



EXPLORING TEACHERS' UNDERSTANDING OF TEACHING LEARNERS WITH ADHD IN SELECTED INCLUSIVE PRIMARY SCHOOLS OF LUSAKA, ZAMBIA

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Abstract:

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, hyperactivity, and impulsivity, which causes functional impairment. The study explored teachers' understanding of teaching learners with ADHD in Zambian inclusive primary schools. A descriptive design supported by qualitative approaches was used. The sample size involved 18 teachers of learners with ADHD, 9 learners with ADHD, 3 administrators, and 4 officials from the Ministry of Education. Homogeneous purposive sampling was used to select participants. Data was collected using in-depth interviews, focus group discussions, and observation checklists. Qualitative data were analyzed using thematic and content analysis. The study revealed mixed views on teachers' understanding of teaching learners with ADHD. Some teachers indicated that they adequately understood learners with ADHD due to sufficient knowledge to deal with learners, adequate training to deal with learners able to apply appropriate teaching methods, strategies, and techniques for learners, adequate exposure to handling learners, self-motivation to teach learners and ability to control the behaviours of the learners with ADHD. On the other hand, teacher participants indicated that they had limited understanding due to inadequate training in Special Education, teachers' inability to handle learners, insufficient use of appropriate teaching methods, strategies, and techniques for learners with ADHD, and their inability to control learners with ADHD. To address the challenges faced by teachers while teaching learners with ADHD, teachers employed strategies such as catch-up strategies, social and emotional support strategies, professional development strategies, and punishment strategies. The study recommends, upgrading teachers understanding and strategies to use in teaching

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learners with ADHD through teacher training; and capacity building in the form of CPD in schools.

Keywords: attention deficit hyperactivity disorder, inclusive education, teacher understanding, support strategies, capacity building

1. Introduction

The purpose of this study was to explore the teachers' understanding of teaching learners with attention deficit hyperactivity disorder in Zambian Primary Inclusive Schools so that interventions are put in place to address the situation that may arise from possible negative experiences. Learners with Attention Deficit Hyperactivity Disorder (ADHD) are among the least unidentified group of learners in Zambian schools. Konstantin et al. (2021) state that ADHD is a neurodevelopmental disorder characterized by inattention, hyperactivity, and impulsivity causing functional impairment. ADHD is also said to be a developmental disorder that consists of a persistent pattern of inattention or hyperactive and impulsive behavior that is often present at the age of three (Sadock and Sadock, 2003). Additionally, Hamilton et al. (2016) defined ADHD as a disorder characterized by inattentiveness, hyperactivity, and impulsivity. Inattention entails executive deficits that involve off-task behaviours and poor organization, whereas hyperactivity is demonstrated by fidgeting, excessive talking, and inability to regulate stimuli (Hamilton & Astramovic, 2016). Children and adolescents with ADHD frequently have comorbid psychiatric disorders (Kleynhans, 2005). These can be oppositional defiant disorders, conduct disorders, depression, anxiety disorder and developmental disorders, speech and language delay, and learning disabilities (Kleynhans, 2005).

The Diagnostic and Statistical Manual of Mental (DSM-5 TR) (APA, 2022) classifies ADHD as a pattern of persistent inattention and hyperactive impulsivity that can disrupt a person's level of functioning or development. The DSM-5-TR (APA, 2022) differentiates two groups of symptoms, the first identified group includes symptoms of inattention, which refers to the inability of the child to give close attention to details that results in careless mistakes made in school work and other activities. Books or school assignments are often lost and these children are often forgetful in daily activities such as brushing their teeth. The second symptom includes hyperactivity and impulsivity. Hyperactivity refers to behavior such as fidgeting with hands or feet, difficulty in sitting still for extended periods of time, and talking excessively. Impulsivity includes behavior such as blurting out answers before questions have been completed. From these characteristics and symptoms of ADHD, managing a classroom with both children with ADHD and children without ADHD may be very involving for the class teacher.

Children diagnosed with ADHD often present with secondary symptoms that refer to behaviours and difficulties that accompany the disorder but are not sufficient or necessary for the diagnosis of ADHD (Hersen & Ammerman, 2000). They face many challenges in various important developmental areas (Hinshaw, 1994). They

often experience academic underachievement and frequently display unwanted behaviours such as defiance, aggression, and antisocial behaviour. This usually causes rejection from peers (Hinshaw, 1994; Holz & Lessing, 2002). Secondary features impede optimal development in children with ADHD as it greatly affects their relationships, behavior, and self-esteem (Hinshaw, 1994). It has been speculated that some children with ADHD suffered subtle damage to the central nervous system (CNS) and brain development during foetal development: *"the hypothesized brain damage may potentially be associated with circulatory, toxic, metabolic, mechanical, to the brain during early infection, inflammation, and trauma"* (Sadock & Sadock, 2003). As ADHD is believed to involve specific neurological damage, research has shown that areas of the right brain hemisphere may be malfunctioning and that frontal lobe development and performance may be anomalous (Riccio, Hynd, Cohen, & Gonzalez, 1993). However, most children with CNS damage and/or neurological disorders caused by brain injuries display no symptoms of attention deficit or hyperactivity, and therefore neurological damage per se as causative is strongly contested (Sadock & Sadock, 2003). Suggested contributory factors to the development of ADHD include prenatal toxic exposures, prematurity, and prenatal damage to the foetal nervous system (Sadock & Sadock, 2003), as well as low birth weight and diseases in formative years (Hinshaw, 1994). It is estimated that there is at least one learner with ADHD in every regular education classroom (American Psychiatric Association, 2000; Barkley, 2005; Wiener, et al., 2009). Teachers usually have learners with characteristics of ADHD, such as inattentiveness or hyperactivity, but do not know about ADHD such teachers think such children are just indisciplined. Regardless of whether they have been formally identified with ADHD or not, if children display inattention or hyperactivity they are likely to be at high risk for poor academic achievement and dropping out of school (Breslau et al., 2009).

