BEHAVIORAL ACTIVATION IN A HOMELESS SHELTER: DEVELOPMENT AND VALIDATION OF THE BEHAVIORAL ACTIVATION TREATMENT EFFICACY MEASURE

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ABSTRACT

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This study aimed to validate the Behavioral Activation Treatment Efficacy Measure (BATEM), a new evaluation instrument designed to assess an ongoing Behavioral Activation (BA) research program. The study posed three hypotheses, which predicted BATEM would show: (1) strong internal consistency; (2) an ability to distinguish between individuals with mental illness and/or substance abuse history and those with no such history; and (3) an ability to distinguish between frequent and infrequent program participants. Results supported Hypothesis 1, but were less supportive of Hypotheses 2 and 3. Outcomes for these hypotheses were mostly inconclusive and subject to methodological limitations. Results of exploratory analyses and recommendations for future research are also described.

Keywords: behavioral activation, homeless shelter, psychometric, validation.
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INTRODUCTION

Homelessness is a perennial problem in the U.S. and around the world. Its prevention ranks high among the priorities of community-oriented scientists and policy makers alike. So, too, does the creation of programs which provide protection against its negative psychosocial effects when prevention is unsuccessful. In an effort to contribute to the latter, a special Behavioral Activation intervention is currently being implemented at the St. Vincent de Paul Gettysburg Gateway Shelter for Men in Dayton, Ohio. In the short-term, the program aims to enhance psychosocial functioning, as represented by a number of constructs (e.g., empowerment and self-sufficiency, hope, quality of life, and mood). It is believed that corrective changes in these constructs, which are known to be correlated with relevant, desirable outcomes, will contribute to intended long-term outcomes (i.e., employment and housing retention). The primary purpose of this ongoing research project is to validate the Behavioral Activation Treatment Efficacy Measure (BATEM), a psychometric instrument for the assessment of short-term outcomes noted above.

The following has a number of sections. The first section provides an overview of the problem of homelessness. It provides an introduction to contemporary definitions of
homelessness and frames homelessness as a human rights issue. Difficulties in assessing the size of the unsheltered population are considered, and the complex network of problems associated with the homeless experience is outlined. In the second section, an overview of Behavioral Activation is provided, including a brief discussion of its history as a treatment and a rationale for its use in a homeless shelter setting. Third, this proposal highlights the constructs central to evaluating a BA program in a shelter environment. Further, the shortcomings of an initial measure created for this purpose are noted, and the work behind development of a new measure (i.e., the focus of this research) is reviewed. The fourth section describes the proposed research plan, including the primary hypotheses. Next, the methods employed in the present research are presented, including a review of participants, materials, procedures, and plans for data analysis. Finally, the results of the present study are provided and discussed.

Fortunately, this definition was updated to accommodate Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH) Act programs in 2009, and it now lists four more appropriate categories (See Table A-1 in Appendix A; Snow & Reeb, 2013). These current categories include: (a) those who are literally homeless, (b) those at imminent risk for homelessness, (c) unattended youth under the age of 25 who don’t otherwise qualify as homeless under the new system, and (d) those escaping violent situations and lacking necessary access to resources and support networks (U.S. Department of Housing and Urban Development, 2011). This new definition is much more representative of the population plagued by the housing crisis, and will better serve
the crafters of social policy as they attempt to alleviate that crisis in years to come (Snow & Reeb, 2013).

As the definition of homelessness is considered, it is also critical to document that fact that homelessness represents a human rights issue. A full discussion of homelessness as a human rights issue is beyond the scope of this proposal, but it is important to document that it is considered as such in major human rights documents such as the Universal Declaration of Human Rights. Article 25 of that document reads:

Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

**Estimating the Number of Homeless**

If defining homelessness is difficult, estimating the number of homeless individuals and families is a logistical quagmire. This is partly due to shifting and varying conceptions of who qualifies as “homeless”, an issue that was briefly addressed above. Also, the existence of numerous counting methodologies capable of producing wide-ranging estimates is an issue. For example, researchers must weigh the costs and benefits of counting at night vs. during the day as well as those related to counting with a point-in-time approach vs. a period-of-time approach (Burt, 2007). Different choices lead to encounters with different populations. Furthermore, under-counting can occur due to unconventional homeless experiences (e.g., “couch-surfing”) that don’t bring people into
contact with traditional emergency shelters, and over-counting is possible due to the interconnected nature of social service entities (Burt, 2007).

Still, attempts to accurately record national and regional homeless statistics are important for tracking progress and assessing need in the fight against the housing crisis, and many respected estimates exist. For example, the United Nations Commission on Human Rights (2005) has estimated that 100 million people worldwide are homeless. This staggering number includes its fair share of struggling Americans. In January 2013, in its annual report to Congress, the Department of Housing and Urban Development counted over 600,000 homeless individuals in the U.S. on a single night (Henry, Cortes, & Morris, 2013). In the course of a year, the total number of homeless Americans has been as high as 3.5 million, though this total changes from year to year due to policy and economic variables (National Coalition for the Homeless, 2009). The Dayton area cannot claim immunity to this regrettable social phenomenon. According to the Coalition on Homelessness and Housing in Ohio (2013), there are over 1,000 individuals experiencing homelessness on a given night in the Dayton, Kettering, and Montgomery County areas alone. Inadequate shelter has infiltrated every community, and by extension, every level of social organization to which one can claim loyalty.

**Associated Problems**

Homelessness is a central feature in an intricate network of risk factors, making prevention of its onset and protection from its effects immeasurably important areas of research. Progress on these fronts is a potential double fulcrum capable of healing a multitude of personal and societal ills. As shown in a recent review by Snow and Reeb
most estimates of diagnosable severe mental illness in homeless people range from 15% to 26%, with some estimates approaching 40% for homeless single adults in the U.S. (Toro, 2007). Estimates of substance abuse and dependence problems range from 60% to 80% (Toro, 2007). Mental illness and substance abuse can contribute to homelessness, but research shows that these problems can also “result from the trauma of homelessness” (Snow & Reeb, 2013, p. 118).

As reviewed by Fischer (2007), homeless individuals are more likely to have a criminal record relative to the general population, but their illegal activities most typically involve behavior required to meet subsistence needs (e.g., petty theft or shoplifting) or maintain survival (e.g., trespassing into an abandoned building for shelter from the cold). In brief, this set of problems (mental illness, substance abuse, and criminality) and homelessness-related problems (e.g., trauma) exist in a “pattern of reciprocal determinism” (Snow & Reeb, 2013, p. 119). That is, the two sets of problems are “risk factors for one another” and a “multidirectional model is most appropriate” for properly understanding their complicated relationship (Glasser & Zywiak, 2007, p. 205). Problems such as lack of hope (Tollett, 1995), perceived low quality of life (Bearsley & Cummins, 1999), depression (La Gory, Ritchey, & Mullis, 1990), anxiety (Arranz, de Vicente, Muñoz, & De la Fuente, 2009), lack of social support (Solarz & Bogat, 1990), lack of perceived meaning or purpose in life (Bearsley & Cummins, 1999), poor perception of environment (Wolfe, Toro, & McCaskill, 1999), and low agency or empowerment (Epel, Bandura, & Zimbardo, 1999) are also all common among homeless individuals. Furthermore, homeless persons experiencing any of these problems, whether
alone or in combination, present an increased risk for negative outcomes relative to homeless individuals without such problems. Fortunately, documented improvements in many of these outcome variables are associated with a versatile depression treatment known as Behavioral Activation (Hopko, Lejuez, & Hopko, 2004; Jakupcak, Wagner, Paulson, Varra, & McFall, 2010; Ritschel, Ramirez, Jones, & Craighead, 2011; Wenzel, 2013).

**Behavioral Activation in a Homeless Shelter**

**Behavioral Activation Defined**

Behavioral Activation (BA) is defined as “...a therapeutic process that emphasizes structured attempts at engendering increases in overt behaviors that are likely to bring [a person] into contact with reinforcing environmental contingencies and produce corresponding improvements in thoughts, mood, and overall quality of life” (Hopko et al., 2003, p. 700). It was originally designed as a therapeutic treatment for depression and is grounded in the psychological philosophy of operant conditioning (Ferster, 1973; Lewinsohn, 1974; Skinner, 1953). Present-day BA treatment for depression continues in Lewinsohn’s tradition of creating pleasurable environmental contingencies (e.g., through positive events scheduling). However, contemporary adherents to the BA approach deepen the contingency focus by emphasizing meaningful mastery experiences that decrease avoidance behavior and boost self-efficacy (Kanter, Puspitasari, Santos, & Nagy, 2012).

Since its inception, BA has demonstrated remarkably consistent effectiveness in treating depression. For example, in a now-famous study, Jacobson et al. (1996) found
BA to be as successful in treating depression as the cognitive-behavioral treatment package of which it was a component. Another study comparing BA, antidepressants, and cognitive therapy in moderately to severely depressed clients reported better outcomes after 24 weeks for BA patients than for those receiving cognitive therapy (Dimidjian et al., 2006). The same study concluded, after a two-year follow-up, that BA treatment was comparable to the antidepressant medication as an intervention for severe depression. Given its simplicity, cost-effectiveness, and independence from pharmaceutical supplements, BA is reemerging as a promising option for those seeking relief from depression and similarly distressing conditions.

**Rationale for Behavioral Activation in a Homeless Shelter**

Though BA has existed for many years, the range of its potential applications has only recently been revealed. As suggested above, BA aims to increase behaviors that elicit rewarding environmental feedback, thereby (a) breaking the cycle of negative experiences and undesirable thoughts and feelings and (b) promoting continual increases in productive behavior over time. While originally shown to be effective in treating depression, BA has demonstrated value in the treatment of a variety of comorbid problems, such as anxiety, posttraumatic stress disorder, substance abuse, obesity, diabetes, and cancer (Kanter et al., 2012). This treatment was originally shown to have efficacy with adults, but it is also effective with teenagers (Ritschel et al., 2011), and the elderly (Moss, Scogin, Di Napoli, & Presnell, 2012). BA has worked for veterans, including those with PTSD (Jakupcak et al., 2010). This is particularly relevant to our project, since over 40% of male homeless individuals are veterans (Snow & Reeb, 2013).
Although BA was originally employed in individual psychotherapy, it is an effective group therapy for enhancing well-being in non-clinical settings as well as for treating clinical syndromes in public mental health settings (Mazzucchelli, Rees, & Kane, 2009). BA has been used effectively in inpatient psychiatric settings (Hopko, Lejuez, LePage, Hopko, & McNeil, 2003), outpatient veterans’ hospitals (Jakupcak et al., 2010), prisons (Meeks, Sublett, Kostiwa, Rodgers, & Haddix, 2008), and group homes for the elderly (Meeks, Shah, & Ramsey, 2009). A literature review did not identify any previous use of BA in homeless shelters. However, based on the many effective applications noted above, as well as evidence of more specific behavioral treatments having efficacy with homeless individuals (e.g., Tracy et al., 2007), there is reason to anticipate that it would be beneficial in the shelter environment.

**St. Vincent de Paul Behavioral Activation Program Hypotheses**

**Brief Background.** Based on the findings listed above, the decision was made to begin implementation of the BA program at the St. Vincent de Paul Gateway Homeless Shelter for Men (Reeb, Snow, Susdorf, Thomas, & Lynn, 2013). A number of background features of this project will be briefly noted here. The need for this project was established via a comprehensive interview study of community professionals with knowledge about homelessness (Reeb et al., 2011), and the feasibility for the project was established in follow-up focus group discussions with professionals at St. Vincent de Paul. Thus, the primary community-campus partnership for this project involves the University of Dayton (Dr. Reeb’s research team) and St. Vincent de Paul. Other partners include the National Alliance on Mental Illness (Montgomery County), the National
Association for the Advancement of Colored People (Dayton Unit, Ohio), and the Montgomery County Re-Entry Program.

The conceptual framework guiding the project is the Psycho-Ecological Systems Model (PESM; Reeb & Folger, 2013). In brief, PESM is a systems approach that encourages the researcher to consider the relevance of variables in different systems (e.g., person, family, community, cultural, and global influences). One concept adopted as a central component in PESM is psychopolitical validity (Prilleltensky, 2008), which incorporates two criteria in evaluating a community project. The first criterion is the *epistemic* criterion, which “demands that psychological and political power be incorporated into community… interventions” (Prilleltensky, 2008, p. 116). Second is the *transformative* criterion, which “requires that interventions move beyond [alleviative or] ameliorative efforts and towards structural change” (Prilleltensky, 2008, p. 116). For instance, rather than merely focusing on alleviative care within the homeless shelter (e.g., shelter, food, laundry, cleaning), this research pursues outcomes that represent empowerment and/or transformation (e.g., preparation for general equivalency exam, vocational training, supportive employment).

