

The Effect of Aquatic Activity on Emotions in Adults with Severe Mental Illness

Alysha A. Walter

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McCormick, Bryan P., Ph.D.

Van Puymbroeck, A. Marieke, Ph.D.

Piatt, Jennifer A., Ph.D.

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Abstract

This study examined the effects of physical activity, improved positive emotion and decreased negative emotion in individuals living with a severe mental illness (SMI). Aquatic activities were chosen as the physical activity. Individuals living with a SMI normally live at a lower level of quality of life. Individuals living with a SMI generally experience a decreased amount of positive emotions and a higher amount of negative emotions. It was hypothesized that by participating in the aquatic activities individuals living with a SMI would have a higher level of positive emotions and a lower amount of negative emotions after participation. Participants for this study were recruited from Centerstone Inc. located in Bloomington Indiana. Interested participants had to qualify as living with a SMI by answering questions in the Mini International Neuropsychiatric Interview. There were 18 women and 1 man who took part in the entire study. Participants showed significant change in emotion pre- to post activity experiencing a 48% increase in positive emotion and 31% decrease in negative emotion.

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Introduction

The aim of this study was to investigate the relationship between physical activity (PA), improved positive emotion, and reduced negative emotion in individuals living with severe mental illness (SMI). Currently 36% of recreational therapists work in a behavioral health facility (1). Physical activity interventions are common for a recreational therapist to employ with participants. A recreational therapist is able to use knowledge in assessment, planning, implementation and evaluation to help create a beneficial environment for participants (2). A recreational therapist is able to help individuals living with a SMI participate in aquatic activities by choosing appropriate facilitation techniques that are key in providing beneficial outcomes (2). By performing moderate to vigorous aquatic activities in small groups of five to six individuals maximum it was anticipated that an increase in positive emotions and a reduction in negative emotions would result. Individuals living with SMI are generally more inactive when compared to the general population (3). A decreased level of physical activity increases an individuals health risks. One study found a positive association between low to moderate levels of PA and increased positive emotions among adults with SMI (4). Although the relationship of PA and emotion has been established in everyday activities, this study seeks to determine if a specific physical activity (aquatics) can increase positive emotions and decrease negative emotions among individuals living with SMI. The aim of this study was to identify the effect of a structured aquatic physical activity on positive ad negative emotion among individuals living with SMI.

Specific Aims

1. To identify the relationship between short-term aquatic activities and improving positive emotions in individuals living with SMI.
2. To identify the relationship between short-term aquatic activities and decreasing negative emotions in individuals living with SMI.

Background & Significance

Fredrickson characterized emotions as interpreted observations of multiple response tendencies that unfold over a short time span (5). Usually, an emotion starts with an individual's assessment of a personal meaning of some future event. The evaluation process can be either conscious or unconscious that then causes a cascade of coupled component systems. These coupled component systems may include the subjective experience, facial expression, cognitive processing, and physiological alterations. An emotion is not a lasting experience, but is connected to a specific object or experience (6). Emotion refers to the communication between oneself and others (7). Individuals are sometimes inclined to use the word affect and emotion interchangeably, but they have different meanings. Compared to emotion, affect refers to a consciously accessible feeling that lasts longer and does not have to be connected to an object or

experience (5). Affect is present within emotions, acting as a component in a self-interpreted experience (5).

Severe mental illnesses are defined by diagnosis, disability status and the length of time the disability had been apparent (8). Characteristic diagnoses include those with psychotic symptoms including, schizophrenia, schizoaffective disorder, bipolar disorder and major depression. Among people living with SMI, emotional experience may be particularly relevant. For instance, within the SMI population of schizophrenia research on emotional experience has shown that this population experiences a deficit of positive emotions and an elevated amount of negative emotions when compared to non – psychiatric controls in a natural environment (9). Experiencing reduced levels of positive emotion and plentiful levels of negative emotion decreases one’s quality of life. This is true for individuals living with SMI, so facilitating in the addition of positive emotions may increase this population’s overall well-being. In addition, it has been found that individuals living with depression and/or anxiety disorder have a cognitive bias through which situations and events are interpreted negatively (10). Experiencing positive emotions can counter the negative cognitive bias in these individuals and encourage broadened possibilities and enhanced coping potential (10).

For some SMI diagnoses such as schizophrenia the disorder may impact on the experience of positive and negative emotions. Part of the disorder includes a cluster of symptoms known as negative symptoms that are characterized by the loss of ordinary functioning and are clearly different from positive symptoms which are characterized by the presence of psychotic features (11). Negative symptoms (different than the negative emotions seen in individuals living with SMI) associated with schizophrenia include anhedonia, avolition, asociality, alogia and dulled affect (12). Rector and colleagues discussed ways in which negative symptoms could perhaps interact with emotions in individuals living with schizophrenia (13). For example, avolition is an inability to start and continue with goal directed activities. Alogia causes individuals to delay their response time or become slower with responding to questions. Individuals experiencing dulled affect may speak in monotone, stare blankly, and usually appear to be unresponsive to their environment (13). Negative emotions can particularly become a reinforcement of dysfunction within individuals (10). If an individual living with a SMI anticipates experiencing a negative emotion, then this undermines motivational levels. Negative symptoms are constantly present in individuals living with a SMI, so it is important to see what may help produce more of a positive emotion response. Experiencing greater levels of positive emotions within these individuals may facilitate anticipations of pleasure leading to enhanced sociality and motivation (10). There has been less attention directed towards the negative symptoms seen in individuals living with schizophrenia (13).

Physical Activity (PA) has been found to be positively related with positive emotions in those living with SMI (4). One study found that dynamic activities have greater association with experiencing positive emotions among adults living with schizophrenia (7). Results from a separate study suggest that mild to moderate physical activity may possibly decrease psychiatric symptoms and increase quality of life for individuals living with schizophrenia (14). Findings from one systematic review suggest that PA has a beneficial effect on some characteristics associated with psychological well

being in individuals living with schizophrenia (15). Participation in PA demonstrates positive changes within individuals living with SMI.

Among all forms of PA, aquatic activities have the ability to be adapted for all individuals. An aquatic environment has the potential to promote health and well-being and aquatic activities can be used to promote physiological and psychological improvements while facilitating independent actions (16). Dattilo and colleagues (17) reviewed the existing research examining the physiological and psychological effects aquatic activities can have on individuals. They found that participating in aquatics can improve the circulatory, pulmonary, musculoskeletal, and renal systems for individual. In addition, positive effects from participating in aquatics are shown physically, psychologically and in leisure functioning (17). Another study found that for many individuals living with SMI, performing activities in warm water created an environment for exercise that is more favorable than exercising on land (18). A study performed by Weiss and colleagues (19) examined women who lived with depression and participated in a water exercise program. Of the women that participated in this study, 23.9% reported feelings of depression at the time of enrollment in the study. The 21 individuals who reported feelings of depression, subsequently indicated “feeling better” after participation in the aquatic activity, with 91% of participants attributing the aquatic program as improving their emotion state (19). Berger and colleagues (20) examined college students from the United States and Czechoslovakia who enrolled in a swimming program. Some of the individuals had previous experience with swimming and others did not. The results of this study showed that all students experienced reduction in tension, depression, anger and/or confusion (20). This study indicated that positive correlations with swimming activities and mental health may exist.

Finally, due to the generally poor health of individuals with SMI, many cannot participate in on-land PA without discomfort. Individuals who experience distress while participating in on land activities can perform activities in an aquatic environment with ease (17). It would be beneficial to consider the positive effect aquatic activities can have on individuals living with SMI. Aquatic activities were chosen as the specific PA for this study because of the added positive benefits it can bring to individuals living with SMI. Through these activities it is hoped that the specific positive emotions will be generated within the participants and negative emotions will decrease.

Research Design & Methods

Study Design

This study was a single-group design with five to six participants (maximum) per group. There are no existing data examining emotional levels in the SMI population and the selected aquatic activities. This was an exploratory study and the investigators were seeking to identify if there was an effect on positive and negative emotion as a product of the aquatic activities. An effectiveness evaluation was used to determine the level in which the aquatic activities program met the performance aims (21). An effectiveness analysis on the data will compare the anticipated outcomes to the actual aquatic activity outcomes. The intent of the effectiveness evaluation was specifically to look for an effect.

