



Article

Teachers' Attitudes toward Attention-Deficit or Hyperactivity Disorder in Primary Schools of Kirkuk, Iraq: A Cross-Sectional Study

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Abstract: Among school-age children, Attention Deficit Hyperactivity Disorder (ADHD) is one of the most prevalent neurodevelopmental diseases. Attention Deficit Hyperactivity Disorder (ADHD) has a substantial influence on academic and social outcomes, with teachers playing an important role in early detection and intervention. Despite its global prevalence (5-11%), teachers' attitudes, which are crucial for inclusive education, have received little attention in Iraq. This descriptive cross-sectional study was conducted among 419 primary school teachers across Kirkuk City, Iraq, from November 2024 to May 2025. Using random sampling, participants were recruited from 88 schools (36 public, 47 special public, and 5 private special education institutions). Data were collected through a validated 22-item questionnaire assessing Sociodemographic, and Attitudes toward ADHD (3-point Likert scale, Cronbach's $\alpha=0.81$) Statistical analysis in IBM SPSS v 20 included, Descriptive statistics and independent t-tests, ANOVA, Pearson's r). Most teachers (97.9%) held neutral attitudes, with only 2.1% expressing strong positive/negative views. Male teachers reported significantly more positive attitudes than females (mean difference = 1.45, $p < 0.001$). Class size weakly correlated with attitudes ($r = 0.132$, $p = 0.007$), while age, religion, and education level showed no significant associations ($p > 0.05$). While ADHD awareness is prevalent, attitudes remain largely neutral, influenced more by gender and classroom context than sociodemographic. Findings underscore the need for mandatory ADHD training programs to fill the gap between proactive aid and awareness.

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1. Introduction

One of the most frequent neurodevelopmental disorders, attention deficit hyperactivity disorder (ADHD), often manifests in childhood. The two main elements of ADHD are attention management and impulsive control. Apart from experiencing difficulties in controlling their emotions, teenagers who have attention management issues tend to be extremely restless and hyperactive, talk too much, and interrupt others without considering the full ramifications. (Smith & Langberg, 2018).

Dr. George Still published the first medical description of ADHD in 1902. The disorder's name and classification changed a number of times over time. According to Al-Amarei and Mohamed (Al-Amarei & Mohamed, 2020), it was first referred to as "minimal brain dysfunction" then as "hyperkinetic reaction of childhood." The APA (American Psychiatric Association) first acknowledged ADHD in the DSM-III (1980), and the DSM-5

upgraded its categorization (Alarcón et al., 2022), it was separated into three categories: primarily inattentive, primarily hyperactive-impulsive, and combination type (Mahone & Denckla, 2017).

According to epidemiological data, the prevalence is higher in men than in women, and it is projected that between 5% and 11% of individuals under the age of 18 are impacted (Francés et al., 2022). The likelihood that a kid of an ADHD parent would also have ADHD is 25%. The monozygotic twin concordance also varies between 55 and 90%. In other words, it seems that a substantial genetic component is involved in this situation (Fitzallen et al., 2024; Uchida et al., 2023). Having an effect on about 5% of all American children (Soltan et al., 2023), and by 2022, 7 million kids in the nation between the ages of 3 and 17 have received a diagnosis. (Center for Diseases Control and Prevention, 2024).

The total worldwide incidence of ADHD in children and adolescents is around 7.2%, per latest estimates from a 2021 global assessment that was published in the journal *Brain Sciences*. According to Shehata and colleagues (2016), regional incidence varies: 6.9% in Egypt, 6.24% in Jordan, and 16.4% in Saudi Arabia. Furthermore, boys receive diagnoses at a rate around twice as high as girls, in part because men are more likely to exhibit externalizing symptoms including hyperactivity and impulsivity (Walpert et al., 2021). These differences are influenced by diagnostic criteria, cultural norms, and socioeconomic level (Senol et al., 2025).