In general, this research project employs a community-based, participatory action research (CBPAR) strategy. This strategy is a form of community-based research, which can be defined as “a partnership of students, faculty, and community members who collaboratively engage in research with the purpose of solving a pressing community problem or effecting social change” (Strand, Cutforth, Stoecker, Marullo, & Donohue, 2003, p. 3). Ethical and practical issues preclude the use of an experimental design (i.e.,
randomly assigning homeless men at the shelter to BA condition vs. non-BA condition),
but a number of research design approaches (quasi-experimental, correlational) can be
used to examine specific hypotheses.

In practice, this project implements three categories of activities at the homeless
shelter: (a) activities designed to enhance empowerment or self-sufficiency (e.g., GED
training, computer training), (b) activities designed to enhance coping (e.g., stress
management), and (c) social and recreational activities designed to enhance the social
climate of the shelter and thereby make it more conducive to positive outcomes. To
facilitate the implementation of BA, service-learning pedagogy is employed. Service-
learning is defined as:

[A] course-based, credit-bearing educational experience in which students (a)
participate in an organized service activity that meets identified community needs,
and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an
enhanced sense of civic responsibility (Bringle & Hatcher, 1995, p. 112).

Thus, faculty, community partners, shelter staff, graduate students, and undergraduate
students collaborate and work alongside one another in implementing the community
intervention. Finally, the project examines both (a) outcomes for homeless men and (b)
outcomes for undergraduate students (e.g., increase in community service self-efficacy,
decreases in myths regarding homelessness) assisting in project implementation.
Outcomes for students are promising (Reeb, Glendening, Farmer, Snow, & Elvers, 2014),
but the present research project focuses on a psychometric instrument developed to measure outcomes for homeless men.

**Short-term hypotheses.** The researchers offer the following short-term hypotheses for homeless men participating in BA at St. Vincent de Paul. First, guests at the shelter will find programmed activities to be enjoyable and meaningful. Second, shelter guests who participate in the BA program will report improvements in selected constructs such as hope, mood, empowerment, social support, perceptions of social climate, feelings of personal meaning in life, and quality of life (Reeb et al., 2014).

Preliminary findings support the first hypothesis. For instance, when asked to rate BA activities on a 1 to 7 scale, with 1 indicating low endorsement, 4 indicating neutral endorsement, and 7 indicating high endorsement, shelter guests report finding activities to be significantly more enjoyable ($M = 6.55, SD = .93, p \text{ [1-tailed]} < .0001, d = 2.97$) and more meaningful ($M = 6.43, SD = 1.05, p \text{ [1-tailed]} < .0001, d = 2.04$) relative to the neutral rating of 4 (note the large effect size) (Reeb et al., 2014). The second short-term hypothesis noted above is central to the present research project, as shown in more detail later.

**Long-term hypothesis.** In the long-term, the researchers hypothesize that, relative to comparison groups, shelter guests who participate in the BA program will display greater rates of housing retention and employment upon shelter exit (Reeb et al., 2014). A variety of comparison groups will be used in examining this hypothesis (e.g., outcomes of shelter guests prior to BA implementation, outcomes at similar shelters). Because this project focuses on the validation of a psychometric instrument to assess
short-term outcomes, further discussion of long-term outcomes (and the methodology used to evaluate them) falls beyond the scope of this proposal.

**Process-oriented hypothesis.** The researchers also hypothesize that the above short-term outcomes will predict long-term outcomes. For example, guests who show improvements in empowerment in the short-term are also expected to show greater housing retention rates upon shelter exit (Reeb et al., 2014).

**Assessing the Efficacy of Behavioral Activation in a Homeless Shelter**

In order to be considered effective, a BA program implemented in the shelter setting will have to lead to measurable improvements in the experience of key constructs relevant to those experiencing a homeless episode. The constructs listed below are associated with recovery from mental illness and substance abuse, as well as with positive outcomes in psychotherapy, mental health, and behavioral adjustment. Therefore, program-driven progress on these constructs can be taken as an indicator of the efficacy of BA.

**Human Agency**

Agency, which refers to the “power to originate and intentionally execute decisions and actions for some given purpose” (Reeb & Folger, 2013, p. 403), is central to the interrelated constructs of self-efficacy (Bandura, 1977), empowerment (Zimmerman, 2000), and locus of control (Rotter, 1954). Empowerment, defined as “beliefs about one’s competence [and] efforts to exert control” (Zimmerman, 2000, p. 44), is inversely related to mental illness and connected with positive mental health outcomes in treatment (Corrigan, 2002). Locus of control refers to whether outcomes are
believed to be under one’s control (internal locus of control) or due to forces beyond one’s control (external locus of control) (Rotter, 1954). An internal locus of control is connected to lower levels of perceived stress, and it mediates the role of stress on illness (Roddenberry & Renk, 2010). Perceived control is lower in substance abusers (Mendelson, Dariotis, & Agus, 2013), and high perceived control predicts drug abstinence (Mathis, Ferrari, Groh, & Jason, 2009). Finally, self-efficacy, or a “conviction that one can successfully execute the behavior required to produce [desired] outcomes” (Bandura, 1977, p. 193), has been called a “key factor in human agency” (Bandura, 1997). Decades of research identifies the role of self-efficacy in mediating corrective changes over the course of treatment (Bandura, 1997). Recently, Wenzel (2013) highlighted the role of BA in improving self-efficacy. In our BA program, an entire category of activities is focused on enhancing agency.

Hope

Overlapping with the construct of agency, hope is defined as “a cognitive set that is based on a reciprocally derived sense of successful agency (goal-directed determination) and pathways (planning to meet goals)” (Snyder et al., 1991, p. 571). Hope is vital for individuals experiencing difficult situations, and is considered a central element in recovery from mental illness (Davidson, Sells, Sangster, & O’Connell, 2005). Hope is connected to better coping and quality of life despite ongoing psychological symptoms (Corrigan, Salzer, Ralph, Sangster, & Keck, 2004; Irving et al., 2004). It predicts substance abuse abstinence (Mathis et al., 2009), and it is related to lower criminal recidivism (Martin & Stermac, 2010). Furthermore, Irving et al. (2004) report
relationships between hope and greater well-being, functioning, and emotional regulation. As Ritschel et al. (2011) show, BA is capable of significantly increasing hope and thus unlocking the potential for the benefits listed above.

**Purpose or Meaning in Life**

The purpose or meaning in life construct is rooted in the classic work of Viktor Frankl, and it refers to an individual’s self-determined purpose in life. Frankl (1959/1985, p. 104) argued that “this striving to find a meaning in one’s life is the primary motivational force…” behind human action. A sense of meaning in life is positively correlated with well-being (Zika & Chamberlain, 1992) and positive affect (King, Hicks, Krull, & Del Gaiso, 2006). Furthermore, it is inversely related to a range of mental illnesses including depression, anxiety, and psychosis (Debats, Van der Lubbe, & Wezeman, 1993; Turner et al., 2007), as well as substance abuse (Harlow, Newcomb, & Bentler, 1986). Frankl (1959/1985) believed that an enhanced sense of purpose or meaning in life is a key mediator of favorable psychotherapy outcomes, and research shows it to be significantly related to improvement in different types of psychotherapy (including behavioral therapy) (Debats, 1996). As BA works within the homeless shelter, a unique kind of community participation is created, which appears to improve peoples' sense of meaning in life (Kaplan, Salzer, & Brusilovskiy, 2012).

**Quality of Life**

The World Health Organization (1997, p. 1) defines quality of life as the “individual’s perception of their position in life [sic] in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and
concerns.” Perceived quality of life, which is an important outcome variable itself, and negative perceptions of quality of life are associated with various forms of psychopathology (Björkman & Svensson, 2005) and substance abuse (Smith & Larson, 2003). With regard to homeless individuals, positive perceptions of quality of life are associated with shorter homeless episodes, higher income rates, and better use of available services (Lam & Rosenheck, 2000). Research (e.g., Hopko et al., 2004) indicates the utility of BA for improving perceptions of quality of life, and this is the aim of various sessions in the present BA program.

**Perceived Social Support**

Social support is defined as “information leading a person to believe that he or she is “cared for and loved, esteemed, and a member of a network of…communication and…mutual obligations (Cobb, 1976, p. 300). As indicated in reviews of the literature (Taylor, 2015), a lack of perceived social support is associated with psychological distress, psychological maladjustment, mental illness, and physical health problems. Moreover, social support buffers the effects of stress on both physical health and mental health (Taylor, 2015). The latter point is critical because, as concluded in a review of homelessness-related stress, “homeless persons suffer a large number of stressful life events throughout their lives in comparison with the general population” (p. 283), many of which involve “economic or work crises, losses or breaking up of social relations, and victimization” (p. 278). Our BA project provides social support in the following ways: (a) the regular provision of sessions that encourage productive interactional activities among the shelter guests (and between the guests and researchers implementing the activities),
and (b) the regular provision of sessions provided by professionals from organizations (e.g., National Alliance on Mental Illness) contributing to our project. The latter not only provide social support, but also facilitate the efforts of shelter guests in accessing and improving social support in their personal lives.

**Social Climate**

 Somewhat related to perceived social support is the construct of social climate, which can be described as “the character of the social environment that encompasses the individual's functioning” (Holahan & Moos 1982, p. 403). It includes shared perceptions and accompanying aggregate mood regarding an immediate environment, such as perceived cooperativeness, conflict, emotional connectedness, and mutual respect and concern. Research focused on psychiatric wards (Urbanoski, Mulsant, Novotna, Ehtesham, & Rush, 2013), correctional institutions (Barton & Mackin, 2012), family environments (Nilsson, Engström, & Hägglöf, 2012), and 12-step programs (Rynes, Tonigan, & Rice, 2013) shows that an improvement in social climate facilitates the treatment process and fosters recovery and other favorable psychosocial outcomes. The present BA program has a clear and consistent presence at the shelter. Also, in addition to providing activities that support the men’s attempts to overcome homelessness, the program is meant to improve the shelter’s social climate and thereby make it more conducive to functional behavior change.

**Emotional Well-being**

 As noted earlier, most estimates of diagnosable mental illness in homeless people range from 15% to 26%, with a few estimates as high as 40% (Toro & Janisse, 2007).
Nevertheless, some degree of depression and anxiety is common among homeless individuals. These conditions are often reactions to loss experiences, stressors or traumas, perceived poor quality of life, worry about the future, and lack of hope. Subclinical depression and anxiety (or Adjustment Disorders), even if not sufficiently severe to warrant diagnosis of a severe mental disorder, negatively influence motivation and persistence in coping, and increase the risk for the development of mental illness and/or substance abuse (American Psychiatric Association, 2013). BA was first developed to treat depression, and it has demonstrated efficacy in treating depression, anxiety, and dysphoria (a mix of depression and anxiety) (Hopko et al., 2004).

**The Original Measure Developed to Measure BA Efficacy**

**Brief Description of Original Measure Development**

A 35-item measure of the above constructs (see Appendix B), which was to be administered in monthly increments, was developed at the outset of the BA project and entitled the Psychosocial Process Measure for Homeless Individuals (PPMHI). This measure was developed in four phases in order to yield content and construct validity (Reeb et al., 2014). In phase one, constructs relevant to BA in the homeless setting were chosen based on (a) a literature review of homelessness and BA, (b) interviews with expert professionals who worked with homeless individuals, and (c) discussions among members of the research team. In phase two, the researchers conducted a literature review of well-validated measures of the chosen constructs.

In phase three, select items were extracted from the reviewed measures to be used in the new instrument. Items were chosen using both the *empirical approach* (e.g.,
selecting items with high factor loadings or high item-total correlations) and the rational approach (e.g., identifying items representative of important constructs at face value). In the final phase, items were tailored for practical utility in this population by (a) maximizing readability (e.g., altering item wording to decrease reading level required), (b) creating consistency among item presentation (e.g., presenting all items as past-tense “I” statements), (c) putting items on a uniform, Likert-like scale, and (d) printing items in large font. Literacy and education level were known to be variable among project participants (i.e., homeless men), so items were worded to be read and understood by individuals with no higher than an eighth grade reading ability. Furthermore, poster boards with all 35 questions in large print were created to accommodate individuals with poor eyesight during administration. In cases in which participants were unable to read either the paper measure or the poster boards, researchers were present to read the items one by one.

