

# Effect of Mindfulness-Based Stress Reduction Therapy on Adolescents with Somatic Symptom Disorder in Delta State

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**Abstract:** This study investigated the effective of Mindfulness-Based Stress Reduction Therapy (MBSRT) in managing adolescents with somatic symptom disorder in Ika North East Local Government Area of Delta State. Three research questions were raised to guide the study and three corresponding hypotheses were formulated, which were all tested at 0.05 level of significance. The pre-test, post-test, control group, experimental design was adopted for the study. The population of the study is three thousand, five hundred and sixty-one (3,561) students, which comprised all students in Senior Secondary Class Two (SS2) from the twenty public secondary schools in Ika North East Local Government Area. A sample size of thirty-three (33) students, made up of fourteen (14) males and nineteen (19) females reporting somatic symptom disorder were selected from two schools using the multi-stage random sampling technique. The research instrument titled “Adolescents Somatic Symptom Scale” (ASSS) was adapted and modified for use by the researcher. Two test experts of Measurement and Evaluation revalidated this instrument. The reliability of the instrument was determined using Cronbach Alpha reliability method to test the consistency of the test items and a reliability coefficient of 0.70 was obtained. The instrument was administered to the students as a pre-test and thirty-three (33) students who evidenced somatic disorder in the two schools were randomly assigned for treatment to experimental group A (Mindfulness-Based Stress Reduction Therapy), and B (Control Group). The data collected were analyzed, using descriptive statistics of mean and standard deviation and inferential statistics of paired t-test sample, One Way Analysis of Variance (ANOVA) and Two Way Analysis of Covariance (ANCOVA). The findings of the study revealed that, there is a significant difference in the pre-test and post-test of somatic symptoms disorder scores of in-school adolescents exposed to MBSRT and also, no significant interaction effect on treatment by socioeconomic status. Based on the findings, the study recommends among others, that counselling psychologists should introduce, promote and encourage Mindfulness-Based Stress Reduction Therapy in all secondary schools as an effective counselling therapy for adolescents.

**Keywords:** Mindfulness-Based Stress Reduction Therapy, Adolescents, Somatic, Analytic

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## 1. Introduction

Somatic symptom disorder (SSD) was defined by the 5<sup>th</sup> edition of the Diagnostic and Statistical Manual of Mental Disorder (DSM 5) as “the presence of one or more physical symptoms which is greatly accompanied by significant functional and emotional distress, in addition to excessive, thoughts, feelings and behaviours in response to these symptoms for over six months” [1]. Its prevalence rate varies at about 5% to 50% in different societies but has a very high health care cost on treatment of the disorder as patients frequently visit various clinics and even, prayer house but may get a temporary ease [2]. Prior research has shown that

about one third of SSD patients have comorbidity of depression, anxiety, personality and has a higher female representation (male to female 1:10). It may occur predominantly among adolescents and children before the age of 30 years and symptoms include severe fatigue, pain, dizziness, lightheadedness, vomiting, heat and crawling sensation, among others which affects daily functioning of the individual [3]. SSD is a serious challenge as it threatens the psychological and physical health of the adolescent which may result in social disorder, academic failure, suicide as well as having a continuous effect of mental, physical and behavioural problems in adulthood.

Faced with these challenges, established psychotherapies

like Cognitive Analytic Therapy and Interpersonal Therapies were quite effective for SSD treatment but Mindfulness-Based Stress Reduction Therapy which is an emerging therapy has also gained support and popularity as regards adolescent SSD treatment in this last decade. MBSRT was first introduced into Western medicine by an American psychologist, Dr. Jon Kabat-Zinn in 1979 at the Stress Reduction Clinic of the University of Massachusetts Medical Center [4] but derived from Buddhist philosophy. It was originally used as a technique for stress reduction but later found to be successful in treating other psychological illnesses for the past 10 to 15 years, as it increases well-being and self-care [5]. This non-drug standard procedure of the mind-body therapy, entails mindfulness, meditations, body awareness (scan), relaxation exercises, breathing techniques and yoga as its four basic skills through which individuals can enhance self-regulation and improve inner mindfulness to reduce stress. Eisendrath et al. [6] noted that over 200 medical centers all over the world presently offers MBSRT as an alternative treatment option to patients, as it helps them cope with their ailment and conditions in a more effective way. Hernandez et al. [7] also described mindfulness as the practice of being hyper-aware of the moment by being in the present, acknowledging what you are thinking and feeling, and accepting it without judgment [8].