The effectiveness evaluation will show if there was a relationship between aquatic activities and improved positive emotions in individuals living with SMI and illustrate if there is a relationship between aquatic activities and decreased negative emotions in individuals living with SMI.

Subject Recruitment

This study recruited participants from a behavioral health facility in Bloomington Indiana. Participants were recruited from Centerstone Inc. in Bloomington Indiana and specifically from the BE Well program. The Be Well program assists individuals living with SMI in improving all aspects of their quality of life. The co-investigator in this study contacted the participants or received referrals for participation from the nurse practitioner employed by the BE Well program. Participants were enrolled in a group aquatic activity with five to six participants (maximum) per group. The participants took part in one aquatic activity group for this study. Participants were enrolled as recruited. There was no comparison/control condition. This study was reviewed and approved by the Indiana University Human Subjects Committee (Study #1301010510) and the Centerstone Research Institute's Human Subjects Committee (Study #2013.003). (See Appendix A)

Inclusion Criteria

A total of 27 participants were recruited from Centerstone Inc. in Bloomington Indiana. Participants had to be over the age of 18 and must have had the ability to understand the questions being asked throughout the study. Participants had to be determined to meet the criteria for one of the severe mental illnesses of major psychotic disorder, bipolar disorder or major depression. Participants had to be healthy enough for participation as was determined by screening or by attending medical personnel. Participants did not have to know how to swim because the activity took part in the shallow end of the YMCA pool. Participants did not need previous experience with the co-investigator to be in the study.

Procedures

Individuals were recruited for participation in the study by the co-investigator and the nurse practitioner who is employed by the BE Well program. Individuals who were participating in a form of aquatic activity in the BE Well program were all approached to participate in the study. The nurse practitioner for the BE Well program explained the study to various individuals to distinguish interest level. The nurse practitioner did not refer individuals who were not mentally stable or at a known high health risk.

Potential subjects were provided with the study summary information sheet to identify their interest in participation in the study. The participants were asked a number of questions using the University of California, San Diego Brief Assessment of Capacity to Consent (UBACC) (22) (see Appendix B) to make sure s/he understood the information form. The subjects scoring 75% or higher were deemed capable of providing consent to participate. Participants met with the co-investigator to take selected portions (major depressive disorder, manic and hypomanic episodes, and psychotic disorders and

mood disorder with psychotic features) of the Mini International Neuropsychiatric Interview (M.I.N.I.) (23) to confirm an SMI diagnosis (see Appendix B). The selected portions of the M.I.N.I. took approximately five to seven minutes. The individual was then interviewed using a risk assessment for vigorous physical activity protocol and this took approximately five to ten minutes. Participants must have scored in the low risk area to participate in the study without medical referral. When a participant scored in the moderate to high risk area, then the subject was referred to their care provider (nurse practitioner or physician) at the behavioral health facility located in the BE Well program for further evaluation. The nurse practitioner or physician that was providing care for the individual provided signature of approval on the risk assessment form to verify that the individual could participate in the study.

When the co-investigator had enough subjects to run the aquatic activities groups, then the participants were contacted about the date and time for the aquatic activity. There were four groups with four individuals and one group with three individuals. Participants spent roughly 30-45 minutes while going over confirmed diagnosis questions, summary information sheet, and confirming consent questions.

Measurement Instrument

The modified Differential Emotions Scale (mDES) was the utilized measurement tool (24). The mDES was chosen because it is specifically designed to rate an individual's positive and negative emotions and it is an appropriate length for this population. This scale can be modified slightly to direct the questions towards specific populations and activities. The mDES is comprised of 20 questions on an array of emotions including both positive emotions and negative emotions. The response scale varies from 0-4 (not at all=0, a little bit=1, moderately=2, quite a bit=3, and extremely=4). Participants are instructed to indicate the greatest amount that they have experienced the specified emotion within the last hour. Positive and negative emotions scales were created by totaling the responses and dividing by the number of items. (See Appendix B)

Aquatic Activity Intervention

The aquatic activities chosen for the individuals living with a SMI are low-impact. Individuals living with a SMI have a generally poor health status, so the activities cater to their physical needs. The physical activity exertion level for these activities for this population would be moderate to high. The Compendium of Physical Activity rates water aquarobics/water calisthenics at 5.5 METs (25). Specifically, aquarobics at breast level immersion was the basis for the Compendium classification (25, 26). Compendium water aquarobics and water activities exertion levels may not exactly match the aquatic activities that took place in this study given the typically poor physical condition level of this group. The aquatic activities were chosen for this study by the co-investigator based on a group lead for individuals living with SMI. Participants met for a one-time event at the YMCA on the day of the aquatic activity. The co-investigator demonstrated all stretches and activities for the participants. All participants had flotation weights to use for activities that took between 30-35 minutes including warm up, activity and cool down phases.

Warm Up Phase

Participants started with their floatation weights and started a warm up stretching routine. Participants performed (ten) horizontal half arm stretches to the right and back to the left (with weights in the water), vertical arm circles going forward (ten) and vertical arm circles going backward (ten), and participants did (ten) hip circles to the right and (ten) hip circles to the left for warm up stretching. Participants were encouraged to tell the co-investigator if something hurt or if they were only able to do half of what was asked of them.

Activity Phase

There were six different areas focused on during the group. Upper body activities took place directly after the warm up phase and floatation weight were used during that time. We then moved right into static and dynamic balance activities using the floatation weights to help balance. The group then moved to the pool deck while in the water (set aside the floatation weights) and performed leg lifts and bicycle kicking. Water walking was the last activity before the cool down phase. The specific activities break down as follows:

- Bicep curls in the water (10 repetitions)
- Triceps curls in the water (10 repetitions)
- Hop from left to right foot (2 minutes) –(The participants could hop as fast/slow or high/low as they wished, but were encouraged to find a level that they could sustain for two minutes.)
- Balance on right foot with left foot risen (at a comfortable height) forward in the water (1 minute)
- Break to shake out tension (10 seconds)
- Balance on left foot with right foot risen (at a comfortable height) forward in the water (1 minute)
- Break to shake tension out (10 seconds)
- Balance on right foot with left foot risen (at a comfortable height) to the left side in the water (1 minute)
- Break to shake tension out (10 seconds)
- Balance on left foot with right foot risen (at a comfortable height) to the right side in the water (1 minute)
- Break to shake tension out (10 seconds)
- Balance on right foot with left leg risen (to a comfortable height) behind (1 minute)
- Break to shake tension out (10 seconds)
- Balance on left foot with right foot risen (to a comfortable height) behind (1 minute)
- Hop from left to the right foot (2 minutes)- (The participants could hop as fast/slow or high/low as they wished, but were encouraged to find a level that they could sustain for two minutes.)
- Leg lifts with their left leg (10 repetitions)
- Leg lifts with their right leg (10 repetitions)

- Leg lifts with their left leg (10 repetitions)
- Leg lifts with their right leg (10 repetitions)
- Break to shake tension out (10 seconds)
- Bicycle kicks (2 minutes)
- Participants walked in the water to one side of the pool. In a single file line the participants walked in a crisscross style 20-25 feet down and back (2x)
- The participants completed side squats down and back (2x)
- High knees down and back (2x)

Cool Down Phase

Participants clutched their floatation weights again and did (ten) hip circles to the right, (ten) hip circles to the left, (ten) arm circles backward, and (ten) arm circles forward. The participants were encouraged to stretch out any other ways that felt needed. Participants were encouraged to ask about stretches for specific regions on the body that was tight during the aquatic activities.

Data Collection

Subjects were asked to provide pre and posttest measures of emotion. The pretest was taken in a secluded room within the Bloomington YMCA. The participants spent roughly five minutes filling out the pretest (mDES) before entering the pool area. A posttest using an identical mDES form was given to the participants in the locker room area of the YMCA and took roughly five minutes. Participants received a ten-dollar gift card and receipt immediately after turning in the posttest to the co-investigator.