Castanho et al., 2020 state that comorbid disorders such as oppositional defiant disorder (ODD), conduct disorder (CD), and others are commonly present in children with ADHD, anxiety, and depression. Numerous symptoms, which impact social, professional, and academic results, continue throughout adulthood (Arjmandi et al., 2015). Attention deficit hyperactivity disorder affects 10% of kids with epilepsy. (Muhe-Aldeen, 2022)

Individuals with ADHD frequently have trouble focusing and controlling their impulsive behavior (behaving without considering the potential consequences) and attention span (e.g., quickly distracted and forgetful in daily activities), they could exhibit hyperactive symptoms, such as running in unsuitable settings and talking too much (Agnew-Blais & Michelini, 2023). Additionally, they often suffer in social and academic situations because to their emotional dysregulation, uncontrolled impulsivity, and short attention spans (Milledge et al., 2019).

In the field of education, a generic primary classroom has a variety of pupils with varying intelligences, skills, and exceptionalities. According to Pollak and colleagues (2019), this includes kids who suffer from Attention Deficit Hyperactivity Disorder (ADHD), a learning condition marked by impulsivity, hyperactivity, and inattention.

Instructors' attitudes are very significant for both teachers and students (Jabar et al., 2024; Yumi & Witruk, 2016). Their behavior toward students is influenced by their opinions, and students may suffer as a result of their unfavorable actions. This highlights the importance of teachers' attitudes and how they can significantly affect students' experiences and outcomes in the classroom (Yumi & Witruk, 2016).

Furthermore, research suggests that educators' perspectives on ADHD significantly influence children's future success, interpersonal connections, and self-worth (Justus et al., 2025). For instance, Barkley (2007) found that early identification of ADHD helped people overcome their early childhood problems because of the positive attitudes of their teachers, who gave them extra attention and help. This was a crucial moment in their ability to manage their condition (Akdağ, 2023). Teachers' views toward students with ADHD are regrettably far more negative than those toward other students, according to several research (Yumi & Witruk, 2016).

Research shows that a lot of instructors don't know enough about ADHD, which might cause them to misread student behavior and use ineffective support techniques. One

study, for example, found that a large number of instructors in comparable settings lacked information on ADHD, which was not substantially correlated with their demographic traits. This emphasizes how important it is to develop focused educational initiatives to improve teacher comprehension (Hussain et al., 2023; Jabar et al., 2024).

Impact on Academic Performance: Interactions between teachers and kids with ADHD can be greatly impacted by their attitudes regarding the disorder. Good attitudes and sufficient information can result in more effective classroom management techniques, tailored assistance, and eventually higher academic results for kids with ADHD. Negative attitudes or assumptions, on the other hand, might make these pupils' difficulties worse (Hussain et al., 2023; Soltan et al., 2023).

Finally, about Social Implications of Educational Reform, the results of this study may help guide training initiatives and educational policies that try to educate teachers better to deal with ADHD. Schools may create an inclusive atmosphere that meets a range of learning requirements and advances educational justice by filling up knowledge gaps and Their attitude to this disorder is good and helps in improving the way they deal with it (Hussain et al., 2023; Saadoon & Salih, 2017).

The purpose of this study is to assessment the views of primary school teachers in Kirkuk City regarding ADHD and investigate the relationships between these attitudes and sociodemographic traits..

2. Materials and Methods

Study Design and Setting

This cross-sectional qualitative study was carried out from 1st November, 2024, to May 1, 2025, across primary schools in Kirkuk City, Iraq. The study population included teachers from 36 public primary schools, 47 special public schools, and 5 private special education institutions, with a total sample of 419 educators chosen by way of random sampling.

Data Collection Instrument

The research employed an adapted version of a validated self-report questionnaire originally developed by (Amha & Azale, 2022). The instrument was modified based on author review and pilot study feedback. Through in-person interviews with this standardized questionnaire, data was gathered., which comprised two main sections:

- **Sociodemographic Characteristics:** Collected information on participants' age, parental status, educational background, occupation, residence, and family size. Additional items assessed prior contact with children suspected of having ADHD and the nature of these relationships (22 items).
- **Primary school teachers' attitude about ADHD.** This part consisted of (22 items) related to the samples' perspectives towards ADHD.