Several practical issues with the PPMHI became apparent shortly after administration began. First, the measure was too long. Participating men frequently expressed frustration at the time it took to complete it, and some men with attentional deficiencies and related mental health conditions were unable to complete the measure without considerable encouragement. Due to the nature of the shelter environment, even men who could easily complete the items were sometimes prevented from doing so by unexpected schedule changes or mid-administration interruptions. A second problem with the PPMHI was that its generality limited its explanatory power. Measuring variations in each construct over monthly increments showed changes but failed to differentiate
between changes due to the BA program and changes due to other aspects of daily life. Personal events such as job loss or the death of a family member could lead men to report lower scores on PPMHI constructs overall even if they endorsed positive program influences on these domains. The original measure failed to address this complexity, and a new measure was needed which assessed (a) general changes in constructs over time and (b) the degree to which the behavioral activities are helpful in enhancing these life domains. While some benefits of the BA program were revealed by the PPMHI (Reeb et al., 2014), it became increasingly evident that a change in measures was needed.

Therefore, the Behavioral Activation Treatment Efficacy Measure (BATEM; see Appendix C) was developed to replace the PPMHI (Glendening & Reeb, 2014). This measure (a) incorporates items representing the key constructs listed above, (b) presents items at an accessible reading level, and (c) can be administered in a brief period (less than 10 minutes). This new measure was specifically developed to address the methodological limitations noted above. That is, it is designed to separately detect (a) general changes in the select psychosocial constructs over time (likely due to the cumulative effect of many factors in the person’s life) and (b) men’s perceptions regarding how BA activities contribute to their experiences of these psychosocial constructs. BATEM is able to make this difficult distinction because of its unique design. At baseline and every subsequent monthly measurement, the instrument gathers data on general changes in endorsement of the chosen constructs. However, beginning at month two, participants are also asked to rate the extent to which BA activities contribute in a
positive way to the psychosocial domains assessed by BATEM. Further explanation of the BATEM is provided in the Method section.

**The Present Study**

The purpose of the present research is to validate the Behavioral Activation Treatment Efficacy Measure (BATEM), a second-generation psychometric instrument that identifies changes in the above constructs in homeless men participating in BA. Because the application of BA in the homeless environment is new, the validation of such an instrument is a necessary prerequisite to determining program effectiveness. This study fully examines the reliability and validity of the psychometric instrument. As shown below, a number of specific hypotheses are examined.

**Hypotheses**

**Hypothesis 1.** With regard to reliability for the BATEM, strong internal consistency is hypothesized. This is because research on recovery from mental illness (Ralph & Corrigan, 2005) as well as other research involving the above constructs (e.g., Reeb, Folger, Langsner, Ryan, & Crouse, 2010) has found those constructs to be interrelated, providing evidence of their existence in a nomological network (Cronbach & Meehl, 1955).

**Hypothesis 2.** At baseline, participants without a background of mental illness and/or substance abuse will have significantly higher BATEM scores (i.e., scores in the non-clinical direction) than those with a history of these problems. This hypothesis is based on the research reviewed above, which shows that, relative to the general
population, individuals with mental illness and substance abuse histories display poorer outcomes on the constructs measured by BATEM.

**Hypothesis 3.** Men who participate in a greater number of BA sessions will show larger improvements in BATEM scores over time, relative to those who do not participate in BA activities (or participate in few activities). That is, BATEM change scores (across a period of a month) will correlate with (i.e., be predicted by) the number of BA activities in which individuals participate during the previous month.
METHOD

Participants

The participants in this study include approximately 200 men recruited from the St. Vincent de Paul Gettysburg Gateway Shelter for Men. The men range in age from late teens to early 70s and identify with a variety of ethnic (e.g., Caucasian, African American, Latino) and religious (e.g., Christian, Jewish, Atheist) affiliations. Men at the shelter come from a medley of geographic, socio-economic, educational, and familial backgrounds, but are generally in a state of socio-economic disadvantage while participating in the BA program. Many, though far from all, participants suffer from mental illness, substance dependency, or both. Likewise, subsets of the shelter population benefit from government assistance like SSI and SNAP, while others maintain a sufficient level of employment to forgo such assistance.

Materials

BATEM: Baseline. The baseline BATEM (see Appendix C) is a 9-item, Likert-like measure that globally assesses the interrelated constructs of agency, hope, purpose/meaning in life, quality of life, perceived social support, social climate perceptions, and emotional well-being (e.g., “In general, my quality of life is good.”). Participants endorse statements on a 5-point scale (1 = Not at All, 5 = Very True), with higher scores indicating better perceptions of environment and personal functioning.
review of the literature suggests this measure should have strong internal consistency due to the interrelated nature of the constructs to be observed. Reported improvements in scores measuring the chosen constructs from baseline to subsequent follow-ups will lend support to the efficacy of the present BA program.

**BATEM: Monthly Follow-up.** As was mentioned above, the original BA program measure (i.e., the PPMHI) failed to differentiate between (a) general changes in construct scores over time and (b) the degree to which the behavioral activities are helpful in relation to the chosen constructs. This presented a troubling confound. To illustrate, a participant’s life events outside the program (e.g., loss of a job) could lead to negative overall score changes on the construct of hope even if that participant felt strongly that participation in the BA program contributed positively to his sense of hope. The PPMHI provided no way to rate the two phenomena independently.

To solve this problem, the follow-up version of the BATEM (see Appendix D), which is distributed at monthly intervals, includes two sets of questions. The first set consists of the 9 items from the BATEM baseline measure. These items once again ask participants to report their perceived levels of agency, hope, purpose/meaning in life, quality of life, social support, positive social climate, and emotional well-being overall. Responses allow researchers to track monthly changes in the listed constructs. The second set of questions includes 9 additional items, each of which corresponds to a question from the baseline measure. Each item from this second group of questions specifically measures the extent of guests’ perceptions that the BA program positively
contributes to their levels of agency, hope, purpose/meaning in life, quality of life, social support, positive social climate, and emotional well-being.

Thus, in considering his experiences with each construct, a guest can independently report general monthly fluctuations (e.g., “In general [emphasis added], my quality of life is good”) and differences he perceives to be due to the BA program (e.g., “These activities [emphasis added] improve my quality of life in the shelter”). Consistent with the baseline measure, the BATEM follow-up measure asks participants to endorse statements on a 5-point scale (1 = Not at all, 5 = Very True). Higher scores on the first set of items once again indicate better perceptions of environment and personal functioning. Higher scores on the second set of items indicate a guest’s perception that the BA program positively contributes to his shelter experience regardless of his overall experiences.

**Activity Evaluation Process Measure (AEPM).** The AEPM (see Appendix E) is a four-item, Likert-like measure that assesses the extent to which participants enjoy each BA activity

(1 = Not at All, 7 = Very Enjoyable), find each activity to be meaningful (1 = Not at All, 7 = Very Meaningful), are willing to engage in each activity again (1 = Not at all, 7 = Definitely Again), and find the BA activities to be important to men at the shelter (1 = Not at All, 7 = Definitely). The AEPM makes it possible to reliably track participation in BA activities. It also provides valuable feedback as the researchers attempt to eliminate activities that are not enjoyable or meaningful for the participants.
Procedures

Dr. Roger N. Reeb (Department of Psychology, University of Dayton) supervises this research. The overall BA project received full approval by the University of Dayton Institutional Review Board in August 2013, and a proposal to revise the project to incorporate the BATEM also received IRB approval. As part of routine shelter protocol, all men who enter the shelter are required to work with staff to complete the Homeless Management Information System (HMIS) Form (U.S. Department of Housing and Urban Development, 2014), which collects basic demographic information, including background of mental illness or substance abuse, chronicity of homelessness, and physical disabilities. After signing informed consent (see Appendix F), participants completed the BATEM once at baseline and then again one month later. After each BA session, participants completed the AEPM and received debriefing (see Appendix G). Scores from the AEPM were used to track participation and to monitor BA activities for popularity and impact.

To investigate Hypothesis 2, the researchers used HMIS data to contrast men’s BATEM scores in relation to key demographic variables such as presence of mental illness and history of drug abuse. In August (2014), IRB approved a special procedure for researchers to obtain information about shelter guests (including HMIS data) as needed for research. IRB (August, 2013) also approved a procedure for briefly debriefing participants on a regular basis, so that all men are debriefed regarding the project’s purpose even if they leave the shelter unexpectedly. Forms were written at a widely accessible reading level to accommodate the participants’ various educational statuses.
(Kincaid, Fishburne, Rogers, & Chissom, 1975), and IRB (August, 2013) approved a procedure wherein a participant is given his own form to complete, while a researcher systematically reads each item from a separate but identical form. Since the beginning of project implementation, these procedures have worked without complications.

**Plans for Data Analysis**

Appropriate data analysis was performed for each of the hypotheses listed above in the manner delineated below:

**Analysis of Hypothesis 1.** To analyze Hypothesis 1, which predicts strong internal consistency for the BATEM measure, the Cronbach alpha statistic was computed, with a criterion of alpha = .80.

**Analysis of Hypothesis 2.** Hypothesis 2 involved contrasting groups to establish criterion-oriented validity (Anastasi & Urbina, 1997). A quasi-experimental design was utilized, with Analysis of Variance (ANOVA) used to compare groups. The ANOVA analyses compared the following groups: (a) men with a mental illness background, (b) men with a substance abuse background, (c) men with a comorbidity background (mental illness and substance abuse), and (d) men with no history of these problems. For each ANOVA that yielded a significant result, post-hoc *t*-tests determined if specific group differences were in the hypothesized directions.

**Analysis of Hypothesis 3.** Hypothesis 3 was examined using a bivariate correlation between change (difference) in BATEM scores over a one-month period and number of BA activities attended. It can be seen that this aspect of the research sets the stage for a later determination of the extent to which long-term outcomes (housing
retention and employment rates) are mediated by the constructs assessed by BATEM. This also addresses construct validity for the BATEM (Cronbach & Meehl, 1955), since the constructs assessed by BATEM have been shown to change in positive directions in response to BA.
RESULTS

The following section describes the results of the analyses outlined above, which address the internal consistency, criterion-oriented validity, and construct validity of BATEM. Following a review of these results, the outcomes of several exploratory analyses are described. These analyses explore test-retest reliability, re-examine Hypothesis 3 using various contrasting groups and examine participants’ perceptions regarding the influence of BA participation on their psychosocial well-being.

Hypothesis 1: Internal Consistency

**BATEM baseline measure.** Hypothesis 1 predicted strong internal consistency for the BATEM measure. In order to test this hypothesis, Cronbach’s alpha statistic was computed. As predicted, the BATEM baseline measure displayed strong internal consistency. Here, it is important to remind the reader that, while the first eight BATEM baseline items are theoretically interrelated predictors of psychosocial well-being, Item 9 (i.e., “I think it is beneficial to have activities at the shelter”) is not. Rather, this item assesses participant evaluations regarding the benefits of the BA project. Therefore, inclusion of Item 9 in a test of internal consistency would be expected to lead to a lower $\alpha$ score, while exclusion of this item would be expected to lead to a higher $\alpha$ score. The BATEM baseline measure had strong internal consistency when including only the theoretically related BATEM items (8 items; $\alpha = .80$). With the addition of Item 9, alpha
fell slightly but remained high (9 items; $\alpha = .79$). Further investigation revealed that simultaneous exclusion of Items 9 and 5 (i.e., “In general, I get along with shelter staff”) increased alpha from .80 to .82. Moreover, when Item 9 was included in the analysis but Item 5 was not, alpha remained at a score of .80. Note that the inter-correlations among items were high, as shown in Table 2 (see Appendix H-1).

**BATEM follow-up measure.** The BATEM follow-up measure consists of two separate subsets of items. These include (a) “general” items corresponding to baseline items (e.g., “In general, I feel hopeful about the future”), and (b) items related specifically to effects of activities (“Participating in these activities makes me feel more hopeful about the future”). To account for this, the internal consistency of each subset was analyzed independently.

**General items.** In regard to the “general” items, internal consistency was once again above .80 (See Table 2 for inter-item correlations). This was true both when theoretically unrelated Item 9 (“I think it is beneficial to have these activities at the shelter”) was included (9 items; $\alpha = .82$) and when it was excluded (8 items; $\alpha = .82$).

