

# BIBLIOTHERAPY TO DECREASE STRESS AND ANXIETY AND INCREASE RESILIENCE AND MINDFULNESS: A PILOT TRIAL

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**Introduction:** Interventions to decrease stress and enhance resiliency and mindfulness are more likely to be widely implemented if they can be offered without the need for in-person training. The purpose of this study was to assess effectiveness of a self-directed Stress Management and Resiliency Training (SMART) program delivered using only written material for improving stress, resiliency, and mindfulness.

**Methods:** A total of 37 employees at a large medical center were recruited and given written material on the SMART program. Subjects were instructed to practice the skills presented in the written materials without any additional training. The skills included education about the neuropsychology of stress and resilience, training attention to focus in the present moment, and refining interpretations. Primary outcome measures assessed resilience, perceived stress, anxiety, and quality of life.

**Results:** Out of 37 employees, 34 (89%) enrolled subjects completed the study and provided the baseline and follow-up data. A statistically significant improvement in perceived stress, resilience, mindfulness, anxiety, and quality of life was observed at 12 weeks.

**Conclusion:** This study demonstrated that a brief, self-directed program to decrease stress and enhance resilience and mindfulness provided excellent short-term effectiveness for enhancing resilience, mindfulness and quality of life, and decreasing stress and anxiety.

**Key words:** Bibliotherapy, anxiety, psychological stress, psychological resilience

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## INTRODUCTION

Stress is a ubiquitous problem that is associated with many acute and chronic medical conditions such as cardiac arrhythmia,<sup>1,2</sup> cardiovascular disease,<sup>3-6</sup> impaired immune function,<sup>6-8</sup> and peptic ulcer disease.<sup>9</sup> In moderation, stress is healthily tolerated; excessive stress, however, is associated with poor medical outcomes,<sup>6</sup> unhealthy coping mechanisms,<sup>10-12</sup> and symptoms of anxiety and depression.<sup>6,13,14</sup> Stressors are difficult to remove. However, one can enhance one's ability to handle stress, an attribute often called resiliency.

Stress Management and Resiliency Training (SMART) was developed as a structured and simple program at Mayo Clinic, Rochester to decrease personal stress and enhance resiliency (A.S.V. Sood, D.R. Schroeder, B. Gorman, stress management and resiliency training (SMART) program among Department of Radiology faculty: a pilot randomized clinical trial, unpublished).<sup>15,16</sup> SMART is an abbreviated

version of a therapy developed called Attention and Interpretation Therapy (AIT). AIT and SMART focus on two aspects of human experience: attention and interpretation. Human attention tends to focus upon threats.<sup>17</sup> These threats, in modern times, may take the form of hurts, regrets, worries, and fears that can draw our attention away from the present moment and into the domains of the past and the future. This can lead to ruminative thinking, avoidance, and ineffective thought suppression.<sup>18,19</sup> Consequently, untrained attention leads to an increase in perceived stress. SMART teaches learners to focus their attention in the present moment and to defer unrefined judgments. Learners are also taught to cultivate and guide their interpretations by higher-order principles such as forgiveness, acceptance, gratitude, compassion, and life's meaning, instead of superficial prejudices.

Traditionally, an instructor administers the SMART program to participants in an individual or group session. Three studies have been completed, which have demonstrated the feasibility and effectiveness of this program (A.S.V. Sood, D. R. Schroeder, B. Gorman, stress management and resiliency training (SMART) program among Department of Radiology faculty: a pilot randomized clinical trial, unpublished).<sup>15,16</sup> Subjects demonstrated significant reductions in perceived stress and anxiety, and increases in resilience, mindful attention, and overall quality of life.<sup>15,16</sup>

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While resiliency enhancing research is limited, several stress management programs have proven efficacious.<sup>20–25</sup> The majority of these programs entail several weeks of participation in in-person training sessions.<sup>26</sup> This may negatively impact the broader dissemination of the programs. A self-directed program using only written materials may address issues of portability for a stress management and resiliency training program. Following Cuijpers and Schuurmans<sup>27</sup> definition, bibliotherapy is a form of self-directed therapy based on the application of generally accepted treatments for mental health problems. The protocol involves written information, explanations, and exercises utilized by the patient with minimal or no therapist interaction.<sup>28</sup> Bibliotherapy has been used for decades to treat mental health problems and has been found efficacious by several randomized control trials and meta-analyses to reduce depression and several types of anxiety disorders.<sup>29</sup> In the present study, the traditional instructor-administered SMART program was adapted into a form of bibliotherapy. This study was designed to test the effectiveness of a self-directed, written program with no instructor interaction to decrease stress and anxiety and enhance resiliency among employee volunteers from a large academic medical center.