Questionnaire Validation

The research instrument was rigorously validated through expert review, involving 14 specialists with ≥ 10 years of field experience across relevant disciplines (pediatrics, psychology, and special education). Panelists evaluated item clarity, content validity, and cultural appropriateness, with revisions incorporated to optimize psychometric properties.

Sampling Strategy

A three-stage sampling framework was implemented:

1. **Public Schools:** 35 institutions were randomly selected from 430 via *Randomizer.org*, ensuring geographic representation across Kirkuk's urban districts.
2. **Private Schools:** All 5 city-registered private primary schools were included via census sampling.

3. **Special Education:** A complete enumeration of 48 government-operated special education schools was conducted.

Eligibility Criteria

Inclusion:

- Licensed teachers from participating Kirkuk City schools (public/private/special)
- Minimum one year of active classroom experience

Exclusion:

- Novice teachers (<1 year experience)
- Rural/district-based educators (to control for urban-specific variables)

Determining the Sample Size

To determine the bare minimum needed sample size, a power analysis was conducted using G*Power 3.1.9.4. A small effect size (Cohen's $d = 0.20$), two-tailed $\alpha = 0.05$, and power ($1-\beta$) of 0.95 for paired comparisons were assumed in the computation. This resulted in a minimum goal of 327 people. The final sample comprised 419 primary school teachers, exceeding this threshold to ensure adequate power and account for potential attrition.

Ethical Approval

Verbal informed consent was obtained from all participants following full disclosure of the study's purpose. Researchers guaranteed confidentiality of all collected data and exclusive use for academic research purposes. The study protocol adhered to standard ethical guidelines for educational research.

Scoring System and Interpretation

The attitude assessment items were scored using a three-point Likert scale with the following values:

- Agree responses were assigned 2 points
- Neutral responses received 1 point
- Disagree responses were given 0 points

Total attitude scores were computed by summing responses across all items and subsequently categorized into three distinct levels:

Attitude Classification:

- Negative attitude: Total scores ranging from 0-14
- Neutral attitude: Total scores between 15-30
- Positive attitude: Total scores of 31-45

This score method enabled a quantitative investigation of instructors' views regarding attention deficit hyperactivity disorder, facilitating standardized interpretation and comparison across participant groups.

Instrument Reliability

The questionnaire's internal consistency was evaluated through Cronbach's alpha coefficients using pilot data ($n=25$). Reliability analysis demonstrated strong consistency across all sections:

- **Attitude scale (20):** $\alpha = 0.81$

All values exceeded the 0.70 threshold for acceptable reliability (Kennedy, 2022), confirming the instrument's psychometric robustness for measuring ADHD-related attitudes.

3. Results

Table 1. Sociodemographic characteristics of the participants (N = 429).

Variable	Frequency	Percent
Age (Years): Mean (SD): 42.83 ± 9.93		
20-29	43	10.3
30-39	114	27.2
40-49	129	30.8
50+	133	31.7
Religion		
Muslim	407	97.1
Christian	8	1.9
Other	4	1.0
Type of school		
Public	395	94.3
Private	24	5.7
Do you have a specialization in Special Education?		
Yes	69	16.5
No	350	83.5
Do you know anyone with ADHD outside of your work environment?		
Yes	248	59.2
No	170	40.6
Missing	1	0.2
Number of students in each class: Mean (SD): 28.9 ± 14.2		
1-20	123	29.4
21-40	222	53.0
41-60	74	17.7
How many children do you have, if any?		
.00	119	28.4
1.00	30	7.2
2.00	83	19.8
3.00	82	19.6
4.00	69	16.5
5.00	25	6.0
6.00	10	2.4
9.00	1	0.2
Teaching experience Mean (SD): 17.38 ± 11.02		
1-10	148	35.3%
11-20	112	26.7%
21-30	105	25.1%
31-40	53	12.6%
41+	1	0.2%

The study sample comprised of 419 primary school teachers from Kirkuk City. The average age of the participants was 42.83 years (SD = 9.93). The largest proportion of teachers fell within the 50+ year age group and more (n = 133; 31.7%), followed by those aged 40–49 years (n = 129; 30.8%), 30–39 years (n = 114; 27.2%), 20–29 years (n = 43; 10.3%).

