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The Effect of Mindfulness, Cognitive Behavior Therapy and Academic Training on Conduct and Academic Problems of Disadvantaged Children

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Abstract

The present research studies the application of three treatment components to tackle conduct and academic problems of disadvantaged children. The treatment components serve as the independent variables in this study. These are: Mindfulness (M), Cognitive Behaviour Therapy (CBT) and Academic Training (AT). The components were applied individually, in combinations of two and all three components together, giving rise to seven treatment conditions: Mindfulness (Group 1); CBT (Group 2); Academic Training (Group 3). Three groups consisted of 2 treatment components-Mindfulness+CBT (Group 4); Mindfulness+Academic Training (Group 5); CBT+Academic Training (Group 6); and Mindfulness+CBT+Academic Training (Group 7). Screening and diagnosis were carried out using three standardized psychometric tests: Childhood Adolescent Mindfulness Measure, Childhood Psychopathology Measurement Scale, and Diagnostic Test of Learning Disability, along with direct observation and rating scales. A total of 35 children in the age group 10 to 13 were recruited from a number of potential candidates. All the children were studying in Government schools and suffered from conduct and academic problems. The subjects were randomly allotted into seven groups of five children each. The study used a single case A-B-A design with 3 sets of follow ups to test the seven treatment conditions. The results were analysed using descriptive analysis (Mean, SD and percentage change) and inferential statistical analysis (Mann Whitney U Test, and Kruskal Wallis H Test). The analyses demonstrate statistically significant differences in post treatment conduct and academic levels in all 7 groups. The descriptive and inferential analysis shows that treatment condition which combined all three treatment components i.e. Group 7 (M+CBT+AT), showed the highest efficacy and resulted in significant improvements in both conduct and academics. This study highlights the efficacy of multi-component treatments over single component treatments. The findings of this body of work suggest the pressing need for implementing multi-component therapy to treat disadvantaged children suffering from conduct and academic problems. It also implies the urgent need for further research into multi-component interventions to develop even more effective therapeutic programs in future.

Keywords: Conduct problems; Academic problems; Mindfulness; Cognitive behaviour therapy; Academic training

Introduction

Disadvantaged people are those who are deprived of one or more basic amenities of life which is enjoyed by others in the society. These include deprivation of food, shelter, livelihood to deprivation of social life or education. Such acute forms of deprivation arrest normal human development. Human resource development is the process of developing a cohesive society though education training [1]. Building a strong and progressive society presupposes the optimal development of all individuals, including those from the disadvantaged sections of society. Conduct and academic problems are major challenges facing disadvantaged children and require the sustained effort of the Government and society as a whole to ensure programs and treatments which will greatly benefit the children, and in turn, society as a whole.

Psychologically, socio-economic disadvantage is a negative condition along the environmental-experiential continuum which restricts and interferes with growth and development [2]. The more economically stricken a community, the higher is the incidence of negative growth and development. Thus, socio-economic disadvantage and behavioural problems are two closely linked, negatively co-related concepts.

Conduct problems

Children with Conduct Disorder (CD) engage in "*a repetitive and persistent pattern of behaviour in which the basic rights of others or major age-appropriate societal norms or rules are violated*" [3]. Behaviours involved in CD are usually exhibited in a variety of settings (at home, at school, and in social situations), and cause significant social, academic, psychological and family functioning impairment to the child [4]. Disadvantaged children with behavioural problems are often presented as 'criminals' or 'mentally ill' by their peers, teachers, caregivers or other authoritative figures. Being publically labelled as a 'conduct disorder' child, may result in a deviant self-image, and foster a delinquent career [5]. Negative labelling in school and the subsequent association with delinquent peers may account for a child's severe behavioural problems and poor educational achievement [6]. The fact that 'disorder' has dubious social connotations, labelling effects and negative interpretations, the researcher has preferred to use the term "*Conduct Problem*" rather than Conduct Disorder to refer to the constellation of behaviours covered in this thesis.

Several psychological theories have been developed to explain conduct problems in children. Some of the more influential theories are: (1) Cognitive theories that include social information processing theory and social skill deficient theory, (2) Social learning theories that include modelling theory and coercive family process theory and (3) Multisystemic theory. These theories have led to our growing understanding that factors such as socio-economic status, family, schools, and peers act cumulatively to affect the child's development, and contribute to childhood conduct problems. Disadvantaged children are therefore at greater risk of developing antisocial behaviour patterns as compared to their more fortunate peers. Conversely, what protects children from developing conduct problems is exposure to supportive and nurturing environments at home, at school, and within other social spheres.

A study conducted on disadvantaged children of Rajasthan showed that 75 percent of the deprived children were suffering from various issues such as family problems, uncertain future, dowry, and problems related to broken homes. These children also displayed a lack of adjustment with the environment. They did not accept moral standards and disregarded social rules. They showed low mental capacity, could not handle abstract problems, had a low self-concept, were emotionally unstable, and were observed to be prone to group dependency and high tension [7].

In another study, 50 disadvantaged children between the ages of 6 and 14 were assessed for behavioral problems. The children were selected after appropriate randomization and the Child Behavior Checklist was administered. The results showed that 21 children were above the cut-off score. The most common behavioral problems were, 'cannot sit still', 'restless', 'hyperactive', 'do not feel guilty after misbehaving', and 'cannot concentrate' [8].

Academic problems

Learning disability is a generic term that refers to a "*heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities*" These disorders are intrinsic to the individual and are presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation, social or emotional disturbance) or environmental influences (e.g., cultural differences, insufficient/inappropriate instruction, psychogenic factors), it is not the direct result of these conditions or influences [9].

