

Teacher Gender Bias in the Recognition of ADHD Symptoms: A Study With Irish

Teachers

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Declaration

I hereby declare that the attached dissertation is my own, original work undertaken in partial fulfilment of my Higher Diploma in Psychology degree. I have made no use of sources, materials, or assistance other than those which have been openly and fully acknowledged in the text. Any direct quotation or source of ideas has been identified in the text by author, date, and page number(s) immediately after such an item, and full details are provided in a reference list at the end of the text.

Signed: Joanna Hughes

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Abstract

This study endeavoured to investigate levels of gender bias among Irish teachers in the recognition of ADHD symptoms. Four potential influencing factors on levels of gender bias were also explored. These factors included: teacher knowledge of ADHD, teacher self-efficacy, experience teaching students with ADHD and participation in continuous professional development about ADHD. For this quantitative study, a cross-sectional, non-manipulative approach was taken, with participating teachers (n=100) engaging with an anonymous online questionnaire. The results indicated that there were significant levels of gender bias among participants towards the recognition of ADHD symptoms in boys. Significant negative relationships were also recorded between gender bias and teacher knowledge of ADHD, gender bias and teacher self-efficacy and gender bias and participation in continuous professional development about ADHD. These findings provide support for previous research carried out in the field, as well as the emerging picture of the under diagnosis of girls with ADHD in Ireland.

Abbreviations

Abbreviation	Meaning
AAGB	ADHD and Anxiety Gender Bias Scale
ADHD	Attention Deficit Hyperactivity Disorder
CAMHS	Child and Adolescent Mental Health Services
DSM	Diagnostic and Statistical Manual of Mental Disorders
GBB	ADHD and Anxiety Gender Bias Boy's Subscale Score
GBG	ADHD and Anxiety Gender Bias Girl's Subscale Score
KADDS	Knowledge of Attention Deficit Disorders Scale
TSES	Teacher Sense of Efficacy Scale
VGB	Vignette Gender Bias Score

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1. Introduction

This research project seeks investigate levels gender bias among Irish teachers in the recognition of attention deficit hyperactivity disorder (ADHD) as well as the factors that may influence this. The following literature review will provide an overview of ADHD and the imbalance in diagnoses between genders. Subsequently, the role of the teacher in the identification of ADHD symptoms will be examined, as well as the evaluation of some of the variables that may influence a teacher's ability to effectively identify and support students with ADHD. The aims of the research project will then be fully presented, followed by the research hypotheses.

ADHD

ADHD is a chronic neurodevelopmental disorder, manifesting in three cardinal symptoms: inattentiveness, hyperactivity, and impulsivity (Hallahan, 2021). The nomenclature most widely regarded by clinical practitioners and researchers; the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013), classifies ADHD as being categorised into three primary presentations; predominantly inattentive presentation, predominantly hyperactive/impulsive presentation, and the combined presentation, which combines both inattentiveness and hyperactivity-impulsivity. Furthermore, the condition can vary in severity manifesting as mild, moderate, or severe impairments to the individuals social and occupational functioning (American Psychiatric Association, 2013).

While there are no official figures for ADHD prevalence worldwide, population surveys suggest that ADHD affects approximately 4-6% of school aged children (Hallahan, 2021) and 2.5% of adults (American Psychiatric Association, 2013). ADHD is one of the most common neurobehavioral conditions diagnosed during childhood, however the condition is often chronic, and symptoms persist into adulthood (Wilens & Spencer, 2013).

For diagnosis of ADHD, functional impairment in at least two settings such as social and personal relationships, occupational/educational and day today activities for a minimum of six months must be present (American Psychiatric Association, 2013).

ADHD in Ireland

In Ireland, ADHD is recognised as an additional need (Department of Children, Equality, Disability, Integration and Youth, 2024). There is no known figure of the prevalence of ADHD diagnoses in Irish children, however the Growing up in Ireland (McNamara et al., 2018) research reports 6% of 9-year-olds in the 2008 cohort report an ADHD diagnosis.

