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NOVA SOUTHEASTERN UNIVERSITY

NSU Florida

Does physical exercise have an impact on Generalized Anxiety Disorder in adults measured by GAD-7 scores?

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NSG 7451 Project IV

DNP Project Defense

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NSU Committee Members

- Dr. Teresa Gore, DNP Project Chair
- Dr. Kimberly Sand, Program Director
- Dr. Kniaka Bethel, Graduate Programs

Diagnosing Generalized Anxiety Disorders

- DSM -5 criteria is the gold standard criterion for diagnosis
  - Anxiety and worry for at least 6 months
  - Associated with at least 3 other diagnostic symptoms
    - Only 1 other symptom in children

Background and Significance

- The World Health Organization estimates 301 million people in the US experience anxiety.
- This includes phobias, social phobias, panic disorder, generalized anxiety disorder

- During COVID, there was a 26% increase in anxiety diagnoses.
- Mental disorders (who.int)

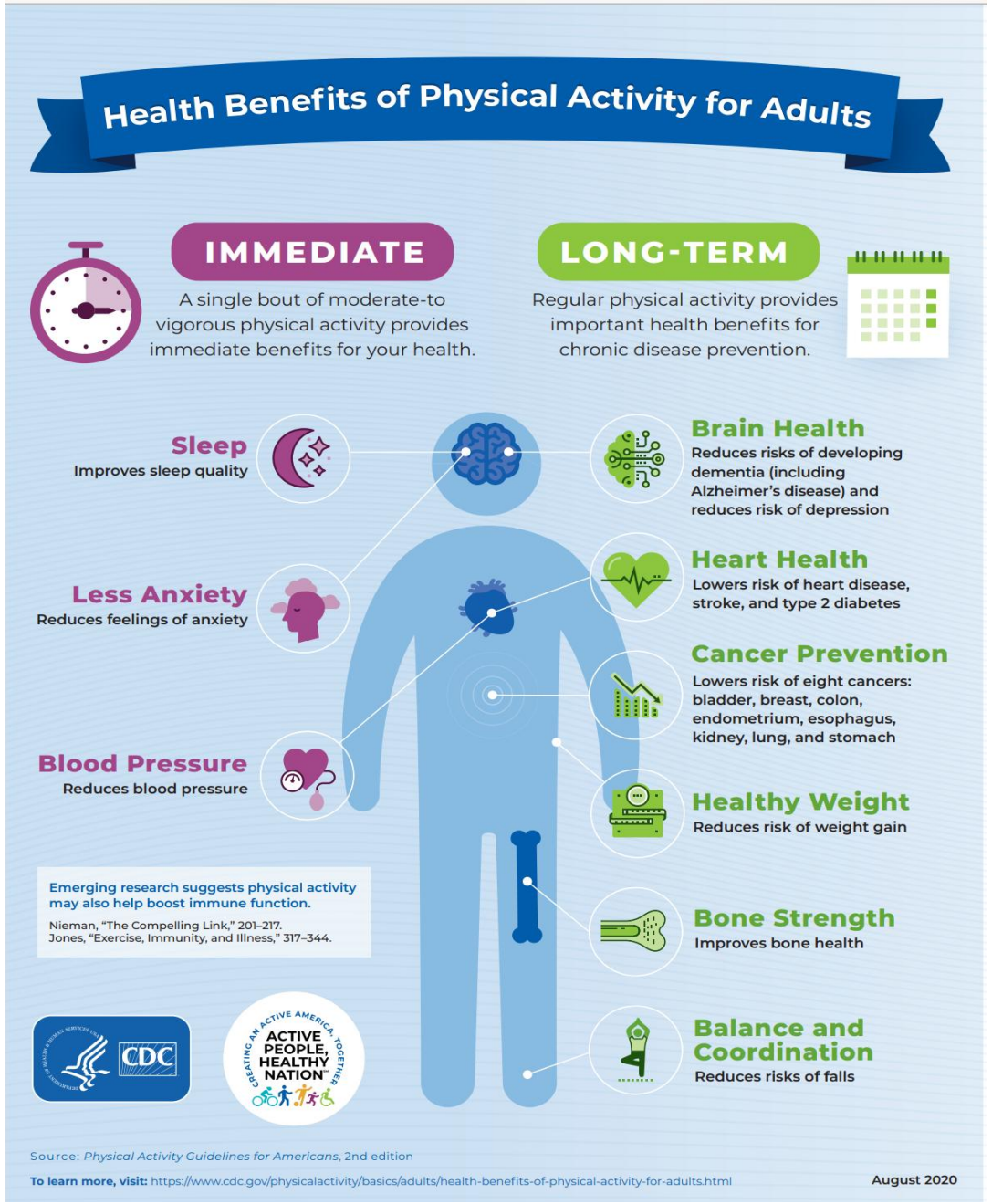
Generalized Anxiety Disorder

- 2019 average anxiety severity score was 0.63 in adults 18 years+
- Fall 2020 - 13% increase in anxiety severity
- Florida had the smallest percentage increase in anxiety

"National and state trends in anxiety and depression severity ..," 2021

