropriate delivery of weight loss information to strengthen facilitators for, and reduce barriers to, a healthy lifestyle across nursing education, research, and practice settings. Our review identified eleven different instruments aimed at assessing readiness to lose weight. Considering the multiple validated instruments for this purpose, when choosing an instrument, it is important for the nurse to appraise attributes such as length of scale, ease of administration and scoring, multilingual
availability, as well as the need for a group administrator to complete the survey instead of the participant.

**Conclusion**

Nurses have several available instruments to measure readiness to lose weight. Prior to choosing an instrument, the purpose of measuring readiness to lose weight should be identified. If, for example, the reason is to aid making an appropriate referral to a weight loss program, the DTR would be beneficial as the emotional eating subscale was identified as a predictor of failing to complete a 12-week weight loss program (Fontaine et al., 1997). Or, if the group facilitator was interested in completing the instrument, the COMPASS-Diet-Other has such capabilities (Janda et al., 2013). The Stages of Change Measures for Physical Activity, Intakes of Fruit and Vegetables, Dietary Fiber, and Dietary Fat, on the other hand, would be beneficial to use in clinical practice as it can guide the nurse to standardize recommendations for these lifestyle behaviors (Robinson et al., 2008). If assessment time was a concern, such as during a routine appointment, we would not recommend the Processes and Stages of Change in Overweight and Obese People (Andrés et al., 2009) or the SPSI-R (Wang et al., 2013) because of instrument length.

When reporting the use of instruments measuring readiness to lose weight, it is important for the nurse to clearly identify the participant sample. This review has identified several pertinent demographic variables such as age, gender, race/ethnicity, weight, and BMI. In addition, it is important to also disclose the setting of use of this scale such as whether it is in an intervention or mailed to participants.

The degree of readiness to lose weight should be an integral part of nursing care when discussing weight management with patients. This information can be used in combination with
the TTM. The TTM is of great value because it has multiple stages instead of a dichotomous presentation. In fact, there is a particular stage for every level of motivation: from not at all to completely. To every stage, an evidence-based intervention is guiding the nurse to stage-appropriate nursing care. In addition to readiness to change, the instruments also focused on specific attributes such as intrinsic and extrinsic motivation, physical activity, specific dietary behaviors, dietary readiness, adherence, and problem-solving. This review provides nurses giving care and researching an array of choices for assessing and monitoring a patient’s readiness to lose weight.
References


overweight and obese adults. *Cochrane Database of Systematic Reviews* (10). doi:
10.1002/14651858.CD008066.pub2

Table 1

Data extraction and psychometric properties

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Framework</th>
<th>Population Sample</th>
<th>Instrument Details</th>
<th>Reliability</th>
<th>Validity</th>
<th>Feasibility</th>
<th>Study Outcomes</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stages of change measures for physical activity, intakes of fruit and vegetables, dietary</td>
<td>TTM</td>
<td>Women (n = 401) in a 12-month weight loss intervention (mean age 41 ± 8.7 years), majority white (61%), mean BMI 32.35 ± 4.6 kg/m²</td>
<td>23-item. Four separate staging algorithms: physical activity (PA), fruits and vegetables (FV), dietary fiber (FB), and dietary fat (DF). PA and FV algorithms were one yes/no questions. FB algorithm is 7 questions</td>
<td>Cronbach’s $\alpha &gt; .70$ for majority of the scales</td>
<td>All concurrent validity tests were statistically significant ($p &lt; 0.01$ with Bonferroni correction) with effect sizes ranging from medium to large. All four staging algorithms demonstrated predictive validity with baseline stage of change</td>
<td>Short; easy to administer; difficult to score; lack of generalizability outside of sample</td>
<td>Allowed for differences among the five stages, also differences in behavior between pre-action stages and the action and maintenance stages. Staging measures can facilitate the standardization of PA,</td>
<td>2b</td>
</tr>
</tbody>
</table>

(Centre for Evidence Based Medicine, 2009)
<table>
<thead>
<tr>
<th>fiber, and dietary fat choices being 0 = “never,” 1 = “rarely,” 2 = “some of the time,” 15 = “most of the time,” and 16 = “always.” DF algorithm was a 9-item scale from 0 = “never” to 14 = “two or more per day.” Scoring is a combination.</th>
<th>related to behavior one year later. Effect sizes for these relationships ranged from 0.04 to 0.126</th>
<th>FV, FB, DF stage of change assessment and helpful in determining readiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dieting Readiness Test (DRT) (Fontaine et al., 1997) Adults (n = 420) seeking outpatient weight loss treatment (mean age 42.95 ± 10.01), majority female (77%), white (77%), mean BMI for females 36.8 ± 7.8 kg/m² and males 42.9 ± 11.2 kg/m² 23-item using majority of 5-point Likert scale and some 6-point Likert scale. Participants completed scale in less than 10 minutes. Score is summed. Cronbach’s α was a median of .78, ranging from .61 to .80 Only 1/5 subscale was statistically significant. Predictive validity of who would lose weight initially, no statistical results</td>
<td>Short; easy to administer; easy to score; lack of validity; lack of generalizability outside of sample Bingeing and Eating Cues scale correlated negatively with attending the treatment program. No other scale correlated with attendance or weight loss. Emotional Eating scale to be a predictor of failing to complete a 12-week weight loss program. 2b</td>
<td></td>
</tr>
<tr>
<td>Exercise Stage of Change Algorithm for Overweight Population (Sarkin et al., 2001)</td>
<td>TTM</td>
<td>Adults (n = 670) were mailed a questionnaire (mean age 50.9 ± 15 years), majority female (53.3%), white (92.6%), mean BMI 30.6 ± 5.5 kg/m²</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Decisional Balance Measure and the Stages of decision-making Model for Weight Loss</td>
<td>TTM</td>
<td>Study 1: Graduate and undergraduate psychology students (n = 264), age range 18-27 years (90%), majority female (70%), 73% they were at least 5 lbs over satisfied weight.</td>
</tr>
</tbody>
</table>
(O’Connell & Velicer, 1988)  
Study 2: 123 students from Study 1.  

\[ p < .05 \text{ level } [F(3, 119) = 2.29, p > .05]. \text{ ANOVA was significant for the Pro-Con difference score } [F(3, 119) = 7.77, p < .01]. \]

Compliance Praxis Survey-Diet (COMPASS S-Diet) (Janda et al., 2013)  
Not reported  
Adults (n = 253) in a 10-week dietary intervention program (mean age 47 ± 12 years), majority female (80%). Mean BMI 31.8 ± 5.7 kg/m².  
10-item using 4-point Likert scale ranging from “do not agree” to “completely agree.” Summed score range: 10-40. Two versions created: COMPASS-diet-other and COMPASS-diet-self for self-report  
Cronbach's \( \alpha \) for COMPASS-diet-self = .82 and COMPASS-diet-other = .78  
Face validity: Cognitive interviews. COMPASS-diet-self correlated with COMPASS-diet-other (\( r = .37 \)), and weight loss achieved (\( r = .28 \))  
Short; use by participant and group facilitator; easy to score  
COMPASS-diet scores early in the program could provide assistance to group facilitators to identify participants who may require additional support to achieve weight loss according to program aims. Easier for participants to learn than change ingrained behavior and follow through with the
| Questionnaire on Motivation to Maintain Healthy Weight (Furia et al., 2009) | Self-Determination Theory | College students (n = 300) aged 18 – 24 years, majority female (67%), white (82%), normal BMI (71%) | 19-item using 7-point Likert scale ranging from 0 = “not at all true” to 6 = “totally true.” Score is summed. | Cronbach’s α for intrinsic motivation was 0.73 and extrinsic motivation was 0.68 | Test of factorability yielded a Kaiser-Meyer-Olkin value of 0.82, suggesting good sampling adequacy; and the Bartlett’s test of sphericity had a $\chi^2(136)=1565.9$, p < 0.0001. | Lengthy; easy to administer; difficult to score; lack of generalizability outside of sample | Intrinsic and extrinsic motivational scales applicable to a college population. Compared to overweight students, normal-weight students showed greater affective motivation, self-efficacy, and overall intrinsic motivation. |
| Processes and Stages of Change in Overweight and Obese People | TTM | None | 68-item total: Processes of change questionnaire was 63-item; Stages of change questionnaire was 5 items. Score is summed. | Not assessed | Content validity by experts in obesity and TTM. Processes of change questionnaire has a consensus near 80% for representativeness and clarity. Stages of change questionnaire was 80% | Available in English and Spanish; lengthy; not validated with a sample; | First questionnaires to be developed by a consensus of experts in the obesity field. Demonstrates how a Delphi study can be used as a tool to assess the content validity. | 3a |
| | | | | | | | | | 5 |
### Perceived Self-Regulatory Success in Dieting Scale (PSRS)

