



# Stress Management and Relaxation Techniques use among underserved inpatients in an inner city hospital



Paula Gardiner<sup>a,\*</sup>, Ekaterina Sadikova<sup>a</sup>, Amanda C. Filippelli<sup>a</sup>,  
Suzanne Mitchell<sup>a</sup>, Laura F. White<sup>b</sup>, Robert Saper<sup>a</sup>,  
Ted J. Kaptchuk<sup>c</sup>, Brian W. Jack<sup>a</sup>, Lisa Fredman<sup>d</sup>

<sup>a</sup> Department of Family Medicine, Boston University School of Medicine, Boston Medical Center, Boston, MA, United States

<sup>b</sup> Department of Biostatistics, Boston University School of Public Health, Boston, MA, United States

<sup>c</sup> Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, United States

<sup>d</sup> Department of Epidemiology, Boston University School of Public Health, Boston, MA, United States

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## KEYWORDS

Health literacy;  
Complementary and  
alternative medicine;  
Relaxation therapy;  
Stress management

## Summary

**Objective:** Little is known about the use of Stress Management and Relaxation Techniques (SMART) in racially diverse inpatients. We hope to identify socioeconomic status (SES) factors, health behavior factors, and clinical factors associated with the use of SMART.

**Design and main outcome measures:** We conducted a secondary analysis of baseline data from 623 hospitalized patients enrolled in the Re-Engineered Discharge (RED) clinical trial. We assessed socio-demographic characteristics and use of SMART. We used bivariate and multivariate logistic regression to test the association of SMART with socio-demographic characteristics, health behaviors, and clinical factors.

**Results:** A total of 26.6% of participants reported using SMART and 23.6% used mind body techniques. Thirty six percent of work disabled patients, 39% of illicit drug users, and 38% of participants with depressive symptoms used SMART. Patients who both reported illicit drug use and screened positive for depression had significantly increased odds of using SMART [OR = 4.94, 95% CI (1.59, 15.13)]. Compared to non-Hispanic whites, non-Hispanic blacks [0.55 (0.34–0.87)] and Hispanic/other race individuals [0.40 (0.20–0.76)] were less likely to use SMART.

**Conclusions:** We found greater utilization of SMART among all racial groups compared to previous national studies. In the inner city inpatient setting, patients with depression, illicit drug use, and work disability reported higher rates of using SMART.

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\* Corresponding author at: Department of Family Medicine, Boston University Medical Center, 1 Boston Medical Center Place – Dowling 5 South, Boston, MA 02118, United States. Tel.: +1 617 414 6267; fax: +1 617 414 3345.

E-mail address: [Paula.gardiner@bmc.org](mailto:Paula.gardiner@bmc.org) (P. Gardiner).

## Introduction

Racially diverse patients with low socioeconomic status (SES) and chronic illnesses disproportionately experience stress, which adversely affects their physical and mental health.<sup>1–3</sup> Self-administered Stress Management and Relaxation Techniques (SMART) are effective in alleviating stress and related conditions such as depression, pain, and anxiety.<sup>4–9</sup> Furthermore, emerging evidence indicates that SMART are feasible and helpful to patients in reducing stress and improving pain, depression, and other chronic conditions.<sup>8,10–12</sup> This research study measures the prevalence of SMART and the factors associated with SMART use in a racially diverse inner-city hospitalized population.

Health behaviors and clinically related factors may influence the use of SMART. Factors such as work disability, substance abuse, or depression may exacerbate stress or limit the capacity to engage in SMART.<sup>13,14</sup> Since many clinicians recommend stress management therapies in treating patients, it is important to determine what contributes to a patient using SMART so clinicians can appropriately counsel patients. However, few studies to date have examined the association of health behaviors and clinically related factors on the use of SMART among inner city racially diverse patients.<sup>15,16</sup>

SMART include mind-body therapies, such as yoga, deep breathing, and meditation, as well as other modalities. In 2007, the National Health Interview Survey (NHIS) reported that 19% of U.S. adults used mind-body techniques, with use being lower in African American (15%) and Hispanic (11%) adults than in non-Hispanic white adults (21%).<sup>9</sup> Although the NHIS reports on national prevalence, it may not have captured racially diverse patients who utilize an inner-city hospital for their medical needs. Furthermore, little is known about the factors related to the use of mind body therapies in racially diverse patients.