Globally, according to the Center for Disease Control and Prevention (CDCP) (2020), the prevalence of ADHD worldwide was 7.2% of both children and adults who received a diagnosis of ADHD. It accounted for about 5% of children of school-going age worldwide (APA, 2013). Approximately, about 11% of children between the ages of 4 to 7 are diagnosed with ADHD. According to Joshi and Angolkar (2018), ADHD is more common in boys than in girls. ADHD) is one neurological condition that affects 5-11% of students in the United States (American Psychiatric Association, 2013 and CDC, 2014). The prevalence of learners with ADHD in general education classrooms is evident in America's public schools. Murphy (2015) likewise recommended assessing teachers' practices and knowledge in working with students with ADHD in inclusive classrooms. Through these studies, teachers may better comprehend valuable intervention strategies and difficulties encountered, thus supporting social change at the district level.

A study by Omunda (2021) in the USA revealed that learners with ADHD receive the majority of their everyday academic lessons in general education settings together with their non-disabled counterparts. Murphy (2015) also indicated that students with ADHD could be productive in general education classrooms if educators recognize and employ efficient teaching and behavioral management approaches. Nonetheless, general

education classroom teachers from many parts of the world have voiced various concerns about teaching students with ADHD, citing issues such as inadequate training (Mubita & Kalimaposo, 2016) and lack of administrative support (Guerra et al., 2017). Therefore, current research is necessary to learn about teachers' understanding of teaching this population (Schuck et al., 2016).

In Africa, the prevalence of ADHD ranges from 5.4% to 8.7%. This gives a probability of a classroom having at least some learners who exhibit ADHD (Joshi and Angolkar, 2018). Ayano et al. (2020) noted that the prevalence of ADHD was 7.45% in both children and adolescents. Studies have also been conducted in Africa on learners with ADHD. For example, in South Africa, Jaye et al. (2020) conducted a study on understanding and perceptions of ADHD amongst Foundation Phase teachers at an independent school in Johannesburg. The study revealed that teachers had a limited knowledge with regard to symptoms of ADHD, they had a fair understanding of the treatment of ADHD and their knowledge about the associated features of ADHD was limited. Similarly, in Zambia, teachers appear to have little understanding of ADHD. In Zambia, not much has been done on ADHD.

Tembo (2014) recorded a prevalence of 9.1 of children with symptoms of ADHD. According to Sikabule (2019), findings showed an increase of 14% in the total population of children with the symptoms of ADHD in selected primary schools of Pemba District in Southern province. Sikabule (2019) noted that within the education system, ADHD was described under the Special Education and the Disability Need and Disability (SEND) category of Social, Emotional and Mental Health Department for Education (2015). This brings ADHD into the realm of educators who are often involved in the teaching and learning of children with Special Education Needs (SENs). Furthermore, Zambia has made notable strides with regard to special education legislation beginning with the Ministry of Education assuming responsibility for educating students with disabilities (Chitiyo et al., 2018).

Inclusion policies require that learners with mild ADHD be taught in mainstream schools. For inclusion to be effective, the school personnel who are most responsible for its success must be responsive to the demands of educating learners by practicing values, beliefs, pedagogical applications, as well as assessment practices that support the needs of diverse learners in their classrooms (Dwarika and Braude, 2021). Such support necessitates a look at how teachers view learners with ADHD and how such views articulate into the practice of support (Dwarika and Braude, 2021).

Policies have been formulated to care for persons with disabilities, including those with ADHD in Zambia. These include the Education Reform Document (MoE, 1977), Focus on Learning (MoE, 1992), Educating Our Future (MoE, 1996) and the 2012 Education Act. The 1977 Education Reforms Document outlined documentation for Special Education and specified the need for integrating and adapting the general education curriculum to meet the identified and specific needs of students. Furthermore, the reform document outlined the need for adequate funding in order for Special Education to be more meaningful and beneficial. Focus on Learning (MoE, 1992),

emanated from the declaration of education for all children at the world conference of Education for All (1990). The conference stressed the importance of access to educational opportunities. Thus, in the 1992 policy document, the Zambian government reiterated that *"every person- child, youth and adult shall be able to benefit from educational opportunities designed to meet their basic learning needs"* (MoE, 1992; Article 1). Notably, the 1992 policy stressed the mobilization of resources for the education for all, including children with disabilities including those with ADHD.

The major policy on education, *Educating Our Future* (MoE, 1996), focused on formal education. Recurring themes in the document included flexibility, responsiveness to education needs, and enhancement of quality of education for all children. In relation to children with disabilities, the policy emphasized equality of educational opportunity provision of good quality education, and improvement and strengthening of the supervision and management of special education across the country (MoE, 1996).

The Zambian government and the Ministry of Education's stance on inclusion has been influenced by the Salamanca Statement and Framework (UNESCO, 1994) to which Zambia ascribes. As a result, the Zambian government has adopted a policy (i.e. *Educating Our Future*) that stipulates equal opportunities, non-discrimination, social justice, protection of basic human rights, and participation of students with disabilities in the mainstream activities of school and society. The Ministry of Education has increasingly emphasized the inclusion of students with disabilities in the education system.

The 2012 Persons with Disabilities Act is the main framework governing disability in Zambia since the National Constitution Amendment Act No. 2 does not recognize the right to education. The 2012 Persons with Disability Act asserts that:

"A person responsible for admission into an education institution shall not refuse to give admission to a person with a disability on account of the disability, unless the person with a disability has been assessed by the agency and in consultation with the ministry responsible for health." (2012 Disability Act)

In addition, this law states that the minister responsible for education shall ensure that persons with disabilities are not excluded from the general education system based on disability and should access inclusive education on an equal basis education.

Inclusive education is a *"continuous process of increasing access, participation, and achievement for all learners in the general education setting with emphasis on those at risk of marginalization and exclusion"* (Simui, et al., 2009). Children with mild ADHD must also be integrated into the mainstream despite the challenges that they encounter due to their condition.

Muzata et al. (2021) observed that while physical accessibility may be provided through the placement of children with disabilities in inclusive classrooms, in reality, children with disabilities do not derive practical benefits from their inclusion. This is

because it was not known if teachers knew about ADHD, skills, and how to manage their behaviors both in the classroom and outside.

Tyagi (2016) pointed out that some of the roles of the teacher in the classroom are to identify and accept the learners with disabilities, involve them in almost all the activities of the class, and make suitable adaptations in the curriculum translation so that the children with disabilities learn according to their ability. Learners spend most of their time in the classroom and other settings that is where they are expected to follow rules, act in socially proper ways, participate in academic activities, and refrain from interrupting and learning process and development of activities of others (Kleynhans, 2005). During these contact times, teachers must teach learners skills on how to behave in a manner that meets organizational and social expectations (Barkley, Murphy, and Fisher, 2008). However, little is known about the teachers' understanding of teaching learners with ADHD in primary schools. Arising from this policy background, the study will explore the teachers' understanding of teaching learners with ADHD in inclusive primary schools.