Data Analysis

The pre and posttest forms were summed for total positive and negative emotion. The positive emotion scale was compiled with ten items and each item had three descriptive words (thirty positive clarifying words) describing each positive emotion. The negative emotion score was compiled with ten items and each item had three descriptive words (thirty negative clarifying words) describing each negative emotion. The tests were scored using a non-parametric approach with the Wilcoxon Signed Rank test analysis. It determined if the aquatic activity had an effect on the emotions of individuals living with SMI.

Storage

Study materials were retained in a locked cabinet in a faculty office in the School of Public Health-Bloomington. Records are going to be maintained for at least one year in order to facilitate dissemination of research findings. Upon completion of study, all the study records are destroyed.

Findings

A total of 22 women and 5 men were approached for recruitment. Two of the men and one woman declined to participate when initially approached about this study. One of the men agreed to participate in the study, but dropped out before the intake interview. One of the five men completed the intake interview, but declined prior to the aquatic activity session. One of the five men participated in the study completely. Three women completed the intake interview, but declined prior to the aquatic activity session. There were 19 individuals who completed the study (18 women and 1 man). There were 22 individuals living with SMI who completed the first meeting and all passed the UBACC form. All participants were determined to live with a SMI based on the M.I.N.I test. Of the 22 individuals who completed the M.I.N.I 100 percent were categorized with major depressive episode, 73 percent were categorized with a manic or hypomanic disorder and 50 percent were categorized with a type of psychotic disorder. The total percentage is over 100 percent because some of the participants were classified with more than one disorder. A nurse practitioner or physician signed approval for each individual to participate in this study because they were all at moderate or greater health risk Subsequent to the initial meeting; three subjects withdrew out of the 22 prior to the activity session resulting in a final sample of 19 participants who completed the study. A total of five aquatic activity groups were conducted with three to four participants in each group. There was only one group with a man participating, all women in this group were notified ahead of time that there would be a man in attendance (all the women were informed that they could switch to an all female group) and all women agreed to partake in the group. All of the aquatic activities lasted between 30-35 minutes.

The range of values for the mDES was zero to four. The mDES pretest positive emotion scores for minimum was 0.70, the maximum score was 4.00, the mean was 1.82 and the standard deviation was 0.904. The mDES pretest negative emotion scores for the minimum were 0.00, the maximum score was 3.60, the mean was 0.826 and the standard deviation was 0.961. The mDES posttest positive emotion scores for minimum was 0.80, the maximum score was 4.00, the mean was 2.70 and the standard deviation was 0.837. The mDES posttest negative emotion scores for the minimum 0.00, the maximum score was 1.20, the mean was 0.252 and the standard deviation was 0.377. The positive change minimum was -1.40, the maximum 2.60, the mean 0.878 and the standard deviation 0.900. The negative change minimum was -2.40, maximum 0.00, the mean -0.573 and the standard deviation 0.700. (See Table 1)

Table 1. Group Means (sd)

	Pretest	Posttest	Difference	Change
<i>Positive Emotion</i>	1.820 (0.904)	2.700 (0.837)	0.878 (0.900)	48%
<i>Negative Emotion</i>	0.826 (0.961)	0.252 (0.377)	-0.573 (0.700)	-31%

The sample size for this study was smaller than anticipated, so a non-parametric approach was used. The Wilcoxon Signed test was chosen because it is seen extensively in healthcare research and can be used accurately with small sample sizes (27). This test is precise in assessing a pretest posttest measure for a single sample. This test confirmed a significant difference with the Wilcoxon Signed Rank test analysis. The median

difference between pretest positive emotions and posttest positive emotions was statistically significant ($p < .001$). When negative emotions were examined, the median differences between pretest emotions and posttest emotions were also significantly different ($p < .001$). This illustrates that the aquatic activities may have been the influence for increasing the positive emotions and decreasing negative emotions in individuals living with SMI.

Discussion

Results show that there were statistically significant changes in emotional experience during the pre and post one-session aquatic activities. These findings suggest that an aquatic activities class may be provided at an outpatient behavioral health facility and the participants may improve their short-term emotional experience. A psychiatric rehabilitation center could perhaps adopt this program for individuals with a SMI who meet health qualifications. A recreational therapist has the ability to lead an aquatic activities class for the individuals living with a SMI. Specific treatment goals for the aquatic activities may include increased levels of positive emotions and decreased levels of negative emotions. The recreational therapist may see improved positive emotions and/or decreased negative emotions in clients. Individuals living with a SMI have low expectancies for pleasure (13). A recreational therapist can use the pleasure achieved from aquatic activities to encourage the client to participate again and could possibly have the same enjoyed experience. The aquatic activity may be a sufficient way to measure emotional goals for clients. Individuals should be encouraged to participate in aquatic activities due to the low impact on the body and the overweight SMI population. Individuals who experience a positive emotion usually attach the emotion to an action (28). This is one way recreational therapist could use aquatic activities and improved emotions at a behavioral health facility. The recreational therapists would need clients to participate and experience a positive emotion. When back at the behavioral health facility each time aquatic activity is mentioned the client may remember the positive emotions. Some individuals may have reservations about this activity and the minimal clothing in the swimming pool. Individuals can always wear shorts and a shirt over their bathing suit if uncomfortable. None of the women wore shirts over their bathing suits, but some did wear shorts in the study. The only man to participate in this study did not wear anything besides his swimming trunks. All of the men approached for this study had reservations about wearing only swimming trunks and one women asked about wearing shorts with a bathing suit. There was not a connection for why there was a low amount of men in this study. Research was performed to find the link, but studies even somewhat similar to this one did not give ratios for gender or explanations.

Although there was a significant outcome in this study, there were challenges while recruiting participants. Of the four men who declined to partake in the study, three of them did not want to participate in a water-based activity. One of the men explained that if it was an on land based activity he would participate. One of the men wanted to participate in the study at first, but called back saying he could not find his swimming trunks and would not be considering participation anymore. The only woman to decline the study reported having too many doctor appointments to attend and did not want to add another appointment to her calendar. One woman dropped out after the first meeting

because she could not find her bathing suit and did not want to talk about alternative options to complete participation in the study. One woman called after her first meeting and explained that she had no time to complete the second half of the study. The man that dropped out of the study after the first meeting fell ill with the flu. An hour was promised at maximum for the study at the YMCA to the participants. One of the participants in the first group was fifteen minutes late to the study. This group was able to finish on time, but not easily. The remaining groups were asked to be there 10 minutes early. Each group spent between 30-35 minutes in the pool based on how quickly they could perform the activities.

In addition to the recruiting challenges there were also limitations. There was not a comparison/control group for this study. Having a comparison/control group for the study may have strengthened the results. It may have also shown if the aquatic activities were the reason for increased positive emotions and a decrease in negative emotions. This study was quasi-experimental. There are no previous studies focusing on the emotional effects individuals with SMI may have from participating in aquatic activities. This study could not be compared to any other study at this time. The study was aiming to recruit 25-30 participants, but with the number of dropouts the sample size was small. In addition, this study was predominantly female. Only one female passed on the invitation to participate, but for the men three declined, one became ill and this left one to participate. It was easier to talk to women about the study because they all appeared generally interested in the study. The men that were approached had a reluctant behavior right away. Another limitation was related to the study instrument. The mDES has little use in the SMI population, but showed beneficial for this study. A recreational therapist could use the mDES for individual aquatic activity sessions because it is sensitive enough to calculate change in emotions from day to day.

Further research might focus on single gender groups or on only one gender. This may add to the sample size and produce more accurate gender specific findings. There is little research to indicate if positive emotion has a long-term impact on functioning. A multiple group session study might be able to show if there is a long-term impact on functioning within this population. Focusing on one diagnosis would also be beneficial in the area of research, but may produce a problem with sample size. The pre and posttest given to each group in this study was not given at the same time of day or in the same room. Time of day and setting may have had some effect on the results. Future studies should consider setting up specific areas to present the pre and posttest this might be helpful to add consistency for each aquatic activities group. Making sure each group participated at the same time of day may also add more consistency with results. Another recommendation would be to have an individual who is not working in the data collection and analysis be considered to run the aquatic activities group. This would guarantee that the facilitator could not alter the participant's emotions and create a known effect for the data. This was not a blinded design, so the co-investigator knew the purpose of the study the entire time. Having a set location and time for the study may add more structure to the study. An experimental design is encouraged because of the lack of research in this area.

