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# Effectiveness of Cognitive Analytic Therapy in Managing Adolescents with Somatic Symptom Disorder in Delta State

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## ABSTRACT

This study investigated the effectiveness of Cognitive Analytic Therapy (CAT) in managing adolescents in secondary schools 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, and experimental design were adopted for the study. The population of the study is three thousand, five hundred and sixty-one (3,561) students, which comprised all Senior Secondary Class Two (SS2) students from the twenty public secondary schools in Ika North East Local Government Area. A sample size of forty-six (46) students, made up of twenty (20) males and twenty-six (26) 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. Three 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 forty-six (46) students who evidenced somatic disorder in the two schools were randomly assigned for treatment to experimental group A (Cognitive Analytic Therapy), and B (Control Group). The data collected were analyzed, using descriptive statistics of mean and standard deviation and inferential statistics of paired and independent sample t-test. The findings of the study revealed that, there is a significant difference in the pre-test and post-test of somatic symptoms disorder mean scores of in-school adolescents exposed to CAT and also, there is no significant interaction effect on treatment by sex. Based on the findings, the study recommends among others, that counselling psychologists should embrace Cognitive Analytic Therapy as an effective counselling therapy for adolescents irrespective of gender.

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*Keywords: Cognitive analytic therapy, Counselling psychologists, Adolescents, Somatic symptom disorder*

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## 1. INTRODUCTION

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Somatic symptom disorder which was formerly known as somatization disorder, has variously been described in many ways by psychologists. However, they all seem to agree that it is a physical illness with a psychological origin but with no medical explanation. It is prevalent all over the world with an estimated frequency of about 25-50% in the primary healthcare centres and also about 5% to 7% in the general population [1]. Studies in Nigeria

24 have also shown that about 50% of students who visit the school clinic, often complain of  
25 severe physical symptoms like headache, indigestion, fatigue, pains, itching, crawling  
26 sensation among others with significant distress and functional disability [2]. These students  
27 frequently visit various clinics, traditional healing homes and even prayer houses to assess  
28 health care but may achieve temporary relieve since it has no evidence of organic  
29 dysfunction. The treatment focus on physical ailments, while omitting or almost completely  
30 ignoring the psychological factors involved [3]. The fifth edition of the Diagnostic and  
31 Statistical Manual of Mental Disorders (DSM 5) by the American Psychiatric Association and  
32 the eleventh edition of the International Classification of Diseases (ICD, 11) by World Health  
33 Organization, included somatic symptom disorder as a group of mental disorder [4-5].  
34 Somatic symptom disorder causes a decrease in the quality of life and high costs in health  
35 services [6].

36 The disorder which is more predominant among children and adolescents could be  
37 influenced by age, sex, parental socioeconomic status, among others [7-8] but sex is the  
38 interest in this study. Student's sex which is commonly seen as biological features  
39 differentiating females from males may have effect on somatic symptom reporting. Sex  
40 difference in adolescents may be due to pubertal maturity which may provoke physiological,  
41 psychological and cognitive changes. Most researchers concluded that females are more  
42 prone to somatic disorder with a twofold risk that may rise sharply after puberty, compared to  
43 males [9-10]. They stressed that females are known to willingly report poor physical health  
44 more intense, more numerous and more frequent than males. Nevertheless, some studies  
45 challenged this assertion and revealed that somatic symptoms occur in both genders alike [2  
46 & 11]. The disproportionate level of distress, students' irregularity at school, class skipping,  
47 high health care cost and likely poor academic performances as they seek for solution, could  
48 be worrisome to the principals, teachers, and parents who lack the required skills to manage  
49 this disorder. Prior research has shown how adolescents have been assisted to resolve  
50 psychological tensions using interventions like behavioural activation therapy, cognitive  
51 analytic therapy, and interpersonal therapy, among others [12].

52 Cognitive analytic therapy which is a time-limited intervention (8-24 sessions), has been  
53 verified to be effective for patients with different psychopathologies [13-14] hence, this study  
54 intends to determine its effect in managing adolescents with somatic symptoms. Cognitive  
55 analytic therapy (CAT) was developed in United Kingdom by Anthony Ryle in 1980 as a  
56 cost-effective therapeutic intervention for patients [15]. It is a collaborative and integrative  
57 model that employed ideas and insights from other different therapies (psychoanalytic and  
58 cognitive), while having a direct focus on maladaptive behaviours and mental malfunctioning  
59 derived from patterns [16]. CAT believes that human beings are relationally and socially  
60 constituted; therefore, it greatly focuses on understanding self-management problems and  
61 underlining patterns of interpersonal relationship among individuals and the wider world daily  
62 with its developmental origins [17]. CAT may resolve these problems by helping adolescents  
63 to trace, identify and recognize, as well as assist them to improve, develop newer healthier  
64 ways of coping or build exits to move away from these faulty old-learned behaviour patterns  
65 [18]. It does this through reformulation, recognition and revision.