While this study did not originally include specific hypotheses regarding test-retest reliability for BATEM, exploratory findings do suggest test-retest reliability for this measure. That is, the correlation between the complete BATEM at baseline and the complete BATEM general item subscale at follow-up is high in magnitude and statistically significant, $r(31) = .49$, $p < .01$ suggesting good test-retest reliability. This finding was robust, and test-retest reliability was significant for five out of nine items (See Table H-1).
**Activity-related items.** Alpha for the activity-related subset of BATEM follow-up items was found to be rather strong. Once again, this was true when Item 9 (“It is important for the activities at the shelter to continue”) was included (9 items; $\alpha = .87$) and when it was excluded (8 items; $\alpha = .88$; See Table 2 for inter-item correlations).

**Hypothesis 2: Criterion-oriented Validity**

Hypothesis 2, which addressed criterion-oriented validity, predicted that participants without a background of mental illness and/or substance abuse would have significantly higher BATEM scores (i.e., scores in the non-clinical direction) than those with a history of one or both of these problems. In order to test this hypothesis, one-way (between-subjects) Analyses of Variance (ANOVA) was conducted to compare the BATEM scores of four demographic groups. The four groups included: (a) men with a mental illness history, (b) men with a substance abuse history, (c) men with a comorbidity history, and (d) men with no mental illness or substance abuse history. One-way ANOVAs were conducted on the baseline and follow-up measures at both the comprehensive (i.e., including all items) and individual item levels.

**BATEM baseline.** A one-way (between-subjects) ANOVA was conducted comparing the effect of demographic group (i.e., mental illness and substance abuse history) on scores on the complete BATEM baseline measure. Once again, Item 9 (“I think it is beneficial to have activities at the shelter”) was excluded due to its theoretical independence from the other baseline items, which assess psychological attributes (e.g., hope). Though means were in the theoretically predicted directions, analysis indicated no significant differences between the comorbidity group ($M = 29.56$, $SD = 5.60$), the
substance abuse history group ($M = 30.46, SD = 6.50$), the mental illness history group ($M = 28.70, SD = 6.33$), and the no history group ($M = 31.20, SD = 5.80$), $F(3, 94) = .97$, $p = .41$. When Item 9 was added to the analysis, group differences remained non-significant, though respective means between the comorbidity ($M = 34.44, SD = 5.63$), substance abuse history ($M = 35.15, SD = 6.80$), mental illness history ($M = 33.61, SD = 6.35$), and no history ($M = 36.00, SD = 5.91$) groups remained in the hypothesized directions, $F(3, 94) = .86$, $p = .47$.

To further explore Hypothesis 2, a one-way ANOVA was also conducted on each individual BATEM baseline item. This analysis indicated significant demographic group differences only for Item 1 ("In general, my quality of life is good"), $F(3, 99) = 2.94$, $p = .04$. When using a 1-tailed test, significance for this item fell to $p = .02$. However, no other items were significant even when using a 1-tailed test. In keeping with the proposed plan for data analysis, the significant finding was followed by independent samples $t$-tests comparing the various groups. The $t$-tests indicated that, on baseline Item 1, the no history group ($M = 3.92, SD = 1.03$) scored significantly higher than the comorbidity group ($M = 3.13, SD = 1.09$), $t(62) = -2.63$, $p = .011$. There were no significant differences between the mental health history group ($M = 3.29, SD = 1.33$) and any other group. Nor were there any significant differences between the substance abuse history group ($M = 3.40, SD = 1.12$) and any other group. However, the finding regarding the comorbidity and no history groups supports the criterion-oriented validity of BATEM baseline Item 1.
Also of interest, differences on Item 2 ("In general, I am not bothered by depression or anxiety") did approach significance when using a 1-tailed test, $F(3, 98) = 1.61, p = .10$. This finding was followed by exploratory, independent samples $t$-tests. The results of these tests indicated that those with no mental illness or substance abuse history ($M = 3.25, SD = 1.41$) showed significantly less clinical scores than those with a mental illness history ($M = 2.43, SD = 1.31$), $t(69) = -2.34, p = .02$. There were no significant differences between the comorbidity group ($M = 2.84, SD = 1.77$) and any other group. Likewise, there were no significant differences between the substance abuse history group ($M = 2.80, SD = 1.78$) and any other group.

**BATEM follow-up.** As is mentioned above, the BATEM follow-up measure consists of two separate subsets of items. These include a “general” set of items, which assesses participants’ overall psychosocial status, and an “activity-related” set of items, which assesses participants’ perceptions regarding the influence of BA on their psychosocial well-being. In light of this, it was deemed necessary to analyze these subsets independently. As such, one-way ANOVAs were conducted on each subset, and the results of these analyses are reported below.

**General items.** A one-way, between-subjects ANOVA was conducted comparing demographic group effects on the complete “general” subset of BATEM follow-up items. Results indicated that, when Item 9 ("I think it is beneficial to have these activities at the shelter") was removed from the subset, there were no significant differences in overall follow-up scores among the comorbidity ($M = 30.00, SD = 4.86$), substance abuse history ($M = 31.33, SD = 8.14$), mental illness history ($M = 33.14, SD = 5.84$), and no history ($M$
When Item 9 was re-introduced, differences among the comorbidity ($M = 34.67$, $SD = 5.24$), substance abuse history ($M = 36.17$, $SD = 8.13$), mental illness history ($M = 37.86$, $SD = 6.12$), and no history ($M = 33.00$, $SD = 5.57$) groups remained non-significant, $F(3, 31) = 1.15$, $p = .35$. In order to explore demographic group differences on individual items, one-way ANOVAs were conducted on each general follow-up item. Results of these exploratory analyses indicated no significant group differences. However, Item 4 ("In general, the shelter environment is sufficient") displayed nearly significant differences among the comorbidity ($M = 2.83$, $SD = 1.17$), substance abuse history ($M = 3.33$, $SD = .52$), mental illness history ($M = 4.14$, $SD = 1.07$), and no history ($M = 3.06$, $SD = .85$) groups, $F(3, 31) = 2.86$, $p = .053$, when analyzed using a 1-tailed test, significance changed to $p = .03$.

Given these findings, and for sake of exploration, follow-up (1-tailed) $t$-tests were conducted to examine group differences for Item 4. The results of these tests indicated that those with only a mental illness history ($M = 4.14$, $SD = 1.07$) displayed significantly less clinical scores than those with comorbidity history ($M = 2.83$, $SD = 1.17$), $t(11) = 2.11$, $p = .03$. Those with only a mental illness history also displayed significantly less clinical scores than those with no history ($M = 3.06$, $SD = .85$), $t(21) = 2.59$, $p = .01$), a finding which was particularly striking because it is not in the direction one might expect. There was no significant difference between the no history and comorbidity history groups.

Activity-related items. Finally, a one-way (between-subjects) ANOVA was conducted comparing demographic group effects on the complete activity-related subset
of BATEM follow-up items. When Item 9 ("It is important for the activities at the shelter to continue") was excluded from the comprehensive analysis, there were no significant differences among the comorbidity ($M = 30.33, SD = 8.33$), substance abuse history ($M = 35.80, SD = 1.79$), mental illness history ($M = 34.86, SD = 4.91$), and no history ($M = 31.63, SD = 6.67$) groups, $F(3, 30) = 1.13, p = .35$. When Item 9 was re-introduced, differences among the comorbidity ($M = 38.00, SD = 5.79$), substance abuse history ($M = 40.80, SD = 1.79$), mental illness history ($M = 39.43, SD = 5.19$), and no history ($M = 36.25, SD = 7.21$) groups remained non-significant, $F(3, 29) = .91, p = .45$. In slight contrast to baseline analyses, results of one-way ANOVAS on individual items indicated no significant group-based differences on activity-related follow-up scores.

**Hypothesis 3: Change Over Time**

Hypothesis 3 predicted that men who participated in more BA activities would show greater improvement on BATEM scores over a one-month period relative to men who participated in fewer activities. However, before examining differential change based on participation, it is first important to determine the extent to which there was any change from the first to the second BATEM administration (when examined across different BA participation levels).

**Change in BATEM scores from baseline to follow-up.** Though changes in total score means (and changes in means of most individual items) were in the expected direction, a 2-tailed (paired-sample) $t$-test comparing scores on the complete baseline ($M = 29.70, SD = 5.89$) and follow-up ($M = 30.70, SD = 6.03$) BATEM measures revealed no significant difference in scores with Item 9 included, $t(32) = -.77, p = .45$, or excluded,
\( t(32) = -0.95, \ p = .35 \). Paired-sample \( t \)-tests comparing baseline and follow-up scores were also conducted at the individual-item level. Though no significant results were found, Item 3 (“I generally have good social or emotional support”) approached significance when using a 1-tailed analysis, \( t(35) = -1.33, \ p < .10 \). Results of paired-samples \( t \)-tests comparing baseline and follow-up scores are reported in Table 1. In the analyses reported below, there was an attempt to determine if level of participation in BA predicted changes in BATEM scores from baseline to follow-up.

### Table 1

**BATEM Score Changes from Baseline to Follow-up**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Baseline</th>
<th></th>
<th>Follow-up</th>
<th></th>
<th>Change</th>
<th></th>
<th>( t )</th>
<th>( df )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score (Items 1-8)</td>
<td>29.70</td>
<td>5.89</td>
<td>30.70</td>
<td>6.03</td>
<td>-1.00</td>
<td>6.07</td>
<td>-0.95</td>
<td>32</td>
<td>0.35</td>
</tr>
<tr>
<td>Total Score (Items 1-9)</td>
<td>34.48</td>
<td>6.06</td>
<td>35.33</td>
<td>6.47</td>
<td>-0.85</td>
<td>6.32</td>
<td>-0.77</td>
<td>32</td>
<td>0.45</td>
</tr>
<tr>
<td>In general, my quality of life is good</td>
<td>3.61</td>
<td>1.05</td>
<td>3.83</td>
<td>1.03</td>
<td>-0.22</td>
<td>1.17</td>
<td>-1.14</td>
<td>35</td>
<td>0.26</td>
</tr>
<tr>
<td>In general, I am not bothered by depression or anxiety</td>
<td>2.76</td>
<td>1.39</td>
<td>3.11</td>
<td>1.51</td>
<td>-0.35</td>
<td>2.00</td>
<td>-1.04</td>
<td>35</td>
<td>0.31</td>
</tr>
<tr>
<td>I generally have good social or emotional support</td>
<td>3.43</td>
<td>1.24</td>
<td>3.69</td>
<td>1.26</td>
<td>-0.26</td>
<td>1.19</td>
<td>-1.33</td>
<td>35</td>
<td>0.19</td>
</tr>
<tr>
<td>In general the shelter environment is sufficient</td>
<td>3.15</td>
<td>1.21</td>
<td>3.29</td>
<td>1.03</td>
<td>-0.15</td>
<td>1.37</td>
<td>-0.62</td>
<td>33</td>
<td>0.54</td>
</tr>
<tr>
<td>In general, I get along well with shelter staff</td>
<td>4.22</td>
<td>1.05</td>
<td>4.11</td>
<td>1.04</td>
<td>0.11</td>
<td>1.12</td>
<td>0.60</td>
<td>35</td>
<td>0.55</td>
</tr>
<tr>
<td>In general, I feel hopeful about the future</td>
<td>4.20</td>
<td>0.90</td>
<td>4.14</td>
<td>1.00</td>
<td>0.06</td>
<td>0.80</td>
<td>0.42</td>
<td>34</td>
<td>0.68</td>
</tr>
<tr>
<td>I generally feel capable and motivated for education or work</td>
<td>4.08</td>
<td>1.08</td>
<td>4.19</td>
<td>0.86</td>
<td>-0.11</td>
<td>1.17</td>
<td>-0.57</td>
<td>35</td>
<td>0.57</td>
</tr>
<tr>
<td>In general, I feel that life has meaning or purpose</td>
<td>4.11</td>
<td>1.06</td>
<td>4.17</td>
<td>0.94</td>
<td>-0.06</td>
<td>1.09</td>
<td>-0.31</td>
<td>35</td>
<td>0.76</td>
</tr>
<tr>
<td>I think it is beneficial to have activities at the shelter</td>
<td>4.72</td>
<td>0.57</td>
<td>4.58</td>
<td>0.84</td>
<td>0.14</td>
<td>0.93</td>
<td>0.90</td>
<td>35</td>
<td>0.38</td>
</tr>
</tbody>
</table>

*Note.* All \( p \) scores are 2-tailed.