Learning disability consists of the functional inability to receive and process information in the brain successfully. It is mainly detected in language processing areas such as reading, writing, speaking, listening, and application of symbols and numbers for mathematics operations, which may be present in combination or in isolation. Children with LD exhibit a disorder in one or more of the basic psychological processes involved in understanding, or in using spoken or written language. Several theories have been developed to explain this interference: (1) The developmental-academic model, (2) Neurological Model and (3) Cognitive and information processing model. Academic problems are frustrating and contribute to a dislike of school, leading to the possibility of school drop-out [10]. Other risk factors, ranging from the individual, the family, school, and community, act in combination with learning difficulties to produce negative outcomes.

Lorsbach and Frymier [11] made a comparison of learning disabled and non-learning disabled students on five at-risk factors, *viz*, personal pain, family socioeconomic status, family instability, family tragedy, and academic risk. The study compared 1356 students with learning disabilities and 1743 non-learning disabled students in grades 4, 7 and 10 on the 5 at-risk factors based on the number of school interventions. The study found that learning disabled children were significantly more at risk on all 5 factors.

In India, factors such as the poor exposure, poverty, multilingual social context and lack of quality of education, knowledge and language makes diagnosis even more problematic. In many instances, traces of these disorders may continue through adolescence into adulthood. In a study of 6 to 8 year old rural, economically disadvantaged children, lower levels of performance on comprehension, memory, verbal reasoning and short term memory measures were reported [12]. Saraswathi and Datta [13] reported lower social problem solving for day to day issues resulting from a life in poverty.

Learning disability is generally used to categorize children of average intelligence, who are low on academic achievement for reasons other than sensory handicap, socio cultural deprivation and poor schooling. The term "*learning disability*" has dubious social connotations and negative interpretations and its use may or may not prevent the children from getting adequate treatment later in their lives. It may also prevent them from achieving their professional targets successfully. Therefore, due to ethical reasons, the researcher has preferred to use the term "*academic problems*" rather than "*learning disability*" to highlight the academic problems faced by disadvantaged children.

If conduct and academic problems continue over a long period of time, they tend to seriously impair the child's ability to function optimally in emotional, behavioural and cognitive domains. Such children find it difficult to develop emotionally and mentally, nurture friendships, meet the demands of everyday life, and contribute meaningfully to society. They tend to lack concentration, be forgetful and impulsive, and get into fights because they have difficulty in controlling anger. The longer these disorders remain untreated, the more difficult it becomes to prevent long term consequences. Thus, early interventions may need to consider both problems rather than attempting to address one in isolation [14].

Treatment

Over the course of the past several years, newer intervention programs have been developed to provide disadvantaged children with holistic care and support. The researcher has therefore focused on the more recent developments in CBT and other disciplines. One such development is the integration of Mindfulness Techniques into the process of intervention [15].

Mindfulness: Mindfulness meditation, which has its origin in the 2,500-year old pan-Asian Buddhist tradition, is now relevant to the contemporary medical and psychiatric disciplines. Mindfulness comes from the Pali word "*sati*" and the Sanskrit word "*smirti*" which connotes awareness, attention, and remembering [16]. The foremost pioneer in the therapeutic application of Mindfulness explains, "*Mindfulness is cultivated by assuming the stance of an impartial witness to your own experience*" [17]. That is what is meant by non-judging. He further explains: "*The habit of categorizing and judging our experience locks us into mechanical reactions that we are not even*

aware of, and that often have no objective basis at all". Mindfulness approaches may be suitable interventions for anxiety, depression, and conduct disorder to enhance cognitive and academic performance [18].

A study was conducted with 32 children diagnosed with conduct disorder. A Mindfulness skills training was implemented in a 2-h group therapy format over 16 weeks. The program comprised introductory information, core Mindfulness, interpersonal effectiveness, emotional regulation, and distress tolerance. Homework exercises were also included. At post treatment, caregivers reported an increase in positive behaviours. The children themselves reported a significant reduction in externalising symptoms [19].

Another pre-post study of Mindfulness intervention was conducted with 34 learning disabled children aged 13 to 18 yrs. This study was conducted in a specialized classroom setting where teachers led a Mindfulness meditation for 5 to 10 min at the commencement of each period daily for 5 weeks. The teachers had no prior Mindfulness meditation experience other than a pre-intervention training for about 2 and a half hour. The outcome measures showed significant improvement, with participants who completed the program demonstrating decreased state and trait anxiety, enhanced social skills, and improved academic performance. This study showed that Mindfulness meditation decreases anxiety and negative self-belief, which, in turn, promotes social skills and academic outcomes [20].

Teaching Mindfulness techniques to children creates the potential for greater self-awareness, improved impulse control, and decreased emotional reactivity to challenging events [21]. A range of Mindfulness exercises for children have been suggested by Thompson and Gauntlett-Gilbert [21] and Hanh [22]. Interventions such as introduction to mindfulness, beginning anew, walking mediation, raisin mediation, recording feelings and emotions, deep relation and waterfall mediation have been used.

Thus, Mindfulness approaches offer a potentially powerful set of interventions for children suffering from a wide range of problems. Research reviewed by the researcher during the course of this study suggests that Mindfulness-based practices have a positive impact on academic performance, conduct problems, psychological wellbeing, self-esteem, and social skills in children suffering from conduct and academic problems.

Cognitive behaviour therapy (CBT): CBT is an important therapeutic paradigm as it has been shown repeatedly to be an effective intervention for a wide variety of psychological problems. CBT refers to the "*treatments that attempt to change overt behaviour by altering thoughts, interpretations, assumptions, and strategies of responding*" [23]. CBT integrates cognitive and behavioural approaches to problem solving, including cognitive processing (such as generating alternatives, evaluating outcomes) and skill development (such as modelling, role playing, behavioural rehearsal), reinforced by contingencies, feedback, and support to effective cognitive, behavioural and affective change [24,25].