66 A system review on the effectiveness and durability of cognitive analytic therapy and then  
67 assessing its general acceptability among student dropouts has been conducted [14]. The  
68 symptoms were all improved upon, as CAT showed small-moderate, significant post-  
69 treatment benefits compared to control group with high dropout rate. A naturalistic study by  
70 Heimann et al. [19] was carried out to evaluate somatic symptoms among adolescents and  
71 assess the effectiveness of CAT. The result reported medium to large improvements in their  
72 psychiatric comorbidity, discomfort levels, pain coping strategies and they concluded that  
73 CAT treatment is effective in reducing somatic symptom disorder. Studies had showed the  
74 necessity of CAT in the treatment of various levels of somatic symptom disorder difficulties

75 [13]. The result revealed that more than half were of high quality. They concluded that  
76 cognitive analytic therapy is an effective and long-standing therapy for managing somatic  
77 symptom disorder.

78 Literature has revealed that somatic symptom disorder may be one of the most frustrating  
79 problems in medical practice for both the patient who is not satisfied with the treatment given  
80 by the physician and the physician who also finds the patient difficult to treat. The researcher  
81 as a school counsellor has observed that students who frequently visit the school clinic still  
82 complain of sickness. These difficulties faced by some medical personnel in managing the  
83 disorder, may be due to lack of skills in exploring psychological tools or non-referral to  
84 psychologists [20]. Moreover, since the adolescents make up a large portion of the Nigerian  
85 population, late identification, misdiagnosis, non-intervention, and treatment of this disorder  
86 at this stage, might be extremely disabling and may lead to chronic limitation of general  
87 function, significant psychological disability, a progressive loss of interest in life or intellectual  
88 growth and poor outcome in adulthood. Based on the evidence of some adults with mental  
89 health illnesses reporting their challenges, which started in their early adolescence, now  
90 have a serious negative impact on their health; then there is great need to help the  
91 adolescents to manage these psychological challenges in secondary schools using cognitive  
92 analytic therapy. The following research questions were raised to guide the study:

- 93 • Is there any difference in the pre-test and post-test somatic symptom disorder
- 94 scores of adolescents exposed to Cognitive Analytic Therapy (CAT)?
- 95 • Is there any difference in the post-test somatic symptom disorder scores of
- 96 adolescents exposed to Cognitive Analytic Therapy and Control Group?
- 97 • Is there any interaction effect of treatments by sex in managing adolescents with
- 98 somatic symptom disorder?

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

- 100 • There is no significant difference in the pre-test and post-test somatic symptom
- 101 disorder scores of in-school adolescents exposed to Cognitive Analytic Therapy
- 102 treatment
- 103 • There is no significant difference in the pre-test and post-test somatic symptom
- 104 disorder mean scores of in-school adolescents exposed to Cognitive Analytic
- 105 Therapy and Control Group
- 106 • There is no significant interaction effect of treatment by sex in managing in-school
- 107 adolescents with somatic symptom disorder.

108 The purpose of the study is to investigate the effectiveness of Cognitive Analytic Therapy in  
109 managing in-school adolescents with somatic symptom disorder in Delta State.

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## 111 **2. METHODOLOGY**

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113 The research design were a pre-test, post-test, control group, and experimental design. The  
114 design is considered most appropriate as they were randomized and assigned to their  
115 groups. The study consists of one experimental group (Cognitive Analytic Therapy) and one  
116 control group (no treatment) as the independent variable; one intervening variable (sex) of  
117 two levels (male and females) and the dependent variable was adolescents' somatic  
118 symptom disorder. The population of this study is three thousand, fifty hundred and sixty-one  
119 (3,561) Senior Secondary School Class 11 (SS2) Students comprising 1,360 males and  
120 2201 females in the twenty public secondary schools in Ika North East Local Government  
121 Area of Delta State as at 2020/2021 session (Source; State Ministry of Education). A sample  
122 size of forty-six (46) students experiencing somatic symptom disorder, comprising twenty-six  
123 (21) males and thirty-two (25) females, were selected using the multi-stage random sampling  
124 technique. The first stage involved the selection of two out of the twenty (20) public