2. Statement of the Problem

The 2012 Persons with Disabilities Act is one of the main frameworks governing disability in Zambia. According to this Act, all learners regardless of their disability would have an equal chance to access quality education (MoGE, 2016). Research studies conducted globally and in Zambia show that learners with ADHD often exhibit poor educational outcomes, distracting behaviors, and deficits in interpersonal skills compared to nondisabled peers in general education classrooms (DuPaul & Jimerson, 2014; Hoff & Ervin, 2013; Rogers et al., 2015; Ntengwe, 2018 and Sikabule, 2019). Learners with ADHD exhibit challenging behaviors that affect their academic performance and other non-disabled counterparts. However, there is still a knowledge gap regarding teachers' understanding of the teaching of learners with ADHD in Zambian primary schools. Previous studies were too generalized in the context of disabilities. The studies did not explore, for example, the teachers' understanding of the teaching of learners with ADHD in inclusive primary schools. The existence of these challenges and knowledge gaps motivated the present study. The consequences of not addressing these challenges are that learners risk dropping out of school, repeating grades, and engaging in criminal acts (Hoff & Ervin, 2013).

2.1 Objectives of the Study

- 1) To explore the teachers' understanding of teaching learners with ADHD in inclusive primary schools.
- 2) To identify the challenges faced by teachers teaching learners with ADHD in inclusive primary schools.
- 3) To establish the strategies put in place to address the challenges faced by teachers teaching learners with ADHD in inclusive primary schools.

3. Theoretical Framework

Albert Bandura's self-efficacy theory (Bandura, 1997) will guide this study. According to Bandura (1997), self-efficacy involves the way an individual perceives their ability to have control over their environment and their ability to carry out effort to manage and deal with environmental circumstances. The way the teacher may relate with learners with ADHD may influence how they attempt to exercise control through their ability to assist the learners experiencing ADHD or exhibiting behaviors associated with ADHD (Niekerk, 2020). Therefore, the perceptions of ADHD may influence how a teacher can exert control over the classroom environment specifically over the learners with ADHD and in turn their self-efficacy may influence how they interact with learners who experience ADHD issues in schools (Bandura, 1997).

Additionally, self-efficacy may determine whether an individual perseveres through these circumstances that they face, regardless of the restrictions they may experience (Bandura, 1997), which would be the disobedient behavior of a child with ADHD, and how teachers utilize the knowledge to change the circumstances embedded within the environment in which they find themselves be (Niekerk, 2020).

The self-efficacy theory will inform this study as it highlights teachers' self-efficacy by referring to the importance of teachers' experiences in their self-efficacy and how this impacts the classroom environment (Bandura, 1997). Applying this theory to the study, it will provide insight into the self-efficacy that teachers experience in dealing with ADHD (Ballossini, 2019), faced by the learners within the classroom, and in turn how their action or perceptions of ADHD influence their level of self-efficacy to assist these learners.

High self-efficacy may lead an individual to believe in their ability to gain control over their environment and in return produce change, whereas a low sense of self-efficacy may result in an individual avoiding their ability to produce a change or persevere through the change which they may experience (Bandura, 1970). For example, a teacher may perceive themselves as capable of supporting a learner with ADHD in school if they have a high sense of self-efficacy. If a teacher has a low sense of self-efficacy, they may perceive a learner as a challenge and therefore fail to manage and support the learner within the classroom sufficiently which additionally influences how they perceive these learners in the classroom setting.

In this way, this theory fits well for this study as it involves the way teachers perceive their ability to have control over learners with ADHD and their ability to carry out effort to manage and deal with their learning experiences.

4. Literature Review

The review of the literature was based on the set objectives. These were teachers understanding of teaching learners with ADHD, challenges faced by teachers teaching

learners with ADHD in inclusive schools, and the strategies to address the challenges faced by teachers teaching learners with ADHD.

4.1 Teachers Understanding of Teaching Learners with ADHD

Globally, Guerra et al. (2017) conducted a study on examining teachers' knowledge, misconceptions, and concerns about learners with ADHD in United Kingdom. The study found that the majority of teachers did not have coursework related to learners with ADHD in their preparation programme due to limited understanding of such learners in their classrooms. Teachers indicated inadequate administrative support and access to professional development regarding learners with ADHD. Guerra et al. (2017) stated that given the rise in the number of learners with ADHD, teachers must receive specific and advanced training related to ADHD signs and symptoms. However, the study by Guerra et al. (2017) focused more on teachers' knowledge, misconceptions, and concerns about learners with ADHD, not necessarily on the teachers' understanding of teaching learners with ADHD in inclusive primary schools.

Shroff et al. (2017) conducted another study on misunderstanding about ADHD in India. It was found that teacher participants assumed that ADHD could be cured with dietary management. The teachers' feedback also revealed an inadequate understanding of knowledge concerning stimulating medication for learners with ADHD. Further, a study by Dwarika et al. (2021) provided a description of teachers' understanding of ADHD and their experiences of supporting learners with ADHD. The findings revealed that teachers' understanding of ADHD appeared limited. The stigma of ADHD created a reluctance from caregivers toward pharmacological treatment. The study by Shroff et al. (2017) however, leaned more on misunderstanding dietary management not on teachers' understanding of teaching learners with ADHD in inclusive primary schools.

In South Africa, Jaye et al. (2020) conducted a study on understanding and perceptions of ADHD amongst Foundation Phase teachers at an independent school in Johannesburg. The study revealed that teachers had limited knowledge about the symptoms of ADHD, they had a fair understanding of the treatment of ADHD and their knowledge about the associated features of ADHD was limited. Many misconceptions exist about the disorder, mainly those surrounding the causes and treatment available (Akahtani, 2013). The different types of ADHD were poorly understood (Kos, 2008). Furthermore, he said exposure to children with ADHD and a higher number of ADHD workshops attended and ADHD articles reads were beneficial to the teachers' overall knowledge about ADHD. Years of experience and the age of the teacher were not associated with a greater knowledge about ADHD. These findings agree with a study by Ntuli (2014) on the understanding of ADHD in Ekurhuleni district in Johannesburg that revealed that both mainstream and remedial schools' negative attitudes about ADHD affected these learners and educators' knowledge was limited. This situation may be similar to teachers' understanding of ADHD in a classroom in Zambia, hence the need for the study.