Diagnosis is made through referral by the general practitioner to the Child and Adult Mental Health Services (CAMHS), or privately by a registered clinician (Carr-Fanning & McGuckin, 2018, ADHD Ireland, n.d.). CAMHS (2014) report that ADHD is the most common primary presentation to their services among patients, with 31.6% of their referrals to the services reporting to them for investigation of ADHD symptoms. At present in Ireland, long wait times exist for treatment and diagnostics of ADHD, (Finnerty, 2023). Furthermore, CAMHS (2014) report a boy to girls ratio for ADHD diagnoses in Irish children as an estimated 4:1.

Gender Imbalance in ADHD diagnoses

This imbalance in male to female ADHD diagnoses has been recorded in research worldwide, with Mowlem et al. (2019) asserting that the gender imbalance in referral and diagnostic rates of ADHD remains an unanswered cardinal question. Bauermeister et al. (2007) argue that gender is not correlated with incidences of ADHD. Some of the reasons offered by the research to explain the gender gap in diagnoses include that girls are more likely to present with more inattentive symptoms (Arnold, 1996), and that girls may internalise symptoms leading to alternative diagnoses such as anxiety and depression (Quinn, 2008). In a review of medical records of children diagnosed with ADHD in Sweden, Klefsjo et al. (2020) notes that girls were more likely to be older on first referral of symptoms

compared to boys. Moreover, girls tended to require more visits to the diagnostic clinician prior to a diagnosis of ADHD, and furthermore, girls were more likely to be prescribed non-ADHD medication both before and after diagnosis when compared to boys. The results from a national survey carried out in the United States (Quinn & Wigal, 2004) mirrors these results, recording that girls are three times more likely to be treated with anti-depressant medication prior to their ADHD diagnosis.

Gender bias, as defined by the APA (2023) refers to any set of “stereotypical beliefs or biases about individuals on the basis of their gender” (p.1). Several studies have been carried out investigating the existence of gender bias in the recognition of ADHD and whether this can account for the imbalance in diagnoses between boys and girls (Mowlem et al., 2019, Martin et. al 2020; Lynch & Davison, 2024). Lynch and Davison (2024) assert that an “inequitable gender cycle” (p. 21) exists, reinforcing the conceptualisation that ADHD primarily affects males. They refer to the stereotypical image of the young boy with ADHD displaying hyperactive symptoms. This stereotypical image of the disruptive boy is also evaluated by Mowlem et al. (2019) who question whether parents may be less likely to recognise the need for ADHD investigation in girls due suggestions that girls may be more competent displaying prosocial behaviour in social settings, masking their symptoms. Furthermore, Mowlem et al. (2019) suggest that the current threshold for diagnostics requires a complete review to identify the appropriate threshold of symptoms for the diagnosis of ADHD in girls, because these thresholds are currently the same for girls and boys. Mowlem et al. argue that current screening instruments may not provide sufficient examples of how a particular symptom manifests in girls, providing the example of recommending the addition of excessive talking and giggling on diagnostic tools as an example of hyperactivity. Moreover, they suggest the need for the addition of new criteria on diagnostic tools which are inclusive of the way ADHD may manifest in girls (Mowlem et al., 2019).

Role of the teacher

The role of teachers in the recognition of ADHD symptoms worldwide has been repeatedly recognised (Snider et al., 2003; Stroh et al., 2008; Anderson et al., 2012). Lober et al. (1990) describe teachers as the most highly regarded source of information on a child's behaviour with Perold et al. (2010) describing a teacher's role in the diagnostic process as "pivotal" (p.470). Furthermore, teacher observations are commonly used by clinicians during the diagnostic and treatment process (Anderson et al., 2012). In Ireland, teachers are recognised by both researchers and policy makers to play a key role in the identification and referral of ADHD symptoms in children (Lynch & Davison 2024, National Council for Special Education (NCSE), 2023). However, a literature review of teacher knowledge of ADHD in English speaking countries (Flanagan & Climie, 2018) highlights that many teachers may not possess sufficient knowledge of ADHD that would enable them to accurately identify and support children displaying symptoms.