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Measurements</th>
<th>Cronbach’s $\alpha$</th>
<th>PSRS Combination of Previous Studies</th>
<th>Scoring</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study 1:</strong> Female students ($n = 50$), mean age 22.3 ± 3 years, mean BMI 21.5 ± 2.7 kg/m² (unpublished)</td>
<td>3-item using 7-point Likert scale ranging from 1 = “not successful” or “Überhaupt nicht gut” to 7 = “very successful” or “Sehr gut.” In German, Dutch, and English. Score is summed.</td>
<td>Cronbach’s $\alpha$ ranged from .72 to .79 across all 4 studies</td>
<td>PSRS combination of previous studies showed negative correlations with BMI ranging from -.42 to -.67 at $p &lt; .001$.</td>
<td>Short; easy to score; only one study has used the English version; analysis included 2 unpublished studies</td>
<td>PSRS is a reliable instrument to assess self-regulatory success. Positively related to flexible dietary control strategies, which have previously been found to be related to successful weight loss or maintenance. Most validity coefficients were weak.</td>
<td></td>
</tr>
<tr>
<td><strong>Study 2:</strong> Female students ($n = 47$), mean age 23.7 ± 3.4 years, mean BMI 22.4 ± 2.8 kg/m²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Study 3:</strong> Female students ($n = 55$), mean age 23 ± 2.7 years, mean BMI 22.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Andrés et al., 2009) agreement on representativeness and 80.9% on clarity.
| Social Problem-Solving Inventory-Revised (SPSI-R) (Wang et al., 2013) | Social Problem-Solving model Adults (n = 210) in a 24-month behavioral program, majority female (85%), white (78%), mean age 46.8 ± 9.02 years, mean BMI 34.01 ± 4.49 kg/m² | 52-item using 5-point Likert scale ranging from 0 = “not at all true of me” to 4 = “extremely true of me.” Score is summed. | Cronbach’s α was = .95 | Negative associations with barriers to health eating ($r = -.31, p < .01$) and binge eating ($r = -.24, p < .01$) and positive association with self-efficacy for following a cholesterol-lowering diet ($r = .22, p < .01$). Did not find Lengthy; easy to score; lack of generalizability outside of sample; lack of SPSI-R to predict health behaviors and outcomes. | SPSI-R showed high concurrent validity with significant correlations between the SPSI-R total score and measures of perceived barriers to 2b |
### TREatment MOtivation and REadiness (TRE-MORE)

**(Cresci et al., 2011)**

<p>| TREatment MOtivation and REadiness (TRE-MORE) | TTM | Adults (n = 129) participating in an outpatient weight loss program, majority female (79%), mean age 45.7 ± 14.6 years, mean BMI 39 ± 7.5 kg/m² | 10-item scale using 5-point Likert scale ranging from 1 = “Not at all” to 5 = “Very much.” Summed score range from 10 – 50. | Cronbach’s α was “acceptable” = .77. Test-retest reliability was highly significant ((r: 0.89; p &lt; 0.001)) | TRE-MORE significantly correlated with BMI, SCL-90, BDI, STAI, BES, EDE-Q, and ORWELL-97 ((p &lt; 0.01)). Logistic regressions confirm that a weight loss &gt; 5% of initial weight is associated with higher TRE-MORE total ([p &lt; 0.001, \text{OR} = 29.04; 95% \text{CI} 5.78-145.9]) | Short; easy to score; lack of generalizability outside of sample | TRE-MORE and OD scores are significantly correlated with BMI. Overweight severity is associated with the perceived obesity-related distress, and with initial compliance with the dietary treatment. Subjects with a higher eating psychopathology distress related to eating behavior, and a higher obesity-related distress and higher motivation to... |</p>
<table>
<thead>
<tr>
<th>Weight</th>
<th>Efficacy</th>
<th>Level of Readiness to Change</th>
<th>Start the treatment. High predictable value to TRE-MORE on a weight loss of &gt; 5% of the initial weight, after 6 months of treatment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>WE</td>
<td>reported</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight Efficacy Lifestyle Questionnaire short-form (WEL-SF) (Ames et al., 2012)</td>
<td>Adults (n = 1012) evaluated for bariatric surgery at a large medical center (median age 49 years, range 18-80 years), majority female (74.2%) and white (93.8%), median BMI 45 kg/m² (range 35.1 – 105.1)</td>
<td>8-item using 10-point Likert scale ranging from 0 = “not confident at all that I can resist the desire to overeat” to 10 = “very confident that I can resist the desire to overeat.” Summed score range from 0 - 80</td>
<td>Cronbach’s α was “very high” = .95</td>
</tr>
</tbody>
</table>
Stages of Change
Processes: Subscript₁
Markers: Subscript₃

![Diagram of stages of change]

Figure 2. Appendix A. Search strategy process.
Manuscript 3

Feasibility of a Weight Management Program for Individuals with a Severe Mental Illness

Lalonde, M., Stuart, G. W., Kelechi, T. J., Mueller, M., Weber, M., & Gregoski, M.

Submitting to Psychiatric Services
Abstract

Objective: The Cromwell House Weight Management is the longest running weight management program for individuals with severe mental illness in the world. It has not been replicated as an intervention in the United States. The purpose of this pilot study was to examine the feasibility of an adapted, theory-based weight management program for overweight and obese American adults with severe mental illness and to determine signals of efficacy on weight, body mass index, waist circumference as well as levels of motivation to lose weight.

Methods: In this feasibility study, 10 adults with a severe mental illness who were at least overweight participated in a randomized controlled trial of the adapted program versus a standard of care group with an educational pamphlet. Components of feasibility were assessed. Anthropometric measurements and motivational levels of participants were reported.

Results: Ten individuals (n = 6, intervention; n = 4 standard of care) participated, four of whom refused to be randomized. In total, 55% of the ratings were completed. At baseline, participants had a median weight of 205 pounds (range, 166-355 pounds), BMI of 32.2 kg/m² (range, 28.5-64.9 kg/m²) and median WC of 41.3 inches (range, 38-57.5 inches).

Conclusion: This study did not demonstrate feasibility to conduct the adapted CHWM weight loss program with individuals with SMI in the tested setting. Several additional adaptations are needed for successful implementation.

Keywords – motivation, obesity, severe mental illness, feasibility, weight, overweight, Transtheoretical Model
Feasibility of a Weight Management Program for Individuals with a Severe Mental Illness

Obesity is now considered a global epidemic (Gourlan, Trouilloud, & Sarrazin, 2011). In the United States (US), two-thirds of adults are considered at least overweight, of which approximately 35% are obese (Flegal, Carroll, Kit, & Ogden, 2012). Physical comorbidities of obesity include cardiovascular disorders and diabetes mellitus (Attux et al., 2011) as well as increased sensitivity to pain and poorer overall health status (Fred-Jimenez, Arroyo-Avila, Mayor, Rios, & Vila, 2016). Psychological effects of obesity can cause lower self-esteem and development of depressive symptoms (Gourlan et al., 2011).

Individuals with a severe mental illness (SMI) have obesity rates that are nearly double the levels of those of the general population (Naslund et al., 2016). Individuals with SMI have health disparities that have additional physical, behavioral, social, and medication-related risk factors that elevate their risk for unhealthy body mass indices (BMI) and visceral adiposity accumulation (Álvarez-Jiménez, Hetrick, Gonzalez-Blanch, Gleeson, & McGorry, 2008). Although some psychiatric medications such as antipsychotics may induce some weight gain, there are other factors affecting weight management in individuals with SMI (Lee, Choi, & Kwon, 2008).

The Cromwell House Weight Management (CHWM) is the longest running weight management program (WMP) for individuals with SMI in the world, based out of Manchester, United Kingdom (Holt, Pendlebury, Wildgust, & Bushe, 2010). It is a voluntary weekly program delivered in group sessions and composed of three components: weigh in, discussion, and psycho-education (Table 1). The psycho-education component is a series of 8 rotational topics. Although evidence of the program’s effectiveness in helping individuals achieve significant weight loss; it has not been replicated as an intervention in the US. The characteristics of the US health
WEIGHT OF APATHY AND LEVEL OF READINESS TO CHANGE

system, variations on infrastructure support, and differences in social system networks require adaption of this intervention for use in the US. With modification, the CHWM program may offer a promising weight reduction intervention for individuals with SMI residing in the US.

At any point in time, approximately half of the US population is attempting to lose weight (Annesi & Whitaker, 2010). Consideration of the use of a WMP includes evaluating the amount of active effort and time commitment it may entail (Cresci et al., 2011). Apathy, for example, has been identified as a psychological factor predicting the choice of bariatric surgery as opposed to choosing a more conservative and active approach in weight management (Ahnis et al., 2015). Thus, measuring the degree of motivation to lose weight should be included when discussing treatment options with patients (McCusker & Gregoski, 2015).

The needs of persons with SMI in a WMP in the US have been under-explored for appropriate adaptation to standard approaches to weight loss (Galletly & Murray, 2009). In this study, we aimed to examine the feasibility of an adapted, theory-based CHWM (A-CHWM) WMP as a reproducible and potentially efficacious intervention for overweight and obese individuals with SMI.