The traditional standard curriculum of MBSRT is a group intervention where a maximum of 30 persons attend 8-week practice times of 2 to 2.5 hours per session weekly, in addition to a 6-hour day long workout, with instructions on meditation practice, group discussions and mindfulness skill-building activities weekend class, with 15-40 minutes home assignment and 30 minutes mindfulness practice each day for the period. During the sessions, attention wanders and thoughts arise but the practice is to return attention to the intended focus [9]. SSD could be influenced by age, sex, socioeconomic among others. Socioeconomic status which is the classification on the basis of educational level, amount of wealth and social position can affect the outcome of somatic symptom disorder among adolescents. Low family socioeconomic status may lead to SSD transmitted by parent-child interaction patterns and they experience multiple chronic stressful events in their lives due to lack of basic needs. A study have shown that stress is consistently proven as a mediating variable between SES and health and that low parental SES is significant to incidence of somatic disorder [10]. Similarly, a research was carried out by Obimakinde, A. M. et al. [11] using a total of 2,668 adults and the result revealed that low socioeconomic status and financial constraints were significantly related to somatic disorder. High family socioeconomic status may serve as a protective factor that improves resiliency in youth. Another study was carried out by Iheme et al. [12] on effect of somatic disorder on social and workplace functioning among upper socio-economic class adults attending outpatient clinic in national hospital, Abuja. The results of the study showed significant findings among the upper-class patients presenting with somatic complaints. 119 participants were studied who attended the general out-patient clinic of the hospital during

the study period. Chinawa et al. [13] also examined the relationship between somatic symptom disorder and parental socioeconomic status and found no association. Some researchers have attempted to the effectiveness of mindfulness-based stress reduction therapy on adolescents.

Aucoin et al. [14] carried out a meta-analysis of mindfulness-based therapy in functional gastrointestinal disorders. Out of 119 records and most of the studies, had significant improvement at the end of the intervention. It concluded that mindfulness-based interventions may provide gain in functional gastrointestinal disorders: but great improvements in methodological quality and reporting will be needed. Fjorback et al. [15] carried out a feasibility and efficacy trial of mindfulness therapy for somatization disorder and functional somatic syndromes. 119 patients were randomized to either mindfulness therapy (mindfulness-Based Stress Reduction and some cognitive behavioral therapy elements for BDS) or to enhance treatment as usual. However, in the mindfulness therapy group, improvement was obtained towards the end of the treatment, and they concluded that MBSRT is a feasible and acceptable treatment compared to enhanced treatment, in improving quality of life and symptom. Lakhan and Schofield [8] conducted a study on Mindfulness-based therapies in the treatment of pain, symptom severity, quality of life, depression, anxiety and somatic complaints performed to determine the potency of MBSRT. This evidence suggests that MBSRT may be effective in the treatment of aspects of somatization disorder. Sharma and Rush [16] conducted a study on mindfulness-based stress reduction as stress management intervention for healthy individuals. A total of one hundred and seventeen (117) papers met the inclusion criteria. Out of the seventeen (17) studies, sixteen (16) revealed positive changes in psychological and physiological outcome related in line with stress and or anxiety. Many of the studies assume SSD as defective, which needs psychological change of mental behaviours to be healthier but contrarily, mindfulness is seems efficient in fostering wellbeing emotionally and reducing distress [17]. Therefore,

### **1.1. Research Questions**

The following research questions were raised to guide the study:

- 1) is there any difference in the pre-test and post-test somatic symptom disorder scores of in-school adolescents exposed to Mindfulness-Based Stress Reduction Therapy (MBSRT)?
- 2) is there any difference in the post-test somatic symptom disorder scores of adolescents exposed to Mindfulness-Based Stress Reduction Therapy and Control Group?
- 3) is there any interaction effect of treatment on parental socio-economic status in managing adolescents with somatic symptom disorder?

### **1.2. Hypotheses**

The following hypotheses were formulated and were tested at 0.05 level of significance:

- 1) there is no significant difference in the pre-test and post-test somatic symptom disorder scores of adolescents exposed to Mindfulness-Based Stress Reduction Therapy treatment,
- 2) there is no significant difference in the post-test somatic symptom disorder scores of adolescents exposed to Mindfulness Based Stress Therapy and Control Group,
- 3) there is no significant interaction effect of treatment by socio-economic status in managing adolescents with somatic symptom disorder.