Teacher Knowledge of ADHD

A large-scale cross-sectional study of teachers in Saudi Arabia by Al-Moghamhsi and Aljohani (2018) supports Flanagan and Climie's (2018) assertion. Their research using the Knowledge of Attention Deficit Disorders Scale (KADDS) (Scuitto et al., 2004) concludes that the knowledge of ADHD among their sample was "suboptimal" (p. 9). The importance of teacher knowledge of ADHD is discussed by Ohan et al. (2008) who noted that the results of their study found that Australian teachers with a higher level of knowledge about ADHD were more likely to refer students displaying symptoms for further investigation. Moreover, Al-Moghamhsi and Aljohani (2018) note that factors which were significantly correlated with higher levels of ADHD knowledge were teaching experience, and experience teaching children with diagnosed ADHD. In the only published study using the KADDS with teaching populations in Ireland, Ward (2014) carried out a cross-sectional survey of Irish teacher's

knowledge of ADHD. Mean scores returned at 56%, and Ward (2014) identified several contributory factors to those who achieved a higher-than-average score. She concluded that teachers with greater teaching experience and those with a greater level of experience teaching children who had ADHD had significantly higher scores. This study, however, does not investigate the effect KADDS scores had on levels of gender bias. There is no current research investigating a link between the two.

Experience Teaching Students with ADHD

Ward's (2014) results are synchronous with the results of a large-scale cross-sectional study of teachers in the United States, comparing the knowledge of ADHD between experienced teachers and pre-service teachers (Anderson et al., 2012). The study concluded that ADHD knowledge scores were positively correlated with experience teaching children with ADHD. Conversely, research carried out in the United Kingdom by Moldavsky et al. (2013) did not record experience teaching children with ADHD as a predictor variable for their sample of teachers recognising the symptoms of ADHD in a child. However, they did not offer analysis as to why that may have been the case. There is an absence of research investigating whether experience teaching children with ADHD can lower levels of gender bias. Furthermore, research with Canadian teachers by Peebles and Mendalgio (2014) concluded that there are also significant links between experience teaching children with additional needs and higher teacher self-efficacy levels.

Teacher Self-Efficacy

Bandura (1986) defines self-efficacy as “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances.” (p. 391). Tschannen-Moran and Hoy (2001) describe the application of Bandura’s (1977) theory of self-efficacy to teachers, a concept known as teacher self-efficacy, as a teacher’s “judgement of his or her capabilities to bring about desired outcomes to student engagement

and learning” (p. 783). They argue that teachers with a stronger self-efficacy are better equipped to meet the needs of students with additional needs. Latouche and Gascoigne (2017) concur, asserting that teacher self-efficacy has been established through applied research as an important aspect of effective teaching. Moreover, Scitutto et al. (2000) suggests a possible correlation between teacher-knowledge of ADHD and self-efficacy. Legato (2010) further investigate the link between teacher knowledge of ADHD and higher teacher self-efficacy reporting a positive correlation between the two. Bandura (1993) asserts that teachers with higher self-efficacy can apply their skills correctly and competently. In terms of ADHD, this would refer to the identification of symptoms, and engagement with parents and other professionals regarding the referral and diagnostics process (NCSE, 2023). There is, however, a lack of empirical research to support the premise that teacher self-efficacy may be correlated with gender bias in the recognition of ADHD symptoms.

Continuous Professional Development (CPD) in ADHD

Li et al. (2019) highlighted how participation in CPD acted as a predictor variable for higher self-efficacy scores in their sample of teachers in China. Akram et al. (2014) notes the lack of CPD available for Scottish teachers about ADHD. Their study, also focused on teacher knowledge of ADHD, recommends that all teachers participate in CPD about ADHD to address diminished levels of knowledge regarding the condition. Kendall (2016) supports this assertion. In research with Irish teachers (Lynch & Davison, 2024), 40% of participants (n=124) reported perceived inadequacies with the quality of CPD provided to them regarding ADHD. Lynch and Davison (2024) suggest that the provision of high quality CPD about ADHD to Irish teachers would better enable them to recognise symptoms, both male and female manifestations, and better support their students with ADHD as a result. At present there is no figures indicating the percentage of Irish teachers who have engaged with CPD about ADHD.