Literature provides support for CBT as an efficacious intervention for children and adolescents with diverse conditions such as eating disorder, social phobia, anxiety, aggression and other anger related problems [26-32]. CBT techniques have also been found to be effective in anger control for children with learning disabilities [33]. Braswell and Kendall [34] identified social skill training, problem solving, cognitive restructuring, self-instructional training, relaxation training, modelling, role playing and behavioural contingencies as important strategies in targeting maladaptive cognitions, behaviour and affect. Specific treatment components are selected and emphasised to match the diagnostic and developmental needs of the child.

Four treatment categories of CBT are: Cognitive Therapy (CT), Relaxation Therapy (RT), and Others (O) produced medium to large effect sizes that were associated with success rates of 65–70%. CBT appears to be the treatment of choice for anger expression problems (i.e., anger outbursts), suggesting that such difficulties are best treated when therapy addresses both cognitive and physiological aspects of anger [35].

A study was conducted on two learning disabled children. Training material consisted of 60 to 80 words passages and sets of comprehension questions, both written specifically for the study. The procedure involved one-on-one sessions of direct instruction, in which the experimenters read a sentence in the passive voice and modelled rephrasing it in the active voice. The child was then read the same passive voice construction and asked to rephrase. After the child demonstrated the ability to rephrase sentences, the procedure was extended to passages that included both passive voice and dependent clauses. Treatment effects were assessed by a multiple baseline procedure. The findings of the study suggested that direct instruction with feedback is an effective way of developing reading comprehension in poor readers [36].

There is a positive relationship between behavioral disorders and learning disability. Research suggests that approximately 10% to 50% of school-age children who exhibit conduct problems also demonstrate poor academic achievement [37,38]. Kazdin [39] studied the academic achievement of children with conduct disorders using an achievement test, teacher reference, and school records. He found that students with conduct disorders exhibit low academic achievement throughout their school career, and in particular, suffer from reading difficulties.

Very early in the process of designing this study, it was felt necessary to develop the intervention program in such a manner that it would address the needs of children in both behavioural and academic domains, and also cater to the possible concerns of some parents whose children were not performing well at school. Such a program would provide the children with an opportunity to develop their Mindfulness skills, improve errant behaviour, and also focus on overcoming academic challenges.

Academic training: Intervention strategies based on academic skill remediation can be conceptualized as a continuum from simple to complex. Apart from providing children with training in reading, writing, spelling and mathematics, the focus of the intervention is also on child's motivation, feedback, reinforcement, time and the environment where learning takes place.

Interventions that have been proven to be effective for improving reading skills include direct instruction components prompting, correcting errors, phonetic awareness, alphabetical principal, fluency, providing plenty of opportunities to respond, flashcard drill and practice and vocabulary and comprehension. Intervention strategies consisting of planning and monitoring, explicit instruction, use of heuristics, student verbalizations of their mathematical reasoning, use of visual representations and execution are considered to be effective in dealing with mathematics problems of children [40].

A study of 2,604 students in grades 1 through 6, at 32 different schools, indicated that effective schools facilitate inclusion of special education students. Researchers found that students with mild learning

disabilities in integrated programs in effective schools had good academic achievement and better social behaviour. However, pre-referral interventions do appear to reduce the number of students referred to special education [41].

The Early Literacy Project (ELP) is aimed at addressing the reading and writing processes of children from disadvantaged sections of society, who typically under-achieve in school. ELP attempts to develop effective methods through sustained and interactive measures in the classroom. Reading and writing are integrated, and taught around thematic units and supplemented by more conventional skills instruction, as participants are explicitly and systematically taught reading and writing strategy [42]. When compared to the performance of similar children in the same school district, ELP students were found to have made greater gains in writing even after just one year of instruction [43].

Rationale

A large percentage of disadvantaged children in our society suffer from conduct and academic problems which places them in danger of developing into antisocial elements. Many programs have been developed, especially in foreign countries, to tackle the problem of children in their societies. There is a pressing need to develop a large scale intervention program which specifically targets disadvantaged children in India. The emphasis must be on a program which will help these children to grow up into independent and self-sufficient members of our society, rather than leaving them to become more and more dependent on the services provided by different NGOs and the National and State Governments.

The objective of this study was to develop an effective structured interventions based program comprising of three treatment conditions, Mindfulness, CBT and Academic Training. The efficacy of the treatment conditions would be assessed individually, and in combination with each other, in treating disadvantaged children with conduct and academic problems. In the light of literature reviewed for this study, the researcher was of the view that such a multi component approach would be effective in the treatment of disadvantaged children with conduct and academic problems.

The three dependent variables chosen for this study would be measured as follows: (1) The degree of Mindfulness Skills, by Childhood Adolescent Mindfulness Measures (CAMM); (2) The level of conduct problems by Childhood Psychopathology Measurement Scale (CPMS); and (3) The level of academic problems by Diagnostic Test of Learning Disability (DTLD).

The three treatment components, Mindfulness, CBT, and AT, are the independent variables which are described in detail in Chapter 3. The intervention program would use Mindfulness to foster awareness, observation and acceptance without judgement; CBT for behaviour modification, problem solving, decision making, coping with the demands of the environment, and development of alternative thought patterns; and AT to develop reading, writing and mathematical skills.

Two hypotheses were formulated for this study:

Hypothesis 1: The combination of all three treatment components will differ significantly from the combination of any two treatment components: (a) Mindfulness and CBT; (b) Mindfulness and Academic Training; and (c) CBT and Academic Training; or any single treatment component: (a) Mindfulness; (b) CBT; and (c) Academic Training.

Hypothesis 2: The combination of any two treatment components will differ significantly from any single treatment component.