### 1.3. Objectives of the Study

The purpose of the study is to investigate the effectiveness of Mindfulness-Based Stress Reduction Therapy among adolescents with somatic symptom disorder in Delta State.

## 2. Methodology

The research design was a pre-test, post-test, control group, experimental design. The design is considered most appropriate as they were randomized and assigned to their groups. The study consists of one experimental group (Mindfulness-Based Stress Reduction Therapy) and one control group (no treatment) as the independent variable and the dependent variable was (adolescents' somatic symptom disorder). The population of this study is three thousand, fifty hundred and sixty-one (3,561) Senior Secondary School Class 11 (SS2) Students comprising 1,360 males and 2201 females in the twenty public secondary schools in Ika North East Local Government Area of Delta State as at 2020/2021 session (Source; State Ministry of Education). A sample size of thirty-three (33) students experiencing somatic symptom disorder, comprising fourteen (14) males and nineteen (19) females, were selected using the multi-stage random sampling technique. The first stage involved the selection of two out of the twenty (20) public secondary schools in Ika North East Local Government Area of Delta State, using the purposive sampling technique (two modern secondary schools with functional clinics were selected). The second stage involved the selection of sixty (60) students from each of the two (2) schools using the random sampling technique (a total of 120 students), comprising of sixty (60) males and sixty (60) females to be pretested with the research instrument (ASSS). A benchmark of 80 points was established hence, all students who scored 80 points and above were selected from the two schools. Their medical histories were assessed (School Clinic/Central Hospital) with an ethical authorization obtained from the Hospital Management Board Central Hospital, Agbor. The thirty-three (33) students who met the diagnostic criteria were randomly placed in school A (14) as Experimental group (exposed to

treatment) while school B (19) as Control Group (non-attention).

### 2.1. Instrument

The research instrument for this study was the Adolescents Somatic Symptom Scale (ASSS) adapted from Egbigbo [18] but modified for use in this study. The instrument is made up of two sections, A and B, where Section A is made up of demographic information, such as students' class, sex and age. Section B consists of forty (40) self-report items to evaluate adolescents' somatic symptoms. It had 1-4 graded response options from never to always: never (1), rarely (2), sometimes (3) and always (4). This modified instrument was re-validated by three experts from the field of Measurement and Evaluation. The Cronbach Alpha Statistical tool was used to determine the consistency of the instrument and a coefficient value of 0.70 was obtained.

### 2.2. Treatment Procedure

The researcher began the treatment by adopting three phases; the pre-treatment, treatment and post-treatment phases. The first phase was the pre-testing of participants in the two schools the first day. The second phase was the treatment of the experimental group using the counselling therapy (Mindfulness-Based Stress Reduction Therapy) and the control group (no treatment) for six weeks (12 sessions/per hour each). The third phase was the post-testing of subjects in the experimental and control groups after the treatment sessions on the last day. The instrument (ASSS) was used for both the pre-test and post-test while the results were recorded.

### 2.3. Method of Data Analysis

The positive worded items in the instrument were scored 4, 3, 2, 1 on the scale while the negative worded items were also scored 1, 2, 3, 4 respectively. It was scored over 160 (4 x 40), and respondents were categorized by the researcher as follows; 0 – 40 = no somatic symptom disorder, 40 – 80 = mild somatic symptom disorder, 80 - 120 = moderate somatic symptom disorder and 120+ = severe somatic symptom disorder. The data generated were analyzed using mean, standard deviation, paired sample and One-Way analysis of variance (ANOVA).

## 3. Results

There is no significant difference in the Pre-Test and Post-Test Somatic Symptom Disorder Scores of Adolescents exposed to Mindfulness-Based Stress Reduction Therapy (MBSRT).

**Table 1.** Paired-Sample *t*-test of Difference between the Pre-test and Post-test Mean of Somatic Symptom Disorder Scores of Adolescents exposed to Mindfulness-Based Stress Reduction Therapy (MBSRT).