125 secondary schools in Ika North East Local Government Area of Delta State, using the  
126 purposive sampling technique (two modern secondary schools with functional clinics were  
127 selected). The second stage involved the selection of sixty (60) students from each of the  
128 two (2) schools using the random sampling technique (a total of 120 students), comprising of  
129 sixty (60) males and sixty (60) females to be pretested with the research instrument (ASSS).  
130 A benchmark of 80 points was established, hence, all students who scored 80 points and  
131 above were selected from the two schools. Their medical histories were assessed (School  
132 Clinic/Central Hospital) with an ethical authorization obtained from the Hospital Management  
133 Board Central Hospital, Agbor. The forty-six (46) students who met the diagnostic criteria  
134 were randomly placed in school A (21) as Experimental group (exposed to treatment) while  
135 school B (37) as Control Group (non-attention).

## 136 **2.1 Instrument**

137 The research instrument for this study was the Adolescents Somatic Symptom Scale (ASSS)  
138 adapted from Egbigbo [21] but modified for use in this study. The instrument is made up of  
139 two sections, A and B, where Section A is made up of demographic information, such as  
140 students' class, sex and age. Section B consists of forty (40) self-report items to evaluate  
141 adolescents' somatic symptoms. It had 1-4 graded response options from never to always:  
142 never (1), rarely (2), sometimes (3) and always (4). This modified instrument was re-  
143 validated by three experts from the field of Measurement and Evaluation. The Cronbach  
144 Alpha Statistical tool was used to determine the consistency of the instrument and a  
145 coefficient value of 0.70 was obtained.

## 146 **2.2 Treatment Procedure**

147 The researcher began the treatment by adopting three phases; the pre-treatment, treatment  
148 and post-treatment phases. The first phase was the pre-testing of participants in the two  
149 schools in the first day. The second phase was the treatment of the experimental group  
150 using the counselling therapy (Cognitive Analytic Therapy) and the control group (no  
151 treatment) for six weeks (12 sessions/per hour each). The third phase was the post-testing  
152 of subjects in the experimental and control groups after the treatment sessions on the last  
153 day. The instrument (ASSS) was used for both the pre-test and post-test while the results  
154 were recorded. This CAT's twelve weeks treatment of the experimental group was basically  
155 done in three segments; Reformulation (five sessions), Recognition (four sessions) and  
156 Revision (three sessions).  
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## 159 **2.3 Method of Data Analysis**

160 The positive worded items in the instrument were scored 4,3,2,1 on the scale while the  
161 negative worded items were also scored 1,2,3,4 respectively. It was scored over 160 (4 x  
162 40), and respondents were categorized by the researcher as follows; 0 – 40 = no somatic  
163 symptom disorder, 40 – 80 = mild somatic symptom disorder, 80 - 120 = moderate somatic  
164 symptom disorder and 120+ = severe somatic symptom disorder. The data generated were  
165 analyzed using mean, standard deviation, paired sample and One-Way analysis of variance  
166 (ANOVA).  
167

## 168 **3. RESULTS**

169 There is no significant difference in the Pre-Test and Post-Test Somatic Symptom Disorder  
170 Scores of In-School Adolescents exposed to Cognitive Analytic Therapy (CAT).

171 Hypothesis one: There is no significant difference in the Pre-Test and Post-Test Somatic  
172 Symptom Disorder Scores of In-School Adolescents exposed to Cognitive Analytic Therapy  
173 (CAT).

174 **Table 1: Paired-Sample t-test of Difference between the Pre-test and Post-test Mean**  
 175 **Somatic Symptom Disorder Scores of In-School Adolescents exposed to Cognitive**  
 176 **Analytic Therapy**

	N	Mean	Std. Deviation	Mean	Std. Deviation	Df	t	Sig. (2-tailed)
Pre-test	25	100.6400	13.52430	47.32000	14.42429	24	16.403	.000
Post-test	25	53.3200	14.49345					

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178 Table 1 revealed that the total number of participants in the Cognitive Analytic Therapy  
 179 (CAT) Experimental Group A used in the analysis (N) = 25, at Pre-test (Mean =100.64 and  
 180 Standard deviation = 13.52), while at Post-test (Mean =53.32 and Standard deviation =  
 181 14.49), the Mean and Standard Deviation difference are 47.32 and 14.42 respectively. The t-  
 182 value = 16.40, significant at p-value =.00, the p-value is less than the alpha level of .05  
 183 (.000< .05). Therefore, the null hypothesis is rejected implying that there is a significant  
 184 difference between the Pre-Test and Post-test mean scores of participants in the  
 185 Experimental Group A in favour of the Post-test Mean Score which had reduction. This  
 186 indicates that CAT treatment is effective in managing somatic symptom disorder.