Needs Assessment

- DNP mentor has 437 patients within the practice, 237 patients with a diagnosis of Generalized Anxiety Disorder
- 33% of these patients are seeking non-pharmacological options for treatment
- Natural methods being sought/discussed are herbal treatments, cannabinoids, vitamins, and physical exercise
- 52% of individuals diagnosed with anxiety will develop a cardiovascular disorder (Kandola et al., 2018)



Problem Statement

Patients are now veering away from pharmacological treatments of anxiety

Would like to focus on methods of treatment that involve less medication

The need has been presented to examine if physical exercise can be considered an adjunctive option for adults diagnosed with Generalized Anxiety Disorder.

Guiding Question

- Does physical exercise have an impact on Generalized Anxiety Disorder in adults measured by GAD-7 scores?

Purpose

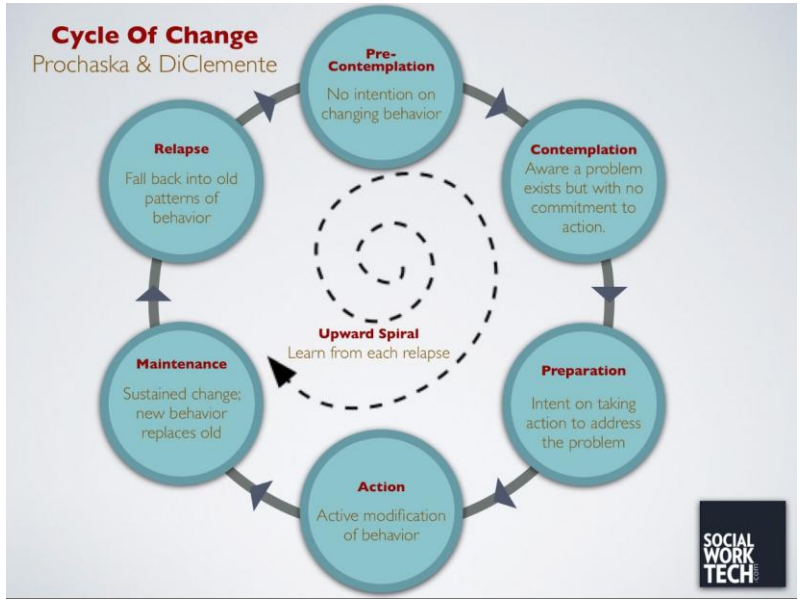
The objective of this project is to determine if physical exercise has an impact on decreasing symptoms of anxiety and facilitate an understanding of the mental health effects of physical exercise

To add data to research to understand the connection between anxiety and physical exercise

To observe the progression of stages of behavior change via the transtheoretical model.