**Level of BA participation as predictor of BATEM changes.** Despite the statistically non-significant group differences from baseline to follow-up on BATEM scores, as reported above, it is important to examine the relationship between participation level and BATEM change. For instance, one could imagine a scenario
wherein guests who participated in BA regularly had a meaningful baseline-to-follow-up change in BATEM scores, whereas guests who did not participate regularly showed no change (or even psychosocial decline) according to BATEM.

**Correlation between BA participation and BATEM change scores.** Though no significant test-retest changes were found for BATEM, a bivariate correlation was conducted to examine the relationship between total score change (difference) on the BATEM measure over the course of a month \((M = 1.00, SD = 6.07)\) and number of activities in which each guest participated during that month \((M = 7.78, SD = 7.61)\).

Given this arrangement, it could be the case that two groups “cancel each other out,” yielding a statistically non-significant change in overall BATEM means from baseline to follow-up. Results indicated that participation and change were not significantly correlated, \(r(34) = .08, p = .67\). Exploratory analyses of bivariate correlations between number of activities and individual item change scores were also conducted. However, these analyses yielded no significant results. Finally, analyses of bivariate correlations between number of activities and point-in-time (as opposed to change or difference) BATEM scores at baseline and follow-up were conducted. These analyses yielded no significant correlations between participation and BATEM on any general (i.e., not-activity-related) items or subscales, either at baseline or follow-up.

**Exploratory analyses using method of contrasting groups.** Follow-up analyses using the method of contrasting groups (Anastasi & Urbina, 1997) was employed to examine the possibility that significant group-related differences in participation-based score changes only appear when comparing extreme groups (i.e., very high vs. very low
participation groups). It is hoped that these exploratory analyses will inform the development of hypotheses as this participatory community action research project continues to unfold. These exploratory analyses examine the following question: Does frequency of BA participation result in differential change scores at high and low extremes? In order to examine this question, exploratory independent-samples t-tests were conducted comparing the BATEM scores of high-participation and low-participation groups at two different cut-off points.

*The first cutoff score used to compare the BATEM change scores defined “high” versus “low” participation groups based on the criterion of one standard deviation above and below the participation mean. (SD = 7.61)*. Because the average participant took part in just under eight activities over the course of a month ($M = 7.78$), following the stated rule resulted in a “low-participation” group whose members participated in one or fewer activities ($N = 9$), and a “high-participation” group whose members participated in fifteen or more activities ($N = 6$). Independent-samples t-tests were then conducted comparing the BATEM change scores of high- and low-participation groups at the comprehensive and individual-item levels. Because there was an *a priori* expectation that high participation would result in higher scores than would low participation, only 1-tailed t-test results are reported.

Results of independent-samples t-tests analyzing the complete BATEM revealed no significant differences in change scores between the high-participation ($M = .40, SD = 2.41$) and low-participation ($M = - .89, SD = 8.08$) groups, $t(12) = .343, p = .74$.  

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Likewise, no individual item change scores displayed significant differences between high- and low-participation groups.

The second cutoff scores defined the “low-participation” group as guests who participated in three or fewer activities ($N = 14$) and the “high participation” group as guests who participated in ten or more activities ($N = 11$). These arbitrary cut-offs were selected because they equally expanded each group’s sample by five participants for most analyses. Once again, independent-samples $t$-tests were conducted comparing the BATEM change scores of high- and low-participation groups. Results of 1-tailed $t$-tests are reported here. As before, results of independent-samples $t$-tests of the complete measure indicated no significant differences in BATEM change scores between the high-participation ($M = 2.30, SD = 6.34$) and low-participation ($M = -.07, SD = 7.47$) groups, $t(22) = .77, p = .23$. Likewise, no individual item change scores displayed significant differences between high- and low-participation groups.

Point-in-time comparisons of high vs. low BA participation groups. The above results appear to suggest that even stark contrasts in BA participation levels did not predict differential improvement in constructs measured by BATEM. However, difference scores provide only one way to assess participation-driven construct changes over time. Another way of approaching this goal is to assess group-based (i.e., high-frequency vs. low-frequency participation) differences in BATEM scores at baseline, reassess those differences at follow-up, and note any differences that are present only at follow-up. If there are no group-based differences at baseline measurement (i.e., prior to BA participation), but there are differences at follow-up measurement (i.e., after guests
have had an opportunity to differentially participate), differences might be partially attributable to program participation.

In keeping with this logic, further independent samples $t$-tests were conducted comparing the effects of high- and low-frequency participation on all baseline and follow-up BATEM scores. At both baseline and follow-up, analysis of the complete BATEM *general* item scale indicated no significant, group-based differences. However, when using the first cut-off criterion (comparing groups approximately one standard deviation above and below the mean), one item which showed non-significant participation-based differences at baseline was found to be significant at follow-up. Guests who participated frequently ($M = 3.50$, $SD = .55$) rated the sufficiency of the shelter environment (“general” Item 4) significantly higher than guests who participated infrequently ($M = 2.67$, $SD = .87$), $t(13) = 2.08$, $p = .03$. Even after expanding the high- and low-participation groups using the second cut-off criterion, guests who participated frequently ($M = 3.73$, $SD = 1.01$) still rated the sufficiency of the shelter environment (“general” Item 4) significantly higher than guests who participated infrequently ($M = 3.00$, $SD = .96$), $t(23) = 1.84$, $p = .04$. Furthermore, regarding “general” Item 8, guests who participated frequently ($M = 4.55$, $SD = .82$) expressed greater feelings of meaning or purpose in life than guests who participated infrequently ($M = 3.79$, $SD = 1.05$), $t(23) = 1.97$, $p = .03$. These results suggests that guests who participated most frequently experienced improvements in both environmental perceptions and sense of meaning not experienced by their less invested counterparts.
A Related Question: Did Shelter Guests Perceive BA as Positively Influencing Their Psychosocial Growth?

One interpretation of many of the findings listed above is that participation-based change in BATEM often went undetected because BA participation had no meaningful, construct-related impact on participants. An alternative explanation is that, though BA participation might have had a meaningful impact, the evidence of that impact got eclipsed by life stressors unrelated to BA. For example, though a participant might experience increased hope while participating in activities, sudden unemployment could still lead that individual to feel largely hopeless overall. Something that can help elucidate BA’s influence, or lack thereof, on the selected psychosocial domains is guests’ explicitly offered perceptions regarding the unique influence of program participation. Such perceptions were the precise reason for creating the activity-related items in the BATEM follow-up measure.

The reader may recall that each of these items assesses self-reported, activity-driven changes on BATEM constructs (e.g., “Participating in these activities makes me feel more hopeful about the future”). Such changes can be analyzed separately from general changes, which are subject to the influence of variables outside the control of the BA program. Therefore, even if no statistically significant, general changes in constructs occurred between baseline and follow-up measurements, high scores on the activity-related items of the BATEM follow-up measure could still indicate program-driven changes. While the activity-related items of the follow-up BATEM measure were not part of an explicit hypothesis in the present study, it is the case that (a) they are related to the
study’s hypothesis regarding changes in psychological attributes and (b) they are of significant concern in this general program of research and have been an active subject of research interest for some time (Reeb et al., 2014). This is why BATEM was intentionally designed to incorporate the activity-related items at follow-up (Glendening, 2014).

In the subsections below, the following issues are examined: (a) To what extent do participants’ perceptions suggest that BA participation contributed to their personal growth? (b) Is level of participation in BA associated with participants’ perceptions regarding the value of BA activities for their personal growth?

**Guests’ perceptions regarding value of BA participation for their personal growth.** To directly analyze guests’ perceptions of the effects of BA activities, one-sample t-tests were conducted comparing each activity-related item of the BATEM follow-up measure (scored from 1 to 5) to a test value score of 3. Endorsements of BA effects were compared to a test value of 3 (moderate endorsement) rather than 1 (no endorsement) because this more conservative comparison allowed for a more meaningful interpretation of any significant results. Significant findings were indicated for Item 1 (“These activities improve my quality of life in the shelter”; M = 4.28, SD = .91), t(35) = 8.39, p < .0001, Item 2 (“Participating in these activities helps me feel less depressed or anxious”; M = 4.17, SD = 1.13), t(35) = 6.17, p < .0001, Item 3 (“By participating in these activities, I get social or emotional support”; M = 4.14, SD = 1.13), t(35) = 6.07, p < .0001, Item 4 (“These activities make the shelter environment more tolerable”; M = 4.23, SD = .91), t(34) = 7.99, p < .0001, Item 5 (“These activities improve my
relationships with shelter staff”; \( M = 3.75, SD = 1.25 \), \( t(35) = 3.60, p < .01 \), Item 6 ("Participating in these activities makes me feel more hopeful about the future”; \( M = 4.25, SD = .91 \), \( t(35) = 8.28, p < .0001 \), Item 7 ("These activities help me feel more capable and motivated for education or work”; \( M = 3.89, SD = 1.24 \), \( t(35) = 4.31, p < .0001 \), Item 8 ("Participating in these activities makes me feel that life has more meaning or purpose”; \( M = 4.06, SD = .98 \), \( t(35) = 6.44, p < .0001 \), and Item 9 ("It is important for the activities at the shelter to continue”; \( M = 4.74, SD = .61 \), \( t(34) = 16.88, p < .0001 \).

As can be seen, even after selecting a conservative test value, all one-sample \( t \)-tests were significant at least at the \( p < .01 \) level. Given the wording of each activity-related item, these results amount to guest endorsements of program-driven changes on every construct measured by BATEM. Thus, self-reported endorsements of activities suggest BA participation may improve guests’ experience of focal BATEM constructs. However, participation benefits might be overshadowed by the influence of variables extraneous to activity participation (e.g., loss of a job, loss of a spouse, onset of health problems, etc.).

**Relationship between level of guests’ BA participation and guests’ perceptions of BA contributions to psychosocial growth.** In order to examine the effect of participation level on perceptions of BA, the activity-related scores of high- and low-frequency participants were compared. Following the organization in the previous subsection, this participation frequency is examined using two cut-off scores.
**Cut-off 1: One standard deviation above and below the mean.** The previous comparison of extreme participation groups placed cut-offs for group inclusion at approximately one standard deviation above and below the participation mean ($M = 7.78$, $SD = 7.61$). Using this criterion, analysis of the complete activity-related subscale of the follow-up measure was conducted. As a reminder, activity-related items are the subset of follow-up BATEM items that assess participants’ perceptions regarding the influence of BA on personal, psychosocial growth (e.g., “Participating in these activities makes me feel more hopeful about the future”). This analysis indicated significant differences between the low-participation ($M = 30.44$, $SD = 7.25$) and high-participation ($M = 36.17$, $SD = 2.79$) groups when excluding Item 9, $t(11.07) = 2.14$, $p = .03$. Differences between the low-participation ($M = 35.11$, $SD = 7.74$) and high-participation ($M = 41.17$, $SD = 2.79$) groups remained significant once Item 9 was re-introduced to the analysis, $t(10.77) = 2.15$, $p = .03$. Between-group significance on the activity-related BATEM subscale was driven by several individual items. High participation predicted significantly higher scores than low participation on Item 1 (“These activities improve my quality of life in the shelter”), $t(13) = 1.90$, $p = .04$, Item 2 (“Participating in these activities helps me feel less depressed or anxious”), $t(8) = 2.12$, $p = .03$, Item 3 (“By participating in these activities, I get social or emotional support”), $t(10.32) = 2.14$, $p = .03$, and Item 6 (“Participating in these activities makes me feel more hopeful about the future”), $t(13) = 2.13$, $p = .03$.

**Cut-off 2: Expanded comparison groups.** As before, the second comparison of extreme participation groups compared a “low-participation” group whose members participated in three or fewer activities, and a “high participation” group whose members
participated in ten or more activities. Using this metric, analysis of the complete, activity-related BATEM subscale indicated significant differences between the low-participation ($M = 32.46, SD = 6.79$) and high-participation ($M = 36.55, SD = 2.70$) groups when excluding Item 9, $t(16.22) = 1.99, p = .03$. Differences between the low-participation ($M = 37.23, SD = 7.21$) and high-participation ($M = 41.36, SD = 2.94$) groups remained significant once Item 9 was re-introduced to the analysis, $t(16.42) = 1.89, p = .04$. As before, significance was driven by several individual items. High participation predicted significantly higher scores than low participation on Item 2 (“Participating in these activities helps me feel less depressed or anxious”), $t(15.45) = 1.99, p = .03$, Item 3 (“By participating in these activities, I get social or emotional support”), $t(15.74) = 2.84, p < .01$, and Item 6 (“Participating in these activities makes me feel more hopeful about the future”), $t(21.45) = 2.00, p = .03$.