187 Hypothesis Two: There is no significant difference in the post-test somatic symptom disorder  
 188 scores of in-school adolescents exposed to Cognitive Analytic Therapy and Control Group.

189 **Table 2: Independent Sample T-test of Groups Post-test and Pre-test (Somatic**  
 190 **Symptom Disorder Scores of In-School Adolescents exposed to Cognitive Analytic**  
 191 **Therapy and Control Group**

	Group	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Pre-test	CAT	25	100.6400	13.52430	.507	44	.615
	Control	21	98.8095	10.40970	.518	43.704	.607
Post test	CAT	25	53.3200	14.49345	-8.673	44	.000
	Control	21	86.4762	10.71736	8.902	43.365	.000

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193 Table 2 shows the Independent Sample T-test of Groups Post-test and Pre-test (Somatic  
 194 Symptom Disorder Scores of In-School Adolescents exposed to Cognitive Analytic Therapy  
 195 and Control Group. From the table, at Pre-test CAT Group (N=25, Mean=100.64, Standard  
 196 Deviation=13.52), and Control Group (N=21, Mean=98.80, Standard deviation=10.41), while  
 197 at Post-test from the table, CAT Group (N=25, Mean = 53.32, Standard deviation=14.49),  
 198 and Control Group (N=21, Mean = 86.47, Standard deviation =10.71). The CAT pre-test t-  
 199 value = .51, significant at p-value =.61, Control pre-test t-value = .52, significant at p-value  
 200 =.60 while CAT post-test t-value =-8.67, significant at p-value =.00, control group post-test t-  
 201 value = 8.90, significant at p-value =.00. The p-value at post is less than the alpha level of  
 202 .05 (.00< .05). Therefore, the null hypothesis is rejected implying that there is a significant  
 203 difference between the Pre-Test and Post=Test mean scores of participants in the  
 204 Experimental Group A and Control Group B in favour of the Post-Test Mean Score which  
 205 had reduction. This reveals that the CAT was more effective than that of the Control Group.

206 Hypothesis three: There is no significant interaction effect of treatment by sex in managing  
 207 in-school adolescents with somatic symptom disorder.

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**Table 3: Independent Sample T-test of interaction effect of treatment by sex in managing in-school adolescents with somatic symptom disorder**

		<b>Sex</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>df</b>	<b>t</b>	<b>Sig. (2-tailed)</b>
<b>CAT</b>	Pre-test	Male	13	98.3077	15.58517	23	.894	.381
		Female	12	103.1667	10.98622	21.576	.906	.375
	Post-test	Male	13	53.5385	12.25164	23	.077	.939
		Female	12	53.0833	17.15946	19.774	.076	.940

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211 Table 3 contains the Independent Sample T-test analysis of interaction effect of treatment by  
212 sex in managing in-school adolescents with somatic symptom disorder. From the table, at  
213 Pre-test Male (N=13, Mean=98.31, Standard Deviation=15.59), and Female (N=12,  
214 Mean=103.17, Standard deviation=10.99), while at Post-test from the table, Male (N=13,  
215 Mean=53.53, Standard deviation=12.25), and Female (N=12, Mean=53.08, Standard  
216 deviation =17.15). The male pre-test t-value = .894, significant at p-value =.38, female pre-  
217 test t-value = .906, significant at p-value =.37, while the post-test male t-value = .077,  
218 significant at p-value =.93, female post-test t-value = .076, significant at p-value =.94. The p-  
219 value at post is greater than the alpha level of .05 (.07< .05). Hence, the null hypothesis  
220 "There is no significant interaction effect of treatment by sex in managing Somatic Symptom  
221 Disorder in In-School Adolescents", is hereby retained. This implies that irrespective of the  
222 sex of the participants, the treatments affected them in the same way.