Gender Bias Among Teachers in the Recognition of ADHD Symptoms

Research indicates that teachers are less likely to recognise ADHD symptoms in girls (Scuitto et al., 2004, Nolan et al., 2022). A study (n=199) by Scuitto et al. (2004) supports this assertion. Participating teachers received fictional child profiles and academic records to review and report whether they would refer the child for further investigation. Scuitto et al. report that teachers were more likely to refer boys, even when showing equal or lower levels of impairment compared to girls. Moreover, they note that teachers were significantly more likely to refer children displaying symptoms of hyperactivity. The DSM-5 (APA, 2013) notes that females are more likely than males to present with predominantly inattentive symptoms. Quinn and Madhoo (2014) question whether this difference in presentation may contribute to the reason ADHD symptoms are often overlooked by parents and teachers. Lynch and Davison (2024) concur, asserting that teachers may not recognise internalised symptoms of ADHD as frequently, because they are less likely to disrupt the classroom. The prevalence of girls displaying symptoms of ADHD and having these attributed to emotional difficulties is also commonly discussed in the research, with Groenwald et al. (2009) concluding from their cross-sectional research that some educators may recognise a problem in girls but attest it to emotional difficulties rather than ADHD. This mirrors the results discussed previously in this literature review regarding the increased likelihood girls being treated for emotional disorders prior to receiving a diagnosis of ADHD (Klefsjo et al., 2020; Quinn & Wigal, 2004).

Nolan (2017) has been the sole researcher to broach gender bias among teachers in an Irish context. His mixed- methods cross-sectional doctoral study (n=38) examines teacher gender bias in ADHD and anxiety. His study was later published in a peer reviewed journal in conjunction with other researchers (Nolan et al., 2022). Nolan (2017) reports a significant effect in teachers favouring boys for ADHD symptoms and girls for anxiety symptoms. This is very much in concurrence with the findings of research carried out in other jurisdictions

(Mowlem et al., 2019, Groenwald et al., 2009). Nolan further noted that teachers were quicker to reject ADHD symptoms in girls than they were to accept them, concluding that gender-bias recorded in the attitudes of the participants may influence their ability to identify ADHD symptoms displayed by girls. Furthermore, Nolan (2017) recommends that further study should examine gender bias in ADHD symptoms alone.

Aim of the Current Research Study

The primary aim of this study is to investigate the existence gender bias among Irish teachers in recognising ADHD symptoms. To date there has been very limited published research carried out in an Irish context that addresses the gender imbalance in referral and diagnostics of children with suspected ADHD in Ireland. The aforementioned figures provided by CAMHS (2014) indicate that there is a significant gender imbalance in diagnoses of boys to girls (4:1) in Ireland, indicating that there is a problem somewhere in the identification, referral, and diagnostics process. Given the fact that teachers have been given special recognition as key figures in the identification and referral of children ADHD (NCSE, 2023), it is important to understand their perception and knowledge of the condition. This study attempts to further Nolan's (2017) work and may provide some more information regarding levels of gender bias among teachers. Additionally, it may provide greater clarity as to factors that may influence teacher's ability to effectively identify the symptoms of ADHD in their students. Finally, it is hoped this research will contribute to the emerging picture regarding the under-recognition and diagnosis of girls and women with ADHD in Ireland.