Theoretical Framework

In weight management, the Transtheoretical Model (TTM) has been useful to assess an individual’s level of motivation, or, readiness to change (Andrés, Saldaña, & Gómez-Benito, 2011). The TTM provides five separate levels of readiness, based on time intervals, ranging from no intention of changing a behavior to maintaining a behavior change. Upon each level of readiness, a decisional balance component identifies the motivators and barriers of changing that particular behavior (Nidecker, DiClemente, Bennett, & Bellack, 2008). In a 6-month WMP for overweight and obese women, decisional balance was shown to be associated with weight loss.
outcomes (Gallagher, Jakicic, Napolitano, & Marcus, 2006). For this study, the level of motivation and decisional balance were measured.

Methods

Participants

A randomized controlled trial (RCT) feasibility study was conducted between August and December 2015. All participants were recruited from the University of Colorado Helen and Arthur E. Johnson Depression Center, Aurora, Colorado. The study protocol adhered to the CONSORT Statement as seen in Figure 1 (Schulz, Altman, & Moher, 2010).

Eligibility criteria included (a) established patient of the center, (b) adult (18-65 years), (c) English-speaking, (d) SMI diagnosis (i.e. major depressive disorder, bipolar disorder, schizophrenia, schizoaffective disorder), (e) at least overweight (BMI ≥ 25 kg/m²), and (f) deemed psychiatrically stable as clinically determined by referring mental health provider or principal investigator. The exclusion criteria were (a) psychological disorder limiting participation (i.e. intellectual/developmental disabilities, substance use disorder, eating disorder, psychosis, or suicidality/high risk of suicidality), (b) taking medications for the purpose of weight loss, or (c) currently participating in a WMP. The Institutional Review Boards at the Colorado Multiple Institutional Review Board and Medical University of South Carolina approved this study. All participants were administered and passed the Evaluation to Sign Consent Form, a scale designed to measure comprehension of the informed consent procedure for research purposes (Beebe & Smith, 2010). All participants signed written informed consents.

As potential participants of the study were established patients of the center, flyers were placed in the lobby area containing information about the study and how to contact the PI. Information about this study was also be posted on the center’s website as well as advertised on
the center’s Facebook page. The PI presented the study at the weekly meeting for clinicians and answered questions. Participant recruitment continued until the time allocated for recruitment lapsed as the projected number to enter the study was never reached. One participant was overweight, thus participants were unable to be stratified by BMI category (overweight, obese) between the groups for statistical analyses purposes. Methods utilized for retention included phone calls prior to sessions and giving a calendar to each participant.

**Interventions**

*Experimental group.* The Adapted-CHWM (A-CHWM) was a scheduled 8-week program delivered in group sessions. There were five adaptations to CHWM: setting of the program in the US, fixed length of the program at 8 weeks (one week for each rotational topic) versus a rolling weekly group, assessing readiness to lose weight, measuring waist circumference (WC) as an outcome and implementation of the decisional balance component of the TTM in the discussion section of each session. Each session was no longer than 60 minutes. Sessions were held weekly at 5:30 pm local time. The group was led by the PI. Training and fidelity to CHWM for the PI included reading the published literature on CHWM (Holt et al., 2010) and seeking clarification on the sessions from one of the authors (JP). Rotational topics remained the same (Table 1).

*Standard of care group.* During A-CHWM, control group participants presented at the center three times for anthropometric measurement: enrollment, middle of the intervention (fourth week), and one-week post-intervention. Participants received an informational pamphlet with information covering each of the rotational topics in Table 1 in the mail the week the intervention began. Participants were instructed to read the pamphlet for guidance on weight management. There was no interaction with a group leader outside of the data collection time points.
Endpoints

The primary endpoint of this pilot RCT was feasibility of the intervention. Secondary endpoints included anthropometric measurements: weight, BMI and WC. Tertiary endpoint included measuring motivation as it related to anthropometric measurements. Motivation was specifically measured by evaluating the level of readiness to change and decisional balance.

Measures

Components of feasibility included screening, recruitment, randomization, retention, assessment process and treatment adherence (Table 2) (Leon, Davis, & Kraemer, 2011). All components were recorded during the recruitment and conduct of the intervention. Treatment adherence, defined as patient satisfaction, was measured via a 1-item scale using a 10-point Likert scale.

Participants were weighed weekly on the same analog scale without wearing shoes. The BMI was calculated as weight for squared height \((\text{BMI} = \text{weight} (\text{kg})/\text{[height (m)]}^2)\) (Attux et al., 2011). With a tape measure, the WC was measured horizontally, midpoint between the lowest rib margin and the superior border of the iliac crest (Methapatara & Srisurapanont, 2011). The principal investigator, who conducted A-CHWM collected the data at the beginning of each session. Data were entered in REDCap.

The TREatment MOtivation and REadiness scale (TRE-MORE) was utilized to measure motivation (Cresci et al., 2011). The instrument has been validated to assess the treatment intentions and readiness to lose weight, with a good predictive capacity for a weight loss of 5% of the initial weight. It contains 10 items using a 5-point Likert scale ranging from 1 = “Not at all” to 5 = “Very much.” Each subscale contains 1 to 5 questions. Score of each subscale is averaged and those averages are averaged for a total score. Cronbach’s \(\alpha\) was .77 and test-retest
reliability was highly significant \( r: 0.89; p < 0.001 \). The cut-off value for the overall score is 3.07 revealing a sensitivity of 0.81 and a specificity of 0.73. An overall score above 3.07 indicates a high predictability that participants will lose 5% of their initial weight after 6 months. Therefore, a score of 3.07 or higher was categorized as “ready” and scores below as “not ready.” The Decisional Balance Measure (DBM) was utilized to compare the positive and negative aspects of a decision to try to lose weight (O'Connell & Velicer, 1988). The DBM contains two components: Pro scale (10 items) and a Con scale (10 items). It contains 20 items using 5-point Likert scale ranging from 1 = “Not important” to 5 = “Extremely important.” Score is summed over all 20 items. Cronbach’s \( \alpha \) for the Pro scale was .91 and .84 for the Con scale.

**Statistical Analysis**

*Feasibility.* Feasibility components were reported with descriptive statistics with the exception of treatment adherence. Please see Table 2 for details.

*Anthropometric Measurements.* It was initially planned to assess estimates of variability of continuous primary outcome measures weight, BMI and WC with a 95% confidence intervals and to examine differences within groups at pre and post intervention and differences in change from pre to post intervention between the groups. However, due to the low number of subjects completing the study, analysis for anthropometric measurements as planned could not be conducted. Instead, descriptive statistics of participants at enrollment are reported.

*Motivation.* It was initially planned to explore individually the effect of BMI, weight and WC in relation to TRE-MORE and DBM instrument scores. However, due to the attrition rate, a comparison analysis between pre and post for motivation could not be reported.

**Results**

*Feasibility*
Feasibility study components quantified were screening, recruitment, randomization, retention, assessment process and treatment adherence (Table 2) (Leon et al., 2011). Between August – November 2015, 17 potential participants were screened, and of these, 10 met inclusion criteria and enrolled. Seven were not enrolled because they were not psychiatrically stable (n = 4), not interested (n = 2), or unable to participate because of family problems (n = 1).

Of the 10 participants who were eligible, four did not want to be randomly assigned (Figure 1). As this was a feasibility study, they were permitted to select the group of their choice (intervention group, n = 3; standard of care group, n = 1); the remaining six participants were randomized. For the study, six participants were in the intervention group and 4 participants in the standard of care group. The mean age was 40.8 years (range, 22-58 years). The majority was White (n = 9, 90%), female (n = 10, 100%), married (n = 6, 60%), and employed full-time (n = 6, 60%). In terms of mental health, the majority had a diagnosis of major depressive disorder (n = 8, 80%) and half were on an antidepressant monotherapy regimen (n = 5, 50%). In total, there 9 participants were categorized as obese and one participant was overweight. Detailed demographic information appears in Table 3.

With regards to retention, one participant provided all post-intervention assessments. Therefore, the overall attrition rate was 90%. Three participants, all from the intervention group, withdrew from the study by giving notice. One withdrew because of loss of employment and only attended one session. The other two withdrew for family problems and never attended a session. Only one participant from the intervention group and three from the control group finished the study.

For the assessment process, participants completed 100% of the measures during the baseline data collection phase. One participant (10%) completed the planned ratings at the end of
the intervention. In total, 55% of the ratings were completed. Patient satisfaction was part of the
ratings at the end of the intervention. Thus, one participant evaluated treatment adherence:
Patient satisfaction of that participant was rated 10/10 with 10 indicating “extremely satisfied.”

**Anthropometric Measurements**

At baseline, the median weight was 205 pounds (range, 166-355 pounds), median BMI
was 32.2 kg/m² (range, 28.5-64.9 kg/m²), and median WC was 41.3 inches (range, 38-57.5
inches) (Table 4). The WC was somewhat difficult to measure over the clothes of the
participants. In addition, the WC was variable from week to week to which many participants
commented upon. Weighing was beneficial, one comment during the feedback of the group was
that the anthropometric measurements were given in private as opposed to announced to the
group. The participants in the control group did not have any weight changes and the participant
from the intervention group lost 7 pounds (4% weight loss).

**Motivation**

At baseline, half of all the participants were categorized as “ready,” therefore, having a
score higher than the cut off score of 3.07 on the TRE-MORE scale (mean, 3.08; range, 2.5-3.61)
(Table 4). The mean score for the DBM was 70.1 and a range of 57 to 85.