In terms of religion, the overwhelming majority identified as Muslim (n = 407; 97.1%), with smaller numbers identifying as Christian (n = 8; 1.9%) or other religions (n = 4; 1.0%).

Regarding the type of school, most participants were employed in public schools (n = 395; 94.3%), while a minority worked in private schools (n = 24; 5.7%).

With respect to special education services, only 16.5% of schools ($n = 69$) offered a special education specialization, while the majority (83.5%, $n = 350$) did not.

When asked whether they personally knew someone with ADHD outside their professional environment, 59.2% ($n = 248$) of teachers reported such exposure, while 40.6% ($n = 170$) did not, and one of it their data is missing 0.2% ($n = 1$).

concerning class size, the average number of students per classroom was 28.9 (SD = 14.2). More than half of the classes (53%, $n = 222$) comprised 21–40 students, followed by 1–20 students (29.4%, $n = 123$), and 41–60 students (17.7%, $n = 74$).

Finally, when asked How many children do you have, nearly one-third ($n = 119$; 28.4%) of teachers have no children, making this the largest group. Most teachers with children have two ($n = 83$; 19.8%) or three ($n = 82$; 19.6%) children, together accounting for about 40% of respondents. Fewer teachers have one child ($n = 30$; 7.2%) or four children ($n = 69$; 16.5%). Large families are uncommon, with only ($n = 25$; 8.6%) having five or more children, including a single teacher with nine children ($n = 1$; 0.2%).

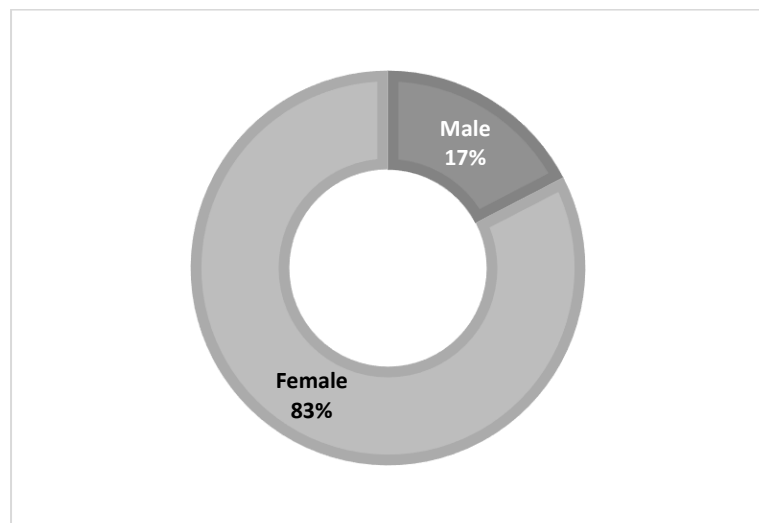


Figure 1. Gender Distributions of the sample.

The above figure shows that the majority are females (83%) compared to males (17%).