The total number of treatment sessions per subject would be kept constant at 18 sessions. For instance, the treatment consisting of 3 components would consist of 6 treatment sessions of each component; the treatment consisting of 2 components would consist of 9 sessions of each treatment component; and the treatment consisting of 1 component would consist of 18 sessions of that treatment component.

Method

Participants

The children for the study were selected by convenient sampling, wherein the **sample**s was drawn from the disadvantaged sections of the population living in a slum cluster close to the South Campus of Delhi University. The total sample consisted of 35 children with conduct and academic problems in the age group 10 to 13, studying in government schools of South Delhi.

To be eligible for the study, the participants were required to fulfil the following criteria: (1) Family income below Rs. 7,000 per month; (2) Children's score in CPMS between 15 and 20; (3) Children's score in DTLD between 35 and 40; (4) Children's score in CAMM between 8 and 13; and (5) Children score on Malin Intelligence Scale for Indian Children (MISIC) above 80. In addition to the above, participants who suffered from physical disabilities such as deafness, blindness, mute, cerebral palsy and epilepsy were excluded, as were participants afflicted with intellectual difficulties such as mental retardation.

Measures

The psychometric measures that were used in the present study are described below: (Where appropriate, the measures were translated from English to Hindi by translators).

Malin's intelligence scale for indian children [44]: The MISIC is an individual intelligence test or scale for children from the ages of 6 to 16 years. It comprises of 11 subtests, divided into Verbal and Performance groups. Verbal group consists of: Information, Comprehension, Arithmetic, Similarities, Vocabulary and Digit span. Performance group includes: Picture completion, Block design, Object assembly, Coding and Mazes. The reliability of the MISIC was established with the test-retest method and yielded a Pearson's Product moment correlation coefficient of 0.91 for full scale IQ results. The concurrent as well as congruent validity of MISIC have been well established.

Child and adolescent mindfulness measure (CAMM) [45]: CAMM is a 10-item version of the Kentucky Inventory of Mindfulness Skills (KIMS) scale which measures present-moment awareness and non-judgmental, no avoidant responses to thoughts and feelings. CAMM is used to assess 3 Mindfulness skills: (1) Observing: Mindfulness involves observing, noticing or attending to various stimuli including internal phenomena (cognitions, bodily sensations) and external phenomena (sounds, smells). (2) Acting with awareness: Being attentive and engaging fully in one's current activity. (3) Accepting (or allowing) without judgment: to allow reality or what is there, to be as it is without judging, avoiding, changing, or escaping it. It has adequate internal consistency (a=0.80; R=0.85) and test retest reliability (r=0.46).

Childhood psychopathology measurement schedule (CPMS) [46]: CPMS is used as a screening instrument in population surveys to

identify disturbed children as well as a research tool involving measurement of childhood psychopathology and its classification. CPMS, the Indian adaptation of Child Behaviour Checklist (CBCL) which is standardized for the Indian population is applicable to children of both sexes in the age range of 4-14 years. The CPMS consists of 75 problem items on which parents rate their child using an either yes or no, with higher scores reflecting more problems. The CPMS has eight sub-scales, including low intelligence and behaviour problems, anxiety, depression, conduct problems, somatisation, and special symptoms. The test-retest reliability ranges between +0.78 to +0.91 and inter-rater reliability is +0.88 to +0.96 for all the items.

Diagnostic test of learning disability (DTLD) [47]: DTLD is a standardized performance test which identifies learning disability in 10 areas of psychological process of learning. A deficit in any area or combination of areas leads to a learning problem. The first 6 areas represent the processes involved in visual and auditory perception, *viz.* hand-eye coordination, figure ground perception, figure consistency, position in space, spatial relations and auditory perception. The last four represent the aspects of cognitive functioning *viz.* memory, cognitive abilities, receptive language and expressive language. Test retest reliability was established by re- administering the test and by computing reliability coefficients for each subtest and the total test. The reliability coefficient of DTLD is 0.80 (Test Retest) and 0.87 (Reliability Index).

Behaviour observations

Behaviour was observed by means of event sampling and noted on the Observation Chart prepared by the researcher. The observation was carried out by two observers who were trained for this study. The following target behaviours were recorded: Physical Aggression (PA), Verbal Aggression (VA), Property Destruction (PD), Non-Compliance (NP), and Complaint (CP). The operational definitions have been taken from 'The Dyadic Parent-Child Interaction Coding System' designed by Robinson and Eyberg.

Behaviour rating scale [48]

The rating scale chosen by the researcher for this purpose is a 3 point screening tool called "*Challenges in Behaviours of School Going Children*", developed by the Department of Education of Groups with Special Needs (DESGN). The behaviours measured by this rating scale are: Violent and destructive behaviours affecting learning, Temper tantrums in the classroom, Conduct disorders affecting classroom environment, Oppositional behaviours, Odd behaviours, Stereotypical behaviours during teaching-learning, Withdrawal of behaviours in classroom, Inappropriate interpersonal behaviours with peers, Sexual behaviours in classroom, Self-injurious behaviours, Hyperactivity during teaching-learning, Fear in interaction in classroom and Psychological/emotional problems. The information obtained through direct observation by the observers was entered on the rating scale, which helped to identify the behavioural problems of the children.

Milestones-learning disability checklist [49]

The extent of academic problems was assessed by means of observing the children's performance in tests of reading, writing and arithmetic, and entering this information in a checklist. The academic checklist chosen for this purpose was taken directly from the book, "*Learning Disabilities A to Z*" written by Smith and Strick [49]. This checklist helps in identifying learning disabilities of children. Information about the academic skills of children was obtained through direct observation by the observers in areas such as visual perception disability (reading, writing and maths), fine motor skills (at home and at school) and speech and language comprehension.