Theoretical Framework

- Transtheoretical Model of Behavior Change
  - Originally developed in 1983 by Prochaska & DiClemente
  - Focused on addictive or problematic behaviors
  - Used comparison and analysis of individuals decisions for change as an adjunct to psychotherapy methods
  - Now transitioned to focus on physical activity initiatives



Literature Review

- Marshall and Biddle (2001) discuss Prochaska's TTM and the examination of human behavioral change as it was developed
- Hashemzadeh et al. (2019) discusses the use of the TTM in healthcare
  - Low usage in healthcare despite positive results
- Spitzer et al. (2006) discusses the origin of GAD7
- Dhira et al. (2021) provides further details on the validation of the GAD7 questionnaire in a different construct
  - Cronbach's alpha 0.895 in the study
- Ströhle et al. (2018) discuss statistics of anxiety disorder and how to make a diagnosis of the condition.

Literature Review – Is Exercise an option?

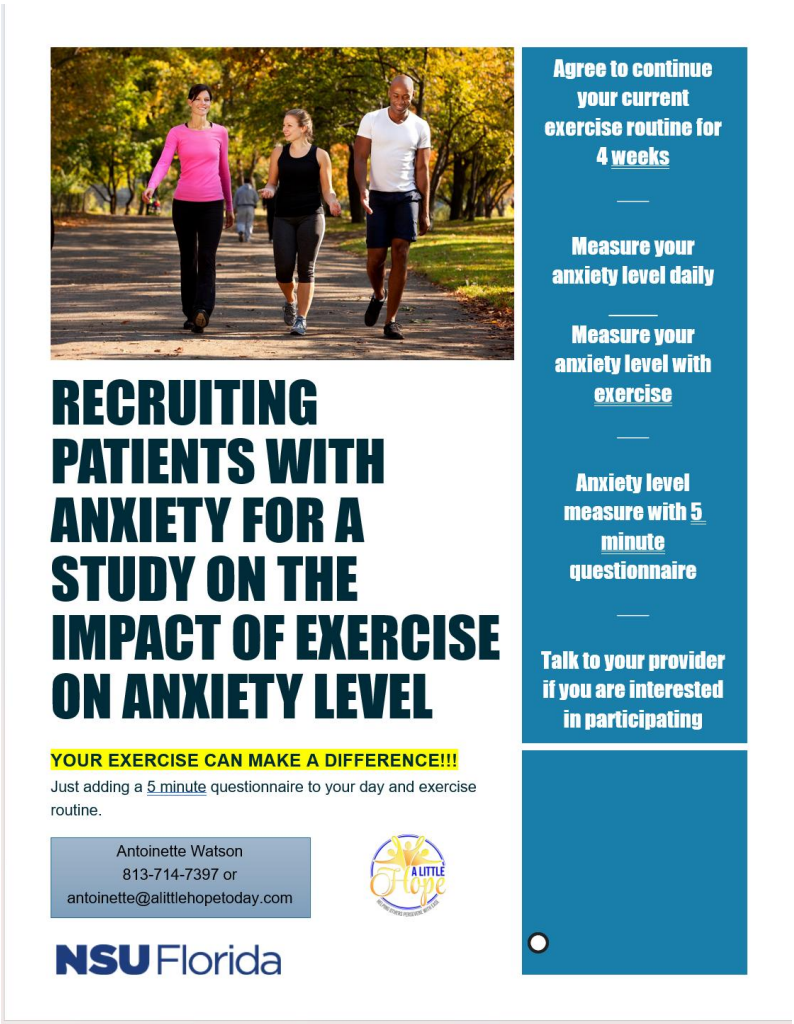
- Saeed et al (2019) discusses effectiveness for depression, uncertain effects for anxiety
  - Meta analysis data summarized, 95% CI: -0.81 to -0.42
- Schuch & Vancampfort (2021) discusses moderate effects on exercise in one RCT; no further analyses could be made as the number of studies analyzed were too small, specific p-value is not mentioned but the meta-analysis for anxiety had a 95% CI = 0.62-0.88.
- Kandola et al., (2018) discuss the variance of physical movement; most studies review structured exercise versus physical activity in general.
- Kandola et al., (2018) mentions some efficacy for anxiety but with variance in the amount of physical activity which causes a limitation
  - Lack of sufficient, consistent evidence-based research prevents p-value measurements
- Ramos-Sanchez et al. (2021) demonstrated that physical exercise has a positive impact on anxiety symptoms but were limited by small sample size (effect size -0.425, previously 0.58)

