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The Impact of Cognitive Disorders on the Learning Environment and Students Responsible Character

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ABSTRACT

Cognitive impairment, characterized by challenges in information processing and attention concentration, is increasingly concerning within the educational sphere, particularly considering its impact on students' responsible character. This research examines the effect of cognitive impairment on the learning environment and its role in shaping students' responsibility. A quantitative methodology was employed, involving 204 high school students in Yogyakarta, using a survey. Data analysis was conducted through Structural Equation Modeling (SEM) with Smart-PLS, ensuring the validity and reliability of the measurement model. The findings indicate that cognitive impairment significantly influences students' interactions with their learning environment, which in turn affects their development of responsible character. The results further confirm that the learning environment acts as a significant mediator between cognitive impairment and responsible character formation. This study highlights the need for educators and institutions to consider cognitive challenges when designing inclusive teaching strategies. Providing appropriate psycho-educational support and implementing individualized learning programs tailored to students' cognitive needs are crucial in fostering responsibility among learners.

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INTRODUCTION

Recent educational reforms are driven by the emotional and behavioral issues of pupils that impact the academic process. The existing educational system has challenges related to emotions and behaviors that affect the teaching and learning process. The cognitive process influences the good and negative mental states of each person (Syarnubi, et el, 2024). Positive thinking among students enhances their willingness to study, but negative emotions lead to heightened tension and worry, diminishing their capacity for academic achievement (Banks & Zionts, 2009). However, traditional educational frameworks often overlook the integration of emotional and cognitive aspects in student learning, leading to gaps in addressing psychological well-being in schools.

Education plays an important role in shaping students' psychological well-being. Fatigue in studying PAI can lead to emotional imbalance which ultimately affects students' academic performance. Education is an activity that seeks to gain knowledge that initially humans do not know to know (Syarnubi, 2023). It can be said that education is the most important thing in improving human abilities (Syarnubi, 2020).

Cognitive Behavioral Therapy (CBT) has emerged as a structured intervention to address these issues, particularly within the educational sector. Research suggests that CBT can effectively reduce emotional distress among students and improve their academic engagement by addressing

maladaptive thoughts and behaviors (Hedman-Lagerlöf et al., 2024). However, despite its potential benefits, its application in school settings remains underexplored, necessitating a deeper examination of how CBT can be integrated into existing educational policies and classroom practices.

The integration of cognition and emotions is a fundamental aspect of emotional behavioral therapy. Treatment mediators, namely avoidance behaviors associated with pain, catastrophe, and hypervigilance, play a crucial role in determining the effectiveness of intervention strategies (Syarnubi et al., 2021). CBT within schools extends beyond individual therapy sessions and can be embedded into classroom teaching to enhance students' coping mechanisms, self-regulation, and academic performance (Marco et al., 2024). Teachers, as primary facilitators of learning, play a key role in implementing CBT-informed strategies, such as structured problem-solving activities, mindfulness techniques, and guided self-reflection to foster a positive learning environment (Are et al., 2022).

Cognitive behavioral therapy is the most extensively researched psychological treatment. It often emphasizes addressing negative beliefs around pain and using fundamental coping methods to diminish functional impairment and enhance quality of life. Recent studies indicate that schools implementing CBT-based interventions report significant improvements in students' academic motivation, resilience, and classroom behavior (Sveinsdottir et al., 2012). This underscores the necessity of integrating CBT within teacher training programs, ensuring educators are equipped with psychological tools to support students' emotional and cognitive development.

Cognitive behavioral therapy promotes and shapes an individual's behavior and emotions. Addressing maladaptive cognition and behavior via systematic methods designed to recognize, confront, and then modify detrimental thought and behavioral patterns. Conduct and reorganization cognitive approaches are two prevalent methods used. The first approach is incremental exposure to anxiety-inducing scenarios and tasks. The second entails replacing unproductive beliefs with more constructive alternatives. Alliance is a crucial component of cognitive behavioral therapy (Sveinsdottir et al., 2012). To ensure the effective application of CBT in schools, policymakers must collaborate with educators, psychologists, and curriculum developers to establish structured intervention models that align with national education policies (Chan & Smith, 2024).