Research design

Single case design was used to test the effect of an intervention on an individual. The essence of the design is that individual participants serve as their own control. To evaluate the effectiveness of the intervention, A-B-A experimental research design was used in the present study. An average of 3 trials was taken for each measure and baseline measures (A1) were established before the clinical intervention was introduced. This was followed by the treatment, designated as (B). To establish that changes caused in the dependent variable were directly related to the controlled and structured manipulations in the independent variable (the intervention program), assessment procedures were repeated after 6 and 12 intervention sessions. The second baseline (A2) was established after 18 sessions, i.e., after the completion of the treatment.

Procedure

Participants for the present study were selected from children who lived within the radius of 2 to 3 kms of South Campus, Delhi University. Parents were informed that a treatment program was being conducted for children with behavioural and academic problems, and those parents who desired to include their children in the study were asked to come to the campus along with their children for evaluation and selection. The primary selection was done on the basis on the brief interview, and the MISIC to establish that the children did not fall in the exclusion category.

Psychometric tests (CAMM and DTLD) were administered to the children to establish their level of Mindfulness skills, and Academic problems. CPMS were administered to parents to ascertain the level of Behavioural problems in their children. Only those children who qualified the inclusion criteria were recruited for participation in the study. A written consent was obtained from the parents and children to participate in the program

The process of psychometric testing continued till the sample of 35 children was complete. As the children qualified through the above process, each of them was assigned to one of seven treatment groups. Three groups consisted of individual treatment components: Mindfulness (Group 1:M); CBT (Group 2:CBT); Academic Training (Group 3:AT). Three groups consisted of 2 treatment components: Mindfulness+CBT (Group 4:M+CBT); Mindfulness+Academic Training (Group 5:M+AT); CBT+Academic Training (Group 6: CBT +AT); and Mindfulness+CBT+Academic Training (Group 7: M+CBT +AT).

The participants were randomly assignment into one of the seven groups by the fishbowl method. One bowl contained 5 slips each of the 7 treatment groups. As a child qualified, one slip was drawn from the bowl and the child assigned to the treatment group given on the slip. This process continued till all 35 subjects were assigned to the treatment groups with 5 children in each group. Target behaviours of the participants were observed, and they were marked on the behaviour rating scale and academic checklist. This task was carried out by two graduate students in psychology who were recruited and trained by the researcher. These observers were kept 'blind' to the

purpose of the study. The above procedure established the baseline scores and thereafter, the intervention phase began.

Intervention

Intervention was carried out individually to cater to the child's specific needs and problems, and to foster the development of psychological growth. Each session included practice exercises, storytelling and homework to be reviewed in the following week. Participants were encouraged to engage in practicing the skills learned throughout the program and sharing these experiences. To keep them motivated and interested, drawing competitions were held in groups every fortnight. All the participants were subjected to 18 sessions of intervention consisting of the allotted treatment components, i.e. Mindfulness, CBT and Academic Training, as described earlier in 'Procedure'. All the sessions were optimally scheduled once, twice or thrice each week, with a session length of 35 to 45 min.

Mindfulness techniques included: (1) Introduction to Mindfulness; (2) Beginning Anew; (3 Walking Meditation; (4) Waterfall Meditation; (5) Deep Relaxation; (6) Raisin Meditation; (7) Mind in a Jar; (8) Recording Feelings and Emotions; and (9) Family Therapy.

The CBT strategies used were: (1) Identifying thoughts; (2) Disputing and Developing alternative thought patterns; (3) Coping strategies; (4) Problem Solving and Decision making; (5) Goal setting; (6) Social skills; (7) Handling aggression; (8) Self-instructional training.

The Academic Training focused on: (1) Reading and Writing; Recognizing the words by sight, Phonetic awareness, Vocabulary and Comprehension, Spelling rules and cues, Sentence combining, Process writing and (2) Mathematical performance; Addition and Subtraction, Multiplication and Division and Fractions.

Parent sessions

One of the important aspects of this study was to try to create an environment where the children could benefit from the interventions in the study. Parents were involved in the intervention program at the outset so that they could: (a) Provide valuable feedback about the results of the techniques applied; (b) Replicate the techniques at home for maximizing the benefits; (c) Become more aware of the changes in their children; and (d) Acquire guidance over appropriate parenting skills. The topics covered in the Parent sessions were: Family Rules, Acknowledging positives, Proffering valid reasons and Techniques for Well-being.

Follow up

Follow ups were planned at 2, 4, and 8 weeks post intervention to examine the extent of the changes in the behavioural problems and academic skills over time. The children were tested using the evaluation process described in 'Procedure.

Pilot study

A pilot study was conducted to refine the qualitative and quantitative assessment procedures, and the treatment protocols planned for this study. The Pilot Study enabled the researcher to examine the assessment and intervention procedures and modify them suitably. This led to greater ease in applying the procedures and also ensured a more accurate data base which in turn resulted in more accurate results.

These are enumerated below: (1) The procedure laid down was that assessments at each stage, i.e. at pre-intervention, after 6 sessions, after 12 sessions, and post intervention (after 18 sessions) would be carried out only once. The Pilot Study showed that the children's response to the behavioural assessments depended to a large extent on their moods on a particular day. Therefore it was decided that three behavioural assessments would be carried out on three different days and averaged, so that more accurate results could be obtained. (2) In the earlier Mindfulness intervention, Sitting Meditation was included. The Pilot Study showed that the children did not follow the purpose of this exercise and therefore did not show much interest. This was replaced by Walking Meditation where some activity is involved and this made it more interesting for the children. (3) From the results of the pilot study, it emerged that for interventions to be more successful, there was a need to make each session more interactive, and include activities that the children could participate in. All these changes were incorporated in the assessment and intervention procedures by the researcher.