Literature Review

- Barriers to evidence
  - Lack of resources to support research
  - Limited amount of randomized controlled trials
  - Lack of consistency – studies are using different types and levels of physical movement when measuring exercise/activity and anxiety
  - Drop out rates of participants
  - Inserting assessments of physical health along with mental health

Methodology

- IRB approval obtained
- Quantitative Research
  - Pre – post design
- Flyer for advertising and recruitment of participants
- Education on using the GAD 7 tool and staging on the TTM



Intervention

- Educate participants on the benefits of exercise and their mental health
- Educate participants on the use of the GAD-7 questionnaire
- Obtain a baseline GAD-7 score every morning (prior to external stimuli having an impact on mood)
- Obtain a GAD-7 score prior to physical exercise and immediately following physical exercise

- Physical exercise
  - A structured routine of physical activity of the participants choice
- Participants with collect their own data for 4 weeks then report
- Ask participants to rate themselves on the TTM at the start and finish of 4 weeks.

GAD-7 Questionnaire

- Assessment tool
  - Seven item questionnaire
  - Cronbach alpha = .92
  - Reliability = 0.83
  - Validity = 0.83

Generalized Anxiety Disorder 7-item (GAD-7) scale

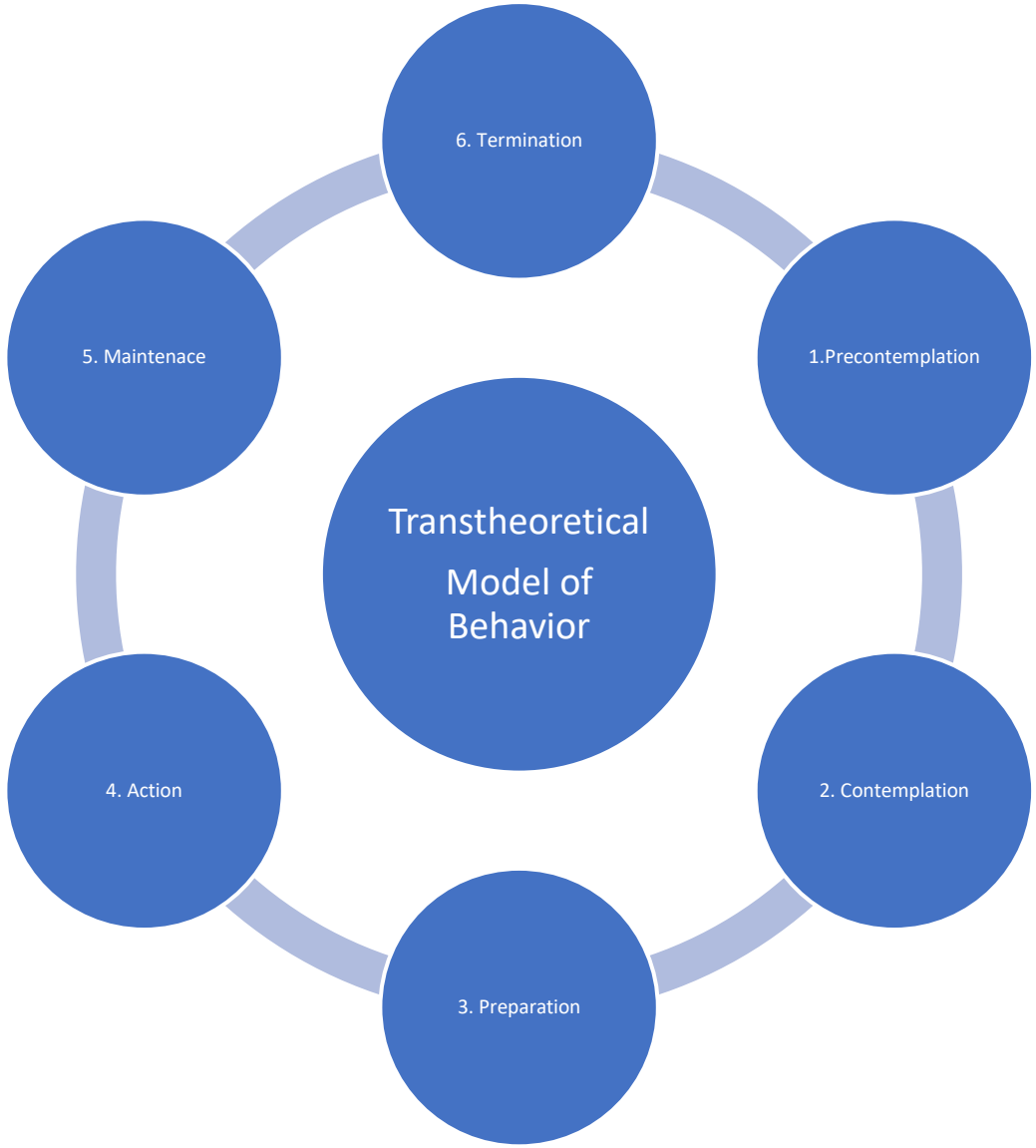
Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all sure	Several days	Over half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it's hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3
Add the score for each column	+	+	+	
Total Score *(add your column scores)* =				