**Discussion**

In this pilot RCT, feasibility of an adapted, theory-based weight management program
was tested for overweight and obese American adults with severe mental illness by examining
the components of screening, recruitment, randomization, retention, assessment process and
treatment adherence as well as anthropometric measures and motivational components. Of those
screened, nearly 60% participated in the study. Finding individuals that qualified for the
screening was difficult, thus, the recruitment phase had to be extended by 3 weeks. It was
difficult primarily because of the exclusion of current involvement in WMP. Several individuals were already participating in other programs, especially those provided online. Therefore, participant recruitment continued until the time allocated for recruitment lapsed as the projected number to enter the study was never reached.

The primary recruitment method, posting of flyers and asking clinicians to refer potentially eligible patients were the two approaches used in this study. While these methods were feasible, it was beneficial to have regular one-on-one conversations with the clinicians about the study. It was difficult to find individuals who were not already participating in a weight loss program, either a group or individually through an online platform.

With regards to randomization, 40% did not want to be randomized. Three only wanted to participate in the intervention because they wanted to participate in the group setting of the intervention. The fourth participant only wanted to be in the control group because of work obligations. Thus, taking into consideration work schedules and amount of time a weight loss program may take is an important consideration for future weight management trials. In the CHWM, however, participants may come as they please from week to week (Holt et al., 2010).

To maximize retention, reminders that have been proven extremely successful in a similar study were utilized. Weber and Wyne (2006) provided a calendar of all the dates and a reminder phone call prior to every scheduled session and had a 100% completion rate with 7 participants. This feasibility study utilized these same methods, calendar and phone calls, however, had an attrition rate of 90%. One significant barrier was that it was conducted over the winter holidays. Many participants were unable to attend due to either Thanksgiving or Christmas plans. In addition, this study was conducted in the Midwest and was subject to inclement weather during that time. Other potential reasons for this particular attrition rate may
include that the main building of the center locked thirty minutes before the beginning of the intervention and thus prevented participants from attending. In other weight management programs for individuals with a severe mental illness, conflict with employment has also been listed as a barrier to attendance (Attux et al., 2013).

Though no inferential analyses were conducted due to the small sample size, the participant who attended the most sessions (n = 5) lost the most weight lost at the end of the intervention (-7 lbs). The rest attended 0 – 3 sessions. This observation is consistent with the results of the CHWM as they correlated weight loss to the number of sessions attended ($r = 0.42$, $p < .0001$) (Holt et al., 2010). They also reported no statistical difference between participants taking one psychiatric medication and those taking several ($p = .26$) as well as no difference in percentage of weight loss between genders.

The main limitation of this study was the small sample size. There were some issues with recruitment. Considering that this particular WMP focused on weight management in the context of mental health and this was a feasibility study, excluding potential participants already involved in WMP was unnecessary. In addition, conducting a WMP meeting weekly during the holidays may have significantly reduced interest into the program.

Another limitation of the study was the attrition rate of the program. Despite that participants were provided reminders, there were several barriers to attendance. These barriers were conducting the intervention during the holidays, inclement winter weather, building access after normal business hours, and commuting distance and traffic. Another limitation to this study was the lack of heterogeneity. Though men were asked to participate in the study and advertisements were available to all patients, only women were successfully recruited. This is consistent with other similar studies conducting a WMP where significantly more women were
enrolled. For example, female participation for Wang et al. (2013) was 85% and was 82% for Chen, Chen, and Huang (2009). Other homogenous factors included 90% of the sample were White, and 80% of the sample were diagnosed with major depressive disorder.

**Conclusion**

This feasibility study did not demonstrate feasibility to conduct the A-CHWM in the tested setting without significant modifications. In the future, these issues could be addressed by recognizing time of the year to avoid issues such as weather and securing building access at the time of the intervention. One participant who attended the most sessions did find this group beneficial to her weight management plans. This brief pilot study demonstrated interest, in the future, it would be beneficial to conduct another pilot study addressing identified modifications.
References


maintenance, physical activity indicators and dose characteristics. *Obesity Reviews*, 12(7), e633-645. doi:10.1111/j.1467-789X.2011.00874.x


Table 1. Cromwell House Weight Management session. Adapted from Holt et al. (2010)

<table>
<thead>
<tr>
<th>Weigh In: 15 Minutes</th>
<th>Discussion/Feedback: 15 Minutes</th>
<th>Psycho-education: 30 Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighed in private</td>
<td>Facilitated by group leader</td>
<td>Series of 8 rotational topics (healthy eating, activity, self-esteem, meal planning and demonstrations, activity scheduling, motivation, quizzes, and evaluation)</td>
</tr>
<tr>
<td>Told weight change from week before on a card to promote privacy</td>
<td>Voluntarily shared details of weight change related to diet during the previous week</td>
<td>Additional sessions incorporated to address holidays, birthdays, and school holidays</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Topics presented informally and in a flexible manner by group leader</td>
</tr>
</tbody>
</table>
Table 2. Components examined in feasibility of A-CHWM. Adapted from Leon et al. (2011)

<table>
<thead>
<tr>
<th>Study Component</th>
<th>Feasibility Quantification</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening</td>
<td>Total number screened</td>
<td>17</td>
</tr>
<tr>
<td>Recruitment</td>
<td>Total number enrolled</td>
<td>10</td>
</tr>
<tr>
<td>Randomization</td>
<td>Proportion agreeing to be randomized</td>
<td>6/10</td>
</tr>
<tr>
<td>Retention</td>
<td>Attrition rates</td>
<td>4/10</td>
</tr>
<tr>
<td>Assessment Process</td>
<td>Proportion of ratings completed</td>
<td>Pre: 100%; Post 10%; Total 55%</td>
</tr>
<tr>
<td>Treatment Adherence</td>
<td>Patient satisfaction</td>
<td>10/10</td>
</tr>
</tbody>
</table>
Table 3. Demographic information of study sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall (N = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>18-39</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>40-64</td>
<td>7 (70%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>10 (100%)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>9 (90%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (10%)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>7 (70%)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Some college or less</td>
<td>2 (20%)</td>
</tr>
<tr>
<td>Vocational/Associate’s degree</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>2 (20%)</td>
</tr>
<tr>
<td>Master’s/Doctoral degree</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>Married</td>
<td>6 (60%)</td>
</tr>
<tr>
<td>Separated</td>
<td>1 (10%)</td>
</tr>
<tr>
<td>Employment Status</td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>6 (60%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>Student</td>
<td>1 (10%)</td>
</tr>
<tr>
<td>Type of Insurance</td>
<td></td>
</tr>
<tr>
<td>Employer</td>
<td>9 (90%)</td>
</tr>
<tr>
<td>Uninsured</td>
<td>1 (10%)</td>
</tr>
<tr>
<td>Psychiatric Diagnosis</td>
<td></td>
</tr>
<tr>
<td>Bipolar Disorder</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>Major Depressive Disorder</td>
<td>8 (80%)</td>
</tr>
<tr>
<td>Psychiatric Regimen</td>
<td></td>
</tr>
<tr>
<td>Antidepressant Monotherapy</td>
<td>5 (50%)</td>
</tr>
<tr>
<td>Multiple Psychotropics**</td>
<td>4 (40%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (10%)</td>
</tr>
</tbody>
</table>

* One participant reported having both diagnoses.
** Multiple psychotropics referred to any class combination of antidepressants, mood stabilizers, and/or antipsychotics.
Table 4. Baseline anthropometric measurements and motivational assessments

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (lbs)</td>
<td>217.4</td>
<td>205</td>
<td>166-355</td>
</tr>
<tr>
<td>Body Mass Index (kg/m²)</td>
<td>36.6</td>
<td>32.2</td>
<td>28.5-64.9</td>
</tr>
<tr>
<td>Waist Circumference (in)</td>
<td>43.6</td>
<td>41.3</td>
<td>38-57.5</td>
</tr>
<tr>
<td>TRE-MORE</td>
<td>3.08</td>
<td>3.1</td>
<td>2.5-3.61</td>
</tr>
<tr>
<td>DBM</td>
<td>70.1</td>
<td>69.5</td>
<td>57-85</td>
</tr>
</tbody>
</table>
Figure 1. CONSORT tree for a feasibility study of A-CHWM for overweight and obese US adults with a severe mental illness.
Summary

This dissertation was dedicated to exploring the feasibility of an adapted, theory-based CHWM weight loss program as a reproducible and potentially efficacious intervention for overweight and obese individuals with SMI receiving mental health services in a Colorado psychiatric outpatient setting. In addition, this compendium seeks to enlighten the reader to further explore the dual relationship between a mental illness and obesity, the effects of motivation or lack thereof as well as implications.

Overview of Manuscripts

There were three manuscripts submitted for this compendium: a concept analysis on apathy, an integrative review on instruments to measure readiness to lose weight, and a feasibility study of a weight management program. The concept analysis of apathy identified several criteria pertinent to the definition as well as compared and contrasted it to depression (McCusker, 2015). This analysis strengthened the concept of apathy as its own entity. Apathy is different than depression and has separate treatment recommendations. However, depression and apathy can also co-exist. In the realm of this dissertation, it highlights the concerning combination of both apathy and depression, especially in weight management.