**Bivariate correlation between number of activities and activity-related follow-up items.** A related analysis examined the bivariate relationship between the number of activities in which participants were involved and their responses on the activity-related items of the BATEM follow-up measure. This analysis revealed a significant relationship between number of activities and the subscale as a whole. This was true when including Item 9 (“It is important for the activities at the shelter to continue”), $r(32) = .34, p < .05$, and when excluding Item 9, $r(33) = .34, p < .05$.

The above findings speak only to activity-related BATEM follow-up items, and are not evidence of participation-driven score changes from baseline to follow-up. Still,
these findings suggest that, relative to less involved participants, frequent participators perceive BA to be a more positive contribution to their personal growth.
DISCUSSION

Too many individuals experience the trials of living without a steady home. These trials challenge the mind and the will as much as they do the body, and any system which addresses only the needs of the latter is necessarily incomplete. This is a core belief of the overarching BA program of which the present study forms only a part. The program aims to enhance psychosocial domains depleted by poverty and homelessness (e.g., hope, social support, sense of empowerment, sense of purpose in life, emotional well-being) in order to help individuals move beyond restrictive patterns of unemployment and housing instability. The present study set out to validate the Behavioral Activation Treatment Efficacy Measure (BATEM), a psychometric instrument designed to assess the success of BA in providing psychosocial enhancement. Three hypotheses were established, which anticipated that BATEM would display: (1) strong internal consistency; (2) an ability to differentiate between individuals with mental illness and/or substance abuse history and those with no such history; and (3) an ability to discern, on the basis of greater growth across psychosocial domains, between those who frequently participate in BA and those who participate infrequently. Due to the small sample size of this study, results should be viewed as preliminary in nature.
Preliminary Evidence of BATEM’s Reliability

Hypothesis 1 predicted high internal consistency for BATEM. Preliminary evidence concerning this hypothesis was promising. Computations of Cronbach’s alpha suggested a highly reliable measure at baseline (\(\alpha \approx .80\)). This was true with or without the inclusion of an item intended as an evaluative endorsement of the BA program rather than as a self-report of psychosocial changes. Interestingly, one of the BATEM items least correlated to the others at baseline administration, and therefore discordant with the overall harmony of the measure, was Item 5 ("In general, I get along with shelter staff"). Perhaps relevant to this finding is the fact that this item received a high level of agreement, relative to nearly all other BATEM items, at both baseline \((M = 4.40, SD = .84)\) and follow-up \((M = 4.11, SD = 1.04)\) administration. All assessment forms have spaces for guests to provide comments. As the sample size becomes increasingly larger in this ongoing study, it would be interesting, from both practical and research-related viewpoints, to examine this qualitative data in order to better understand the meaning of guests’ ratings on this particular item. In addition, guest interviews focused on this topic could be informative avenue for research in the future.

Internal consistency for BATEM at follow-up was analyzed in two sections: one section containing the aforementioned general follow-up items (i.e., items taken from the baseline measure and capturing overall or general psychosocial changes) and one section containing the parallel but separate activity-related follow-up items (i.e., items measuring participants’ perceptions of BA effects on psychosocial change). Once again, internal consistency was high (all \(\alpha \geq .82\)), and remained so with or without the inclusion of
items designed solely to evaluate the BA program (e.g. “I believe that the activities of this study are important for guests at this shelter”). The combined findings regarding the internal consistency of BATEM lend robust support to Hypothesis 1, though research on this new measure should be viewed as preliminary and in need of replication. Future research should also examine other forms of reliability and generalizability regarding the BATEM.

**Preliminary Validity of BATEM**

**Criterion-oriented validity.** Whereas internal consistency appeared rather strong, the results of some validity-related analyses of the BATEM were more complicated, sometimes subtle, and sometimes inconclusive. For example, Hypothesis 2 predicted that, at baseline, participants without a background of mental illness and/or substance abuse would display significantly higher BATEM scores (i.e., scores in the non-clinical direction) than those with a history of these problems. While the respective groups’ mean scores on the complete baseline measure were in the expected directions, the measure failed to reach statistical significance when observed in its entirety. In fact, only Item 1 of the baseline measure (“In general, my quality of life is good”) displayed the expected criterion-oriented validity, though Item 2 (“In general, I am not bothered by depression or anxiety”) approached significance.

One methodological limitation associated with the examination of Hypothesis 2 is reliance on participant self-report. This methodological limitation was not only associated with administration of the BATEM, but was also pertinent to the Homeless Management Information System (HMIS) intake forms, which all guests complete upon entering the
shelter per routine shelter policy. Recall that these forms, which ask questions about past mental health and substance abuse history, were central to the analysis of Hypothesis 2. However, it is entirely possible for guests responding to HMIS questions upon shelter entry to minimize or exaggerate the report of past problems on the HMIS. Potential motivations or reasons for false reporting include suspicion (e.g., fear of negative outcomes linked to truthful reporting), attempt to maximize services received (e.g., exaggerating problems in the hope that shelter staff will provide additional services), and false self-perception (e.g., lack of complete awareness regarding personal mental health status). For this reason, the accuracy of HMIS entry data is not completely verifiable.

Though Hypothesis 2 did not directly concern BATEM follow-up scores, analyses of BATEM follow-up scores might help inform the criterion-oriented findings from the baseline measure. In fact they essentially mirror those findings. Neither the general item subset of the follow-up measure (i.e., those items carried over from the baseline measure) nor the activity-related item subset (i.e., those items specifically measuring the effect of BA) significantly differentiated between mental illness and substance abuse history groups when analyzed as complete sets. Item 4 of the general, follow-up item subset (“In general, the shelter environment is sufficient”) did significantly differentiate between groups when a 1-tailed $t$-test was used. Those with a mental illness history recorded significantly higher general (i.e., not activity-related) satisfaction at post-test than participants with either a combined history of mental illness and substance abuse or those with neither history. While the first part of this finding was in the expected direction, the latter part was something of a surprise. One possibility regarding the latter finding is that:
(a) shelter staff provide more or individualized attention to individuals who are known to have a mental illness (possibly explaining why those with mental illness view the shelter as more sufficient); but (b) some guests with comorbid substance abuse problems may fear negative consequences of their use from (e.g., shelter exit), making them less able to enjoy the shelter environment.

What do these criterion-oriented findings suggest about the validity of BATEM? To some extent, this is open to interpretation. The result that one baseline item differentiated between groups while the baseline measure as a whole did not might indicate that only this item has criterion-related validity for differentiating the groups. However, it is noteworthy that the group means were in the expected direction, and this finding raises the possibility that the participant pool was simply too small to discern underlying group differences. High attrition meant insufficient sample size was a particular danger for the follow-up measure, which relied on approximately one-third the sample present for the baseline analyses. Attrition largely resulted from guests exiting the shelter or withdrawing participation prior to follow-up assessment, and it poses two problems regarding the analysis of Hypothesis 2. First, it shrinks sample size, thereby diminishing statistical power. Second, it makes it impossible to know whether data from absent participants would be more or less supportive of Hypothesis 2 if, in fact, it had been possible to assess each and every shelter guest at follow-up. Furthermore, as was already noted, the HMIS intake information that was central to the criterion-oriented validity analysis is based on self-report data, the accuracy of which is not entirely verifiable.
Another curious result is the ambiguous significance of Item 4 (“In general, the shelter environment is sufficient”) on the follow-up measure. It is unclear why those with a history of mental illness might find the shelter environment more sufficient than those without such a history. Perhaps shelter staff members offer greater sympathy or more personalized attention toward guests with known mental illnesses, though this is merely a speculation. Furthermore, it is unclear why Item 1 (“In general, my quality of life is good”) reached significance at baseline but not at follow-up, though one could understand how the stress and uncertainty of living even in a well-run homeless shelter could diminish quality of life over time. Finally, one can only speculate as to why Item 4 (“In general, the shelter environment is sufficient”) reached significance at follow-up but not at baseline. Perhaps, as length of shelter stay increases, guests become more comfortable with, or resigned to, their new surroundings or, in contrast, end up to justifying to themselves that the nature of their presently inescapable situation is somehow satisfactory. Given the ongoing nature of the BA research project, it will be possible in the near future to re-examine Hypothesis 2 with a larger participant sample. Meanwhile, the present results of Hypothesis 2, though inconclusive, warrant further examination regarding the criterion-oriented validity of BATEM. 

**Change Over Time.** Results corresponding to Hypothesis 3 were also somewhat complicated to interpret. For example, the hypothesis predicted that high participation in BA, relative to low participation, would correspond to greater improvement on the psychosocial domains measured by BATEM. Though participants’ mean BATEM scores did change in the expected direction over the course of a month, the change was not
significant for the measure as a whole or for any individual item. Of note, Item 3 (“I generally have good social or emotional support”) did approach significance when using a 1-tailed analysis. As already mentioned, a small sample size for the baseline-to-follow-up assessment limited the statistical power of the change analysis, which is particularly noteworthy given that the changes in means were in the expected direction. Thus, this study provides preliminary findings that warrant further study, and the problem of small sample size will be alleviated as data collection continues in this ongoing research project. Also important to remember is the fact that change (or difference) scores, on which the above findings are based, are only one of multiple ways to assess growth over time. As such, the appearance of stagnant psychosocial growth over the period of BA participation is perhaps open to interpretation. The results must be interpreted in light of methodological limitations to difference scores (e.g., occasional tendency to weaken bivariate correlations; Edwards, 2001).

The outcome of non-significant bivariate correlations between BATEM score changes and level of participation appears to call into question the BATEM’s sensitivity to change, as predicted in Hypothesis 3. Before succumbing to premature conclusions, however, exploratory analyses were designed based on the researchers’ suspicions that participation-based differences in psychosocial improvement might only statistically appear when comparing extremely high- and low-participation groups. The exploratory analyses once again examined participation-based effects on BATEM change scores, but this time the analyses contrasted the results of discrete subgroups rather than the sample as a continuous whole.
As reported, the first exploratory analysis found nearly no significant group differences in BATEM scores. This result occurred despite clearly defined high- and low-participation groups and the use of 1-tailed tests. Notable exceptions to the rule of non-significance were several follow-up, activity-related items and the activity-related subscale as a whole. Results of the second analysis, which expanded the high- and low-participation groups to include larger portions of the overall sample, essentially mirrored those of the first analysis. That is, participation predicted different patterns of responses for only the activity-related subscale of the follow-up BATEM measure and a few of the items on that subscale. Recall that these items were designed to assess participants’ perceptions of BA as a unique influence on their psychosocial experience. Though the many participation-based differences in activity-related responses are interesting, at present they remain a preliminary correlation. It remains unclear whether frequent participation (a) leads to greater endorsement of BA effects, (b) is the result of participants’ preexisting assumptions that BA is effective, or (c) constitutes some combination of these factors. Also, it is unlikely that all activities are equally beneficial for all participants, and future research will need to look into differential effects of different kinds of BA activities. In any case, it is certainly encouraging that, despite its voluntary nature, the current BA program draws regular participants who seem to find their involvement rewarding.

The findings of the exploratory analyses, like many of the findings in the present study, are difficult to interpret. Though at face value they appear to suggest that either: (a) BA participation does not lead to general psychosocial change, or (b) the BATEM
general items do not capture BA’s positive influence on general psychosocial change, because BA participation is one of many aspects of the guest’s life, many of which may be negative (e.g., loss of a job, difficulty obtaining housing, health problems, etc.). The latter issue reinforces the importance of results regarding BATEM activity-related items at follow-up (i.e., items assessing guests’ perceptions of the relationship between BA and their psychosocial well-being), which are addressed in the next section. Moreover, the reader will recall that, while analyzing participation-based differences in BATEM scores using the method of contrasting groups, it was found that participation level predicted group differences in two domains at follow-up that it did not predict at baseline. These domains were better environmental perceptions and greater sense of meaning. One interpretation of this finding is that high-frequency participation contributed to greater improvement of environmental perceptions and feelings of purpose did than low-frequency participation. Furthermore, any judgments regarding the exploratory analyses outlined above should be made in light of the methodological limitations of the present study, most notably its small sample size (though this will be addressed as BA research continues).