The relationship between cognitive–behavioral interventions and therapies on the one hand and school dropout outcomes and violent verbal or physical aggression on the other hand for secondary-age youth with disabilities was explored in a systematic review. A total of 16 studies intervening with 791 youth with behavioral disorders, attention-deficit/hyperactivity disorder, and learning disabilities were reviewed. The findings of this review strongly support the efficacy of the use of cognitive–behavioral interventions across educational environments, disability types, age groups, and gender in the reduction of dropout and correlates of dropout. Further research highlights that structured CBT programs in schools can lead to long-term positive outcomes, including reduced absenteeism, lower dropout rates, and improved student engagement (Cobb et al., 2006).

The cognitive and behavioral manifestations of this condition significantly impact the everyday lives of afflicted persons, often necessitating support for routine tasks (Verreault et al., 2024). The symptoms and burden of depression linked to behavioral dementia were steady, but they deteriorated in the control group receiving nutritional counseling (Verreault et al., 2024). (Marco et al., 2024) assert that teachers are experts engaged only in certain issues, such as modifying the approach to mental health challenges in children and adolescents. Given these insights, it is crucial for educational institutions to adopt a multi-tiered support system where CBT is not merely a reactive intervention but a proactive approach integrated within school curricula to promote emotional resilience and academic success (Are et al., 2022).

In conclusion, the integration of CBT into educational settings provides a promising avenue for addressing students' emotional and behavioral challenges while simultaneously enhancing their academic performance. Future research should focus on developing scalable and sustainable models for implementing CBT-based interventions across various educational levels. Ensuring collaboration

between educators, mental health professionals, and policymakers is key to fostering a supportive and psychologically enriched learning environment for students (Held & Mejeh, 2024).

Cognitive

Human cognition encompasses fundamental perception and intricate social activity, with cognitive functions executing essential tasks such as memory, decision-making, and perception. Metacognition is the capacity to correctly monitor one's own choices (Jiang et al., 2024). An individual's cognitive talents are shaped not just by their biological makeup but also by factors such as education and socioeconomic level that impact cognitive functioning (Rakesh et al., 2024). The environment initiates significant cognitive and neurological development. An increasing number of individuals recognize that cognitive stimulation is a crucial element of environmental experiences pertinent to the development of human brain function. This pertains to the accessibility of environmental factors that augment intellect. This encompasses diverse sensory experiences and social interactions that facilitate learning.

Cognitive stimulation may need autonomous investigation. Cognitive encompasses engagement in learning, availability to suitable materials for growth, diverse experiential learning, and opportunities. For engagement in an autonomous manner, and the intricate environment of languages. According to Dengel, (2020), there is an increase in memory, comprehension, and cognitive application. Because learners possess the capacity to regulate the "flow" or "trajectory" of the presented content. This may also motivate learners to engage actively in the educational process, leading to heightened curiosity about their capabilities and self-determination, along with an enhanced interest in learning. All educational processes and tasks are contingent upon the cognitive element.

Learning Environment

The environment encompasses all natural surrounds that impact or have significance for an individual(Al Haq, 2020). The learning environment encompasses a healthy atmosphere, life harmony, social order, safety, tranquility, and aesthetic appeal. As to Mairi et al., (2024), the learning environment encompasses the physical, social, and psychological contexts in which learning occurs. The learning environment significantly impacts students' goals and academic results. The learning environment is often connected with Frelin & Grannäs,(2022) assert that classrooms equipped with desks arranged in alignment with innovative and enlarged learning modifications facilitate and improve the teaching and learning process. This educational environment must be adaptable, inventive, and centered on activities. The learning outcomes of children are influenced not only by persons and educators but also by the attributes of their surroundings. An encouraging setting prompts inquiries about the accessibility of sufficient educational resources(Murendo et al., 2024).