Results and Discussion

The results of the study were quantitatively analyzed using both descriptive and inferential statistics. The descriptive statistics used mean, Standard Deviation (SD) and percentage change to evaluate the results. Inferential statistics consisted of non-parametric tests because of the small sample size. Data was analyzed using the Mann-Whitney U test and Kruskal Wallis H test. Statistical analyses of the different measures were done using SPSS 21.0.

The Mann Whitney U test was used to establish the significance of the difference between the pre and post intervention results of each of the 7 treatment groups. The Kruskal-Wallis H Test was used to establish the relative efficacies of the 7 treatment groups. The analyses are presented in the tables below for each of the dependent variables.

Mindfulness skills

According to Greco et al. [45], a low CAMM score often indicates that a child does not generally attend to internal phenomena such as thoughts, feelings and bodily sensations. Such children do not engage completely in their current activity and are unlikely to be aware of their thoughts, feelings and emotions.

The pre-intervention baseline CAMM scores of all 35 children indicated a low level of Mindfulness skills. They were unable to focus their attention on a particular task for any length of time. They reported feeling anxious about their future. They were often under stress about their economic condition and unable to adapt to their environment. They were unable to get into a relaxed state, leading to poor wellbeing. They lacked impulse control, were upset easily, and engaged in constant arguments for no reason at all.

Feedback from the children about the Mindfulness techniques employed during the intervention was positive and illuminating. Some children connected with Waterfall meditation. They could visualize the waterfall flowing on and through their body, and this brought a feeling of peace. Some children reported that they enjoyed Raisin meditation because they had never eaten raisins before.

The ranking of the 7 treatment groups is shown in the table below:

Rank	Group No.	Group	Descriptive Statistics		Inferential Statistics
			Average change	% change	Kruskal Wallis Inferential score
1	7	(M+CBT+AT)	13.4	130.52	32
2	5	(M+AT)	9.4	84.94	24.8
3	4	(M+CBT)	8.93	83.23	22.7
4	1	(M)	7.87	73.75	21.6
5	6	(CBT+AT)	5.13	51.33	11.4
6	2	(CBT)	4.13	43.06	7.3
7	3	(AT)	3.8	37.5	6.2

Table 1: Ranking of groups for CAMM scores among the 7 treatment groups.

All seven treatment conditions had a positive impact on CAMM scores. Group 7, the combination of all three treatment components was the most effective and Group 3 was the least effective. The percentage change in pre and post intervention scores based on descriptive statistics as well as the mean rank indicated by Kruskal-Wallis H Test are as follows: Group 7 (130.52%, 32.00), Group 5 (84.94%, 24.80), Group 4 (83.23%, 22.70), Group 1 (73.75%, 21.60), Group 6 (51.33%, 11.40), Group 2 (43.06%, 7.30) and Group 3 (37.50%, 6.20). The results were also subjected to Mann Whitney U Test which indicated that the changes brought about by the interventions were significant in all cases (Table 1).

The above results show that Group 7 was more effective than Groups 4-6, the 2-component groups. It was also more effective than Groups 1-3, the single component groups. Therefore *Hypothesis 1* stands proved for CAMM scores. However, since Group 1 (single component) was more effective than Group 6 (2-component), all the 2-component groups were not more effective than all the single component groups. Hence *Hypothesis 2* stands disproved for CAMM scores.

In the case of disadvantaged children, academic performance and conduct problems are important factors which impact their sense of wellbeing. In the face of academic and behavioural problems, it is reasonable to expect that their CAMM scores will be low. Therefore, if effective treatment is provided to improve academic performance and reduce behavioural problems, CAMM scores should be positively affected. The results of Group 2 (CBT), Group 3 (AT), and Group 6 (CBT+AT) bear this out. None of the children in these groups were subjected to Mindfulness intervention. Yet, as shown by the Mann Whitney U test, there was a significant improvement in the CAMM scores of each of these groups. Since Group 7 was subjected to all three intervention components, which handled conducts problems and academic performance along with Mindfulness interventions, this group was the most successful in elevating CAMM scores.

When children learn to be more 'present' and less anxious, they are better able to pay attention and improve the quality of their academic performance. They become more focused, are able to approach situations from a fresh perspective and use existing knowledge more effectively. Mindfulness has also been shown to have positive effects on emotional, behavioural and social skills. These include the ability to feel in control, to develop meaningful relationships, to accept experiences without denying facts, to manage difficult feelings, and to remain calm, resilient and empathic.

Conduct problems

In CPMS, the parents generally rated their children on the Low Intelligence and Behavior Problems Subtest, and the Conduct Problems Subtest. High scores in the Low Intelligence and Behavior Problems Subtest indicate a tendency towards behaviors such as immaturity, repetition of a grade, stealing, impulsive acts, poor attention, irrelevant talk and poor memory. High scores in the Conduct Problems Subtest indicate that the children tend to engage in maladaptive behaviors such as arguing with others, property destruction, disobedience at school and home, bullying, cruelty to animals, physical and vocal aggression, stubbornness, threatening behaviour, temper tantrums and screaming.

Prior to the interventions, all the children engaged in similar behavioral patterns and exhibited all the target behaviors measured in this study. When physical violence was not possible, the children used threatening gestures, and indulged in throwing things at the other participants. Several instances were noticed of one child hitting another or a child wrestling another child to the floor and then kicking him. Most of the children used foul and abusive language. They lied frequently, and often twisted the truth to their advantage. They screamed unnecessarily at other children and even in situations where normal speech was possible, they preferred to shout. Most children found excuses to escape from a given task. Most of them tended to destroy the stationery items given to them. They chewed pencils, tore up pages from their books, and broke erasers into tiny bits. They were sometimes seen to writing or drawing obscene words and pictures on the blackboard. Some children ignored commands by the researcher, made excuses for not obeying, argued with others for no reason and reacted before listening to instructions.