**Shelter Guests’ Perceptions of BA Participation Effects on Psychosocial Well-Being**

The results of the analyses concerning Hypothesis 3 were limited by several factors, not the least of which was sample size. Another key limitation is the difficulty in separating psychosocial development related to BA activities from the uncontrollable influences of everyday life. Even if frequency of BA participation leads to psychosocial influences over time, there is no guarantee that those changes will be powerful enough to
countervail the effects of challenges unrelated to that participation. A participant may experience elevated hope while in the midst of a BA activity but report overall decreases in hope over time due to job loss, insufficient sleep, or recurring struggles with addiction. This was the primary reason for the inclusion of the activity-related subscale in the BATEM follow-up measure. It was designed to word items in a way that allows participants to evaluate the psychosocial effects of BA independently from the effects of unrelated influences (e.g., “Participating in these activities makes me feel more hopeful about the future”). In the interest of thoroughness, the final analysis of this study examined participants’ explicitly stated perceptions of BA as it relates to their own psychosocial well-being.

While the results of this particular analysis do not directly correspond with the change-related expectations associated with Hypothesis 3, the findings are relevant to this hypothesis and support the idea that BA is a beneficial addition to the shelter environment. Furthermore, perceptions of BA as reported in the activity-related items of the BATEM follow-up measure have been monitored closely for more than a year due to their importance to the overarching program of research. Respondents reported perceptions that BA improved their experience regarding every psychosocial domain covered in the activity-related subscale of the BATEM follow-up measure. Moreover, because of the conservative design of this analysis, it can be said that participants’ perceptions of BA were significantly more positive than even moderate endorsement of the program’s effects. This finding is important to note because it appears to support the
earlier notion that BA may have discernible psychosocial benefits which life events render difficult to capture using traditional change scores.

**Overview of Limitations and Recommendations for Further Research**

As the results of this study have been discussed in this section, methodological limitations and potential research directions of the present study have been noted along the way. At this point, a more systematic review of limitations, each of which is linked to one or more recommendations for research is provided.

One important limitation to the present study is its small sample size, which considerably impedes sensitivity to significant findings. Although over 105 shelter guests completed BATEM baseline surveys, attrition prior to follow-up was quite high, due in part to the unpredictable nature of both the shelter’s functioning (e.g., guests may suddenly obtain housing) and the behavior of some guests (e.g., unexplained shelter exit). The sample at follow-up BATEM administration was approximately a third of the baseline sample. Table 2 shows attrition levels as a function of background history. With a larger sample, future research will allow for more sophisticated examinations of whether or not attrition rates differ based on mental health or substance abuse history.

Because data collection will continue beyond the present analysis, the problem of baseline sample size will be resolved naturally as more individuals participate in the overall BA project. As the number of participants grows, future studies should periodically replicate and reevaluate the present analyses. Regarding attrition, future researchers are encouraged to constantly seek more systematic methods for identifying guests in need of post-test BATEM administrations.
Table 2
Attrition by Membership in Substance Abuse and Mental Illness History Demographic Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Present at Baseline</th>
<th>Present at Follow-up</th>
<th>Percentage Retained</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>% of Total N (105)</td>
<td>N</td>
</tr>
<tr>
<td>No Mental Health or Substance Abuse History</td>
<td>48</td>
<td>45.71</td>
<td>16</td>
</tr>
<tr>
<td>Mental Health History</td>
<td>25</td>
<td>23.81</td>
<td>7</td>
</tr>
<tr>
<td>Substance Abuse History</td>
<td>15</td>
<td>14.29</td>
<td>6</td>
</tr>
<tr>
<td>Combined History</td>
<td>16</td>
<td>15.24</td>
<td>6</td>
</tr>
<tr>
<td>No Response to Question</td>
<td>1</td>
<td>0.95</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. Percentages in first column taken from total N of 105 (i.e., those present at baseline); Percentages in second column taken from total N of 36 (i.e., those present at follow-up); Percentages in third column represent portion of demographic group present at baseline and still present at follow-up.

A second limitation of the present study is its reliance on self-report instruments. Though self-report offers the kind of direct access to thoughts and feelings which this study desires, it is also susceptible to intentional and accidental inaccuracies. For example, the mental illness and substance abuse information used to address Hypothesis 2 was taken from self-reported responses on HMIS intake forms. Some guests may misinform interviewers about their mental health or substance abuse history because of mistrust, compromised mental capacities, or various other reasons. In fact, the personal experiences of researchers involved in the present study (e.g., witnessing active psychosis in an individual with no HMIS mental health history) corroborate that suspicion.

Likewise, because both the baseline and follow-up BATEM instruments rely on self-report, the reliability of the data they yield depends on participants’ levels of investment.
and capacities for introspection. Future validation research regarding BATEM should seek to complement the methods used in the present study with other techniques. For example, rather than relying solely on guests’ self-reports to determine mental health status, participants could be asked to take part in mental health intake evaluations performed by professional diagnosticians.

Third, the methodological paradigm used for this study was not experimental. Due to ethical considerations, the researchers were unable (and unwilling) to deny access to BA to any shelter guest. As a result, participants could not be randomly placed into experimental and control conditions. Moreover, the often unpredictable nature of the shelter setting made it extremely difficult to control for extraneous variables which might have increased statistical error. Though the task will be difficult, future studies can take several steps toward an increasingly ideal BA design. Steps include the introduction of control groups (e.g., similarly situated men’s shelters) and the exploration of ethical avenues for randomization.

Fourth, the generalizability of the present findings is limited by the exclusively male sample used in this study. It should be noted, however, that the BA project was extended to a local women’s homeless shelter in February 2015. BATEM validation studies should be replicated at that site as well, as this step will expand and diversify the overall validation sample. Moreover, any diverging patterns that emerge between the male and female populations may lead to important future research questions.

Finally the present study does not connect its findings to participants’ long-term employment and return to shelter outcomes. Nor does it compare those outcomes to those
of individuals in homeless shelters without BA. The reader will recall that examining the relationship between housing and employment outcomes and the psychosocial changes BATEM seeks to capture is a primary long-term goal of the overarching BA project. This is an ambitious goal and will require a rigorous methodological model involving multiple research sites. Though accomplishing this task would have been a premature endeavor at the time of the present work, doing so remains a priority of the BA research program.
SUMMARY AND CONCLUSION

The present study set out to validate a new psychometric instrument called the Behavioral Activation Treatment Efficacy Measure (BATEM). This instrument, once shown to be valid, will provide valuable assessment of an ongoing Behavioral Activation research program in Dayton, Ohio. This initial validation study examined three \textit{a priori} hypotheses. These hypotheses predicted that BATEM would display: (1) strong internal consistency; (2) an ability to differentiate between individuals with mental illness and/or substance abuse history and those with no such history; and (3) an ability to discern, on the basis of greater growth across psychosocial domains, between those who frequently participate in BA and those who participate infrequently. After careful analysis, there appears to be strong support for the first of these hypotheses. Initial findings concerning the latter two hypotheses are less supportive, but become more difficult to interpret in light of further exploratory analyses and the noted methodological limitations. Further research, conducted with a larger and more diverse sample and directed by the recommendations listed above, can and should address the ambiguous results related to Hypotheses 2 and 3.

The series of findings pertaining to the activity-related items of BATEM at follow-up (e.g., \textit{“Participating in these activities makes me feel more hopeful about the future”}), while not corresponding directly to the \textit{a priori} hypotheses of the study,
highlight the importance of that set of items. Shelter guests’ endorsement of those items at follow-up strongly suggests they view the BA project as beneficial to both their own psychosocial well-being and the shelter environment. It is likely that the activity-related subscale will play an important role in future attempts to understand the influence of BA in homeless shelters, and these items should be one of the focal points of future research. Research incorporating the above recommendations is vital to the continuing evolution of the living document that is the Behavioral Activation Treatment Efficacy Measure. It serves not only scientific progress but also the untold number of homeless men and women who will benefit from future Behavioral Activation interventions.
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APPENDIX A

Updated Federal Definitions of Homelessness

Table A-1
New Federal Definition for Homelessness: The Four Categories of Homeless People

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Literally Homeless</td>
<td>“An individual or family who lacks a fixed, regular, and adequate nighttime residence.” This includes: (a) “An individual or family with a primary nighttime residence that is a public or private place not designed for or ordinarily used as a sleeping accommodation for human beings…”; (b) “An individual or family living in a supervised publicly or privately operated shelter designed to provide temporary living arrangements…”; or (c) “An individual who is exiting an institution where he or she resided for 90 days or less and who resided in an emergency shelter or place not meant for human habitation immediately before entering that institution.”</td>
</tr>
<tr>
<td>2. Imminent Risk of Homelessness</td>
<td>“An individual or family who will imminently lose their primary nighttime residence,” provided that: (a) “The primary nighttime residence will be lost within 14 days of the date of application for homeless assistance”; (b) “No subsequent residence has been identified”; or (c) “The individual or family lacks the resources or support networks… needed to obtain other permanent housing.”</td>
</tr>
<tr>
<td>3. Homeless Youth and Families</td>
<td>“Unaccompanied youth under 25 years of age, or families with children and youth, who do not otherwise qualify as homeless under this definition,” but who, (a) are defined as homeless under other federal laws; (b) “Have not had a lease, ownership interest, or occupancy agreement in permanent housing at any time during the 60 days immediately preceding the date of application for homeless assistance”; (c) Have experienced persistent instability as measured by two moves or more during the 60-day period immediately preceding the date of applying for homeless assistance”; or (d) “Can be expected to continue in such status for an extended period of time because of chronic disabilities…histories of domestic violence or childhood abuse…two or more barriers to employment…”</td>
</tr>
<tr>
<td>4. Fleeing Life-Threatening Conditions</td>
<td>“Any individual or family” who: (a) “is fleeing…domestic violence, dating violence, sexual assault, stalking, or other dangerous or life-threatening conditions that relate to violence against the individual or a family member…”; (b) “has no other residence”; or (c) “lacks the resources or support networks…to obtain other permanent housing.”</td>
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</table>

APPENDIX B

Psychosocial Process Measure for Homeless Individuals (PPMHI)

Guest Code Number: ____________________

Directions for Code Number: The code is the day of the month that you were born and the street address number of the house where you grew up. For example, if a person was born on March 17, than the first two numbers of the code would be “17.” If that person grew up in a home on 107 Smith Street, than the last three numbers of the code would be “107.” In this example, the person’s code would be “17107.”

Directions: For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

1. I was satisfied with my quality of life.

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<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>Not true during past week</td>
<td>Somewhat true during past week</td>
<td>Very true during past week</td>
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2. I was satisfied with my personal relationships.

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<td>Somewhat true during past week</td>
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</table>
**Directions:** For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

3. **I felt safe in my daily environment.**

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4. **I often felt hopeful about the future.**

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5. **I felt confident in planning actions.**

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</table>
**Directions:** For each item, please circle the number on the scale provided in order to show whether the statement was true about you **DURING THE PAST WEEK OR SO.**

6. I felt confident in following through on plans.

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<td>Somewhat true during past week</td>
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7. I felt confident that I could get emotional support from friends and family.

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8. I felt confident that I could get emotional support from community organizations or resources.

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</table>
Directions: For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

9. I believed that I would be able to eventually overcome the problem of homelessness.

1                      2                      3                      4                      5
Not true                                         Somewhat true                                  Very true during during past week                           during past week                               past week

during past week                           during past week                               past week

10. Even when things didn’t go my way, I was confident that I could keep myself calm and in good spirits.

1                      2                      3                      4                      5
Not true                                         Somewhat true                                  Very true during during past week                           during past week                               past week

11. I often felt like a failure.

1                      2                      3                      4                      5
Not true                                         Somewhat true                                  Very true during during past week                           during past week                               past week

Very true during past week
Directions: For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

12. I often took a positive attitude towards myself.

1                      2                      3                      4                      5
Not true during past week Somewhat true during past week Very true during past week

13. I often felt depressed, sad, or blue.

1                      2                      3                      4                      5
Not true during past week Somewhat true during past week Very true during past week


1                      2                      3                      4                      5
Not true during past week Somewhat true during past week Very true during past week
Directions: For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

15. Even when I tried hard to accomplish something, my behavior didn’t seem to make a difference.

1 2 3 4 5
Not true during past week Somewhat true during past week Very true during past week

16. I was often anxious, nervous, or upset.

1 2 3 4 5
Not true during past week Somewhat true during past week Very true during past week

17. I often felt awkward or out of place.

1 2 3 4 5
Not true during past week Somewhat true during past week Very true during past week
**Directions:** For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

### 18. Life seemed empty or meaningless.

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<td>Somewhat true during past week</td>
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### 19. Society’s values and rules seemed unclear or worthless to me.