Sikabule (2019) study on assessing the knowledge of teachers about ADHD Disorder and its prevalence rate in primary schools in Pemba District revealed that most of the teachers were not knowledgeable about the existence of ADHD condition. Apart from that, teachers who claimed to have some knowledge about ADHD had no experience in teaching learners with ADHD, as they were unable to identify learners with this condition. Teachers faced a number of challenges in teaching learners with ADHD. Training of teachers is essential in the diagnosis and treatment of ADHD. The findings obtained in this study are in line with the study done by Saudi who found that few teachers attended courses related to ADHD and this training was not significant with teachers' knowledge regarding different aspects of the disorder that reflect inadequate training. Training of teachers is very essential in the diagnosis and treatment of ADHD. Nevertheless, it is not known if the situation was the same in Lusaka where this study will be conducted.

4.2 Challenges Faced by Teachers Teaching Learners with ADHD in Inclusive Schools

Makondo et al. (2023) conducted a study on challenges faced by primary school teachers in including learners with ADHD in the mainstream classrooms in the Hhohho Region Eswatini. The findings revealed that teachers experience a lot of challenges which include a lack of training in inclusive education, and a lack of motivation to include learners with ADHD which is aggravated by the large numbers in the classroom. Muzata (2021) noted that teachers' skills in handling learners with ADHD and other learners with other disabilities, more so in inclusive classroom were equally lacking. The majority of the challenges posed in this regard are related to their Hyperactivity and impulsivity. Also, support from the Ministry of Education and Training was not enough. The majority of the challenges posed in this regard are related to their Hyperactivity and Impulsivity (Kanyagui, 2023).

In Sweden, Kanyangu (2023) conducted a study on challenges faced by teachers working with children with ADHD in inclusion schools. The findings of the study revealed three types of challenges that affect effective classroom instruction: those that were caused by learners with ADHD, administrative challenges, and finally family-related challenges. Teachers use two types of strategies to address challenges in the classroom: those that they use directly in the classroom and those that rely on administration support. It was discovered that different strategies are used by teachers depending on the country, institutional context, and teachers' capacity.

In Zambia, Tembo (2014) conducted a study on the prevalence of ADHD disorder and its symptoms in selected schools in the Lusaka urban area. The study found that teachers faced an array of challenges in understanding and applying the ADHD tool and agreed that they understood the concept of hyperactivity. The findings also revealed teachers had little experience in handling children with ADHD. This shows a drastic challenge that teachers may be facing in the schools. The amount of education and training a teacher has about ADHD also affects their willingness to seek and apply strategies. However, the study by Tembo (2014) focused on the prevalence of ADHD and

its three composites among grade four pupils, while the present study will focus on teachers' understanding of teaching learners with ADHD in inclusive primary schools.

4.4 Strategies to Address the Challenges Faced by Teachers Teaching Learners with ADHD

A study by Cho and Blair (2017) evaluated that there was a multicomponent function-based intervention for learners identified with ADHD in a private special education school. The focus of this intervention involved modifying classroom activities to decrease learners' disruptive behaviors and increase their academic engagement. Teacher participants took part in a two-hour training session that focused on functional behavior assessments, implementing interventions with fidelity, and monitoring the students' behavior and academic progress. The intervention strategies were evidence-based, aligned with the learner's motivation and context where the behavior occurred, and were implemented with fidelity. Cho and Blair (2017) found a decrease in target problem behaviors and increased academic engagement across academic subjects. While this strategy might be effective, it is not known if it can work in Zambian primary inclusive schools.

Venter (2006) confirmed that differential teachers' attention is effective for learners with ADHD in schools. Teachers should catch their learners with ADHD by being good and providing positive attention for socially desirable behaviors. Venter (2006) stated that praise should occur immediately following the desirable classroom behavior and should be specific in nature. Teachers may also extinguish minor disruptive behaviors of learners with ADHD, for example by tapping a pencil through ignoring.

Barry et al. (2016) state that one of the support teachers should provide to learners with ADHD in inclusive primary schools is the use of efficient classroom behavioral management approaches. Barry et al. (2016) remarked that early detection and treatment could help slow down some of the behavioral difficulties demonstrated by learners with ADHD. The two researchers examined the viability of introducing a school-based diagnosis process to help detect these learners and improve interactions with the learners' parents so these learners could receive interventions in a timely fashion. The study was found to be feasible regarding ways that early interventions can help reduce behavioral challenges.

Wilkes-Gillan et al. (2016) found that parental involvement was one valuable regarding learners' educational success and helping to cope with the difficult behaviors shown by learners with ADHD. In addition, the collaboration between parents and teachers can help promote the social skills of learners identified with ADHD. While this study's outcomes showed that the quality of the teacher-parent association does not contribute considerably to students' knowledge, Marcelle et al. (2015) found some values connected with this cooperation.

5. Materials and Methods

Kivunja & Kuyuini (2017) whose study employed qualitative interpretivism research states that a research paradigm represents the researcher's worldview, perspectives, or thinking about the issue under research. It represents the researcher's abstract beliefs and principles that shape his or her understanding of the world. In other words, the research paradigm is the researcher's lens that enables him or her to view the world (Adu and Okeke, 2022). This paradigm was used because of its descriptive nature, focusing on the collection of in-depth data, the non-use of numbers, and the ability to ease the interpretation of data collected from the study sites or fields. The subjective meaning of the research was developed through interaction with participants in the field they live and work to understand the reality of the phenomenon. This study employed a descriptive research design using a qualitative approach. In this study, a descriptive research design was used based on the rationale that the data collected would contain information about people's views, attitudes, and opinions on teachers' understanding of teaching learners with ADHD in inclusive primary schools. This approach recognizes the importance of the subjective human creation of meaning but does not reject outright some ideas of objectivity (Thomas, Serenje, & Chipindi, 2020).

The target population comprised teachers who teach learners with ADHD in inclusive primary schools, school administrators, Education Standard Officers (ESOs) responsible for special education at the district and provincial level and learners with ADHD in the schools, Principal Examination Officer in charge of Special Educational Needs (SEN) and Principle Educational Officer-Teacher Education and Specialized Services (TESS). The researcher's choice of this population was based on the belief that it would provide the necessary data needed for the study. These were believed to have sufficient experience in teaching learners with ADHD to make a meaningful contribution to the study.