In addition to the prevalence of SMART, this analysis seeks to identify SES factors, health behavior factors, and clinical factors associated with the use of SMART. Based on previous studies, we hypothesize that patients with depression would be more likely to use SMART.<sup>17</sup> Conversely, patients with poor health behaviors, such as those with heavy alcohol use would be less likely to use them.<sup>18</sup> Finally, due to work disability, racially diverse inpatients may lack the financial resources for SMART. We hypothesize that those patients who are work disabled will report lower rates of SMART compared to employed patients.

Since stress can negatively affect the treatment of chronic health conditions, it is important to understand which patients are not accessing SMART. By reporting the prevalence of SMART among this population, we hope to guide clinicians to recognize which patients are using SMART and the factors related to SMART use.

## Methods

### Study sample

The study sample consists of participants in the Re-Engineered Discharge clinical trials at Boston Medical Center

(BMC), Boston MA.<sup>19,20</sup> BMC is an urban teaching hospital, providing care to an underserved, ethnically diverse population of patients. The RED trials were conducted between 2009 and 2010. They tested a newly designed discharge process with inpatients at BMC. Patients 18 years of age and older with the ability to speak English were included in the study. Patients were excluded if they were: admitted to BMC from a skilled nursing facility or other hospital, admitted for a planned hospitalization, or were on hospital precautions, on suicide watch, deaf, or blind. Patients from a skilled nursing facility or other hospital were excluded because the primary outcome of the study was readmission following discharge home. The sample used in the current analyses was restricted to RED participants who were administered questions about their complementary and alternative medicine (CAM) use at their baseline interview by a trained research assistant ( $N = 623$ ). This study was approved by the BMC Institutional Review Board.

### Baseline measures

The socio-demographic data included age, gender, employment (work disabled, retired, unemployed or full-or-part-time employed), education level (less than high school, high school/equivalent, at least some college), income (unknown/refused, none-\$19,999, \$20,000–39,999, \$40,000–74,000, >\$75,000), insurance (private or government/free), race/ethnicity (Non-Hispanic Black, Non-Hispanic White, and Hispanic/Other, including Asian/Pacific Islanders, American Indians), and marital status (married or single, including divorced, separated, and widowed). Health literacy was measured using the Rapid Estimate of Adult Literacy in Medicine (REALM) scale.<sup>21</sup> The REALM has high criterion validity and test-retest reliability 0.99 ( $p < .001$ ). Participants with a REALM score of 60 and below are categorized as having low health literacy (8th grade and below), while those with scores of 61–66 are considered to have high health literacy (high school). Dichotomous variables (yes/no) were also included for English as a primary language, and born in the US.

Health behaviors were denoted by the following dichotomous (yes/no) variables: having a primary care provider (PCP) at time of admission; excessive alcohol use ("In the past year, have you had [men: 5 or more; women: 4 or more] alcoholic beverages (drinks) in a day?"); and use of illicit drugs (an illicit drug or use of a prescription medication for non-medical purposes) in the past year. Depressive symptoms were measured with the Patient Health Questionnaire 9 (PHQ-9). Its validity and reliability as a diagnostic measure, as well as its utility in assessing depression severity, are well-established.<sup>22</sup> We used the standard PHQ-9 cut-point of 5 to classify patients as having no depressive symptoms (PHQ score < 5) or mild to severe depressive symptoms (PHQ score  $\geq 5$ ).<sup>19,22</sup>

Co-morbidity was measured with the Charlson Co-morbidity Index, where health conditions (classified by ICD-9 code) are assigned a score depending on the risk of death associated with the condition, and the scores are summed into a total score that predicts mortality.<sup>23</sup> Additionally, we measured the number of hospital visits (including hospitalizations and emergency visits) in the 6 months prior

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