The second manuscript explored the opposite of apathy, motivation, or readiness to change. In this case, a literature review of published instruments measuring readiness to lose weight were analyzed and compared against one another. The use of tools to measure readiness to change has been beneficial and has had predictability of success in weight management programs.

In the third manuscript, feasibility of an adapted, theory-based Cromwell House Weight Management weight loss program was examined to determine whether the intervention was
reproducible and potentially efficacious for overweight and obese individuals with SMI receiving mental health services in a Colorado psychiatric outpatient setting. Due to numerous barriers, feasibility of this program was not demonstrated in this setting, however, the manuscript identified recommendations for the program to be feasible.

**Limitations**

Limitation of the feasibility study was the small sample size. More data, especially the ability to compare pre and post data of anthropometric and motivational measurements would have been an asset to future evaluate the program. A small sample size was due to several factors, including calendar timing of the study, inclement weather, and setting of the intervention. Post assessments were poorly attended due primarily to timing of the planned post-assessment date. Reasons included planned vacation as well as having to work due to having taken previous days for vacation. In the future, it may be beneficial to have the group leader or trainers complete a scale to measure the level of readiness to lose weight of the participants. Results from the Compliance Praxis Survey-Diet-Other, for example, allows group facilitators to personally identify participants who may need more support to increase adherence and provider support (Janda et al., 2013).

**Lessons Learned**

From this dissertation, there a few future considerations that will aid in clinical practice and research. First and foremost, to promote retention and maximize use of services, additional research is needed in recruitment, attrition and attendance of individuals participating in weight management programs. Studies have shown that participants who drop out of a weight management program are at risk of gaining additional weight (C. K. Chen et al., 2009; Holt et al., 2010). These results have two significant implications: improved recruitment of participants
more likely to complete the program and the need to develop more appropriate retention strategies. Recommendations to address retention include conducting a feasibility study in a timeframe that does not include several holidays, considering local climate, and questioning the benefit of extending the recruitment phase. In addition, another retention strategy utilized in other similar studies has been the use of compensating participants at each session instead of once throughout the study.

Another issue into the recruitment of participants for this study was the exclusion of individuals participating in a weight management program. Several potential participants were already participating in a program offered online. Use of online programs would address said identified barriers from this pilot study such as local climate, traveling to the setting, and program ongoing throughout the holidays. Online programs, however, require access to compatible technology and knowledge of its operation as well as being self-motivated to regularly log in and input data.

**Transtheoretical Model**

Considering that the Transtheoretical Model (TTM) has been proven beneficial in the use of weight management (Seals, 2007) and that apathy negatively affects motivation as it relates to behavior and cognition (David et al., 2011), it would be beneficial to further explore their potential effects on one another. There are no results when searching the terms of “apathy” and “transtheoretical model” in the PubMed database. Exploring the relationship between this model and apathy could aid in developing more appropriate retention strategies and improving recruitment of participants that have a higher likelihood of completing the intervention.

The TTM has helped clinicians and researchers expand a targeted change of a behavior from a dichotomous view to a process of change (Tuah et al., 2011). The TTM has three
dimensions: stages, processes, and markers of change. “Stages of”, or “readiness to change” can be assessed in five distinct time frames (Andrés, Saldaña, & Gómez-Benito, 2009). Whereas these stages of change describe when an individual will change, the processes of change describe how an individual will change (Hasler, Delsignore, Milos, Buddeberg, & Schnyder, 2004). The markers of change include decisional balance and self-efficacy (Nidecker, DiClemente, Bennett, & Bellack, 2008).

The TTM can be useful for assessing readiness to change to a healthier lifestyle and significantly reducing the risk of dropout in weight loss programs (Andrés, Saldaña, & Gómez-Benito, 2011). In addition, the use of the TTM in weight loss management has been shown to be an effective theoretical model in aiding to deliver stage-appropriate information or interventions to overweight and obese individuals by a nurse practitioner (Seals, 2007).

In this dissertation work, readiness to change was planned to be assessed at the beginning and the end of the intervention. However, participants began dropping out throughout the entire intervention. The TTM can be used effectively to measure readiness to change a behavior. Thus, in the future, this model would be beneficial to monitor readiness continuously throughout a program and or research intervention.

This model was used as a foundation to this dissertation compendium. On one hand, I explored the tools assessing readiness to lose weight. Readiness was chosen because it is the first action towards behavior change (Kvalem et al., 2015). Readiness to lose weight was explored and measured through the use of a theoretical model, the TTM which focuses on expanding willingness to change a behavior from a bifurcated viewpoint to an array of potential options (Tuah et al., 2011). On the other, I discussed the concept of apathy. Both of these polar opposites are represented in the stage theory of TTM. In addition, throughout the intervention, it became
apparent that participants oscillated between having readiness to lose weight or apathy toward weight management.

**Research Trajectory**

Findings from the first manuscript, a concept analysis of apathy, provided a description of apathy as defined currently in the research literature. This analysis is also beneficial to the field of psychiatry because it clearly compares and contrasts apathy to depression. Apathy is not depression, thus, it has its own separate treatment recommendations and implications. Understanding the difference between apathy and depression aids in addressing the potential risk of overestimation of depression instead of clinical apathy resulting in an inappropriate diagnosis of depression.

Findings from the second manuscript, a literature review on the available instruments measuring readiness to lose weight, provided a comparison of 11 instruments. This manuscript is beneficial to the field of weight management because it not only assesses the psychometrics of each scale, it also provides recommendations to use certain scales as it correlates to certain situations or population. This manuscript has several implications to practice and research: (1) greater knowledge of the available instruments measuring readiness to lose weight, (2) guidance on which instrument to use according to certain situations or population, and (3) highlights the need for validation of instruments in additional population settings.

Findings from the third manuscript, a feasibility study of a weight management program, provided an exploration for feasibility of a successful program in the United Kingdom (UK) adapted for the United States (US). In the tested setting, feasibility of this program was unsuccessful. Additional adaptations for this program included time of the year, weather considerations, and securing building access at the time of the intervention. The aims of this
manuscript are extremely beneficial to both the fields of psychiatry and weight management. Thus, in the future, conducting this pilot study again would be beneficial to the practice and research communities. Implications include the ability to evaluate the feasibility of the program, evaluate the program’s effectiveness on weight management, and compare motivation to retention and anthropometric measurements.

**Contribution of Research**

The CHWM is the longest running weight management program for individuals with a severe mental illness in the world, based out of Manchester, UK (Holt et al., 2010), however, it has not been tested or evaluated in the US. The needs of persons with severe mental illness in a weight management program in the US have been under-explored for appropriate adaptation to standard approaches to weight loss (Galletly & Murray, 2009), making this type of pilot study necessary.

The contribution to the nursing field is that this program was conducted by a psychiatric-mental health nurse practitioner. In addition, nursing interventions as they related to corresponding TTM stages were addressed. This dissertation compendium is beneficial to the field of psychiatry as providers are addressing the side effects of anti-psychotic medications as well as the population’s propensity to have altered metabolic functions. It is also beneficial to the field of weight management as it provided implications on the use of tools for measuring readiness to lose weight, provided a clear definition of the concept of apathy, and conducted a feasibility study of a weight management program.
References


Appendices

Appendix A

Medical University of South Carolina IRB approval letter for study reported in manuscript 3

Institutional Review Board for Human Research (IRB)
Office of Research Integrity (ORI)
Medical University of South Carolina

Harborview Office Tower
19 Hagood Ave., Suite 601, MSC857
Charleston, SC 29425-8570
Federal Wide Assurance # 1888

APPROVAL:
This is to certify that the research proposal Pro00045547 entitled:
Feasibility of a Weight Management Program for Individuals with a Severe Mental Illness

Submitted by: Melinda McCusker
Department: Medical University of South Carolina

for consideration has been reviewed by IRB-I - Medical University of South Carolina and approved with respect to the study of human subjects as adequately protecting the rights and welfare of the individuals involved, employing adequate methods of securing informed consent from these individuals and not involving undue risk in the light of potential benefits to be derived therefrom. No IRB member who has a conflicting interest was involved in the review or approval of this study, except to provide information as requested by the IRB.

Original Approval Date: 7/14/2015
Approval Expiration: 7/13/2016

Type: Expedited

Chair, IRB-I - Medical University of South Carolina
Mark Hamner*

Statement of Principal Investigator:

As previously signed and certified, I understand that approval of this research involving human subjects is contingent upon my agreement:

1. To report to the Institutional Review Board for Human Research (IRB) any adverse events or research related injuries which might occur in relation to the human research. I have read and will comply with IRB reporting requirements for adverse events.
2. To submit in writing for prior IRB approval any alterations to the plan of human research.
3. To submit timely continuing review reports of this research as requested by the IRB.
4. To maintain copies of all pertinent information related to the research activities in this project, including copies of informed consent agreements obtained from all participants.
5. To notify the IRB immediately upon the termination of this project, and/or the departure of the principal investigator from this Institution and the project.