The sample size was 34 (2 males and 16 female) teachers, 3 school administrators (1 male and 2 females), Ministry of Education Officials (3 males and 1 female), and 9 learners with ADHD (6 males and 3 females). There were more female teacher participants than males due to urbanized areas of Zambia like the study district. This sample size was determined through the saturation point, which is the cut-off point reached when responses from participants become more repetitive (Creswell, 2014). The study used homogeneous purposive sampling to select participants. This was based on the premise that participants had experiences in the teaching of learners with ADHD and were familiar with issues of ADHD.

To collect the data for this study, the main instruments that the researcher used included in-depth interviews, focus group discussions guides, and observation checklists. This provided a triangulation of instruments for the data that was collected because it helped the researcher to collect data that was valid and reliable as a gap in one of the research instruments was supplemented by the other research instruments.

The researcher used thematic analysis to analyze data. Thematic analysis is a method for identifying, analyzing, organizing, describing, and reporting themes found within a data set (Clarke and Braun, 2006). Qualitative data from interviews and observations was cleaned, transcribed, and coded into themes and sub-themes that emerged during data collection. This was done by carefully listening to the recorded conversations in order to interpret, reduce, and code key responses into major and sub-themes in relation to the research purpose. The other considerations during thematic and content analysis are those that relate to consistency and specificity in responses (Creswell, 2014). This was achieved through probes as data was being collected and analyzed simultaneously.

6. Findings

The findings on teachers' understanding of teaching learners with ADHD were based on the three set objectives. These were teachers understanding of teaching learners with ADHD, challenges faced by teachers teaching learners with ADHD in inclusive schools, and the strategies to address the challenges faced by teachers teaching learners with ADHD.

6.1 Teachers' Understanding of Teaching Learners with ADHD

On the first objective of the study, which was on teachers' understanding of teaching learners with ADHD, it was found that teachers had mixed views on teaching learners with ADHD in inclusive schools. A minority of the participants (seven out of 18) felt that they had an adequate understanding of teaching learners with ADHD while the majority of the participants (11 out of 18) cited a limited understanding of teaching learners with ADHD in inclusive primary schools.

Participants were asked to describe their understanding of teaching learners with ADHD in inclusive schools. Minority teachers cited some of the reasons why they felt they had an adequate understanding of teaching learners with ADHD. Some teachers stated that they had adequate knowledge, as they were trained to teach learners with ADHD. Some teachers stated that they were self-motivated to teach learners with ADHD and able to control the behaviors of such learners in the classes.

6.2 Knowledge about ADHD, Nature, and Characteristics

Concerning sufficient knowledge to deal with learners with ADHD, few teachers felt that they had sufficient knowledge in dealing with learners. Participants pointed out that they monitored the learners as they undertook their activities since they were hyper and did not sit in one place. The above views were reflected in a response from one female teacher participant from School 1 during focus group discussion <FGD1 T2 F> who asserted that:

"For me, I am able to attend to learners with ADHD in my classroom. For instance, learners with such a condition are hyper in everything they cannot be put in one place for

a longer period of time, since they have short attention spans, they cannot concentrate on tasks so you have to be with them and monitor them as they undertake the activity once you move out they will easily throw it away or engage themselves into other activities different from what has been given to them. Others are aggressive they will start beating their friends, beating things, eating chalk, crayons, they are never at one place grabbing pencils from their friends and pocking others.” (29.05.23)

One female teacher participant from School 2 during focus group discussion <FGD2 T7F> confirmed that:

“Learners with ADHD are learners who are affected with the ability to focus, pay attention, listen, or put effort in school work. Learners always fidget, they are restless talk too much (Noise makers) or disrupt the class. Usually, I make sure that I monitor them, immediately they report to school they need to sit close to me so that they are not carried away with other things, and monitor them during learning time as they undertake their activities if not under constant care they sometimes sneak out of class and go outside.” (31.05.23)

6.3 Adequacy of Training/Pedagogical

The findings of the study showed that some teachers were adequately trained to teach learners with ADHD. Seven teacher participants reported that while they were in college and university they received adequate training in Special Education that enabled them to help learners with ADHD during learning time by applying relevant teaching methods, strategies and techniques, teaching them according to their abilities, improvise teaching and learning materials, giving clear instructions, informing and encouraging parents take the children for assessment to the medical practitioners, providing conducive environment and setting rules in order for the learners with ADHD not to get distracted in class.

Agreeing with the findings above, one teacher participant from school 1 during focus group discussion <FGD1 T2 F> said that:

“Having been trained to deal with learners with ADHD in inclusive schools, I feel I was adequately trained because I am able to apply relevant teaching methods, strategies, and techniques learned at college although mostly the teaching and learning materials for learners with ADHD are just improvised by the teacher. For instance, using real objects” (29.05.23).

Similar sentiments came from a female teacher participant from school 3 during focus group discussion <FGD3 T17 F> who said that:

“I feel I was adequately trained because I am able to teach learners with ADHD according to their abilities, put such learners near my table, monitor them as they undertake their activities both in and outside the school environment” (02.06.23).

Another female teacher participant from School 2 during focus group discussion <FGD2 T9 F> confirmed that:

"To achieve the set objectives in teaching learners with ADHD, I make sure that the instructions are clear to them and immediately they finish their work feedback should be given to them and also time to rest before moving on to the next subject in order to manage their behaviors." (31.05.23)

Another female-teacher participant from School 1 during focus group discussion <FGD1 T2 F> confirmed that:

"Concerning assessment and diagnostic, we usually give information to the parents and encourage them to take them to assessment centers at the hospital or other institutions that provide the service. Assessments in schools are not accurately done." (29.05.23)

Based on these findings, it was clear that minority teachers had an adequate understanding of teaching learners with ADHD. This was due to sufficient knowledge to deal with learners, adequacy of training to handle learners, ability to apply appropriate teaching methods, strategies, and techniques for learners, self-motivation, adequate exposure in dealing with learners, and interest to deal with learners, and able to control the behaviors of such learners in the classes.

