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## Yoga to Enhance Self Efficacy: An Intervention for At-risk Youth

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#### ABSTRACT

*OBJECTIVE:* Yoga has demonstrated effectiveness in improving self-management in a variety of disease states however little is known about the impact of yoga as a health promotion intervention for adolescent females in an urban school based environment. This pilot study was conducted to determine if yoga could improve the self-efficacy and body core tone in at-risk adolescent female participants.

*METHOD*: A quasi-experimental design was employed, with data collection at baseline, end of program, and 1 month post-program. Fifteen participants ages 11–14 were recruited. Yoga was practiced twice weekly for eight weeks. Self-efficacy was measured using a standardized tool, the Self-Efficacy Questionnaire for Children (SEQ-C). Improvements in flexibility and core body tone were also examined. The researchers collected data on adverse childhood events using the Adverse Childhood Event (ACEs) scale.

RESULTS: Fifteen participants were successfully recruited and 14 (87%) were retained through the duration of the project. Based on the small sample size, non-parametric tests were used (Freidman's test). Although there were no significant improvements in **total** SEQ-C, there were significant improvements in SEQ-C **social** subscale (p = 0.028). Significant improvements were also identified in waist circumference (p = 0.001) and in flexibility (p = 0.034).

CONCLUSIONS: Participant attendance/dose did not correlate to any of the outcomes, however with the physical and emotional improvements noted, it is assumed that any level of attendance was beneficial. Improvements in the social subscale of the SEQ-C could be the result of belonging to a group and strengthening healthy relationships.

#### INTRODUCTION

#### BACKGROUND

Research related to the use of yoga as an intervention for children and adolescents is limited. Studies suggest benefits for anxiety, depression, eating disorders and in a variety of gastrointestinal conditions and cancer (Carei, Fyfe-Johnson, Breuner, & Brown, 2010; Greenberger & Harris, 2011). However, little is known about the health promotion benefits of yoga on adolescent self-efficacy and the ability to learn self-management techniques particularly in a school based setting. There currently exists a broad network of school based health centers which provide the framework for the delivery of preventative services and health promotion, in the location where adolescents spend a majority of their day (Michigan Department of Health and Human Services, 2017; School Based Health Alliance, 2017).

Administrators and teachers are increasingly challenged with higher classroom enrollment and growing external expectancies for higher academic achievements. The public education system is resource poor and schools in general have limited opportunities to offer physical education or outdoor fitness activities. As schools search for solutions to address these issues, current evidence indicates that mindfulness activities including yoga, have the ability to garner results related to feeling identification, emotional regulation, and coping abilities in children and adolescents (Daly, Haden, Hagins, Papouchis, & Ramirez, 2015; Hagen & Nayar, 2014; Khalsa, Hickey-Schultz, Cohen, Steiner, & Cope, 2012; Wang & Hagins, 2016; White, 2012). Other research suggests that students who experience mental health problems may result in deterioration of academic performance; introducing these students to yoga has improved their attention and self-esteem (Sethi, Nagendra, & Ganpat, 2013). Many cognitive benefits of school-based meditation have been observed in adolescents including improved concentration, enhanced ability to pay attention, decreased anxiety, improved emotional and behavioral self-regulation, and the overall facilitation of emotional intelligence (Wisner, Jones, & Gwin, 2010).

Adolescents in an urban environment are particularly at-risk for the consequences of exposure to violence and trauma. This study took place at an elementary/middle school in Southwest Detroit. The 2016

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statistics for the city of Detroit indicated an annual increase in homicide (2.3%), rape (4.8%) and auto theft (5.8%) (City of Detroit, 2016). Living in a high crime environment can put children and adolescents at a higher risk for environmental trauma, although all adolescents are atrisk for the consequences of environmental influences and unhealthy choices: the use of alcohol, tobacco and other drugs, teen pregnancy and sexually transmitted infections. Many youth who experience adverse childhood experiences related to trauma can have lasting physical and mental health implications throughout adulthood (Felitti et al., 1998; Kalmakis & Chandler, 2015). Teaching skills for self-management or mindfulness by way of yoga can benefit adolescents in a variety of ways that can positively impact social, academic, and emotional domains.

#### **PURPOSE**

This project served as a feasibility pilot to determine the effectiveness of a yoga intervention for a sample of urban, female adolescents. The aims of this study were to:

- 1. Identify the effectiveness of utilizing the self-management strategy of yoga to improve self-efficacy in at-risk adolescent females.
- Describe the unique opportunities and challenges of engaging stakeholders in a resource poor environment to offer innovative health promotion strategies to its youth.
- Discuss the study results from the perspective of feasibility with a larger sample size and implications for future interventions utilizing an interdisciplinary team.