Variable	N	Mean	Std. Dev.	Paired Difference		df	T	p-value (S 2-tailed)
				(Mean)	(Standard Deviation)			
Pre-test	12	103.83	14.21	53.33	13.30	11	14.41	.0001
Post-test	12	48.50	12.89					

Table 1 revealed that the total number of participants in the Mindfulness-Based Stress Reduction Therapy (MBSRT) Experimental Group used in the analysis (N) = 12, at Pre-test (Mean =103.83 and Standard deviation = 14.21), while at Post-test (Mean =48.50 and Standard Deviation = 12.89), the Mean and Standard Deviation differences are 53.33 and 13.30 respectively. The  $t$ -value = 14.41, significant at  $p$ -value =.0001, the  $p$ -value is less than the alpha level of .05 (.0001<.05). Therefore, the null hypothesis that states that "There is no significant difference in the Pre-Test and Post-Test Somatic Symptom Disorder scores of Adolescents exposed to Mindfulness-Based Stress Reduction Therapy

(MBSRT)", is rejected. This implies that, there is a significant difference between the Pre-Test and Post-Test mean scores of participants in the Mindfulness-Based Stress Reduction Therapy (MBSRT) Experimental Group, in favour of the Post-Test Mean Score; there was a reduction in the symptoms at Posttest. This indicates that MBSRT treatment is effective in managing somatic symptoms disorder.

There is no significant difference in the Post-Test Somatic Symptom Disorder Scores of In-school Adolescents exposed to Mindfulness-Based Stress Reduction Therapy and Control Group.

**Table 2.** Descriptive Statistics of Groups Post-test and Pre-test (Somatic Symptom Disorder Scores of Adolescents exposed to Mindfulness-Based Stress Reduction Therapy and Control Group).

Group	Post-test			Pre-test		
	N	Mean	Standard. Deviation	N	Mean	Standard Deviation
MBSRT	12	48.50	12.89	12	103.83	14.21
Control	21	81.95	11.20	21	98.81	10.41

Table 2 shows the Descriptive Statistics of Post-test and pre-test of Somatic Symptom Disorder scores of In-School Adolescents exposed to Mindfulness-Based Stress Reduction Therapy and the Control Group. From the table, at Post-Test, MBSRT Group (N=12, Mean=48.50, Standard deviation=12.89) and Control Group (N=21, Mean=81.95, Standard deviation=11.20), while at Pre-Test from the table, MBSRT Group (N=12, Mean=103.83, Standard deviation=14.21) and Control Group (N=21, Mean=98.81, Standard deviation=10.41). This makes it relevant to use the One-Way Analysis of Covariance (ANCOVA) to test the hypothesis at post-test.

There is no significant interaction effect of treatments by Parents' Socioeconomic Status in managing Adolescents with Somatic Symptom Disorder in the Secondary Schools.

Table 3 contains the descriptive statistics of Mean and Standard Deviation of Somatic Symptom Disorder Mean Scores at Posttest by Group and SES. For the MBSRT: Low

SES (N = 01, mean = 68.00 and Standard Deviation = NIL). Middle SES (N = 08, mean = 47.88 and Standard Deviation =13.59) and High SES (N = 03, mean = 43.67 and Standard Deviation = 6.35). While the Control Group, Low SES (N = NIL), Middle SES (N =12, mean = 86.00 and Standard Deviation = 8.59) and High SES (N = 09, mean = 76.56 and Standard Deviation =12.45).

**Table 3.** Descriptive Statistics in Mean and Standard Deviation of Somatic Symptom Disorder Mean Scores at Posttest by Group and SES.

Group	SES	Mean	Std. Deviation	N
MBSRT	Low	68.00	--	1
	Middle	47.88	13.59	8
	High	43.67	6.35	3
	Total	48.50	12.89	12
Control	Low	--	--	--
	Middle	86.00	8.59	12
	High	76.56	12.45	9
	Total	81.95	11.21	21

**Table 4.** Two Way ANCOVA Result of Difference in Treatments Effect in Managing Adolescents with Somatic Symptom Disorder by SES.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14215.691 <sup>a</sup>	8	1776.961	22.765	.000
Intercept	724.327	1	724.327	9.280	.004
Pretest	576.721	1	576.721	7.389	.009
Group	11149.408	2	5574.704	71.419	.000
Socioecon	673.107	2	336.554	4.312	.019
Group * Socioecon	316.595	3	105.532	1.352	.268
Error	3824.740	49	78.056		
Total	244353.000	58			
Corrected Total	18040.431	57			

a. R Squared =.788 (Adjusted R Squared =.753)

Table 4 shows the  $F$ -value value of 1.352 for the Treatments by SES interaction. The  $F$ -value is not significant ( $p > 0.05$ ). Hence, the null hypothesis is hereby retained and this implies that irrespective of the SES of the parents of the participants, the treatment affected them in the same way in MBSRT Experimental Group.