*Electronic Signature: This document has been electronically signed by the IRB Chairman through the HSSC eIRB Submission System authorizing IRB approval for this study as described in this letter.
Appendix B
University of Colorado IRB approval letter for study reported in manuscript 3

University of Colorado Hospital
Denver Health Medical Center
Veteran's Administration Medical Center
Children's Hospital Colorado
University of Colorado Denver
Colorado Prevention Center

Certificate of Approval
13-Aug-2015

Investigator: Melinda McCusker
Sponsor(s): 
Subject: COMIRB Protocol 15-1457 Initial Application
Effective Date: 8/12/2015
Expiration Date: 13-Jul-2016
Title: Feasibility of a Weight Management Program for Individuals with a Severe Mental Illness

This study is approved by COMIRB via the Cooperative Agreement with the designated IRB of Record.

The designated IRB of Record will provide oversight and continuing review for the remainder of time that the protocol is active. It is the PI's responsibility to ensure that the protocol remains approved by, and in good standing with, the IRB of record.

Please report to COMIRB any unanticipated problem or complaint that occurs locally, and notify COMIRB when this protocol is closed by the IRB of record.

Review Comments:
Ceded to Medical University of South Carolina.

Sincerely,

UCD Non-Affiliated IRB
Appendix C
Informed Consent for manuscript 3

Medical University of South Carolina
CONSENT TO BE A RESEARCH SUBJECT

Title: Feasibility of a Weight Management Program for Individuals with a Severe Mental Illness

A. PURPOSE AND BACKGROUND

Today, two-thirds of adults in America are considered at least overweight, of which one third are obese. People with a severe mental illness (SMI) are eight times more at risk to be obese than the general population. In the United Kingdom, there is a clinic offering a weight loss program just for people with SMI. This program is called the Cromwell House Weight Management (CHWM). This program is the longest running program in the world for people with SMI. This program has worked very well in the United Kingdom, but it has not been tested in America.

Because it has not been tested in America, the purpose of this study is to see if a slightly changed version of this program (A-CHWM), would be beneficial to people with SMI living in America. This adapted program is 8 weeks long and will be for overweight and obese patients with SMI who are getting mental health care at the Helen and Arthur E. Johnson Depression Center in Aurora, Colorado. You are being asked to participate in this study because you have a severe mental illness and are at least overweight. The investigator in charge of this study is Mélinda McCusker. This study is being done at the Helen and Arthur E. Johnson Depression Center at the University of Colorado and will involve approximately 30 volunteers.

B. PROCEDURES

1. Informed Consent Procedures:

Before you begin participation in this study, we will discuss with you in detail this study and the informed consent document. You will have time to choose whether you would like to participate and can ask any questions you may have.

After we discuss the study, a short quiz will be given to make sure you understand the purpose of the study and all of your options:

- If you do not answer all questions correctly, the study team will review the incorrect questions and you will take the quiz again.
- If some questions are missed again, we will push back the informed consent and review it again the next day.
- If you fail the quiz a third time, you cannot be part of this study.
Once you have passed the quiz about understanding the informed consent process, you will sign the informed consent document and I will give you a copy of this document.

2. Baseline Information Procedures:

After this, we will then collect initial weight-related information about you:

- 2 quizzes about your motivation to lose weight
- Weight
- Height
- Waist circumference

3. Randomization Procedures:

If you are able and willing to participate in the study, you will be randomized into the standard of care group or intervention group, referred to as the A-CHWM intervention group. This means that you have a 50/50 chance (like flipping a coin) of being in either group. Neither the research assistant nor you will make the choice of which group to which you are assigned. The two groups are the A-CHWM Intervention Group and the Standard of Care Group.

4. Recruitment Timing Procedures:

Recruitment includes 15 participants in the A-CHWM Intervention Group and 15 participants in the Standard of Care Group. Once 30 total participants are enrolled in the study or two months and 3 weeks have elapsed, the study will begin.

5. A-CHWM Intervention Group Procedures:

A-CHWM intervention group participants will present at the Helen and Arthur E. Johnson Depression Center weekly for a total of 9 weeks. Participants will be called a few days in advance reminding them of the A-CHWM session. The A-CHWM sessions are broken down into 3 parts: weight measurements, a 15-minute group discussion about dieting, and a 30-minute class on topics related to weight management. Group sessions, including data collection, will last 90 minutes in total. Timing will be at the end of the day.

6. Standard of Care Group Procedures:

Standard of care group participants will present at the center three times for weight measurements: in the beginning of the study, in the middle of the study (week four), and one week after the end of the study (week nine). They will also receive a pamphlet with information about weight management at the beginning of the study and in the middle of the study.
7. End of Study Procedures:

This will be for all participants. One week after the end of the study (week 9), we will collect again weight measurements, the 2 scales about motivation to lose weight and a one-question quiz about your satisfaction of this program. This session should take less than 20 minutes.

8. Safety Procedures:

You may be withdrawn from the study without your consent if the researchers believe it is in your best interest or if you fail to follow study procedures.

C. DURATION

Participation in the study will take about 10 visits if you are in the A-CHWM intervention group or 3 visits if you are in the standard of care group. The study will take a total time of 3 months.

D. RISKS/DISCOMFORTS

1. Randomization: You will be assigned to the Intervention Group or Standard of Care Group by chance. One group may be less effective than other available weight management treatments.
2. Unknown Risks: The experimental program may have unknown risks. The researcher will let you know if she learns anything that might make you change your mind about participating in the study.
3. With the collection of identifiable information, there is always the potential for inappropriate disclosure of the information even though we have taken precautions to minimize this risk. Access to this data containing your identifying information, will be limited to the extent possible by State and Federal law.
4. If you are in the A-CHWM intervention group, there may also be a loss of privacy in group discussions. We will encourage everyone in the group to keep the discussions private, but we cannot guarantee that.

E. BENEFITS

1. A direct potential benefit of this study may include weight loss and better understanding of nutrition and physical activity.
2. There is a possibility of no direct benefit.
3. Information gained from this study may help in the treatment of future patients with conditions like yours and will help the researcher learn more about developing appropriate weight management programs for overweight and obese individuals with a severe mental illness.

F. COSTS
You will not be charged for any part of the study.

G. PAYMENT TO PARTICIPANTS

You will have the opportunity to participate in a lottery for a $100 gift card from a grocery store for participation in this study. There will be chance to win a gift card in either group; one in the standard of care group and one in the A-CHWM intervention group.

Payments that you may receive from MUSC for participating in a research study are considered taxable income per IRS regulations. Payment types may include, but are not limited to: checks, cash, gift certificates/cards, personal property, and other items of value. If the total amount of payment you receive from MUSC reaches or exceeds $600.00 in a calendar year, you will be issued a Form 1099.

H. ALTERNATIVES:

The alternative is to choose not to participate in the study. However, if you are interested in participating in this study but do not like the study group which you were randomly assigned to, you may be able to switch groups if the other group is not full (15 participants per group). Your care in the clinic will not be affected by your choice to participate in the study or not.

I. NEW INFORMATION:

If there are significant new findings during the course of the study, you will be notified. Results of this research will be used for the purposes described in this study. This information may be published, but you will not be identified. Information that is obtained concerning this research that can be identified with you will remain confidential to the extent possible within State and Federal law. The investigators associated with this study, the sponsor, and the MUSC Institutional Review Board for Human Research will have access to identifying information. All records in South Carolina are subject to subpoena by a court of law.

In the event that you are injured as a result of participation in this study, you should immediately go to the emergency room of the Medical University Hospital, or in case of an emergency go to the nearest hospital, and tell the physician on call that you are in a research study. They will call your study doctor who will make arrangements for your treatment. If the study sponsor does not pay for your treatment, the Medical University Hospital and the physicians who render treatment to you will bill your insurance company. If your insurance company denies coverage or insurance is not available, you will be responsible for payment for all services rendered to you.

Your participation in this study is voluntary. You may refuse to take part in or stop taking part in this study at any time. You should call the investigator in charge of this study if you decide to do
this. Your decision not to take part in the study will not affect your current or future medical care or any benefits to which you are entitled.

The investigators and/or the sponsor may stop your participation in this study at any time if they decide it is in your best interest. They may also do this if you do not follow the investigator’s instructions.
Volunteers Statement

I have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. If I have any more questions about my participation in this study or study related injury, I may contact Mélinda McCusker at the Helen and Arthur E. Johnson Depression Center at (303) 724-3300. I may contact the Medical University of SC Hospital Medical Director (843) 792-9537 concerning medical treatment.

If I have any questions, problems, or concerns, desire further information or wish to offer input, I may contact the Medical University of SC Institutional Review Board for Human Research IRB Manager or the Office of Research Integrity Director at (843) 792-4148. This includes any questions about my rights as a research subject in this study.

I agree to participate in this study. I have been given a copy of this form for my own records.

If you wish to participate, you should sign below.