During intervention children were able to connect with CBT interventions such as social skills training, problem solving, self-instruction training, goal setting and handling aggression. According to the children, these techniques helped them to arrive at alternative solutions and led to a sense of achievement after the solutions were appropriately applied. However, most of the children found identification of thoughts, and disputing and developing alternative thoughts, difficult to understand and implement.

Post intervention, all the groups showed improvement. The most effective treatment groups were those which consisted of the CBT component, either in isolation or in combination with other components. Observations showed that though the target behaviors were still present, the frequency was lower. However, the results of the CBT intervention were less effective than expected. One reason could be that disadvantaged children often have poor orientation and motivation to learning, and cultural-economic constraints that negatively influence their cognitions [2,50]. The researcher submits that there is a pressing need to develop appropriate CBT strategies, specifically tailored for disadvantaged children who have low levels of cognition.

The rankings of the 7 treatment groups are shown in the table below.

Rank	Group No.	Group	Descriptive Statistics		Inferential Statistics
			Average change	% change	Kruskal Wallis Inferential score
1	7	(M+CBT +AT)	10.27	60.16	32
2	6	(CBT+AT)	7.2	37.76	22.2
3	4	(M+CBT)	6.47	37.45	20.1
4	5	(M+AT)	6.15	37.25	17.1
5	2	(CBT)	5.8	32.83	15.9
6	1	(M)	5.4	28.32	15.1
7	3	(AT)	3	17.44	3.6

Table 2: Ranking of groups for CPMS scores among the 7 treatment groups.

All seven treatment conditions had a positive impact on CPMS scores. Group 7, the combination of all three treatment components was the most effective and Group 3 was the least effective. The percentage change in pre and post intervention scores based on descriptive statistics as well as the mean rank indicated by Kruskal-Wallis H Test are as follows: Group 7 (60.16%, 32.00), Group 6 (37.76%, 22.20), Group 4 (37.45%, 20.10), Group 5 (37.25%, 17.10), Group 2 (32.83%, 15.90), Group 1 (28.32%, 15.10) and Group 3 (17.44%, 3.60). The results were subjected to Mann Whitney U Test which indicated that the changes brought about by the interventions were significant in all cases except in the case of Group 3 (Table 2).

The above results show that Group 7 was more effective than Groups 4-6, the 2-component groups. It was also more effective than Groups 1, 2, and 3, the single component groups. Therefore *Hypothesis 1* stands proved for CPMS scores. Further, Groups 4-6, the 2-component groups were more effective than Groups 1-3, the single component groups. Hence *Hypothesis 2* stands proved for CPMS scores.

In comparing the 2-component Groups 4-6, it is seen that Group 4 and Group 6, which included the CBT component were more effective than Group 5 which had no CBT component. Similarly, in comparing Groups 1-3, it is seen that Group 2 which contained the CBT component was more effective than groups 1 and 3 which did not include the CBT component. The results are supported by research which shows that CBT helps children control cognitive thought processes which would directly impact their learning; therefore, positively impacting academic achievement [51-57]. Research also shows that when CBT is integrated with Mindfulness, it has a positive impact on reducing behavioural problems, promotes well-being, reduces stress, increases motivation and promotes academic achievement [15,17,58-61].

Academic problems

All the children in this study were able to perform the first 6 sub-tests of DTLD without much difficulty. However, they faced major challenges in performing the remaining 4 subtests. They had problems with cognitively processing information, spotting similarities and differences, and categorizing experiences in meaningful chunks, and had trouble with retrieving relevant information at appropriate times. They also faced difficulties with expressive and receptive language, including problems in the formation of new words, verbal fluency and vocabulary, using proper syntax in language, and forming proper sentences. All the children generally exhibited an inability to express themselves by using appropriate language. This could be due to the negative impact of their socio-economic disadvantage on school performance, academic achievement, poor motivation and school drop outs [62].

It was observed that children disliked and avoided reading and writing, and faced difficulties in preparing outlines and organizing their work. Their written work was immature, with inaccurate copying and spelling mistakes. Their assignments were short, sometimes incomplete, and suffered from poor vocabulary. Little theme development was noticed; the children mostly constructed a list of sentences and did not provide details. Poor memory for printed words, frequently losing their place while reading, poor comprehension of main ideas, difficulties in analyzing sound sequences, guessing unfamiliar words and an inability to blend sounds into words were the common errors noticed in these children.

Difficulties in memorizing mathematical facts, a slow response to mathematics drills like multiplication tables, and formulas and equations were a challenge. The aforementioned errors exhibited by the children could be due to their handicapping socio-environmental conditions [63-65]. Parents are often unable to meet the emotional, cognitive, and caregiving needs of their children. This limits their children's linguistic environment because such parents tend to use language that is dominated by commands and simple structure, rather than by explanations and elaboration with an increase in the percentage of negative comments made [66-68].

The academic assessment conducted post intervention showed many improvements. In reading, the errors of guessing, omission, mispronunciation and poor pronunciation, insertion of letters, reading letter by letter, or word by word, repetition and hesitation had reduced remarkably. The children had started to enjoy reading as making fewer mistakes provided them with a sense of achievement. Improvements were also noticed in punctuation, grammar, spelling and handwriting. The children made fewer errors in spellings and could comprehend the meanings of the words they read. Poor letter sequencing, along with consonant and vowel errors were still observed, but the frequency of such errors had reduced considerably. In mathematics, their basic computational skills (e.g. addition, subtraction, multiplication, division) improved considerably. However, the children continued to display challenges with higher level mathematical concepts such as fractions, positive and negative numbers, probability, and ratios.

One reason for the improvement in academics was probably that they were being taught skills which they lacked. Chapters were broken down into smaller parts and attention was given to each part. This not only formed a base for their conceptual clarity but also meant that they started to enjoy studying. This finding is in congruence with previous research which shows that teaching word identification, fluency, problem solving, writing, spelling and phonological awareness skills have been effective in dealing with children struggling with academics [69-74].