#### THEORETICAL FRAMEWORK

Bandura's Theory of Self-Efficacy (TSE) was used to guide this project. Self-efficacy is a person's belief that one is capable of organizing and executing courses of actions required to manage potential situations. A person possesses self-efficacy when they believe they are capable to perform a particular behavior even if it involves numerous challenges (Bandura, 1997).

Bandura describes four major sources of self-efficacy:

- Mastery experiences-The most effective way of developing a strong sense of efficacy is through mastery experiences. Experiencing success in previous endeavors enables one to perceive oneself as accomplished.
- Social modeling-Seeing people similar to oneself succeed by sustained effort raises an observers' belief that they too can possess the capabilities to master comparable activities.
- 3. Social persuasion-People could be persuaded to believe that they have the skills and capabilities to succeed.
- Physiological responses- The sheer intensity of emotional and physical reactions will influence the perception of one's personal abilities.

Participating in a yoga group prevention program is postulated to strongly impact all sources of self-efficacy. The TSE further holds that people will constantly strive to control events that affect their lives and engage in activities if they believe their actions will bring about a desired outcome (e.g., improvements in self-control, improved relationships, better concentration, and confidence in physical abilities).

Using the TSE as a guide, one may hypothesize that behaviors integral to a yoga practice, such as being able to calm oneself and be present in the current moment (mindfulness) can be translated to a variety of circumstances outside of the yoga studio. In order to exercise control over life circumstances, adolescents require social and self-regulative skills and a sense of personal efficacy.

Bandura (1997) explained that our own responses and emotional reactions to situations play an important role in developing selfefficacy. Furthermore, learning how to minimize stress and elevate mood when facing difficult or challenging tasks can improve ones' sense of self-efficacy. Self-efficacy is the most important precondition for behavioral change. Information alone does not necessarily exert much influence on behavior; rather, it is the translation of knowledge into effective self-management that achieves the desired result. Perceived self-efficacy to manage stress, improve academic achievement, and foster healthy relationships is associated with more effective self-management strategies and control.

#### **METHODS**

#### SAMPLE AND DATA COLLECTION

This pilot project was designed for female participants, in the interest of promoting an open and less socially charged environment. Inclusion criteria included that the adolescent be English speaking and a student from ages 11–14, that was enrolled as a patient in the school based health center (SBHC) with no physical restrictions to yoga participation. All adolescents had a physical exam within the last calendar year. This pilot study received Human Subjects approval from the health system responsible for administrating the SBHC and the University Institutional Review Board.

Participants were recruited from naturally occurring social groups, using a key informant process. These students were enrolled in an after-school latch key program. Some current clinic users were already interested in participating in the yoga program; they persuaded their friends to seek more information in the SBHC. Parent consent and adolescent assent were obtained. Retention was enhanced by providing all participants a healthy meal following the yoga session. Participants were provided with yoga leggings and a yoga mat, which they could keep following the final session. To ensure proper preparedness for the yoga sessions, the research team collected and washed the leggings and mats after each session.

#### DESIGN, INSTRUMENTS, AND MEASURES

A quasi-experimental, repeated measures design was used to evaluate the effectiveness of a yoga intervention, delivered twice a week, for an eight week period of time. A certified yoga instructor facilitated each session. The basic demographic elements collected were age, ethnicity, and session attendance. The Adverse Childhood Experiences Scale (ACEs) was administered at baseline and post-program (Centers for Disease Control, 2016). The ACE scale is composed of 10 items that elicit circumstances of grief and loss, trauma and violence (emotional and physical: experiencing or witnessing). This data was gathered to determine if a "certain" ACE score or if having "any" ACE had an impact on the primary outcome measure of self-efficacy, attendance, and retention.

The pilot project concluded in 2016. Participants completed a valid and reliable 24-item tool, The Self-Efficacy Questionnaire for Children (SEQ-C) at baseline, immediately following the completion of 8 weeks of yoga, and four weeks following the completion of the program (Muris, 2001). The SEQ-C is a self-report measure of efficacy in the academic, social, and emotional domains. Each domain is measured in a separate subscale. Muris (2001) reports a Cronbach's  $\alpha$  of 0.88 for the total scale, and the subscale  $\alpha$ 's range from 0.85–0.88. All questions are scored on a five point Likert scale, with a minimum score of 24 and a maximum score of 120; higher scores indicate a stronger appraisal of self-efficacy. Additionally, the subscales are quantifiable. Some examples of questions are: "How well can you control your feelings? How well do you succeed in preventing quarrels with other children?"

The physical improvement measures included waist circumference (in inches), and flexibility; this was assessed using the Acuflex Sit and Reach Tester (Novel Products, 2017). The Acuflex measures forward flexion (hamstring and lower back flexibility) while seated, and

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