The study found that the majority of the participants (11 out of 18) had a limited understanding of teaching learners with ADHD in inclusive primary schools. The teacher participants indicated limited understanding due to inadequate training in special education, teacher inability to handle inattentive learners, insufficient use of appropriate teaching methods, strategies, and techniques for learners, Insufficient demonstration skills to deal with learners with poor concentration, and inability to control the learners' hyperactive and aggressive behaviors.

The above views were reflected in the response from one of the female teacher participants from School 2 during focus group discussion <FGD2 T8 F> who stated:

"I only have a certificate for my teaching qualification, some of the issues regarding special education I may not know them." (31.05.23)

In support of the above findings, another female administrator participant from School 3 during interviews <SCH3 AD 13 M> observed that:

"I have not trained as a special education teacher but when I was at college we had a topic in special education where we were taught that in case you go to a school which has a special education unit. When we see such children in class I usually consult people who have done special education to help me how well to handle such children because here we don't have a special education unit." (02.06.23)

During focus group discussion, a female participant from School 1 <SCH1 T4 F> mentioned that:

"Some of the teaching methods, strategies, and techniques used by teachers in classrooms for learners with ADHD are not appropriate for such learners." (29.05.23)

Supporting the findings above, one male participant from the Ministry of Education during interview <MoE 2> highlighted that:

"Most teachers have not paid attention to learners with ADHD use the same methodologies. For instance, class discussion, and group discussion may not be for learners with such a condition. Teachers do not indicate the learners with ADHD as they prepare their lessons and during evaluation, these learners are not included." (09.06.23)

Contributing on the same, a male teacher participant from School 3 <FGD3 T15 M> acknowledged that:

"I did not receive such training at college and university so I don't know how to deal with such learners in school so I find it very difficult to control their aggressive behavior that they sometimes portray" (02.06.23)

Based on the findings, it was evident that the majority of the teachers had a limited understanding of learners with ADHD in inclusive primary schools. This was due to inadequate training in special education, the teacher's inability to handle inattentive learners, insufficient use of appropriate teaching methods, strategies, and techniques for learners, insufficient demonstration skills to deal with learners with poor concentration, and inability to control the learners' hyperactive and aggressive behaviours.

6.4 Challenges Faced by Teachers in Teaching Learners with ADHD

The findings of the study revealed challenges faced by teachers teaching learners with ADHD in inclusive schools. These challenges included dealing with distractibility, hyperactivity, and impulsivity of learners, having endless amounts of energy, dealing with learners disturbing lessons, limited time to teach the learners and excessively talking without stopping. In support of the above-stated view, one female participant from School 2 during focus group discussion <FGD2 T2> had this to say:

"Inattentiveness is a classic symptom of ADHD. Children with ADHD face problems in carrying out tasks, which demand concentration. Because of this, they often keep looking for excuses to avoid studying." (31.05.23)

Contributing to the same findings, one female from School 3 during focus group discussion <FGD3 T15 F> had this to say:

"Madam, the two that I have disturb the lessons too much. You find that you will be teaching and they will interrupt in the middle of the lesson and when you look at the interruption, it's not concerning what you are teaching but reporting the friend so they are always actively looking on what is going on around." (02.06.23)

In support of the above findings, another female participant from School 1 during focus group discussion <FGD1 T3 F> observed that:

"They inconvenience or disturb their friends because most of their friends will get irritated by moving from one desk to another or just tell the friends let's see what you are writing, just disturb unnecessarily for instance they will go to ask for a pencil which they may have." (29.05.23)

Adding to the discussion, one female teacher participant from School 1 during focus group discussion <FGD1 T4 F> reported that:

"Madam; sometimes learners cause a fight in class its either they get beaten by their friends for not giving them what they want or not understanding them. Some friends that are really like scared those who are afraid of fighting during break time they would rather remain classroom." (29.05.23)

Based on the findings above, it was clear that teachers faced challenges while teaching learners with ADHD in inclusive schools. These challenges included dealing with distractibility, hyperactivity, and impulsivity of learners, having endless amounts of energy, dealing with learners disturbing lessons, limited time to teach the learners and excessively talking without stopping.

6.5 Strategies to Address the Challenges Faced by Teachers while Teaching Learners with ADHD

The findings unveiled some strategies employed by teachers to address the challenges they faced when teaching learners with ADHD in schools. These were catch-up strategies, social and emotional support strategies, professional development strategies, and punishment strategies.

6.5.1 Catch-up Strategies

The study revealed that teachers employed catch-up strategies to address the challenges they faced while teaching learners with ADHD in inclusive primary schools. The catch-up strategies included providing remedial work to compensate for the lost time, increasing the learning time to allow learners to stay longer on the tasks, and assigning peers to help the learners with ADHD. These findings were evidenced in the following verbal account given by one Ministry of Education participant 4 during interviews <MoE 4 M> who observed that:

"We have a policy which we have this time around we give them remedial work now we are seeing a lot of remedial work being given by the teachers. For example, when you look at catch up most of the teachers are using this strategy to help out the learners in their academic work." (05.06.23)

One other female teacher participant from School 2 during focus group discussion <FGD2 T11 F> confirmed that:

"Learners with ADHD need more time to finish their work compared to the learners without ADHD due to the complex mix of impairment they experience. For instance, when you give them a task to do they would easily rush, complete a task quickly but make mistakes so I take a little while and make sure I give them more time to complete what has been given to them." (31.05.23)

These findings were supported by one female teacher participant from School 3 during focus group discussion <FGD3 T15 F> who stated that:

"Madam, what we usually do to help learners with such a condition is we usually look for someone who is willing, kind, and mature. A learner with ADHD study buddy can give reminders, help them stay on task or refocus after being interrupted, and provide encouragement to their friend." (02.06.23)

With these findings, some of the catch-up strategies employed by teachers to address the challenges they faced while teaching learners with ADHD in inclusive primary school included providing remedial work to compensate for the lost time, increasing the learning time to allow learners to stay longer on the tasks and assigning peers to help the learners with ADHD. The strategies enabled the teachers to handle learners with ADHD in school.