#### 223 **4. Discussion**

224 The findings, as stated in hypothesis one revealed that there is a significant difference in the  
225 pre-test and post-test somatic symptom disorder scores of in-school adolescents exposed to  
226 Cognitive Analytic Therapy (CAT) as treatment in managing somatic symptom disorder. This  
227 means that Cognitive Analytic Therapy is effective in managing somatic symptom disorder of  
228 adolescents in secondary schools. It showed significant reduction in the somatic symptom  
229 scores after treatment which indicates literarily, that its symptoms greatly reduced. This  
230 study in accordance with previous researches used to control symptoms with higher  
231 therapeutic response and recovery rates, better adherence, decreased symptom severity  
232 rapidly, and improved psychosocial function in clients [16-18]. The finding further confirmed  
233 that the influence the independent variable exerts on the dependent variable is significant as  
234 in agreement with the study carried out by [13], which showed large reductions in somatic  
235 symptoms between baseline and programme completion of all clients. This finding also  
236 agrees with the study carried out by [22] who established the efficacy of CAT and support  
237 the need for Cognitive Analytic Therapy to be used to enhance the strategies available for  
238 managing adolescents with somatic symptom disorder. Hypothesis two also showed that  
239 there is a significant difference between the pretest and posttest somatic symptom disorder  
240 scores of adolescents exposed to Cognitive Analytic Therapy and Control group. The result  
241 also, indicated that CAT treatment was effective in helping to reduce somatic symptom  
242 disorder among adolescents. The reason for this effectiveness of the experimental group  
243 could be as a result of the six weeks exposure to CAT treatment while the control was not.  
244 This finding agrees with a number of studies that applied Cognitive analytic and reported that  
245 Cognitive analytic (CAT) was found to be effective as evidence-based therapy for somatic  
246 disorder, with significant decreases in somatic symptoms in the group [14 & 19]. The study  
247 employed Cognitive Analytic Therapy (CAT) with its unique techniques for use on the  
248 adolescents which enabled them to detach from dysfunctional cognitive patterns hence,  
249 leading to significantly reduced symptoms and distress.

250 Hypothesis three showed that there is no significant interaction effect in treatment in relation  
251 to sex of adolescents. Therefore, the treatment is effective, regardless of whether the  
252 adolescents were male or female. This indicates that sex has no differential influence over  
253 the emotions, social and health status of the student. Prior research shows changing pattern  
254 in sex distribution of mental health problems, somatic disorder inclusive. This study  
255 disagrees with the findings of [9 & 23] who reported significantly high increase in prevalence  
256 of female secondary school students. They posited that female tend to experience  
257 symptoms more than males and these differences could be as a result of parenting styles,  
258 cultural differences and effective contribution of the treatment. It therefore agrees with  
259 previous studies [2 & 11] that expunged sex differences and reported that irrespective of  
260 sex, somatic symptom disorder is experienced alike. Thus, there was no difference in the  
261 rates of somatic symptom disorder between boys and girls.

## 262 263 **5. CONCLUSION**

264  
265 In line with the findings of this study, Cognitive Analytic Therapy is effective in managing in-  
266 school adolescents with somatic symptom disorder irrespective of the sex in Ika North East  
267 Local Government Area of Delta State. This, therefore suggests that psychological therapies  
268 can also be effective in treating somatic symptom disorder, by reducing symptoms,  
269 improving physical functioning and reducing patients overuse of medical services.  
270 Counsellors and psychologists should be encouraged to embrace CAT as an effective  
271 counselling therapy, in managing adolescents with somatic symptom disorder in all  
272 secondary schools in Delta State Teachers, nurses and parents, should be exposed to  
273 intervention strategies to equip them effectively in managing somatized students at home  
274 and school early. An effective and functional Counselling Unit should be established in all  
275 secondary schools in Delta State, where cases of somatic symptom disorder could be  
276 referred to.

## 277 278 **COMPETING INTERESTS**

279  
280 "Author declared that no competing interests exist."  
281

## 282 **AUTHORS' CONTRIBUTIONS**

283  
284 The author, IMAFIDON Iniabasi Faith, designed the study, performed the statistical analysis,  
285 wrote the protocol, wrote the first draft of the manuscript, managed the analyses of the  
286 study, managed the literature searches and proof read the final manuscript."

## 287 **Consent**

288 As per international standard or university standard, Participants' written consent has been  
289 collected and preserved by the author(s).

290

## 291 **Ethical Approval:**

292

293 As per international standard or university standard written ethical approval has been  
294 collected and preserved by the author(s).

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