Student Responsibility Character

The term "character" derives from the word "kharasein," which signifies the process of sketching a tool for making carvings or markings. a symbol that amalgamates several components that constitute an individual's character or disposition. Taufik, (2020) and As to the Term (Birhan et al., 2021), character denotes moral attributes like compassion, integrity, equity, accountability, and respect for oneself and others. Character often denotes individual variances in a person's personal objectives and ideals, grounded in insight, intuition, and self-awareness toward oneself and others (Vosloo & Van Staden, 2024). As per (Rolina, 2014) Characters who embody a feeling of grandeur in their conduct demonstrate accountability for their words and actions, namely the trait of responsibility, which is integral to the quality of independence. Accountable individuals will persist until the task is completed, adhere to regulations, motivate others to comply, and contemplate their actions prior to execution. The pedagogical approaches used by educators may be enhanced via project-based methodologies including many phases. Projects often include talks, fieldwork, studies, representations, and performances.

H_1 : Cognitive Impact of Disturbance on the Environment Study This previously shown a relationship between cognitive dysfunction and environmental studies.

Study conducted by Sung et al., (2021) Cognitive influences on engagement, social interaction, and abilities in classroom learning may lead to poor academic achievement if a kid has inadequate drive to thrive in school.

H_2 : Cognitive Disturbance Affects Character Insufficiently Addresses Student Study This previously shown relationship between cognitive impairment and character is hardly addressed.

Student engagement encompasses emotional, behavioral, and cognitive dimensions. Individuals need the capacity to govern their lives independently, situating their existence within a broader societal framework, and must behave in a "responsible" manner. It is essential to underscore that students must not only provide insufficient responses but rather integrate their answers comprehensively. Study conducted by Mameli et al., (2019).

METHODS

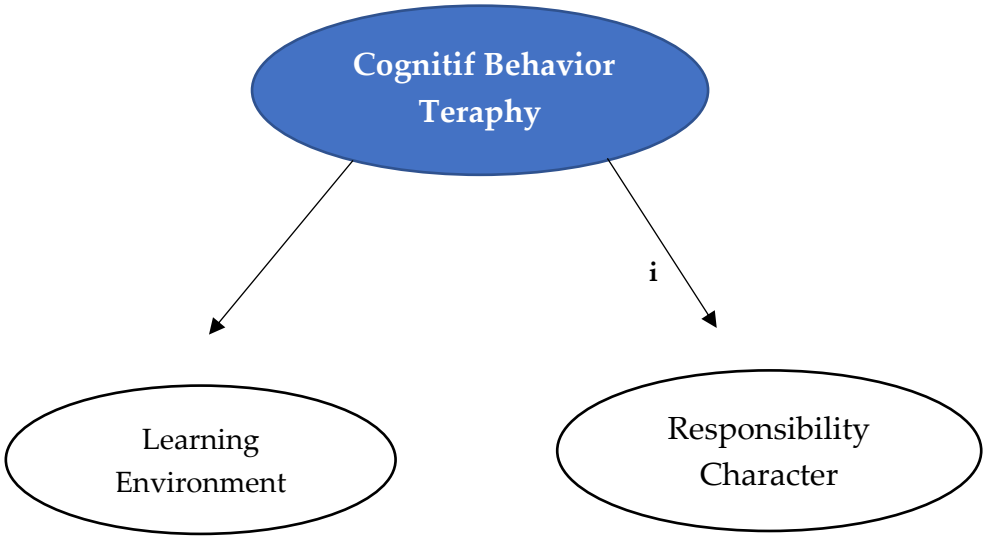

Figure 1. Conceptual Model

Population sample study This research included secondary school pupils. Participants for this research were selected via the random sampling approach. The random sampling method was chosen to ensure an equal probability of selection, enhancing the representativeness of the study population. The sampling strategy was designed to capture diverse student characteristics and provide a comprehensive understanding of the research variables. This research included two schools in Yogyakarta. A total of 204 participants completed the sample in this investigation. The quantity of samples from each educational institution in Yogyakarta is shown in Table 1.

Table 1. Population and sample data

NO	School	Number of Samples
1.	MA Jamilurahman	73
2.	MAN 2 Bantul	131
	Total	204

Table 2. Characteristics Respondents

	Attributes	Categories	N	%

Gender	Male	89	43.63%
	Female	115	56.37%
Study Program	Natural Sciences	45	22.06%
	Social Sciences	86	42.16%
	Religion	73	35.78%

This study employs a conventional questionnaire as a data gathering instrument, whereby participants provide responses. This study used a Likert scale to assess the research questionnaire. The questionnaire items were carefully developed based on prior validated instruments in educational and psychological research, ensuring content validity and construct reliability (Kusmaryono et al., 2022). Utilize a Likert scale to ascertain respondents' levels of agreement or disagreement with each statement in the questionnaire.