6.5.2 Social and Emotional Support Strategies

The study revealed that teachers employed social and emotional support strategies to address the challenges they faced while teaching learners with ADHD in inclusive primary schools. The strategies included the provision of guidance and counselling sessions, motivational talks, encouragements, psychological care, medication to reduce hyperactivity, parent engagement, acceptance, and commitment therapy, and engaging in religious activities. Contributing to the above findings, one female teacher participant from School 2 during focus group discussion <FGD2 T9 F> pointed out that:

"As a teacher when you identify a child with ADHD it's better to work hand in hand with the special education and guidance teachers in school so that counselling sessions are arranged for such children." (31.05.23)

In support of the findings above, another female teacher participant from School 1 during focus group discussion <FGD1 T3 F> said that:

"The school provides motivation talk to parents and their children on the importance of keeping these children in school and how they can contribute to the economic development of this country." (29.05.23)

In agreement with the above findings, one female teacher participant from School 1 during focus group discussion <FGD1 T1 F> confirmed that:

"Through engaging them in religious activities, they are able to learn how to interact well with the teachers and others." (29.05.23)

It was evident that social and emotional support strategies such as the provision of guidance and counselling sessions, motivational talks, encouragements, psychological care, medication to reduce hyperactivity, parent engagement, acceptance, and commitment therapy, and engaging in religious activities, were some of the strategies used by teachers to address the challenges they faced while teaching learners with ADHD in inclusive primary school.

6.5.3 Professional Development Strategies

The findings of the study also indicated that teachers employed professional development strategies to address the challenges faced by learners in schools. These strategies included capacity building of teachers on disability issues, in-house training for staff with limited understanding of disability issues, engaging in CPDs and teacher group meetings on handling children, conducting disability-awareness training, orienting new staff on how to handle learners, conducting workshops and counselling sessions on how to handle children and encourage teamwork and love amongst children. In support of these findings, one female teacher participant from School 2 during focus group discussion, <FGD2 T10 F> noted that:

"Through our CPDs and teacher group meetings we try by all means to induct and orient new staff on how to handle different learners with disabilities with their specific learning needs." (31.05.23)

In her contribution to the strategies to address the challenges faced by teachers while teaching learners with ADHD, one female teacher participant from School 3 during focus group discussion, <FGD3 T17 F> reported that:

"Regarding professional development strategies, special education strategies are discussed in CPD meetings that meet the specific learning need for these children in the school."

Adding to the same discussion, one School Administrator participant from School 1 during interviews <SCH1 AD 1> expressed additional feelings by observing that:

"Teachers conduct workshops and counselling sessions on how to handle children in the school. Children with disabilities require love, friendship protection, guidance, and much help, at the same time they need much guidance and sensitization on how-to live-in love with one another" (29.05.23)

A similar sentiment came from another female teacher participant from School 2 during focus group discussion <FGD2 T F> who mentioned that:

"Madam, during assemblies, the learners are talked to on how they should interact with the learners with challenges that they should be helping one another but not to neglect or segregate them but to work together as a team. We also involve the peer educators to sensitize their fellow learners on teamwork and love amongst them." (31.05.23)

Based on the findings above, it was clear that teachers employed professional development strategies to address the challenges faced by learners in schools. These strategies included capacity building of teachers on disability issues, in-house training for staff with limited understanding of disability issues, engaging in CPDs and teacher group meetings on handling children, conducting disability-awareness training, orienting new staff on how to handle learners, conducting workshops and counselling sessions on how to handle children and encourage teamwork and love amongst children. Thus, if these strategies were implemented, the learning of learners with ADHD in inclusive schools would be enhanced.

6.5.4 Punishment Strategies

The findings of the study also indicated that teachers employed punishment strategies to address the challenges faced by learners in schools. These strategies included providing positive and negative reinforcement, punishing learners with disruption of activities, punishing learners with unwanted social behaviour, and putting the learners in places that are less distractive.

This was confirmed by one female teacher participant from School 3 during focus group discussion <FGD3 T16 F> who supported these findings:

"Learners with such a condition are motivated when feedback is given to them in good time. Once they complete an activity they need to be praised or given a small present such as a book, pencil, or ruler they get encouraged for negative reinforcement to remove bad behavior with desirable behavior." (02.06.23)

One other female School Administrator participant from School 2 <SCH 2 AD2 F> added that:

"Madam, as an administrator I take time to sensitize teachers who are teaching such learners to know the negative and positive things about them. For the good behavior you praise them and for the negative one tell them to refrain away from it." (31.05.23)

These findings were also supported by the views of one female participant from School 2 during focus group discussion <FGD2 T8 F> who stated that:

"To head off behaviors that take time from other learners, a teacher should work out a couple of warning signals with the learner who has ADHD. For instance, this can be a hand signal so that the learner is aware of the unwanted behavior" (31.05.23)

A similar sentiment came from another female teacher participant from School 1 during focus group discussion <FGD1 T6 F> who mentioned that:

"Madam, the learners with ADHD have already a challenge in socializing with others what is always done is that we limit the contact with learners noticed to distract them. For example, if it's in class learners with unwanted behavior should not sit together instead they should be isolated." (29.05.23)

Contributing to the same findings, a female teacher participant from School 1 during focus group discussion <FGD1 T2 F> reported that:

"For me what I usually do before I hand over the class I need to discuss with the person taking over so that the process of helping that child is not disturbed. Always make sure you do not put them in places that could distract them. For instance, seats that are near the window or at the back of the class." (31.05.23)

With the findings above, it was clear that some of the punishment strategies employed by teachers to address the challenges they faced while teaching learners with ADHD in schools included providing positive and negative reinforcement, punishing learners with disruption of activities, punishing learners with unwanted social behaviour and put the learners in places that are less distractive.

7. Discussion of Findings

The findings of the study on the first objective on the teachers' understanding of teaching learners with ADHD revealed that teachers had mixed views on their understanding of teaching learners with ADHD in schools. Few teachers reported that they had an adequate understanding of teaching learners with ADHD in inclusive primary schools. These findings were in line with Dwarika et al. (2021) who found that teachers understanding of teaching learners with ADHD appeared limited as they faced challenges of dealing with such learners in the classroom. This was also supported by

Jaye (2020), who revealed that teachers had limited knowledge regarding the symptoms of ADHD.

Further, the study revealed that some teachers had an adequate understanding of learners with ADHD because they were trained in Special Education and this made them apply their knowledge in teaching learners with ADHD in inclusive primary schools. The findings of the study showed that teachers were adequately trained to teach learners with ADHD. Seven teacher participants reported that while they were in college and university they received adequate training in special Education so they tried to see how they could help the child during learning time, give clear instructions, and set rules in order for the learners not to get distracted in class. The teacher participants pointed out that immediately after the learners reported to the school, they needed to sit close to the teacher so that they were not carried away with other things to avoid distraction during learning.