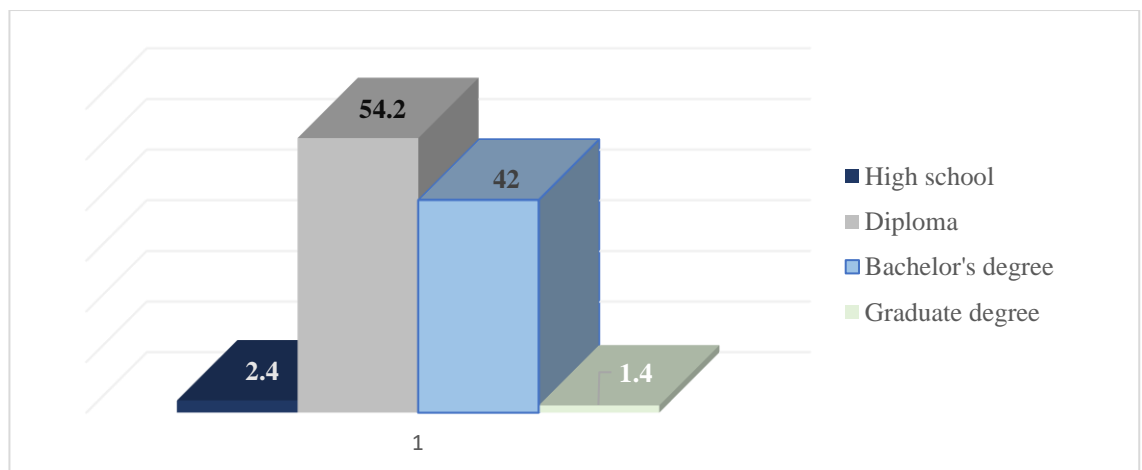


Figure 2. Highest educational level Distributions of the sample.

Concerning the highest educational level participants attained, more than half hold diploma degree (54.2%), followed by those who hold bachelor's degree (42%), those who are high school graduates (2.4%), and those who hold graduate degrees (1.4%)

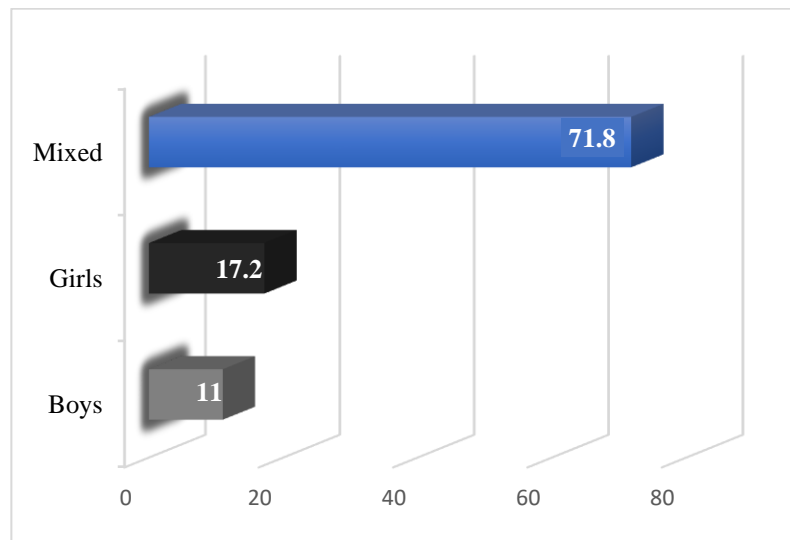


Figure 3. Type of school Distributions of the sample.

Regarding the type of school, most are mixed ($n = 301$; 71.8%), followed by girls' schools ($n = 72$; 17.2%), and boys' schools ($n = 49$; 11%).

Table 2. Differences in participants' Attitude toward Attention deficit hyperactivity disorder with sociodemographic variables. $N=429$.

	Gender	N	Mean	t	P value
Gender	Male	73	24.01	3.638	<0.001
	Female	346	22.56		
School type	Public	395	22.89	2.108	0.036
	Private	24	21.50		
Existence of special education in schools	Yes	69	23.13	0.919	0.358
	No	350	22.75		
knowing anyone with Attention deficit hyperactivity disorder	Yes	248	22.68	-1.064	0.288
	No	170	23.01		

t= t-test

This table examines differences in ADHD attitudes based on sociodemographic factors ($N=429$). Key findings show male teachers held significantly more positive attitudes than females (mean 24.01 vs 22.56, $p<0.001$). Public school teachers displayed slightly more favorable views than private school teachers (22.89 vs 21.50, $p=0.036$). No significant differences were found based on the presence of special education programs ($p=0.358$) or personal familiarity with ADHD ($p=0.288$). The results suggest gender and school type may influence ADHD attitudes, while other factors showed minimal impact.