Table 3. Likert Scale

Alternative Answers	Scoring	
	Positive	Negative
Strongly Disagree	5	1
Disapproved	4	2
Doubtful	3	3
Agree	2	4
Strongly Agree	1	5

The Likert scale has been extensively created and used to quantify an individual's opinion, perception, or attitude towards a situation. Cronbach's alpha was employed to assess the reliability of the instrument, with all indicator items achieving a value above 0.5, indicating validity. Additionally, variables with reliability scores exceeding 0.8 were considered highly dependable (Kusmaryono et al., 2022).

Examine Quantitative data analysis is crucial in the data analysis process as it provides trustworthy and precise findings. Researchers use SmartPLS software to address ethical concerns associated with data interpretation, management, and dissemination. SmartPLS was selected due to its robustness in handling small to medium-sized samples, its ability to estimate complex models, and its suitability for exploratory research Ghouri, (2023). Quantitative data analysis underscores the need for researchers to focus on data collection, storage, and analysis while using SmartPLS. The Partial Least Squares Structural Equation Modeling (PLS-SEM) statistical approach is extensively used across several fields, enabling researchers to examine intricate correlations and derive significant results.

PLS-SEM, or Partial Least Squares Structural Equation Modeling, is a multivariate data analysis approach renowned for path modeling. PLS-SEM is primarily used for testing models including variables. The findings of SmartPLS are presented in structured tables and several instructive graphics. Factor loading values for all indicators were examined, and those exceeding 0.7 were considered to have strong convergent validity. Items with a loading factor above 0.5 were deemed acceptable for inclusion in the final analysis Memon et al., (2021) (Lenny & Kridanto, 2019).

FINDINGS AND DISCUSSION

A. Validity Test

Convergent and discriminant validity metrics may be used to assess the study's validity. The loading factor in the measurement model serves as an indicator for assessing the validity of the instrument. Indicator items fail to satisfy the requisite validity test requirements and must be excluded from the measurement model if the factor value is below 0.7.