The findings of the study also revealed that teachers understood learners with ADHD because they had self-motivation and were interested in teaching learners with ADHD. Some teachers reported that although they did not receive any training in special education, they did write papers on Inclusive Education attend workshops, and were interested as well as had a passion for teaching learners with ADHD in inclusive schools. The results were consistent with Kos (2009) who found that self-motivation and interest in children with ADHD and involvement in CPD activities were beneficial to the teachers' overall knowledge about ADHD.

Concerning limited understanding, most of the participants revealed that during teaching they were unable to attend to learners with ADHD because they had little knowledge of teaching these learners. In terms of qualifications, it was reported that some teachers had primary school teaching certificates while others had diplomas and a few had first degrees. Some teachers confessed that their initial teacher training did not equip them to teach learners with ADHD. These findings were not quite different from Sikabule (2019) who found that most of the teachers had little understanding about the existence of ADHD and were unable to identify learners with this condition.

Concerning the second objective on the challenges faced by teachers in teaching learners with ADHD, the study revealed that teachers faced challenges while teaching learners with ADHD in inclusive schools. These challenges included dealing with distractibility, hyperactivity, and impulsivity of learners, having endless amounts of energy, dealing with learners' disturbing lessons, limited time to teach the learners and excessively talking without stopping. These findings were in line with Tembo (2014), who found that teachers faced an array of challenges in understanding and applying the ADHD tools and agreed that they understood the concept of hyperactivity. The findings also revealed teachers had little experience in handling children with ADHD.

Regarding the third objective on the strategies to address the challenges faced by teachers while teaching learners with ADHD, the study found that they employed strategies such as catch-up strategies, social and emotional support strategies, professional development strategies, and punishment strategies. Some of the catch-up

strategies employed included providing remedial work to compensate for the lost time, increasing the learning time to allow learners to stay longer on the tasks, and assigning peers to help the learners with ADHD. These findings were in agreement with a study by Cho and Blair (2017), which evaluated that there was a multicomponent function-based intervention for learners identified with ADHD in a private special education school such as modifying classroom activities to decrease learners' disruptive behaviors and increase their academic engagement. The use of the multicomponent function-based intervention enabled teachers to focus on two-hour training sessions that focused on functional behavior assessments, implementing interventions with fidelity, and monitoring the students' behavior and academic progress. The intervention strategies were evidence-based, aligned with the learner's motivation and context where the behavior occurred, and were implemented with fidelity. Cho and Blair (2017) found a decrease in target problem behaviors and increased academic engagement across academic subjects.

The study also revealed that teachers employed social and emotional support strategies to address the challenges they faced while teaching learners with ADHD in inclusive primary schools. The strategies included the provision of guidance and counselling sessions, motivational talks, encouragements, psychological care, medication to reduce hyperactivity, parent engagement, acceptance, and commitment therapy, and engaging in religious activities. These findings conformed with Wilkes-Gillan et al. (2016) who found that parental involvement was one valuable regarding learners' educational success and helping to cope with the difficult behaviors shown by learners with ADHD. The study revealed that the collaboration between parents and teachers helped in the promotion of the social skills of learners identified with ADHD.

Further, the findings of the study also indicated that teachers employed professional development strategies to address the challenges faced by learners in schools. These strategies included capacity building of teachers on disability issues, in-house training for staff with limited understanding of disability issues, engaging in CPDs and teacher group meetings on handling children, conducting disability-awareness training, orienting new staff on how to handle learners, conducting workshops and counselling sessions on how to handle children and encourage teamwork and love amongst children. These findings were in line with Tembo (2014) who found that the amount of education and training the teacher has about ADHD also affects their willingness to seek and apply strategies and techniques. Blotnicky (2015) argued that teachers applied teaching strategies such as changing language, making instructions easier, and using direct notes for content but not frequently.

The findings of the study also indicated that teachers employed punishment strategies to address the challenges faced by learners in schools. These strategies included providing positive and negative reinforcement, punishing learners with disruption of activities, punishing learners with unwanted social behavior, and putting the learners in places that are less distractive. These findings are in agreement with the study by Abramowitz (1987) on reducing off-task behavior in the classroom, which highlighted

those reprimands proved superior in reducing off-task behavior than encouragements. The study unveiled that encouragement was directly compared to one another and with each class exposed to both conditions. Reprimands resulted in lower rates of off-task behavior and higher productivity than encouragement.

8. Conclusion and Recommendations

Considering the findings of the study presented, although they may not be generalizable, it is fair to argue that findings present a significant portion of teachers' understanding of teaching learners with ADHD in Zambia. Concerning the understanding of teaching learners with ADHD in inclusive primary schools, it was evident that the study revealed mixed views on teachers' understanding of teaching learners with ADHD. Few teachers indicated that they adequately understood learners with ADHD due to sufficient knowledge to deal with learners, adequate training to deal with learners were able to apply appropriate teaching methods, strategies, and techniques for learners, adequate exposure for dealing with learners, self-motivation to teach learners and ability to control the behaviours of the learners with ADHD. The majority of the teacher participants indicated that they had limited understanding due to inadequate training in Special Education, teachers' inability to handle learners, insufficient use of appropriate teaching methods, strategies, and techniques for learners with ADHD, and their inability to control learners with ADHD. Therefore, such teachers faced challenges while teaching learners with ADHD such as dealing with distractibility, hyperactivity, and impulsivity of learners, having endless amounts of energy, dealing with learners disturbing lessons, limited time to teach the learners and excessively talking without stopping. To address the challenges faced by teachers while teaching learners with ADHD, teachers employed strategies such as catch-up strategies, social and emotional support strategies, professional development strategies, and punishment strategies. Based on the findings of teachers' understanding of teaching learners with ADHD, the study presented the following recommendations:

- 1) Schools should provide capacity building for teachers teaching learners with ADHD.
- 2) Ministry of Education should facilitate workshops and seminars to sensitize teachers on how to handle learners with ADHD.
- 3) The Ministry of Education should collaborate with Ministry of Health in raising awareness about the increasing numbers of ADHD in schools.
- 4) It is also cardinal to educate school administrators, parents, and relevant stakeholders on the value of understanding ADHD learners.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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