Table 3. Differences in Attitudes toward attention deficit hyperactivity disorder and sociodemographic characteristics. $N=429$.

		Sum of Squares	Df	Mean Square	F	Sig.
Religion	Between Groups	0.05	2	0.023	0.002	0.998
	Within Groups	4154.06	416	9.986		
	Total	4154.11	418			
Educational qualification	Between Groups	33.12	3	11.040	1.112	0.344
	Within Groups	4120.98	415	9.930		
	Total	4154.11	418			
Type of school	Between Groups	17.758	2	8.879	.893	.410
	Within Groups	4136.347	416	9.943		

Total	4154.105	418
df= Degree of freedom, F= F-Statistics, Sig= Significance		

Statistical analysis revealed non-significant associations between teachers' attitudes toward ADHD and religious affiliation ($F = 0.002$, $p = 0.998$), educational qualifications ($F = 1.112$, $p = 0.344$), and school type ($F = 0.893$, $p = 0.410$). These results indicate that these sociodemographic variables do not significantly influence teachers' attitudes toward ADHD.

Table 4. Pearson Correlation Analysis: Associations Between Sociodemographic Variables and ADHD Attitudes Among Primary School Teachers.

		Age	No of students\class	Teaching experience
How many children do you have, if any?	Pearson Correlation	0.033		
	Sig. (2-tailed)	0.505		
Teaching experience	Pearson Correlation	0.803**	0.079	
	Sig. (2-tailed)	0.000	0.107	
Attitudes	Pearson Correlation	0.034	0.132**	0.003
	Sig. (2-tailed)	0.489	0.007	0.948

**. Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation analysis found a high positive link between instructors' age and teaching experience ($r = 0.803$, $p < 0.01$), indicating that older teachers had more years of experience. A small but significant association was established between class size and ADHD attitudes ($r = 0.132$, $p = 0.007$), indicating that bigger class sizes may have a little impact on teachers' opinions of ADHD. However, neither age nor teaching experience had a significant effect on ADHD views ($p = 0.489$ and 0.948 , respectively). Furthermore, the number of children a teacher had did not correlate with their age ($r = 0.033$, $p = 0.505$).

4. Discussion

Sociodemographic Characteristics

Regarding the age of the sample, the study revealed a mean age of 42.83 ± 9.93 years, with the largest age group being 50 years and more (31.7%), which was consistent with findings from a study by (Hamed & Ghafel, 2022) in Baghdad, which found that the majority of teachers were aged between 50-55 years. Similarly, a study conducted in Qatar by (Al-Hendawi et al., 2024) who reported a mean score of teacher age of 43.2 years, indicating a mature teaching workforce in the region.

The religious composition in the current study showed that 97.1% identified as Muslim as table 1., mirrors the national demographic characteristics. According to the approximately 95–98% of Iraq's population is Muslim, which is consistent with this result(central intelligence Agency, 2025).

For School Type and Specialization, Table 1. indicates that the vast majority of participants attended public schools (94.3%), with only a small percentage attending private institutions (5.7 %). This reflects national statistics, where 83.5% of primary schools are public. Additionally, only 16.5% of the schools in this study offered a specialization in special education, indicating a potential gap in specialized educational services

The table 1., showed 59.2% of teachers personally knew someone with ADHD, indicating significant community exposure (Center for Diseases Control and Prevention, 2024)Average class sizes were 28.9 students (Cormann, 2024), which may impact ADHD support. Notably, 28.4% of teachers had no children, while 19.8% had two children—factors that may impact ADHD awareness. Average teaching experience was 17.4 years, highlighting veteran teachers' perspectives on perceptions or attitudes toward ADHD.

Results of gender distribution revealed that most of the teachers' gender were female teachers (83%). Figure 1., in the current study reflects regional trends. For instance (Hamed & Ghafel, 2022).found that 79% of teachers in Baghdad were female. This aligns with the global trend of teaching being a female-dominated profession, particularly in primary and secondary education.