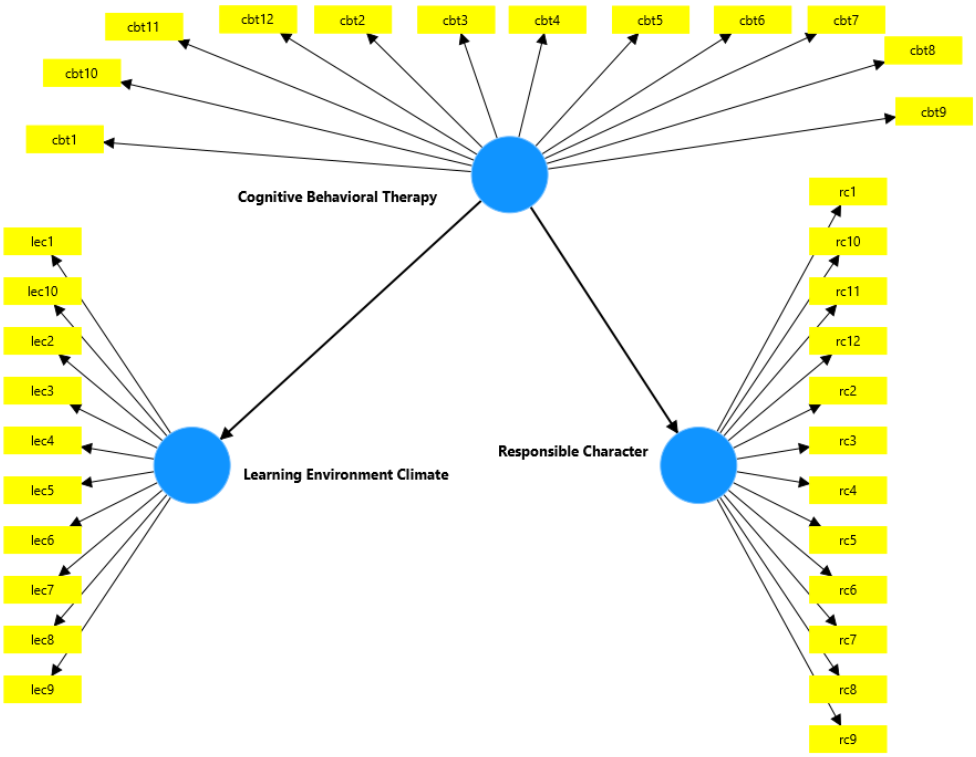

Figure 2. Outer Model Output Display

Figure 2 Figure 2 demonstrates that all factor loading values for each indicator exceed a validity threshold of 0.7. However, it is crucial to further verify convergent validity through an in-depth analysis of the AVE (Average Extracted Variance) values. High AVE values indicate that the constructs have strong explanatory power, reducing measurement errors and increasing overall model reliability.

Table 4. Factor Loading (FL) and Average Variance Extracted (AVE)

Construction	Items	FL	AVE
Cognitive Behavior Therapy	CBT1	0.865	0.804
	CBT2	0.923	
	CBT3	0.952	
	CBT4	0.966	
	CBT5	0.967	
	CBT6	0.743	
	CBT7	0.747	
	CBT8	0.929	
	CBT9	0.959	
	CBT10	0.748	
	CBT11	0.965	
	CBT12	0.944	
Learning environment climate	LEC1	0.980	0.926
	LEC2	0.956	
	LEC3	0.978	
	LEC4	0.944	
	LEC5	0.954	
	LEC6	0.984	
	LEC7	0.957	
	LEC8	0.940	
	LEC9	0.952	
	LEC10	0.975	

Responsible character	RC1	0.967	0.808
	RC2	0.728	
	RC3	0.745	
	RC4	0.959	
	RC5	0.945	
	RC6	0.713	
	RC7	0.970	
	RC8	0.899	
	RC9	0.945	
	RC10	0.939	
	RC11	0.973	
	RC12	0.943	

AVE serves as an indicator for evaluating convergent validity. It denotes the proportion of variation accounted for by a structure compared to the variance attributable to measurement error. Convergent validity measures the degree of correlation among different indicators of the same concept that are mutually consistent. Convergent validity necessitates the computation of item factor loadings, composite reliability, and average variance extracted. AVE and CR values span from 0 to 1, with larger values signifying greater dependability. Convergent validity is shown when the Average Variance Extracted (AVE) is equal to or above 0.5 (Shrestha, 2021).The Average Variance Extracted (AVE) evaluation derived from the analysis of the instrument testing and factors associated with cognitive behavioral treatment, learning environment climate, and character responsibility is shown in the table. The AVE value above the threshold limit of 0.5 indicates compliance with the requirement.

B. Discriminant Validity

The discriminant validity assessment was performed by contrasting the square root of the Average Extracted Variance (AVE) with the correlations among the constructs of each concept. To strengthen the interpretation, it is important to analyze whether the square root of AVE for each construct is higher than its correlation with other constructs, ensuring distinctiveness among variables.

Table. 5 Discriminant Validity

	Cognitive Behavior Therapy	Learning environment climate	Responsible character
Cognitive Behavior Therapy	0.897		
Learning environment climate	0.975	0.962	
Responsible character	0.995	0.976	0.899

C. Reliability Test

Table 6. Cronbach's Alpha and Composite Reliability

	Cronbach's Alpha	Composite Reliability
Cognitive Behavior Therapy	0.977	0.983
Learning environment climate	0.991	0.991
Responsible character	0.977	0.982

The Cronbach's alpha reliability coefficient is the most often used measure in research. This research used a Cronbach's alpha SEM above 0.7 as an adequate reliability criterion for the scale (Cheung et al., 2024). Table 5 presents the reliability coefficients of Cronbach's Alpha and Composite, both above 0.7, indicating that the construct or measurement variable used in the research is deemed trustworthy.