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all _____
Somewhat difficult _____
Very difficult _____
Extremely difficult _____

Source: Spitzer RL, Kroenke K, Williams JBW, Lowe B. A brief measure for assessing generalized anxiety disorder. *Arch Inern Med.* 2006;166:1092-1097.

Transtheoretical Model



Sampling

Convenience sample

- Goal Size – 10-20 participants.

Inclusion Criteria

- Patients 18 years of older of my colleague
- Diagnosed with ICD 10 – F41.1 (GAD)
- Using antidepressant medications or psychotherapy
- Patients currently participating in an exercise routine
- Patients that are not personal patients

Sampling

- Exclusion Criteria
  - Patient under the age of 18 years
  - Personal patients
  - Patients diagnosed with mood disorders or schizophrenia
  - Patients using medication for breakthrough anxiety
  - Patients currently pregnant
  - Patients diagnosed with neurocognitive disorders
  - Patients with a chronic medical condition that restricts exercise

Measurement of Outcomes

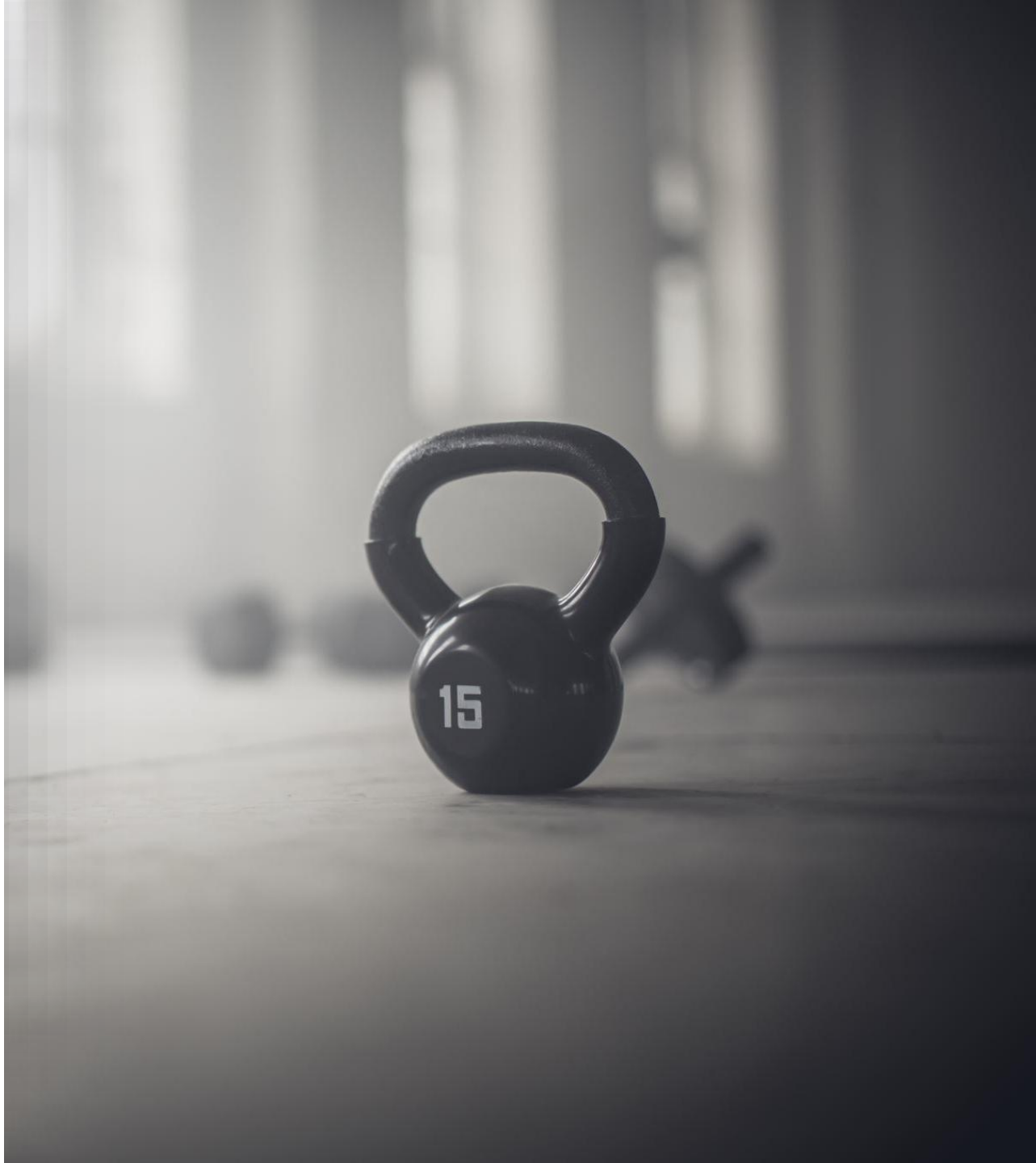
Obtain sufficient data to trend the effects of physical exercise on anxiety

Help individuals visualize the importance of physical exercise for their mental health

Observe for individual progression on the TTM stages for exercise

Data Collection

- Obtain GAD 7 score every morning
- Obtain GAD 7 score prior to workout
- Obtain GAD 7 score immediately following the workout