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### 20. It was hard to know who could be trusted.

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<td>Very true during past week</td>
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</table>
Directions: For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

21. I often felt that I had a purpose in life.

1  2  3  4  5
Not true during past week  Somewhat true during past week  Very true during past week

22. I often felt powerless.

1  2  3  4  5
Not true during past week  Somewhat true during past week  Very true during past week

23. People often looked down on me or treated me unfairly because I am homeless.

1  2  3  4  5
Not true during past week  Somewhat true during past week  Very true during past week
Directions: For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

24. I felt motivated for work or education.

1  2  3  4  5
Not true during past week  Somewhat true during past week  Very true during past week

25. I spent time working, searching for a job, or looking into educational opportunities.

1  2  3  4  5
Not true during past week  Somewhat true during past week  Very true during past week

26. I participated in meaningful activities.

1  2  3  4  5
Not true during past week  Somewhat true during past week  Very true during past week
Directions: For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

27. I enjoyed participating in activities.

1                             2                             3                             4                             5
Not true during past week     Somewhat true during past week   Very true during past week

28. I often felt motivated to obey laws.

1                             2                             3                             4                             5
Not true during past week     Somewhat true during past week   Very true during past week

29. I often felt motivated to use alcohol or drugs.

1                             2                             3                             4                             5
Not true during past week     Somewhat true during past week   Very true during past week
Directions: For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

30. In general, staff members and guests got along well.

1                      2                      3                      4                      5
Not true during past week Somewhat true during past week Very true during past week

31. I felt safe in this shelter.

1                      2                      3                      4                      5
Not true during past week Somewhat true during past week Very true during past week
Directions: For each item, please circle the number on the scale provided in order to show whether the statement was true about you DURING THE PAST WEEK OR SO.

32. When I was in the shelter, I felt at ease.

1 2 3 4 5
Not true during past week Somewhat true during past week Very true during past week

33. Guests care about each other in the shelter.

1 2 3 4 5
Not true during past week Somewhat true during past week Very true during past week

34. I believe that the activities of this study are important for the guests at this shelter.

1 2 3 4 5
Not true during past week Somewhat true during past week Very true during past week
APPENDIX C

Behavioral Activation Treatment Efficacy Measure (BATEM): Baseline

Guest Code Number: ___________________

**BEHAVIORAL ACTIVATION PROGRAM QUESTIONNAIRE**

1. In general, my quality of life is good.
   1  2  3  4  5
   Not true   Somewhat true       Very true
2. In general, I am not bothered by depression or anxiety.
   1  2  3  4  5
   Not true   Somewhat true       Very true
3. I generally have good social or emotional support.
   1  2  3  4  5
   Not true   Somewhat true       Very true
4. In general, the shelter environment is sufficient.
   1  2  3  4  5
   Not true   Somewhat true       Very true
5. In general, I get along well with shelter staff.
   1  2  3  4  5
   Not true   Somewhat true       Very true
6. In general, I feel hopeful about the future.
   1  2  3  4  5
   Not true   Somewhat true       Very true
7. I generally feel capable and motivated for education or work.
   1  2  3  4  5
   Not true   Somewhat true       Very true
8. In general, I feel that life has meaning or purpose.
   1  2  3  4  5
   Not true   Somewhat true       Very true
9. I think it is beneficial to have activities at the shelter.
   1  2  3  4  5
   Not true   Somewhat true       Very true
APPENDIX D

Behavioral Activation Treatment Efficacy Measure (BATEM): Follow-up

Guest Code Number: ___________________

BEHAVIORAL ACTIVATION PROGRAM QUESTIONNAIRE

QUALITY OF LIFE:

a. In general, my quality of life is good.

1  2  3  4  5
Not true    Somewhat true       Very true

b. These activities improve my quality of life in the shelter.

1  2  3  4  5
Not true    Somewhat true       Very true

ANXIETY OR DEPRESSION:

a. In general, I am not bothered by depression or anxiety.

1  2  3  4  5
Not true    Somewhat true       Very true

b. Participating in these activities helps me feel less depressed or anxious.

1  2  3  4  5
Not true    Somewhat true       Very true

SOCIAL OR EMOTIONAL SUPPORT:

a. I generally have good social or emotional support.

1  2  3  4  5
Not true    Somewhat true       Very true
b. By participating in these activities, I get social or emotional support.

1  2  3  4  5
Not true  Somewhat true  Very true

SHELTER CLIMATE:

a. In general, the shelter environment is sufficient.

1  2  3  4  5
Not true  Somewhat true  Very true

b. These activities make the shelter environment more tolerable.

1  2  3  4  5
Not true  Somewhat true  Very true

RELATIONSHIP WITH STAFF:

a. In general, I get along well with shelter staff.

1  2  3  4  5
Not true  Somewhat true  Very true

b. These activities improve my relationships with shelter staff.

1  2  3  4  5
Not true  Somewhat true  Very true

FEELINGS OF HOPE:

a. In general, I feel hopeful about the future.

1  2  3  4  5
Not true  Somewhat true  Very true

b. Participating in these activities makes me feel more hopeful about the future.

1  2  3  4  5
Not true  Somewhat true  Very true
MOTIVATION AND SELF-EFFICACY:

a. I generally feel capable and motivated for education or work.

   1 2 3 4 5
   Not true Somewhat true Very true

b. These activities help me feel more capable and motivated for education or work.

   1 2 3 4 5
   Not true Somewhat true Very true

MEANING OR PURPOSE IN LIFE:

a. In general, I feel that life has meaning or purpose.

   1 2 3 4 5
   Not true Somewhat true Very true

b. Participating in these activities makes me feel that life has more meaning or purpose.

   1 2 3 4 5
   Not true Somewhat true Very true

IMPORTANCE OF ACTIVITIES:

a. I think it is beneficial to have these activities at the shelter.

   1 2 3 4 5
   Not true Somewhat true Very true

b. It is important for the activities at the shelter to continue.

   1 2 3 4 5
   Not true Somewhat true Very true
APPENDIX E

Activity Evaluation Process Measure

Guest Code Number: ____________________

Directions for Code Number: The code is the day of the month that you were born and the street address number of the house where you grew up. For example, if a person was born on March 17, than the first two numbers of the code would be “17.” If that person grew up in a home on 107 Smith Street, than the last three numbers of the code would be “107.” In this example, the person’s code would be “17107.”

Activity: ____________________   Date: ________

Please circle the number that best answers the questions about the activity you just completed.

A. How much did you enjoy this activity?

1                      2                       3                      4                      5                      6                      7
Not at all            It was okay                Very enjoyable

B. How meaningful was this activity to you?

1                      2                       3                      4                      5                      6                      7
Not at all            It was okay                Very meaningful

C. How much would you like to do this activity again?

1                      2                       3                      4                      5                      6                      7
Not at all               Maybe                Definitely again

D. I believe that the activities of this study are important for guests at this shelter.

1                      2                       3                      4                      5                      6                      7
Not at all               Maybe                Definitely

Comments:

____________________________________________________________________

____________________________________________________________________

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APPENDIX F

Guest Informed Consent

Project Title: Opportunities to Participate at the Homeless Shelter

Investigator(s): Roger N. Reeb, PhD (faculty sponsor), Greg C Elvers, PhD (faculty sponsor), and student researchers approved to assist with the study.

Description of Study:
If you agree to be in this study, you can do even more activities at the shelter. These activities should be enjoyable and/or helpful to your personal growth. Examples of additional activities that may be available for people in the study are listed below. You get to choose which (if any) activities that you take part in.

- Computer training
- Assistance in job search
- Art participation or appreciation
- Music participation or appreciation
- Movies
- Coffee house (chance to perform music or other artistic expressions)
- Miniature golf
- Gardening
- Yoga, meditation, or other similar activities
- Painting
- Recreational (non-aggressive) activities (examples: ping pong, basketball, flag football)
- Board games
- Creative writing and/or journal writing
- Cooking classes or cookouts
- Exercise classes
- Book club or other reading activities
- Volunteering (example: helping at the shelter or in the community)
- Wood shop
- Learning how to get more out of work experiences
- Learning more about goal-setting, planning, time management, and budgeting
- Learning more about mental illness, substance use, and treatment/support services
- Learning more about access to health care
- Learning more about current events
- Learning more about how to cope with stress
- Social support and sharing sessions (groups may involve other shelter guests,
researchers, and/or community professionals)
- Learning more about self-care and healthy living
- Interfaith worship services
- Inspirational growth (example: listening to a motivational speaker)
- Learning more about planning for housing
- Learning more about legal issues

After each activity, a researcher will ask you a few questions about the activity. In addition, about once a month, a researcher will ask you to complete a brief form that asks about your mood, your current situation, and your thoughts about the shelter. If you agree to participate, researchers will have access to all of the information in your file. A staff member at the shelter will remove your name and other identifying information from the file. If you decide not to participate in this study, the activities at the shelter will still be available to you.

Adverse Effects and Risks:
All activities have been approved by the shelter. Some of the activities have been offered at the shelter in the past. All of the activities are typical of the types of activities provided for guests at the shelter. Activities that involve some risk (e.g., sports) should not have more risk than activities routinely provided at the shelter. Activities will be supervised by a staff member or a researcher. If there is an injury, shelter staff will be available to provide first aid according to routine shelter procedures. The activity supervisor will have cell phone. If there is an emergency, they will alert shelter staff.

Duration of Study:
The study will be ongoing. The duration of activities will vary greatly. You can choose to end your participation at any time. If you leave the shelter and then return, you may resume your participation in this study if you would like to do so, as long as the study is still ongoing at the time of your return.

Confidentiality of Data:
The information gathered in this study will be kept in a locked filing cabinet. Only designated staff and researchers approved to assist with the study will have access to the locked filing cabinet. Your name will not be revealed in any document resulting from this study. Information about you will be kept confidential. However, there are some limits to this confidentiality. First, while researchers will keep information that you share confidential, we cannot guarantee that other shelter guests who are also participating in the activity will keep your information confidential. Second, researchers are required to inform a shelter staff member if information shared by a shelter guest causes us to suspect any of the following: (a) you or someone else is in danger; (b) a child is being (or is at risk of being) injured, abused, or neglected; (c) an adult is being (or is at risk of being) abused; (d) any person with a developmental disability is being (or is at risk of being) abused or neglected; or (e) there is domestic violence or abuse of some kind (or a risk of these problems). In such cases, the shelter staff member will follow through with reporting the information, consistent with shelter policies and Ohio Law.

Contact Person:
If you have a concern, please discuss it with a shelter staff member. If the shelter staff member determines that your concern is relevant to the study or relevant to your rights as a research participant, then she will put you in direct contact with the appropriate professional at the University of Dayton. Otherwise, the staff member will attempt to resolve the matter following routine shelter procedures.
Consent to Participate: I have freely decided to take part in this study. All questions that I have about the study have been answered. This includes questions about the procedures involved and my participation. I know that a researcher will be present to answer any questions during the study. I know that I may quit the study at any time. I know that the researcher may remove me from the study if he or she feels this to be in my best interest. In addition, I certify that I am 18 (eighteen) years of age or older.

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<th>Signature of Guest</th>
<th>Guest’s Name (printed)</th>
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Debriefing Procedure for Shelter Guests: Following Administration of the Activity Evaluation Process Measure (AEPM)

Instructions to Researcher:

1. At the end of each activity and before administering the Activity Evaluation Process Measure, please make debriefing statement below. (As deemed appropriate, such as when guests participate in back-to-back activities, the statement can be paraphrased).

“As part of this study, we ask questions about activities like the one you just participated in. This allows us to document that guests are participating. We appreciate your participation, but we remind you that you are not obligated and are free to withdraw at any time.”

2. After you administer the Activity Evaluation Process Measure, provide the debriefing below. Consistent with the procedures used for assessment, provide each participant with a hardcopy of the debriefing form, show the debriefing form through an overhead projector (or display on a large poster board with large font), and read it aloud to assist participants with reading difficulties. (As deemed appropriate, such as when guests participate in back-to-back activities, the statement can be paraphrased).

“Thank you for participating in this study. This study provides guests at the shelter with activities that are meant to be enjoyable and/or beneficial to your well-being. If you have any questions about this project, please discuss it with a shelter staff member.”
**APPENDIX H**

*Table H-1: BATEM Inter-item Correlations*

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<th>Baseline Items</th>
<th>General Follow-up Items</th>
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*Note. All significance is 2-tailed; * indicates p < .05; ** indicates p < .01.*
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Activity-related Follow-up Items