## 4. Discussion

The results obtained in this study were discussed based on the tested hypotheses. The findings, as stated in hypothesis one revealed that there is a significant difference

in the pre-test and post-test somatic symptom disorder scores of adolescents exposed to Mindfulness-Based Stress Reduction Therapy (MBSRT). In essence, MBSRT is effective in managing somatic symptom disorder among adolescents in school. The studies by Lakhan and Schofield [8] and Aucoin et al. [14], supported this finding as they reported that adolescents showed greater somatic symptoms reduction after MBSRT treatment. This may be because the internal exposure forced symptoms to be expressed in a voluntary and controlled manner, and this includes focusing on somatic sensations, bodily sensations, impulses, emotions and thoughts which leads to acceptance of these experiences. This finding corroborates the study carried out by Fjorback et al. [15] and Hernandez et al., [19] that Mindfulness-Based Stress Reduction Therapy led to a significant reduced symptoms of somatic disorder and their severity among adolescents; thus, MBSRT was considered efficacious in managing somatic symptom disorder among adolescents.

The study revealed that MBSRT employs biological factors (such as, yoga, breathing techniques), psychological factors (such as, body scan, acceptance of pains, mindfulness meditation) and social factors (such as, group discussions) as a form of treatment, to get the required tools needed to stay in the present, remain focused, reduce distracting stressors and negative thoughts while eventually, reducing symptoms.

Hypothesis two also showed that there is a significant difference between somatic symptom disorder scores of adolescents exposed to Mindfulness-Based Stress Reduction Therapy and Control group thus, indicating that the treatment was effective in helping to manage adolescents with somatic symptom disorder. This finding agrees with a number of studies that applied to MBSRT with adolescents [16, 17]. They reported that MBSRT was found to be effective as evidence based therapy for somatic disorder, with significant decreases in somatic symptoms in the group. The significant effect of the treatment group could be because of the adolescents' exposure to six weeks of treatment in the MBSRT programme, while the control was not. The study employed MBSRT with its unique techniques for use on the adolescents, leading to significantly reduced symptoms and distress.

The result of the study in hypothesis three revealed that there is no significant interaction effect on treatment by parental socio-economic factor of adolescents with somatic symptom disorder. This implies that adolescents received treatment equally, and treatment was effective at all levels irrespective of their parents' socio-economic status. This study agrees with the finding of Chinawa et al. [13] who examined the relationship between somatic symptom disorder and parental socioeconomic status and found no association. The result indicates that a good number of students, have parents of high and middle socio-economic status who probably do not adequately meet their needs or are not properly emotionally attached to their children. However, result from the study of Ihome et al. [12], showed

that higher income parents are associated with an increased likelihood for somatic symptom disorder. This contradicts the study of Obimakinde et al. [11], which revealed that people with lower socioeconomic status, tend to be more prone to somatic symptom disorder. So, parental socio-economic status did not significantly affect the result of the treatment, because a great number of the participants are from the middle socio-economic status, and all adolescents received equal attention during the treatment procedures.

## 5. Conclusion

In line with the findings of this study, Mindfulness-Based Stress Reduction Therapy is effective in managing adolescents with somatic symptom disorder irrespective of parental socio economic status in Ika North East Local Government Area of Delta State. Hence, MBSRT had a great improvement on self-care, somatic symptoms, coping levels, and quality of life, even as students still work with the stressors limiting them. Consequently, MBSRT can be used as a complimentary treatment for somatic symptom disorder.

## 6. Recommendation

- 1) Counsellors should employ MBSRT as an effective counselling technique, in managing adolescents with somatic symptom disorder in all secondary schools in Delta State.
- 2) Counselling and therapeutic interventions should be introduced, promoted and encouraged in all secondary schools in Delta State.
- 3) Government and school authorities should employ professional counsellors in all secondary schools in Delta State to attend to cases of somatic symptom disorder.

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