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Appendix A



INDIANA UNIVERSITY
OFFICE OF RESEARCH ADMINISTRATION

To: BRYAN P. MCCORMICK
RECREATION, PARK AND TOURISM STUDIES

From: IU Human Subjects Office
Office of Research Administration - Indiana University

Date: February 20, 2013

RE: EXEMPTION GRANTED

Protocol Title: The Effect of Aquatic Activities on Emotions of Adults Living with Severe Mental Illness

Protocol #: 1301010510

Funding Agency/Sponsor: None

IRB: IRB-IUB, IR100000223

Your study named above was accepted on February 20, 2013 as meeting the criteria of exempt research as described in the Federal regulations at 45 CFR 46.101(b), paragraph(s) (2). This approval does not replace any departmental or other approvals that may be required.

As the principal investigator (or faculty sponsor in the case of a student protocol) of this study, you assume the following responsibilities:

Amendments: Any proposed changes to the research study must be reported to the IRB prior to implementation. To request approval, please complete an Amendment form and submit it, along with any revised study documents, to ihub@iu.edu. Only after approval has been granted by the IRB can these changes be implemented.

Completion: Although a continuing review is not required for an exempt study, you are required to notify the IRB when this project is completed. In some cases, you will receive a request for current project status from our office. If we are unsuccessful at in our attempts to confirm the status of the project, we will consider the project closed. It is your responsibility to inform us of any address changes to ensure our records are kept current.

Per federal regulations, there is no requirement for the use of an informed consent document or study information sheet for exempt research, although one may be used if it is felt to be appropriate for the research being conducted. As such, these documents are returned without an IRB-approval stamp. Please note that if your submission included an informed consent statement or a study information sheet, the IRB requires the investigational team to see these documents.

You should retain a copy of this letter and any associated approved study documents for your records. Please refer to the project title and number in future correspondence with our office. Additional information is available on our website at <http://researchadmin.iu.edu/HumanSubjects/index.html>.

If you have any questions, please contact our office at the below address.

Thank you.



CENTERSTONE

INSTITUTIONAL REVIEW BOARD

Centerstone IRB
Protocol #2013.003
Dr. McCormick
IRB Initial Review

March 14, 2013

Bryan P. McCormick
Indiana University
Department of Recreation, Park & Tourism Studies
1025 E. 7th Street HPER#133
Bloomington, IN 47405-7103

Centerstone IRB #2013.003 – The Effects of Aquatic Activities on Emotions of Adults Living with Severe Mental Illness RE: (Request for Exemption dated 3/4/2013, Application Part C dated undated, Study Information Sheet undated, M.I.N.I. version 6.0.0, Survey undated, Indiana University IRB Application dated 2/11/2013, Indiana University IRB Approval Letter)

Dr. Bowen,

Following receipt of the study documents listed above, the Chairman has granted approval of your study for a period of one year at minimal risk. The Chairman has found this protocol meets the criteria for **exempt** status as per *45 CFR 46.101(b)(2)*, based on the information obtained by you and your staff.

Although this study was determined to meet criteria for exemption, Centerstone prefers to keep record of all research activities in which it is involved. To that end, we ask that you keep the Centerstone IRB updated on your activities related to this project in a yearly progress report. If and when changes are made to the materials, please keep us informed of these changes.

All Centerstone IRB-approved investigators must comply with the following:

1. Conduct the research as required by the Protocol submitted to the committee.
2. Use only the Consent Form bearing the Centerstone IRB stamped approval.
3. When necessary, provide non-English speaking subjects with a certified translation of the approved Consent Form in the subject's first language. The CENTERSTONE IRB, prior to implementation, must approve a translated version of the consent, if one is needed.
4. Obtain pre-approval from Centerstone IRB of any changes in the research activity and immediately report any emergency changes for the protection of human subjects.
5. Please be reminded that any serious and unexpected adverse events included but not limited to; serious illness, hospitalization, death) that have occurred in subjects enrolled at/from Centerstone Sites are to be promptly reported. A report must be completed and sent to the IRB. Safety reports regarding non-Centerstone adverse events that indicate a possible change in risk or benefit to the subject should be summarized in a letter and submitted with an amendment addressing these changes. You are required to promptly report to the study sponsor and/or FDA any adverse event that may be reasonably regarded as caused by or probably caused by the drug/device. If the adverse

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- event is alarming, you are required to report the event immediately by calling Centerstone's IRB Chairman and then following with a written report of the event.
6. Promptly report to Centerstone's IRB any new information that may adversely affect the safety of the subjects or the conduct of the trial.
 7. Provide reports to Centerstone's IRB concerning progress of the research when requested, and automatically prior to a continuing review.
 8. Obtain pre-approval of study advertisements from Centerstone's IRB before use.
 9. Conduct the informed consent process without coercion or undue influence and provide the potential subject sufficient opportunity to consider whether or not to participate.
 10. Ensure that participants know that they may withdraw from the study without any harmful consequences.

Please note that approval is granted from the date of initial review, March 14, 2013. Any further changes to the protocol and /or consent form must be presented to the board for approval before implementation of the changes. While the Centerstone research staff will make every attempt to notify the investigator before the continuing review is due, it is ultimately the *investigator's* responsibility.

Final Approval: March 14, 2013

Expiration Date: March 14, 2014

Should you have any questions, please contact me at (615) 463-6647, or David Ayer (IRB Chairman) at (812) 355-6381.

Sincerely,

Vivian Park, M.S.
Centerstone IRB Coordinator
Phone: (615) 463-6647
Fax: (615) 463-6242
E-mail: vivian.park@centerstone.org

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Protocol #2013.003
Dr. McCormick
IRB Initial Review

<p>David Ayer, Ph.D. Centerstone IRB Chairman Phone: (812) 355-6381 Fax: (812) 336-1442 Email: David.Ayer@centerstoneresearch.org</p>	<p>Centerstone IRB Chairman Signature & Date:</p> <p>March 14, 2013</p> 
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INDIANA UNIVERSITY Summary Information Sheet
The Effect of Aquatic Activities on Emotions of Adults with Severe Mental Illness

You are invited to participate in a research study to investigate the relationship between physical activity, improved positive emotion, and reduced negative emotion in individuals living with severe mental illness. You were selected as a possible subject because you are a client at Centerstone. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

The study is being conducted by Dr. Bryan P. McCormick who is a professor and chair for Recreation, Park, and Tourism Studies at Indiana University. Alysha A. Walter is a graduate student at Indiana University and will be the co-investigator for the study.

STUDY PURPOSE

The purpose of this study is to determine the effect of participating in aquatic activities on emotions among individuals living with severe mental illness.

NUMBER OF PEOPLE TAKING PART IN THE STUDY:

If you agree to participate, you will be one of about 30 subjects who will be participating in this research.

PROCEDURES FOR THE STUDY:

After going through this form, I will ask you some questions from the UBACC capacity to consent form to make sure you understand what will be expected of you. If you cannot answer these questions, then you will not be asked to participate in the study.

The total time for participation in this study is approximately one week with about three hours of your time in that week.

If you agree to be in the study, you will do the following things:

When you participate in the aquatic activity you will be asked to answer some questions about your emotions when you arrive at the YMCA pool. These questions will take you about two-three minutes to answer. You will then participate in an aquatic activity as planned. After the activity you will also be asked to answer questions about your emotions. These questions will take you about two-three minutes to answer.

RISKS OF TAKING PART IN THE STUDY:

While participating in this study, the risks are:

You may find it uncomfortable to answer personal questions.

The risk of possible loss of confidentiality while participating in the aquatic activities at an outside facility. While on the study, the actions being taken to reduce the possibility for risks are:

The Co-investigator will be the only person in the room with you while you answer questions about the study information sheet. If you are uncomfortable with some questions, you can decline

to answer them. While at the YMCA, you will be called by name and not referred to as Centerstone client. You will not have to put your name on the pre or posttest questionnaire.