__________________________   ____________________________   ____________________________   ______
Signature of Person Obtaining Consent Date       Signature of Participant       Date
Appendix D
Permission letter from Issues in Mental Health Nursing for manuscript 1

Issues in Mental Health Nursing Manuscript Use

Thomas, Sandra Paul [sthomas@utk.edu]

Dear Melinda,
Yes, it is permissible to do this. Congratulations on your impending graduation.
Best always,
Sandra Thomas, Editor, IMHN

McUsker, Melinda

To: sthomas@utk.edu

Sent Item
- Retention Policy: Sent (6 Months) Expires 7/31/2016

Hello Dr. Thomas -

I am currently writing my dissertation. I am writing you to ask if I could have permission to use my published manuscript [Apathy: Who Cares? A Concept Analysis; UMHN-2015-0023.R1] in my dissertation compendium.

I appreciate your time and consideration in this matter. Thank you.

Most Sincerely,
May

Melinda McUsker, PhD(-), PNP-BC
MUSC Doctoral Candidate
Appendix E
Permission letter from Journal of Nursing Measurement for manuscript 2

Dear Melinda,

Authors are permitted to use their own work in their dissertations, so, yes, you can feel free to use it.

Thanks for getting in touch.

Warm regards,

Diana

Diana Osborne
Assistant Production Manager
Garland Publishing Company
113 N. 16th St. Ste. 401
New York, NY 10003
212-904-5270
www.acmebook.com

McCusker, Melinda

Hi Diana,

I am currently writing my dissertation. I am writing you to ask if I could have permission to use my published manuscript (Instruments to Measure Readiness to Lose Weight: An Integrative Review; JAHN-HC 15-00000922) in my dissertation compendium.

I appreciate your time and consideration in this matter. Thank you.

Most sincerely,

Melinda McCusker, PhD(c), PHN(BP)
MUSC Doctoral Candidate
Appendix F
Instrument: Evaluation to Sign Consent

<table>
<thead>
<tr>
<th>Evaluation to Sign Consent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1: Alert and be able to communicate with examiner.</td>
</tr>
<tr>
<td>Item 2: List any risks from study participation.</td>
</tr>
<tr>
<td>Item 3: List at least two behaviors required as part of study participation.</td>
</tr>
<tr>
<td>Item 4: Explain the procedure for study withdrawal.</td>
</tr>
<tr>
<td>Item 5: Identify procedures to follow should distress or discomfort occur in the course of the study.</td>
</tr>
</tbody>
</table>

(Beebe & Smith, 2010)

Instruction for Use

The Evaluation to Sign Consent Form (ESC) is a scale designed to measure comprehension of the informed consent procedure for research purposes (Beebe & Smith, 2010).

The primary investigator will review the informed consent in an iterative manner with the potential participant. Then the primary investigator will proceed to administer the ESC with the potential participant. All questions must be answered correctly prior to moving to sign the informed consent. If not all questions are correct, the incorrect questions are reviewed and the ESC is administered again. If some questions are missed again, the informed consent is postponed but can be reviewed and administered again after 24 hours. If the potential participant fails the ESC a third time, he or she will be excluded from this study.
Appendix G
Instrument: TREatment Motivation and Readiness

<table>
<thead>
<tr>
<th>Name</th>
<th>Family name</th>
</tr>
</thead>
</table>

**Total Average Score**

1) Food habits.

<table>
<thead>
<tr>
<th>Question: How often do you eat this kind of food in a week?</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables and fruit.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Bread, pasta, rice and other cereals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sweets, ice-cream and chocolate.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Average score:**

2) Physical activity habits.

<table>
<thead>
<tr>
<th>Question: On average, how much time do you spend for physical activity in a week?</th>
<th>Never</th>
<th>Once</th>
<th>2-3 times</th>
<th>Almost every day</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Question: On average, how much time do you spend for these kinds of physical activity?**

<table>
<thead>
<tr>
<th></th>
<th>Once a month or less</th>
<th>2-3 times a month</th>
<th>1-2 times a week</th>
<th>3-4 times a week</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking a walk.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Cycling.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Attending health, fitness or sport clubs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Practicing a sport for leisure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Average Score:**

3) Time availability

<table>
<thead>
<tr>
<th>Question: How much time do you usually spend for (average time)...?</th>
<th>&lt; 3 h/week</th>
<th>3-7 h/week</th>
<th>7-10 h/week</th>
<th>10-13 h/week</th>
<th>&gt; 13 h/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking care of yourself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Meeting relatives and friends.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Watching TV or going out to watch movies or theatre.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Relaxing in general.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Average Score:**

4) Stressing events

<table>
<thead>
<tr>
<th>Question: Is there any relevant stressing event in your life at the moment?</th>
<th>Very much</th>
<th>Much</th>
<th>Enough</th>
<th>Just a little</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workloads.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Family duties.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Family problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Economic problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
**TREatment MOtivation and Readiness (continued)**

5) Thoughts about obstacles

<table>
<thead>
<tr>
<th>Question: How much do you agree with the following statements?</th>
<th>Very much</th>
<th>Much</th>
<th>Enough</th>
<th>Just a little</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just after starting a new experience I easily lose my enthusiasm.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>If a problem comes forth, my programs could be left behind.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I think that I will never be able to change my weight as I desire.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

6) Pleasure

<table>
<thead>
<tr>
<th>Question: How important for you is ...?</th>
<th>Very much</th>
<th>Much</th>
<th>Enough</th>
<th>Just a little</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Performing physical activity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Going out during time for leisure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Meeting people during time for leisure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Spending some time for yourself or relaxing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

7) Sharing the problem

<table>
<thead>
<tr>
<th>Question: Think about the following statements and choose the answer closer to your own experience.</th>
<th>Not at all</th>
<th>Just a little</th>
<th>Enough</th>
<th>Much</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>I personally decided to lose weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I decided to lose weight not for me, but for somebody else.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I feel supported and encouraged in this decision to lose weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

8) Discomfort for the actual condition

<table>
<thead>
<tr>
<th>Question: Think about the following statements and choose the answer closer to your own experience.</th>
<th>Not at all</th>
<th>Just a little</th>
<th>Enough</th>
<th>Much</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because of my weight I can't dress as I would like.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>My actual weight interfere with my social relationships</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I think to be considered for my weight, instead for my personal value.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

9) Discomfort for minimal activities or physical exercise

<table>
<thead>
<tr>
<th>Question: Think about the following statements and choose the answer closer to your own experience.</th>
<th>Not at all</th>
<th>Just a little</th>
<th>Enough</th>
<th>Much</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>My actual weight is an obstacle even for simple activities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>My actual weight prevents me to move as I would like.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>My actual weight makes me impossible to practice any sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

10) Feeling ashamed

<table>
<thead>
<tr>
<th>Question: Think about the following statements and choose the answer closer to your own experience.</th>
<th>Not at all</th>
<th>Just a little</th>
<th>Enough</th>
<th>Much</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>If I lost weight I would wear my swimming clothes without feeling embarrassed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>My actual weight is a real obstacle for going to certain places.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

*(Cresci et al., 2011)*

Instruction for Use
The TRE-MORE was utilized to measure readiness to change (Cresci et al., 2011). The primary investigator explains to the participant that the instrument contains 10 subgroups of questions using a 5-point Likert scale ranging from 1 = “Not at all” to 5 = “Very much.” Each subgroup contains 1 to 5 questions. The primary investigator hands the instrument to the participant and asks him or her to complete the scale. After completion, the primary investigator reviews the instruments to ensure that every question has been answered. If an answer is missing, the primary investigator hands the instrument back to the participant and asks him or her to answer the missing item. Score of each item is averaged and those averages are averaged for a total score. This is calculated when the primary investigator enters the scale in the RedCap system.
Appendix H
Instrument: Patient Satisfaction

<table>
<thead>
<tr>
<th>Patient Satisfaction</th>
<th>Please rate how you feel: 1 = “Not at All Satisfied” to 10 = “Extremely Satisfied”</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

(Pagoto et al., 2008)

Instruction for Use

The primary investigator explains to the participant that the instrument is a 1-item scale measuring patient satisfaction using a 10-point Likert scale ranging from 1 = “Not at all satisfied” to 10 = “Extremely satisfied” (Pagoto et al., 2008). The primary investigator hands the instrument to the participant and asks him or her to complete the scale. After completion, the primary investigator reviews the instrument to ensure that the question has been answered. If the answer is missing, the primary investigator hands the instrument back to the participant and asks him or her to answer the missing item.
### Appendix I
Instrument: Decisional Balance Measure

**Decisional Balance Measure**

<table>
<thead>
<tr>
<th>Pro Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would feel more optimistic if I lost weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I would feel sexier if I lost weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. My self-respect would be greater if I lose weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. My family would be proud of me if I lost weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Other would be proud of me if I lost weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I would be less self-conscious if I lost weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Others would have more respect for me if I lost weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. My health would improve if I lost weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. I would feel more energetic if I lost weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Con Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. I would be able to accomplish more if I carried fewer pounds.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. The exercises needed for me to lose weight would be a drudgery.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. Dieting would take the pleasure out of meals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. I would be less productive in other areas if I was trying to lose weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. I would have to cut down on some of my favorite activities if I try to lose weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. In order to lose weight I would be forced to eat less appetizing foods.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. I would have to avoid some of my favorite places if I were trying to lose weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. My dieting could make meal planning more difficult for my family or housemates.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. Trying to lose weight could end up being expensive when everything is taken into account.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. I would not be able to eat some of my favorite foods if I were trying to lose weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. I would have to cut down on my favorite snacks while I was dieting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