D. Structural Model Test

Table 7. R-Square Value

Construction	R-Square	R-Square Adjusted
Learning environment climate	0.951	0.951
Responsible character	0.991	0.991

Based on table the show that R value of variable climate environment Study is 0.951. This shows that 95,1% of the variability in environmental climate. Variables Character not quite enough answer own The R value is 0.991, which means that 99,1% of the variability in responsibility character can be explained by the cognitive impairment variable.

E. Hypothesis Test

Table 8. Hypothesis Testing Results

	Original Sample (β)	T-Statistics	P-Values
Cognitive disorders → learning environment	0.975	306,956	0,000
Cognitive disorders → Student responsibility character	0.995	1132,629	0,000

Hypothesis 1 posits that cognitive impairment influences the atmosphere of the learning environment. The results of hypothesis testing conducted using the SmartPLS 4 application indicate that the methodology is effective for the learning environment's climate. Table 7 illustrates that the sample has a positive correlation with a coefficient of 0.975. The t-statistic is 306.956. The p-value of 0.000 provides robust evidence in favor of hypothesis 1. Hypothesis 2 posits that cognitive impairment affects pupils' sense of responsibility. The test results obtained using SmartPLS 4 reveal a sample value of 0.995, indicating a good impact. The t-statistic value is 1132.629. A p-value of 0.000 is statistically significant, since it is less than the 0.05 significance threshold. Farewell Consequently, the results This demonstrates that Hypothesis 2 of the technology-based learning paradigm positively impacts well-being. Due to the p-value being below 0.05. According to the study results examined by scholars, A total of 204 respondents completed the sample accurately. The sample had 204 respondents who were students from MAN and MA. SmartPLS is used to process the provided data using the fundamental linear regression test procedure. This investigation aims to ascertain the influence of cognitive illnesses on the learning environment's climate and its associated responsibilities.

The research hypothesis indicates a favorable and corroborative effect, as per the study's findings. The coefficients pertaining to the learning environment and sorts of responsibilities are shown by the results of the fundamental linear regression analysis. The coefficient of the learning environment (Y1) is 0.975. The t-statistic value is 306.956. The p-value of 0.000, being less than 0.05, further substantiates the relevance of the results. Moreover, the wellbeing variable (Y2) has a value of 0.995, suggesting a favorable influence of cognitive impairment. The t-statistic is 1132.629. The p-value of 0.000, which is below the established threshold of 0.05, verifies the statistical significance of the link. Cognitive disability (X) affects the learning environment (Y1) and the nature of student responsibility (Y2). Lin et al. (2022) did a research study on the impact of learners' cognitive involvement in online learning settings. Enhancing learning engagement to improve lifetime learning capabilities, foster substantial advancement in higher-order thinking skills, and promote commendable academic achievement.

High-level learning engagement may holistically drive learners to achieve self-regulation, self-management, and self-promotion, hence enhancing self-efficacy. A research study by Mason et al.,(2022) examined the cognitive effects on individuals' emotions, both positive and negative, and their perceptions of environmental changes. The findings indicated that students exhibited superior mathematical calculation skills in two tasks after a school session compared to a comparable lesson conducted in the classroom. Children who had emotional difficulties. Examine This analysis examines the impact of cognitive disturbances on

the learning environment and character, which does not sufficiently address students' needs. The study findings are based on data obtained from 204 respondents from high school or similar institutions in the Special Region of Yogyakarta. The data analysis conducted using Smart PLS demonstrates substantial findings, indicating that the research may be deemed credible. Thus, findings of the outcomes The impact of cognitive disturbance on the environment and character is insufficiently addressed in this condition of life.

The findings of the hypothesis test indicate a significant impact of cognitive disturbance on the environment and character, with student responses yielding values of 0.975 and 0.995, and T-Statistic values of 306.956 and 1132.629, respectively. The P-Value value is 0.000, indicating that the findings are statistically significant, since they are less than 0.05. Research done by Iverson et al., (2022) A lot of teenagers face cognitive obstacles. Study effectively to excel academically.