BENEFITS OF TAKING PART IN THE STUDY:

You are unlikely to benefit directly from participation, though you may find the self-reflection needed while completing the surveys to be helpful.

CONFIDENTIALITY

Efforts will be made to keep your personal information private. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. Your identity will be held in confidence in reports in which the study may be published.

Organizations that may inspect and/or copy your research records for quality assurance and data analysis include the study investigator and his/her research associates, the Indiana University Institutional Review Board or its designees, the study sponsor, and (as allowed by law) state or federal agencies, specifically the Office for Human Research Protections (OHRP) who may need to access your research records.

PAYMENT

You will receive \$10 payment for taking part in this study. Once you complete the aquatic activities, you will receive a gift card to Kroger for payment.

CONTACTS FOR QUESTIONS OR PROBLEMS

For questions about the study or a research-related injury, contact the researchers Bryan McCormick or Aly Walter at (812) 855-4711. If you cannot reach the researcher during regular business hours (i.e. 8:00AM-5:00PM), please call the IU Human Subjects Office at (317) 278-3458 [for Indianapolis] or (812) 856-4242 [for Bloomington] or (800) 696-2949.

For questions about your rights as a research participant or to discuss problems, complaints or concerns about a research study, or to obtain information, or offer input, contact the IU Human Subjects Office at (317) 278-3458 or [for Indianapolis] or (812) 856-4242 [for Bloomington] or (800) 696-2949.

VOLUNTARY NATURE OF STUDY

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. Leaving the study will not result in any penalty or loss of benefits to which you are entitled. Your decision whether or not to participate in this study will not affect your current or future relations with Centerstone or Indiana University.

Your participation may be terminated by the investigator without regard to your consent in the following circumstances: If you do not meet target population diagnosis, then you will not be able to participate in the study.

Appendix B (study materials)

USCD Brief Assessment of Capacity to Consent (UBACC)

1. What is the purpose of the study that was just described to you? Response (2- To test the relationship between physical activity, improved positive emotion and reduced negative emotion.)	Score 0 1 2
2. What makes you want to consider participating in this study? Response (2- To participate in physical activity, improve positive emotions, decrease negative emotions.)	Score 0 1 2
3. Do you believe this is primarily research or primarily treatment? Response (2=Research)	Score 0 1 2
4. Do you have to be in this study if you do not want to participate? Response (2=No)	Score 0 1 2
5. If you withdraw from the study, will you still be able to receive regular treatment? Response (2=Yes)	Score 0 1 2
6. If you participate in this study, what are some of the things that you will be asked to do? Response (2= At least 2 of the following: Answer questions about my diagnosis; answer questions about some risks I may have if I participate; answer questions about how I feel; participate in physical activity (aquatic activities))	Score 0 1 2
7. Please describe some of the risks people may experience if they participate in this study. Response (2= some of the questions might be uncomfortable, loss of confidentiality in the community, sore muscles from the moderate to vigorous level of activity)	Score 0 1 2
8. Please describe some of the possible benefits of this study. Response (2= Feel better emotionally from being physically active; improved range of motion; improved balance; improved control; show improved independence with mobility)	Score 0 1 2
9. Is it possible that this study will not have any benefit to you? Response (2=Yes)	Score 0 1 2

10. Who will pay for your medical care if you are injured as a direct result of participating in the study?	
Response (2= I will be billed like I am normally billed)	Score
	0
	1
	2

Scoring:

Add the scores from items 1-10. A score of 75% or 15 is the minimum score for comprehension of the consent form.

MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW (M.I.N.I.)

English Version 6.0.0

DSM-IV

USA: D. Sheehan¹, J. Janavs, K. Harnett-Sheehan, M. Sheehan, C. Gray.

¹University of South Florida College of Medicine- Tampa, USA

EU: Y. Lecrubier², E. Weiller, T. Hergueta, C. Allgulander, N. Kadri, D. Baldwin, C.

Even. ²Centre Hospitalier Sainte-Anne – Paris, France

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All rights reserved. No part of this document may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopying, or by any information storage or retrieval system, without permission in writing from Dr. Sheehan or Dr. Lecrubier. Researchers and clinicians working in nonprofit or publicly owned settings (including universities, nonprofit hospitals, and government institutions) may make copies of a M.I.N.I. instrument for their own clinical and research use.

DISCLAIMER

Our aim is to assist in the assessment and tracking of patients with greater efficiency and accuracy. Before action is taken on any data collected and processed by this program, it should be reviewed and interpreted by a licensed clinician. This program is not designed or intended to be used in the place of a full medical and psychiatric evaluation by a qualified licensed physician – psychiatrist. It is intended only as a tool to facilitate accurate data collection and processing of symptoms elicited by trained personnel.

GENERAL INSTRUCTIONS

The M.I.N.I. was designed as a brief structured interview for the major Axis I psychiatric disorders in DSM- IV and ICD- 10. Validation and reliability studies have been done comparing the M.I.N.I. to the SCID- P for DSM- III- R and the CIDI (a structured interview developed by the World Health Organization). The results of these studies show that the M.I.N.I. has similar reliability and validity properties, but can be administered in a much shorter period of time (mean 18.7 ± 11.6 minutes, median 15 minutes) than the above referenced instruments. It can be used by clinicians, after a brief training session. Lay interviewers require more extensive training.

INTERVIEW:

In order to keep the interview as brief as possible, inform the patient that you will conduct a clinical interview that is more structured than usual, with very precise questions about psychological problems which require a yes or no answer.

GENERAL FORMAT:

The M.I.N.I. is divided into modules identified by letters, each corresponding to a diagnostic category.

- At the beginning of each diagnostic module (except for psychotic disorders module), screening question(s) corresponding to the main criteria of the disorder are presented in a gray box.
- At the end of each module, diagnostic box(es) permit the clinician to indicate whether diagnostic criteria are met.

CONVENTIONS:

Sentences written in « normal font » should be read exactly as written to the patient in order to standardize the assessment of diagnostic criteria. Sentences written in « CAPITALS » should not be read to the patient. They are instructions for the interviewer to assist in the scoring of the diagnostic algorithms.

Sentences written in « bold » indicate the time frame being investigated. The interviewer should read them as often as necessary. Only symptoms occurring during the time frame indicated should be considered in scoring the responses. Answers with an arrow above them (➔) indicate that one of the criteria necessary for the diagnosis(es) is not met. In this case, the interviewer should go to the end of the module, circle « NO » in all the diagnostic boxes and move to the next module.

When terms are separated by a slash (/) the interviewer should read only those symptoms known to be present in the patient (for example, question G6). Phrases in (parentheses) are clinical examples of the symptom. These may be read to the patient to clarify the question.

RATING INSTRUCTIONS:

All questions must be rated. The rating is done at the right of each question by circling either Yes or No. Clinical judgment by the rater should be used in coding the responses. Interviewers need to be sensitive to the diversity of cultural beliefs in their administration of questions and rating of responses. The rater should ask for examples when necessary, to ensure accurate coding. The patient should be encouraged to ask for clarification on any question that is not absolutely clear. The clinician should be sure that each dimension of the question is taken into account by the patient (for example, time frame, frequency, severity, and/or alternatives). Symptoms better accounted for by an organic cause or by the use of alcohol or drugs should not be coded positive in the M.I.N.I. The M.I.N.I. Plus has questions that investigate these issues.