The rankings of the 7 treatment groups are shown in the table below:

Rank	Group No.	Group	Descriptive Statistics		Inferential Statistics
			Average change	% change	Kruskal Wallis Inferential score
1	7	(M+CBT +AT)	26.47	68.57	32.5
2	6	(CBT+AT)	20.2	55.29	22.2
3	5	(M+AT)	19.87	51.47	21.5
4	3	(AT)	18.8	51.46	20.8
5	1	(M)	13.4	36.02	11
6	4	(M+CBT)	13.47	35.19	10.2
7	2	(CBT)	11.53	30.62	7.8

Table 3: Ranking of groups for DTLD scores among the 7 treatment groups.

All seven treatment conditions had a positive impact on DTLD scores. Group 7, the combination of all three treatment components was the most effective and Group 2 was the least effective. The percentage change in pre and post intervention scores based on descriptive statistics as well as the mean rank indicated by Kruskal-Wallace H Test are as follows: Group 7 (68.57%, 32.50), Group 6 (55.29%, 22.20), Group 5 (51.47%, 21.50), Group 3 (51.46%, 20.80), Group 1 (36.02%, 11.00), Group 4 (35.19%, 10.20) and Group 2 (30.62%, 7.80). The results were subjected to Mann Whitney U Test which indicated that the changes brought about by the interventions were significant in all cases (Table 3).

The above results show that Group 7 was more effective than Groups 4-6, the 2-component groups. It was also more effective than Groups 1-3, the single component groups. Therefore *Hypothesis 1* stands proved for DTLD scores. However, since Groups 1 and 3 (single component) were more effective than Group 4 (2-component), all the 2-component groups were not more effective than all the single component groups. Hence *Hypothesis 2* stands disproved for DTLD scores.

In comparing the 2-component groups 4-6, it is seen that the Group 5 and Group 6, which included the AT component were more effective than Group 4 which had no AT component. Similarly, in comparing Groups 1-3, it is seen that Group 3 which contained the AT component was more effective than groups 2 and 3 which did not include the AT component.

The literature on this subject has reiterated that multi-component treatments are more effective than single component treatments. For a child to be able to concentrate on his studies, several factors play an important role. These include the family, the living environment, school and the quality of the teachers in the school. For children with a socio-economic disadvantage, these factors become even more important. If some intervention is provided along with academic training which will help the child to deal with the external problems enumerated above, it will prove to be beneficial to enhance academic achievement [34,53,57,75,76].

Limitations

The findings of this study add to the scarce literature in the Indian context as very little work has been done on Indian children from disadvantaged sections of society. The present study has the following limitations:

The first limitation is the small sample size (n=5) in each treatment group. This was due to the problems faced by the researcher in identifying suitable children who were likely to remain in the study over the entire period, and getting their parents' consent for participation in the study. The small sample size limits generalisation of the findings.

The second limitation was the poor support received from the parents of most of the children who were finally selected for the study. Parents generally acknowledged the improvement in behaviour and academic ability of their children. However, they found it difficult to implement the strategies suggested by the researcher in their homes because of busy schedules, and economic and time constraints.

Third, the children lived in slum areas of South Delhi and some of them may have been exposed to adults and other children engaged in illicit activities. Such individuals sometimes serve as role models in the environment the children lived in. Such uncontrollable external factors contribute to the difficulty in modifying the behaviour of such children.

Fourth, CAMM was the most appropriate standardized measure to establish the degree of Mindfulness for this study. Information for this measure is elicited through self-reports from the children. There is a possibility that the questions were answered by the children either casually, or without complete understanding.

Suggestion for Future Research

The present study presents scope for further research related to conduct and academic problems of disadvantaged population. In order to generalize the findings of future studies, a large sample size could be considered. If possible, interventions could be carried out in schools in collaboration with the school authorities and teachers. This may ensure a greater level of availability of the children for the study, and also cause less disruption in the lives of the children and their parents. The parents would be more likely to collaborate with the school authorities and the environment for effective implementation of interventions could be recreated at home. The formal classroom setting would be beneficial as a more formal and rigorous intervention program could be devised.

Future studies could also consider reversing the order of implementation of the treatment components to see whether such a change results in any difference in the findings.

Conclusion

A new generation is the future of any country, and in order to build a strong and progressive nation, the adequate growth and development of each and every child is a national imperative, both in terms of education and mental health. It is vital that we identify children who are at risk for developing conduct problems and learning challenges, and provide them with suitable and early intervention at a time when the prognosis for improvement is higher, and scarce resources are optimally utilized.

Based on the literature on disadvantaged population in India, the objective of this study was to develop an effective structured interventions based program comprising of three treatment conditions, Mindfulness, CBT and Academic Training. The efficacy of the treatment conditions was assessed individually, and in combination with each other, in treating disadvantaged children with conduct and academic problems.

The findings showed that Group 7, which consisted of Mindfulness, CBT, and Academic Training was the most effective group in treating the conduct and academic problems of disadvantaged children. The result proves that multi component interventions are more effective than single component treatments. The result is also in congruence with earlier studies which have shown the efficacy of multi-component treatments. Children with conduct and academic problems require measures to treat both behavior problems and academic disability. Most interventions have focused on single treatment components such as CBT, Parent training or Motivational interviewing.

Multi-component treatments have proved to be effective in dealing with the challenges faced by such children. Further research with larger samples and improved intervention designs are required which will be beneficial for the treatment of conduct problems and academic deficits of Indian children from disadvantaged backgrounds. The researcher proposes the application of a multi component strategy consisting of Mindfulness, CBT Strategies and Academic Training to overcome the psychological and academic difficulties of disadvantaged children.

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