Mental health issues lead to a deterioration in cognitive, psychosocial, and overall mental well-being. Insufficient sleep adversely affects the physical, emotional, and cognitive well-being of school pupils. The environment may significantly impact mental health and academic performance (Mason et al., 2022). Research by Tarigan et al. indicates that exercising favorably influences cognitive function and may prevent cognitive decline. The research sought to examine the correlation between cognitive function and physical exercise among junior high school students in Bandung. This study employs a quantitative research methodology with a correlational analytical strategy. The tool used in this research is a questionnaire. The used sampling approach is random sampling, including 1,870 respondents. The questionnaire used in this research has a closed format, whereby the responses are predetermined, requiring respondents to choose from the offered options. The research revealed that 50% of the respondents with reduced activity had diminished cognitive performance (71.8%). Nearly half of the respondents engaged in physical activity associated with favorable cognitive function (21.6%), whereas a minor segment of participants exhibited a significant number of cognitive functions related to physical exercise (8.6%). There exists a correlation between physical exercise and cognitive function in kids.

The findings of this study are anticipated to inform further research by exploring other variables associated with cognitive performance and physical activity, including gender, socioeconomic status, and familial influences. Student Activities and Cognitive Functions Cognitive ability often declines with advancing age. Furthermore, some risk factors might adversely affect cognitive decline, such as inadequate educational attainment. Nearly all domains, including social interaction difficulties, academic learning processes, and practical tasks relating to daily living, are often linked to cognitive function disturbances (Elshani et al., 2020). Research by Grabinger et al., (2008) examines the regulation of time, cognition, and behavior.

Cognitive Disturbance This affects the learning process, including attention, memory, language, executive function, problem-solving, and social connections. Consequently, it is essential to comprehend the circumstances that elevate the likelihood of an individual experiencing cognitive deficiencies and mental illnesses in the future, given the detrimental effects associated with these conditions. Furthermore, identifying components that may be modified in relation to disturbances and vulnerabilities is crucial for aiding therapeutic development (Ellwood et al., 2022). Study performed by Dada et al., (2023) Environmental learning is crucial for students in the context of process and product quality education. Students have the opportunity to work alone or collaboratively with their peers and allocate time to develop their thoughts prior to class discussions. Cognitive pedagogy to enhance self-study capabilities. Simultaneously, the instructor assists students in comprehending the significance of effective learning by giving them the autonomy to express their opinions in diverse ways, at different times, and with other individuals. Cognitive activation enables students to better comprehend concepts by using suitable teaching tactics, such as assigning challenging tasks or providing opportunities for discussion with peers in a learning setting. Student engagement,

namely individual participation in academic activities, may be seen as a consequence of both personal and collective influences.

Student engagement is fostered in a learning environment characterized by supportive professors and classmates, as well as difficult objectives and authentic assignments (Cheung et al., 2024) (Wang et al., 2022). According to(Fishman, 2014) Fishman(2014), individuals possess a heightened feeling of responsibility about the tasks assigned to them in school, which significantly influences their outcomes. Response to the sense of duty This may impact the motivation of pupils in academic environments independently. discuss the distinction This approach is not sufficiently detailed; where do they acknowledge the distinction between inadequacy and insufficiency? Internal response received, with accountability assigned outside, specifically about the capacity for responsible answers. The writers use the words "feeling responsible answer" and "is considered responsible answer" for the second draft. They demonstrate that individuals who perceive a sense of responsibility respond to their intrinsic drive and characterize the "flavor" of inadequacy in their responses. This refers to "a sense of duty and intrinsic dedication to achieve or avert the designated outcome or what ought to be." It did not occur.

CONCLUSION

The research findings confirm that cognitive disturbances in children significantly impact their learning environment and character development. These disturbances affect not only academic achievement but also students' ability to interact socially and adapt to their surroundings. This study reinforces previous research indicating that environmental factors, social interactions, and emotional stability play a crucial role in shaping students' educational experiences.

Moreover, the results highlight the need for educational institutions to implement targeted interventions, such as Cognitive Behavioral Therapy (CBT) programs, to mitigate the negative effects of cognitive and emotional disturbances. Teachers should be equipped with adaptive teaching strategies that foster student growth and resilience within the broader educational framework.

From a policy perspective, these findings suggest that integrating psychological support services within school curricula can enhance learning outcomes and character development. Future research should explore long-term interventions and assess their effectiveness across different student demographics to provide more comprehensive educational solutions.

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