A. MAJOR DEPRESSIVE EPISODE

(➔ MEANS : GO TO THE DIAGNOSTIC BOXES, CIRCLE **NO** IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

A1 a Were you ever depressed or down, most of the day, nearly every day, for two weeks?
NO YES

IF NO, CODE NO TO **A1b**: IF **YES** ASK:

b For the past two weeks, were you depressed or down, most of the day, nearly every day?
NO YES

A2 a Were you ever much less interested in most things or much less able to enjoy the things you used to enjoy most of the time, for two weeks?
NO YES

IF NO, CODE NO TO **A2b**: IF **YES** ASK:

b In the past two weeks, were you much less interested in most things or much less able to enjoy the things you used to enjoy, most of the time?
NO YES

IS **A1a** OR **A2a** CODED **YES**? NO YES

A3 IF **A1b** OR **A2b** = **YES**: EXPLORE THE **CURRENT** AND THE MOST SYMPTOMATIC **PAST** EPISODE, OTHERWISE

IF **A1b** AND **A2b** = **NO**: EXPLORE ONLY THE MOST SYMPTOMATIC **PAST** EPISODE

Over that two week period, when you felt depressed or uninterested:

Past 2 Weeks Past Episode

a Was your appetite decreased or increased nearly every day? Did your weight decrease or increase without trying intentionally (i.e., by $\pm 5\%$ of body weight or ± 8 lbs. or ± 3.5 kgs., for a 160 lb./70 kg. person in a month)?
NO YES

IF **YES** TO EITHER, CODE **YES**.

b Did you have trouble sleeping nearly every night (difficulty falling asleep, waking up in the middle of the night, early morning waking or sleeping excessively)?
NO YES

c Did you talk or move more slowly than normal or were you fidgety, restless or having trouble sitting still almost every day?
NO YES

d Did you feel tired or without energy almost every day?
NO YES

e Did you feel worthless or guilty almost every day?
NO YES

IF **YES**, ASK FOR EXAMPLES.

THE EXAMPLES ARE CONSISTENT WITH A DELUSIONAL IDEA. Current Episode No Yes

Past Episode No Yes

f Did you have difficulty concentrating or making decisions almost every day?
NO YES

g Did you repeatedly consider hurting yourself, feel suicidal, or wish that you were dead? Did you attempt suicide or plan a suicide?
NO YES

IF **YES** TO EITHER, CODE **YES**.

A4 Did these symptoms cause significant problems at home, at work, socially, at school or in some other important way?
NO YES

A5 In between 2 episodes of depression, did you ever have an interval of at least 2 months, without any significant depression or any significant loss of interest?
NO YES

ARE **5** OR MORE ANSWERS (**A1-A3**) CODED **YES** AND IS **A4** CODED **YES** FOR THAT TIME FRAME? SPECIFY IF THE EPISODE IS CURRENT AND / OR PAST. IF **A5** IS CODED **YES**, CODE **YES** FOR

RECURRENT.

NO **YES**

MAJOR DEPRESSIVE
EPISODE

CURRENT

PAST

RECURRENT

A6 a How many episodes of depression did you have in your lifetime? _____
Between each episode there must be at least 2 months without any significant depression.

MANIC AND HYPOMANIC EPISODES

(→ MEANS: GO TO THE DIAGNOSTIC BOXES , CIRCLE NO IN MANIC AND HYPOMANIC DIAGNOSTIC BOXES , AND MOVE TO NEXT MODULE)

Do you have any family history of manic depressive illness or bipolar disorder, or any family member who had mood swings treated with a medication like lithium, sodium valproate (Depakote) or lamotrigine (Lamictal)?

NO YES

THIS QUESTION IS NOT A CRITERION FOR BIPOLAR DISORDER, BUT IS ASKED TO INCREASE THE CLINICIAN'S VIGILANCE ABOUT THE RISK FOR BIPOLAR DISORDER .

IF YES, PLEASE SPECIFY WHO: _____

C1 a Have you ever had a period of time when you were feeling 'up' or 'high' or 'hyper' or so full of energy or full of yourself that you got into trouble, - or that other people thought you were not your usual self? (Do not consider times when you were intoxicated on drugs or alcohol.)

NO YES

IF PATIENT IS PUZZLED OR UNCLEAR ABOUT WHAT YOU MEAN

BY 'UP' OR 'HIGH' OR 'HYPER', CLARIFY AS FOLLOWS: By 'up' or 'high' or 'hyper'

I mean: having elated mood; increased energy; needing less sleep; having rapid thoughts; being full of ideas; having an increase in productivity, motivation, creativity, or impulsive behavior; phoning or working excessively or spending more money.

IF NO, CODE NO TO C1b: IF YES ASK:

b Are you currently feeling 'up' or 'high' or 'hyper' or full of energy?

NO YES

C2 a Have you ever been persistently irritable, for several days, so that you had arguments or verbal or physical fights, or shouted at people outside your family? Have you or others noticed that you have been more irritable or over reacted, compared to other people, even in situations that you felt were justified?

NO YES

IF NO, CODE NO TO C2b: IF YES ASK:

b Are you currently feeling persistently irritable?

NO YES

→

IS C1a OR C2a CODED YES?

NO YES

C3 IF C1b OR C2b = YES: EXPLORE THE CURRENT AND THE MOST SYMPTOMATIC PAST EPISODE, OTHERWISE IF C1b AND C2b = NO: EXPLORE ONLY THE MOST SYMPTOMATIC PAST EPISODE

During the times when you felt high, full of energy, or irritable did you:

a Feel that you could do things others couldn't do, or that you were an especially important person? IF YES, ASK FOR EXAMPLES.

THE EXAMPLES ARE CONSISTENT WITH A DELUSIONAL IDEA.

Current Episode: NO YES Past Episode: NO YES

b Need less sleep (for example, feel rested after only a few hours sleep)?

Current Episode: NO YES Past Episode: NO YES

c Talk too much without stopping, or so fast that people had difficulty understanding?

Current Episode: NO YES Past Episode: NO YES

d Have racing thoughts?

Current Episode: NO YES Past Episode: NO YES

e Become easily distracted so that any little interruption could distract you?

Current Episode: NO YES Past Episode: NO YES

f Have a significant increase in your activity or drive, at work, at school, socially or sexually or did you become physically or mentally restless?

Current Episode: NO YES Past Episode: NO YES

g Want so much to engage in pleasurable activities that you ignored the risks or consequences (for example, spending sprees, reckless driving, or sexual indiscretions)?

Current Episode: NO YES Past Episode: NO YES

C3 SUMMARY : WHEN RATING CURRENT EPISODE:

IF AND C1b IS NO, ARE 4 OR MORE C3 ANSWERS CODED YES?

IF AND C1b IS YES, ARE 3 OR MORE C3 ANSWERS CODED YES?

WHEN RATING PAST EPISODE:

IF AND C1b IS NO, ARE 4 OR MORE C3 ANSWERS CODED YES?

IF AND C1b IS YES, ARE 3 OR MORE C3 ANSWERS CODED YES?

CODE YES ONLY IF THE ABOVE 3 OR 4 SYMPTOMS OCCURRED DURING THE SAME TIME PERIOD.

RULE: ELATION/EXPANSIVENESS REQUIRES ONLY THREE C3 SYMPTOMS, WHILE

IRRITABLE MOOD ALONE REQUIRES 4 OF THE C3 SYMPTOMS.

C4 What is the longest time these symptoms lasted?

a) 3 days or less

b) 4 to 6 days

c) 7 days or more

C5 Were you hospitalized for these problems?

NO YES

IF YES, STOP HERE AND CIRCLE YES IN MANIC EPISODE FOR THAT TIME FRAME.

C6 Did these symptoms cause significant problems at home, at work, socially in your relationships with others, at school or in some other important way?

NO YES

NO YES

MANIC EPISODE

Current

Past

NO YES

HYPOMANIC EPISODE

Current

Past

ARE C3 SUMMARY AND C5 AND C6 CODED YES AND EITHER C4a or b or c CODED YES?

OR

ARE C3 SUMMARY AND C4c AND C6 CODED YES AND IS C5 CODED NO?

SPECIFY IF THE EPISODE IS CURRENT AND / OR PAST.

ARE C3 SUMMARY AND C5 AND C6 CODED NO AND EITHER C4b OR C4c CODED YES?

OR

ARE C3 SUMMARY AND C4b AND C6 CODED YES AND IS C5 CODED NO ?

SPECIFY IF THE EPISODE IS CURRENT AND / OR PAST.

ARE C3 SUMMARY AND C4a CODED YES AND IS C5 CODED NO?

SPECIFY IF THE EPISODE IS CURRENT AND / OR PAST.