Figure 2., showed that The predominance of diploma (54.2%) and bachelor's (42%) teachers in the sample suggests potential variation in attitudes toward ADHD, as research shows that teachers with basic (non-specialized) training often demonstrate less confidence in managing learners with neurodevelopmental disorders(Guillory, 2023). The small representation of postgraduate degree holders (1.4%) is notable, as advanced education is associated with more positive attitudes toward inclusive practices(Cormann, 2024). This effect on educational distribution may reflect passive tolerance rather than active advocacy for ADHD accommodations, consistent with studies linking limited training to attribution biases (e.g., perceiving symptoms as behavioral rather than neurological)(Sciarra et al., 2022).

For school gender composition, the result figure 2., showed that most of the schools in current study was mixed (71.8%), followed by girls' schools (17.2%) and boys' schools (11%). This reflects the general school structure in Iraq, where mixed schools are common, particularly at the primary level.

The results of the current study indicate significant gender differences in attitudes toward ADHD, with male teachers expressing more positive views than female teachers ($p < 0.001$). This is consistent with recent studies suggesting gender-based cognitive biases in neurodevelopmental disorders(Gutman & Codioli McMaster, 2020). Public school teachers' slightly more positive attitudes ($p = 0.036$) may reflect greater exposure to inclusive education policies (Cormann, 2024). Notably, personal familiarity with ADHD showed no significant effect ($p = 0.288$), contradicting some previous research (Hu & Chen, 2021)but consistent with findings that formal training—not incidental exposure—shapes attitudes(UNESCO, 2022). These disparities highlight the need for targeted teacher training to mitigate unconscious biases, particularly in female-dominated educational settings.

Teachers' views about ADHD did not significantly correlate with their religious beliefs ($p = 0.998$), educational background ($p = 0.344$), or school type ($p = 0.410$), according to the research. These null results are consistent with recent international research that demonstrates that, in comparison to direct instruction or lived experience, sociodemographic characteristics (such as religion and institutional setting) are not very good indicators of ADHD attitude(Harrison et al., 2020). Notably, the lack of importance of educational credentials runs counter to other research (Ohan et al., 2008) for example, which suggests that without specific neurodiversity education, a degree level may not be enough to influence views. This emphasizes the necessity of requiring ADHD education for all types of teachers.

Teacher age and experience have a significant associations exists ($r = 0.803$, $p < 0.01$). which is consistent with the average career progression in education (Cormann, 2024). While there was a modest but There is a significant link between class size and ADHD attitudes ($r = 0.132$, $p = 0.007$), indicating that bigger classrooms can somewhat increase tolerance via repeated exposure (Kong et al., 2023), attitudes were not substantially predicted by age or experience ($p > 0.05$). According to Harrison et al., 2020, this calls into question the notion that experienced teachers are more tolerant of neurological diversity. Parental status's null finding ($r = 0.033$, $p = 0.505$) emphasizes even more that environmental factors—like training and class dynamics—may have a greater impact than personal ones.

Study Limitations

Some of the study's drawbacks were the geographical dispersion of the schools, the time constraints imposed by strict school schedules on data gathering, and the cultural

resistance of certain administrators. The findings' ability to be applied broadly may be restricted by several considerations. Future studies have to take into account longer timeframes, improved stakeholder participation, and culturally aware hiring practices.

5. Conclusion

The study provides important new information on Kirkuk primary school teachers' perceptions of ADHD. Gender appeared as a major predictor, with female instructors exhibiting more favorable opinions, despite the fact that 97.9% maintained neutral sentiments. This conclusion is consistent with global patterns. Interestingly, sentiments did not significantly correlate with sociodemographic characteristics like religion or educational attainment, indicating that institutional training—or lack thereof—may be a more powerful motivator than personal background. The fact that knowledge and attitudes are positively correlated emphasizes how focused education may change inaction into active advocacy.

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