- If participants did not exercise, they will only have one GAD 7 score for the day
- Stage themselves on the TTM model at the beginning of the study and the end.



Data Analysis

- Planned ANOVA analysis
- Descriptive Statistics

Results

Summary Statistics Table for Interval and Ratio Variables

Variable	M	SD	n	SE_M	Min	Max
Average Baseline GAD7	8.50	0.71	2	0.50	8.00	9.00
Average Pre-Workout GAD7	10.00	1.41	2	1.00	9.00	11.00
Average Post-Workout GAD7	5.50	3.54	2	2.50	3.00	8.00

Facilitators VS Barriers

Facilitators

- Accessible patients
- Patients looking for natural methods of anxiety treatment
- Generalized Anxiety Disorder diagnosis is confirmed
- Not starting a new exercise routine

Barriers

- Split of patients between virtual and in-office patients
- Lack of rapport with the researcher
- Short duration of the project
- Variance in anxiety response due to different levels of physical fitness
- No staging weekly on the TTM to track progress

Cost

Anticipated to remain low

Flyer for advertising was personally created and free

GAD7 tool is free and open to public use

Patients used their current gym or exercise routine

Time for researcher

- 57.69 per hour
- 150 minimum hours estimated
- $8654

Study proved to be cost effective

Ethical Concepts

- Autonomy
- Beneficence
- Justice
- Non-maleficence

Discussion

STRENGTHS

LIMITATIONS

COST BENEFIT ANALYSIS

FUTURE IMPLICATIONS

IMPLICATIONS FOR NURSING PRACTICE

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