NO YES

HYPOMANIC SYMPTOMS

Current

Past

C7 a) IF MANIC EPISODE IS POSITIVE FOR EITHER CURRENT OR PAST ASK:

Did you have 2 or more manic episodes (C4c) in your lifetime (including the current episode if present)?

NO YES

b) IF HYPOMANIC EPISODE IS POSITIVE FOR EITHER CURRENT OR PAST ASK:

Did you have 2 or more hypomanic EPISODES (C4b) in your lifetime (including the current episode)?

NO YES

c)

IF PAST "HYPOMANIC SYMPTOMS" IS CODED POSITIVE ASK:

Did you have 2 or more episodes of hypomanic SYMPTOMS (C4a) in your lifetime (including the current episode if present)? NO YES

PSYCHOTIC DISORDERS AND MOOD DISORDER WITH PSYCHOTIC FEATURES

ASK FOR AN EXAMPLE OF EACH QUESTION ANSWERED POSITIVELY. CODE YES ONLY IF THE EXAMPLES CLEARLY SHOW A DISTORTION OF THOUGHT OR OF PERCEPTION OR IF THEY ARE NOT CULTURALLY APPROPRIATE. BEFORE CODING, INVESTIGATE WHETHER DELUSIONS QUALIFY AS "BIZARRE". DELUSIONS ARE "BIZARRE" IF: CLEARLY IMPLAUSIBLE, ABSURD, NOT UNDERSTANDABLE, AND CANNOT DERIVE FROM ORDINARY LIFE EXPERIENCE. HALLUCINATIONS ARE SCORED "BIZARRE" IF: A VOICE COMMENTS ON THE PERSON'S THOUGHTS OR BEHAVIOR, OR WHEN TWO OR MORE VOICES ARE CONVERSING WITH EACH OTHER. THE PURPOSE OF THIS MODULE IS TO EXCLUDE PATIENTS WITH PSYCHOTIC DISORDERS. THIS MODULE NEEDS EXPERIENCE.

Now I am going to ask you about unusual experiences that some people have. BIZARRE

K1 a Have you ever believed that people were spying on you, or that someone was plotting against you, or trying to hurt you?

NOTE: ASK FOR EXAMPLES TO RULE OUT ACTUAL STALKING.

NO YES BIZARRE: YES

B IF YES OR YES BIZARRE: do you currently believe these things?

NO YES BIZARRE: YES

→K6

K2 a Have you ever believed that someone was reading your mind or could hear your thoughts, or that you could actually read someone's mind or hear what another person was thinking?

NO YES BIZARRE: YES

b IF YES OR YES BIZARRE : do you currently believe these things?

NO YES BIZARRE: YES

→K6

K3 a Have you ever believed that someone or some force outside of yourself put thoughts in your mind that were not your own, or made you act in a way that was not your usual self? Have you ever felt that you were possessed?

CLINICIAN: ASK FOR EXAMPLES AND DISCOUNT ANY THAT ARE NOT PSYCHOTIC.

NO YES BIZARRE: YES

b IF YES OR YES BIZARRE : do you currently believe these things?

NO YES BIZARRE: YES

→K6

K4 a Have you ever believed that you were being sent special messages through the TV, radio, newspapers, books or magazines or that a person you did not personally know was particularly interested in you?

NO YES BIZARRE: YES

b IF YES OR YES BIZARRE : do you currently believe these things?

NO YES BIZARRE: YES

→K6

K5 a Have your relatives or friends ever considered any of your beliefs odd or unusual?

INTERVIEWER: ASK FOR EXAMPLES. ONLY CODE YES IF THE EXAMPLES ARE CLEARLY DELUSIONAL IDEAS NOT EXPLORED IN QUESTIONS K1 TO K4, FOR EXAMPLE, SOMATIC OR RELIGIOUS DELUSIONS OR DELUSIONS OF GRANDIOSITY, JEALOUSY, GUILT, RUIN OR DESTITUTION, ETC.

NO YES BIZARRE: YES

b IF YES OR YES BIZARRE : do they currently consider your beliefs strange?

NO YES BIZARRE: YES

K6 a Have you ever heard things other people couldn't hear, such as voices?

NO YES

IF YES TO VOICE HALLUCINATION: Was the voice commenting on your thoughts or behavior or did you hear two or more voices talking to each other?

NO BIZARRE: YES

b IF YES OR YES BIZARRE TO K6a: have you heard sounds / voices in the past month?
NO YES

IF YES TO VOICE HALLUCINATION: Was the voice commenting on your thoughts or behavior or did you hear two or more voices talking to each other?

NO BIZARRE: YES
→K8b

K7 a Have you ever had visions when you were awake or have you ever seen things other people couldn't see?

CLINICIAN: CHECK TO SEE IF THESE ARE CULTURALLY INAPPROPRIATE.

NO YES

B IF YES: have you seen these things in the past month?

NO YES

CLINICIAN'S JUDGMENT

K8 b IS THE PATIENT CURRENTLY EXHIBITING INCOHERENCE, DISORGANIZED SPEECH, OR MARKED LOOSENING OF ASSOCIATIONS?

NO YES

K9 b IS THE PATIENT CURRENTLY EXHIBITING DISORGANIZED OR CATATONIC BEHAVIOR?

NO YES

K10 b A RE NEGATIVE SYMPTOMS OF SCHIZOPHRENIA, E.G. SIGNIFICANT AFFECTIVE FLATTENING, POVERTY OF SPEECH (ALOGIA) OR AN INABILITY TO INITIATE OR PERSIST IN GOAL-DIRECTED ACTIVITIES (AVOLITION), PROMINENT DURING THE INTERVIEW?

NO YES

K11 a ARE 1 OR MORE « a » QUESTIONS FROM K1a TO K7a CODED YES OR YES BIZARRE AND IS EITHER:

MAJOR DEPRESSIVE EPISODE, (CURRENT, RECURRENT OR PAST)

OR

MANIC OR HYPOMANIC EPISODE, (CURRENT OR PAST) CODED YES?

NO YES

→K13

IF NO TO K11 a, CIRCLE NO IN BOTH 'MOOD DISORDER WITH PSYCHOTIC FEATURES' DIAGNOSTIC BOXES AND MOVE TO K13.

b You told me earlier that you had period(s) when you felt (depressed/high/persistently irritable). Were the beliefs and experiences you just described (SYMPTOMS CODED YES FROM K1a TO K7a) restricted exclusively to times when you were feeling depressed/high/irritable?

IF THE PATIENT EVER HAD A PERIOD OF AT LEAST 2 WEEKS OF HAVING THESE BELIEFS OR EXPERIENCES (PSYCHOTIC SYMPTOMS) WHEN THEY WERE NOT DEPRESSED/HIGH/IRRITABLE, CODE NO TO THIS DISORDER. IF THE ANSWER IS NO TO THIS DISORDER, ALSO CIRCLE NO TO K12 AND MOVE TO K13

K12 a ARE 1 OR MORE « b » QUESTIONS FROM K1b TO K7b CODED YES OR YES BIZARRE

AND IS EITHER:
MAJOR DEPRESSIVE EPISODE, (CURRENT)
OR
MANIC OR HYPOMANIC EPISODE, (CURRENT) CODED YES?

IF THE ANSWER IS YES TO THIS DISORDER (LIFETIME OR CURRENT), CIRCLE NO TO K13
AND K14 AND MOVE TO THE NEXT MODULE.

K13 ARE 1 OR MORE « b » QUESTIONS FROM K1b TO K6b, CODED YES BIZARRE?

OR

ARE 2 OR MORE « b » QUESTIONS FROM K1b TO K10b, CODED YES (RATHER THAN YES BIZARRE)?
AND DID AT LEAST TWO OF THE PSYCHOTIC SYMPTOMS OCCUR DURING THE SAME 1 MONTH
PERIOD?

K14 IS K13 CODED YES

OR

ARE 1 OR MORE « a » QUESTIONS FROM K1a TO K6a, CODED YES BIZARRE?

OR

ARE 2 OR MORE « a » QUESTIONS FROM K1a TO K7a, CODED YES (RATHER THAN YES
BIZARRE) AND DID AT LEAST TWO OF THE PSYCHOTIC SYMPTOMS OCCUR DURING THE
SAME 1 MONTH PERIOD?