(O’Connell & Velicer, 1988)
Instruction for Use

The Decisional Balance Measure (DBM) was utilized to compare the positive and negative aspects of a decision to try to lose weight (O'Connell & Velicer, 1988). The primary investigator explains to the participant that the DBM contains two components: Pro scale (10 items) and a Con scale (10 items) using 5-point Likert scale ranging from 1 = “Not important” to 5 = “Extremely important.” The primary investigator hands the instrument to the participant and asks him or her to complete the scale. After completion, the primary investigator reviews the instruments to ensure that every question has been answered. If an answer is missing, the primary investigator hands the instrument back to the participant and asks him or her to answer the missing item. Score is summed over all 20 items. This is calculated when the primary investigator enters the scale in the RedCap system.
Appendix J
Instrument: Participant Demographic Questionnaire

Participant Name: ________________________________

1. What is your age? ________ yrs

2. What is your gender?
   - Female
   - Male

3. Please circle your highest level of education completed.
   - Grammar School
   - High School or Equivalent
   - Vocational/Technical School
   - Associate's degree
   - Some College
   - Bachelor's degree
   - Master's degree
   - Doctoral degree
   - Professional degree

4. Please circle your marital status.
   - Single
   - Cohabitating
   - Married
   - Separated
   - Divorced
   - Widowed

5. Please circle your employment status.
   - Unemployed
   - Full-time
   - Part-time
   - Student
   - Retired
   - Disability

6. Please circle your race.
   - American Indian or Alaska Native
   - Native Hawaiian or Other Pacific Islander
   - Black or African American
   - Asian
   - White

7. Please circle your ethnicity.
   - Hispanic or Latino
   - Not Hispanic or Latino
8. Please circle your referring psychiatric diagnosis.

<table>
<thead>
<tr>
<th>Major Depressive Disorder</th>
<th>Schizophrenia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bipolar Disorder</td>
<td>Schizoaffective Disorder</td>
</tr>
</tbody>
</table>

9. Please circle your primary mode of transportation.

| None  | Public | Own  |

10. What type of psychiatric medications do you take?

<table>
<thead>
<tr>
<th>Antidepressant Monotherapy</th>
<th>Antipsychotic Monotherapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mood Stabilizer Monotherapy</td>
<td>Multiple Psychotropics</td>
</tr>
<tr>
<td>Medications:</td>
<td>Other</td>
</tr>
</tbody>
</table>

11. What type of insurance do you have?

<table>
<thead>
<tr>
<th>Employer</th>
<th>Medicare</th>
<th>Other Government Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninsured</td>
<td>Medicaid</td>
<td></td>
</tr>
</tbody>
</table>

Instruction for Use

The primary investigator explains to the participant that the participant demographic instrument that includes age, education, marital status, employment status, psychiatric diagnosis, gender, race, ethnicity, psychiatric medication regimen, mode of transportation and type of insurance. The primary investigator hands the questionnaire to the participant and asks him or her to complete it. After completion, the primary investigator reviews the questionnaire to ensure that every question has been answered. If an answer is missing, the primary investigator hands the questionnaire back to the participant and asks him or her to answer the missing item.
Appendix K
Instrument: Participant Baseline Anthropometric Measurements

1. Weight in pounds: ________________________________

2. Height in inches: ________________________________

3. Waist Circumference in inches: ____________________

Instruction for Use

Anthropometric measuring equipment will include a digital scale, wall-mounted stadiometer, and a tape measure. Participants will be weighed on the same scale without wearing shoes weekly (Porsdal et al., 2010). The primary investigator will ask the participant to step on the scale and a weight will be documented. Weight was measured in pounds. The primary investigator measured height by having the participant stand in front of the wall-mounted stadiometer. Height was measured in inches. With the tape measure, the primary investigator measured waist circumference horizontally, midpoint between the lowest rib margin and the superior border of the iliac crest (Methapatara & Srisurapanont, 2011). The primary investigator would ask the participant to place the tape around his or her waist and it was adjusted and measured by the primary investigator. Waist circumference was measured in inches.
Appendix L
Instrument: References


The Helen and Arthur E Johnson Depression Center is now recruiting for a study to evaluate a weight management program that has been successfully used in the United Kingdom.

To qualify:
You must be an established patient of the Helen and Arthur E. Johnson Depression Center;
You must be an adult between the ages of 18 – 65 years old;
You must have a diagnosis of a major depressive disorder, bipolar disorder, schizophrenia, or schizoaffective disorder;
You must be at least overweight;
You cannot be taking weight loss medications;
You cannot be currently participating in a weight management program (e.g. Weight Watchers)

If interested, you may leave your name and phone number at the front desk of the Depression Center and the primary investigator, May McCusker, PMHNP, will contact you. You may also have your psychiatric provider make a referral for you. Referred patients will need to schedule an evaluation/eligibility meeting prior to starting the program.

Participants who are enrolled in the study will be randomly assigned (like a flip of a coin) to participate in the weight management program or receive an educational pamphlet.

The weight management program is an 8-week program that will meet weekly. Meetings will take place on Wednesdays starting at 5:30pm at the Depression Center.

There is no charge for participating in this research study. Enrolled participants can enter a lottery for a chance to receive compensation for this study.

If you have any questions, please contact Ms. McCusker at the Depression Center, (303) 724-3300.
Appendix N
Schedule of A-CHWM to Intervention Participants

Feasibility of a Weight Management Program
Helen and Arthur E Johnson Depression Center

Location: Helen and Arthur E Johnson Depression Center

Dates:

Week 1: Wednesday, November 4th, 2015

Week 2: Wednesday, November 11th, 2015

Week 3: Wednesday, November 18th, 2015

Week 4: TUESDAY, November 24th, 2015 (due to Thanksgiving)

Week 5: Wednesday, December 2nd, 2015

Week 6: Wednesday, December 9th, 2015

Week 7: Wednesday, December 16th, 2015

Week 8: TUESDAY, December 22nd, 2015 (due to Holidays)

Week 9: POST-INTERVENTION Wednesday, December 30th, 2015 (Check In Anytime)

Questions/Concerns: May McCusker (303) 724-3300
Appendix O
Pamphlet to Control Group

Motivation

Setting weight loss targets and establishing realistic expectations.
- Establish realistic goals before attempting to lose weight
- A realistic and safe weight loss progression is 1 lb per week.
- The Institutes of Medicine reported that a 5% total weight loss in individuals at risk of developing metabolic syndrome can result in clinically meaningful reductions
- Have very specific goals (i.e., eating healthier is too vague)

When thinking of health/physical self-care:
1. How important is it?
2. What is your current satisfaction?
3. What is the level of your actions towards your goal?

What would you do if you lost the weight?
- How would your activities and emotions change?

Healthy Eating

Breakfast is important!
- 78% of people on the National Weight Control Registry eat breakfast daily

Water intake
- Drinking a glass of water can aid satiety and decision making
  o Studies recommend 20 minutes before a meal
  o Wait 5 minutes and ask yourself “Am I hungry?”

Eating is an active activity: Mindful Eating
- Focus on eating, avoid distractions

Activity

Lifestyle activity is exercise that you get from doing normal everyday activities.

American Heart Association
- Recommends 10,000 steps daily
- Start at your baseline and increase 10% weekly
- Use a pedometer to monitor progress
- Self-monitoring is the most effective tool in weight management

Fitness components:
1. Cardiorespiratory fitness (heart and lungs capacity)
2. Muscle fitness (muscular strength)
3. Flexibility (mobility)

Self-Esteem

What are your feelings surrounding losing weight?
- Who am I if I am not overweight?
- Are those feelings/identities create “hunger?”

Emotional eating
- Identify your triggers
- Discover: “When I eat, I feel ___ because of ___.”
- Plan for success:
  o Find alternatives
- Plan for failure:
  o Portion control, burn if off
Activity Scheduling

Barriers to effective time management
- Procrastination, downtime, perfectionism, over commitment, and lack of planning

Flexibility is necessary
- Do what you can in the time that you have when other things come up.
- Example: Taking a short brisk walk instead of the planned work out is still getting some exercise.

Meal Planning

Grocery List
- Having a planned list, by categories, is less overwhelming and efficient
- Yes, at first searching for the right and healthy item will take some time, however, once you have your list, it will be faster
- Snacks are important, plan for healthy snacks
- Frozen fruits and vegetables are great as they can be used at any time and can be precut to cut down prep time

The Grocery Store
- Start with the produce section
  - Creates motivation for the rest of the trip
- Then, continue to the parameter of the store for fresh foods
- And finish with the aisles

Feasibility of a Weight Management Program

Please remember to return for a weigh in: **ALL DAY – ANYTIME**

Week 4: Tuesday, November 24th, 2015
Week 9: Wednesday, December 30th, 2015

Location: Helen and Arthur E. Johnson Depression Center
Primary Investigator: May McCusker, PMHNP
Contact: 303-724-3300

Thank you for participating in a study about weight management
Fin.