## METHODS

The institutional review board (IRB) reviewed and approved the study protocol prior to recruitment and enrollment. The study was designed as a single-arm intervention. Inclusion criteria were as follows: (1) able and willing to participate in all aspects of the study and (2) provided with, able to understand, and sign the informed consent. Exclusion criteria were as follows: (1) recent (within past six months) psychotic episode, (2) clinically significant acute unstable neurological, psychiatric, hepatic, renal, cardiovascular, or respiratory disease that prevented participation in the study, or (3) previously participated in AIT training.

### Study Recruitment

The participants were recruited through informational flyers posted on notice boards and e-mail announcements through a hospital employee list-serve. In total, 90 people responded to advertisements and 37 met inclusion/exclusion criteria. Participants were excluded based on self-report of medical history to the study coordinator.

### Study Administration

Respondents were screened for inclusion and exclusion criteria by the study coordinator over the telephone. Suitable participants were scheduled a meeting with the study coordinator whereby informed consent was obtained. The following instruments were then completed by the participants at baseline and week 12: Connor–Davidson Resilience Scale (CD-RISC), Perceived Stress Scale (PSS), Smith Anxiety Scale (SAS), Linear Analog Self Assessment Scale (LASA), and Mindful Attention Awareness Scale

(MAAS). The participants completed these web-based baseline surveys during the initial meeting with the study coordinator or shortly after on their own time. At the end of the 12 weeks, the web-based surveys were mailed to participants for completion.

The CD-RISC is a 25-item scale with each of the item rated on a 0–4 scale, with higher scores reflecting greater resilience.<sup>30</sup> CD-RISC has been evaluated for reliability, validity, and factor structure and has been shown to have good psychometric properties with the ability to distinguish between participants with lesser and greater resilience.<sup>30,49</sup> PSS is an adequately reliable 14-item self-report tool that provides a global measure of perceived stress.<sup>31</sup> Responses range on a 5-point scale from “never” to “very often.” A higher score indicates greater stress. The PSS correlates well with measures of stress from life events and social anxiety. LASA has respondents rate five single items on a scale of 0–10.<sup>32</sup> It evaluates overall quality of life, overall mental, physical, emotional, social, and spiritual well-being.<sup>32</sup> The Smith Anxiety Scale (SAS) is a 22-item self-report tool that differentiates between cognitive and somatic anxiety symptoms, which are similar to most stress symptoms.<sup>33–35</sup> Responses range from 0 “as bad as it can be” to 10 “as good as it can be.” MAAS is a 15-item measure that assesses the frequency of mindful states in day-to-day life, using both general and situation-specific statements.<sup>36</sup>

### Study Intervention

For the study intervention, participants were given the book, *“Train Your Brain Engage Your Heart Transform Your Life”* along with three handouts that summarized the contents of the book. The 443-page book presents the contents of the SMART program in 13 sections (Table 1). The book has 523 references to peer-reviewed articles.

**Table 1.** Train Your Brain Engage Your Heart Transform Your Life

Section I	Content summary
Section II	Education on neuropsychology related to stress and resilience
Section III	Overview of the SMART program
Section IV	Concepts and skills of attention training
Section V	Concepts related to interpretations
Section VI	Gratitude
Section VII	Compassion
Section VIII	Acceptance
Section IX	Meaning and purpose
Section X	Forgiveness
Section XI	Relationship skills
Section XII	Meditation and prayer
Section XIII	Growth and transformation
Appendices I–IV	Instruction in relaxation using breath and body as anchor, physical exercise, diet, and other tips from the SMART program

SMART = stress management and resiliency training.

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