NO YES

MOOD DISORDER WITH PSYCHOTIC FEATURES

Lifetime

NO YES

MOOD DISORDE WITH PSYCHOTIC FEATURES

Current

NO YES

PSYCHOTIC DISORDER

Current

NO YES

PSYCHOTIC DISORDER

Lifetime

Risk Assessment for Vigorous Physical Activity Protocol

When participants identify activities that require physically vigorous levels of exertion, the researcher will conduct the following screening to determine whether or not a physician’s evaluation is required. A list of moderate and vigorous physical activities compiled by the US Department of Health and Human Services can be found in Appendix D.

Step 1

Does the individual currently participate in the identified vigorous activity? Current participation is identified as active involvement that occurs at least 2x/month.

If the individual is only looking to increase current levels of participation, the physical activity screening does not need to occur.

If the participant has identified a vigorous activity in which he or she has not participated or no longer participates, the researcher should complete the physical activity-screening tool.

Step 2

The following questionnaire should be completed for participants who identify an interest in vigorous physical activity.

Risk Factors

Questions
Risk Factors
Do you have any immediate family members who had any heart conditions?
If Yes, then: Did these conditions occur before the age of 55 (men) 65 (women)?
If YES to both: Family Risk Factor
Are you a current Smoker? Or did you quit within the last 6 months?
Are you currently taking medication for Hypertension ?
Are you currently taking medication for Cholesterol ?
Based on the activity assessment, would you categorize this person’s life as sedentary?
If the individual meets only one of the above criteria, please ask him or her to measure his/her waist circumference with the measuring tape. >100 cm?
HIGH RISK FACTORS
Do you experience pain or discomfort in your chest, neck, jaw or arms?
Do you ever experience shortness of breath while doing regular activities?
Do you ever feel dizzy doing normal activities?
Do you experience difficulty breathing when you’re asleep that causes you to wake up?
Do you have swelling around your ankles?
Do you ever feel that your heart is skipping a beat, fluttering, or beating too hard or fast?
Do you experience a pain or aching in your leg or calf that occurs with walking and goes away with resting?
Have you been diagnosed with a heart murmur?
Do you find yourself unusually tired or short of breath with usual activities?
Total

Risk Level

Level	
Low	<45 (Men) <55 (Women) Meet no more than ONE risk factor criteria
Moderate	>45 (Men) <55 (Women) OR meet TWO or more risk factor criteria
High	Meets any HIGH risk factor criteria

Step 3

Score the participants risk level. Those meeting moderate or high risk level must be referred to their case manager to schedule a medical evaluation before participating in vigorous physical activity. The researcher will contact participant's case manager and discuss the risk evaluation and recommendation. Before participating in the vigorous activity, evidence of a physician's review and approval must be received.

Step 4

Work with participants classified as moderate risk to pursue an alternative interest that requires no more than moderate physical activity. For participants classified as high risk, work with them to pursue alternative interest requiring no more than low physical activity. Assist all participants in following through on medical evaluation.

modified Differential Emotions Scale (mDES)

Instructions: Please use this scale to rate how you have felt over the **last hour**. Using the 0-4 scale below, indicate the *greatest amount* that you've experienced each of the following feelings.

What is the most amused, fun-loving or silly you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most angry, irritated or annoyed you feel (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most ashamed, humiliated or disgraced you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most awe, wonder or amazement you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most contemptuous, scornful or disdainful you feel? (Circle one)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most disgust, distaste or revulsion you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most embarrassed, self-conscious or blushing you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most grateful, appreciative or thankful you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most guilty, repentant or blameworthy you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most hate, distrust or suspicion you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most hopeful, optimistic or encouraged you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most inspired, uplifted or curious you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely

What is the most interested, alert or curious you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most joyful, glad or happy you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most love, closeness or trust you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most proud, confident or self-assured you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most sad, downhearted or unhappy you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most scared, fearful or afraid you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most serene, content or peaceful you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely
What is the most stressed, nervous or overwhelmed you feel? (Circle One)				
0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	Extremely

A. WALTER, CV

Indiana University
School of Public Health-Bloomington
1025 E. 7th Street, 133 SPHB
Bloomington, IN 47405

alyawalt@indiana.edu
815.973.3988 (cell)

FORMAL EDUCATION

Master of Science in Recreation June 2013

Indiana University, Bloomington Indiana

Major: Recreational Therapy

Thesis: "The Effect of Aquatic Activity on Emotions in Adults with Severe Mental Illness"

Bachelor of Science in Recreation Administration August 2011

Eastern Illinois University, Charleston Illinois

Option: Therapeutic Recreation

Minor: Psychology

Associate of Science August 2008

Illinois Valley Community College, Oglesby Illinois

ACADEMIC EXPERIENCE

Indiana University, Bloomington Indiana 2012-2013

Department of Recreation, Park, and Tourism Studies

Research Assistant for Dr. Bryan P. McCormick

2012-2013

Teaching Assistant for Dr. Allison Voight

Spring 2013

Teaching Assistant for Jillisa Overholt Ph.D Candidate/Visiting Lecturer Spring 2013

Assist in the collection of academic literature involving individuals living with severe mental illness and specifically individuals living with schizophrenia. Also, collecting literature on the health effects related to individuals living with severe mental illness. Help collect information for specific grant opportunities. Calculate data on a previous study performed by Dr. McCormick involving individuals living with severe mental illness. Grade all undergraduate level 100 coursework, make comments and recommendations on school materials and enter all information into an online gradebook. Enter points into an online gradebook and assist the professor during examination days for a level 200 undergraduate class.

PROFESSIONAL EXPERIENCE

Centerstone of Indiana, Bloomington
Graduate Intern for the BE Well Program

2012-2013

Take initial vital information for individuals living with a mental illness. Enter vital information into medical flow sheet for the facility. Step in and work for the secretary when needed. Assist in therapeutic groups. Individually assess, plan, implement and evaluate for an aquatic activities group. Write individual notes for the facility on each individual that I work with. Facilitate individuals living with a mental illness one on one with physical exercises I adapt for the individual.

H. Douglas Singer Mental Health Center, Rockford, Illinois
2011

Day Camp Counselor/ Respite Weekend Counselor

2010-2011

Supervise and interact in adapted activities for children and adults living with developmental impairments. Help campers in any way that they need (changing clothes, bathing, helping the individual eat, etc.).

RESEARCH SUPPORT

Current Research Support

<i>Granting Agency</i>	<i>Title & Role</i>	<i>Amount Funded</i>	<i>Dates</i>
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Leisure Research Institute	The Effect of Aquatic Activity on Emotions in Adults with Severe Mental Illness	\$300	2013
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Role: PI

Advisor: B. McCormick

SCHOLARLY PUBLICATIONS

1. **Walter, A. A., & Van Puymbroeck, M.** (accepted) Using Symbolic Interactionism to Improve Recreational Therapy Practice for Individuals with Eating Disorders. *American Journal of Recreation Therapy*.

SCHOLARLY PRESENTATIONS

Regional

1. Recreation Therapists of Indiana 2012 Annual Conference. Why Fun is Good for You: Positive Emotion as a Recreational Outcome. Bradford Woods, Martinsville, IN. November 1&2 (Co-Present with McCormick & Allsop)

PROFESSIONAL AND UNIVERSITY SERVICE

Certifications

National Council for Therapeutic Recreation Certification, CTRS, #60586
2012-present

Current Professional Organization Membership

American Therapeutic Recreation Association (ATRA)

Professional Service

2012-2013 *Reviewer*, *Illuminare: Student Journal in Recreation, Park and Tourism Studies*

2011-2012 *Reviewer*, *Illuminare: Student Journal in Recreation, Park and Tourism Studies*

University Service

Indiana University: Department of recreation, Park, & Tourism Studies)

2012-present *Vice President*, Graduate Recreation Society

2011-2012 *Secretary*, Graduate Recreation Society

Eastern Illinois University: Department of Recreation Administration

2010-2011 *Vice President*, Student Association for Recreation