The literature review has provided some insight into some of the factors that may influence teachers recognising and referring children with ADHD symptoms. This research project has selected to investigate four of these factors: teacher knowledge of ADHD, teacher-self efficacy, experience working with children who have ADHD, and participation in CPD about ADHD and their relationship with gender bias. Four key hypotheses have

subsequently been composed as the focus of this research. The hypotheses to be investigated are:

1. There will be a negative correlation between higher knowledge of ADHD and gender bias.
2. There will be a negative correlation between teacher self-efficacy and gender bias.
3. There will be a negative correlation between direct experience teaching students with ADHD and gender bias.
4. There will be a significant difference in gender bias between teachers who have engaged in CPD specifically about ADHD.

Moving forward, the methodology chapter will outline the methodological steps taken to complete the study, including participant selection, how the study was designed and what materials were used. The study procedure will also be elucidated before ethical considerations are presented. The results chapter will subsequently be presented, and following this, the discussion chapter will consider the findings with reference to published literature. The strengths limitations of the study will also be explored, as well as recommendations for future research and policy and practice.

2. Methodology

Participants

A sample size of (n=100) participants (85 females, 15 males), currently teaching in Irish schools (59 primary school teachers, 37 post-primary teachers and 4 school management) was attained. Non-probability sampling was utilised for the recruitment of participants. The sample was collected purposively (Howitt & Cramer, 2020) and given that teachers were the intended focus of this study, the key participation criterion was that all participants were qualified teachers working in the Republic of Ireland. A plethora of strategies were employed to purposively recruit participants, including the advertisement of the study the educational hashtag on Twitter/X; #edchatie. E-mails explaining the purpose of the survey and a request to share it with teaching staff were also sent to both primary and post-primary schools in a fifty-kilometre radius of the researcher's own workplace. Snowball sampling was also utilised (Howitt & Cramer, 2017), as associates of the researcher and participants were asked to pass on the survey to others, they knew who fit the research criteria. Finally, it was key to stress to any potential participants that participation was completely voluntary. The ethical considerations for participant recruitment will be discussed in the ethics section of this chapter.

Design

Howitt and Cramer (2017) recommend using a non-manipulative study when the endeavouring to establish a potential association between variables and compare the size of this potential association. As discussed in the introduction, four hypotheses were developed. After developing the hypotheses for this study, and identifying several predictor variables (PV), it was decided that a non-manipulative study design would be most suitable. Moreover, a correlational format of analysis was selected as most appropriate for the study, with the criterion variable (CV) being identified as gender bias in the identification of ADHD

symptoms in students, and the PVs to include teacher knowledge of ADHD, teacher self-efficacy levels, experience teaching children with ADHD, and engagement in CPD about ADHD (Wood et al., 2012). The PVs were selected from the review of published literature. A cross-sectional format for this correlation was chosen to capture a snapshot of teacher's gender bias in ADHD at the time of the study (Wood et al., 2012). It was further decided that the data would be best collected anonymously via an online questionnaire.

Materials

Materials utilised by the researcher included Microsoft Forms, as the platform chosen to host the survey, Microsoft excel to prepare the data for analysis, and the Statistical Package for Social Sciences (SPSS) version 28 for data analysis. Furthermore, several materials were created by the researcher. An information sheet (Appendix A) was designed which explained the purpose of the project, as well as participation criteria and the intended use and storage of the data. A consent form (Appendix B) was subsequently designed to ensure that participants fully understood how their data would be used. A study debrief (Appendix C) was also designed and was displayed on completion of the questionnaire. The questionnaire itself (Appendix D) consisted of five sections beginning with demographic questions (Appendix E). These questions built up a sample profile, by collecting age, gender, current teaching position, experience working with children diagnosed with ADHD, experience with ADHD specific training, CPD in ADHD and perceived preparedness to recognise the symptoms of ADHD in a student. Four subsequent measurement tools were included, these measures will be explored in the following sections in the order they appeared in the questionnaire.

Teacher Sense of Efficacy Scale (TSES) (Tschannen-Moran & Hoy, 2001)

Tschannen-Moran and Hoy (2001) built and tested this self-efficacy measure for teachers with the intention of measuring teacher self-efficacy using three sub-scales: efficacy in student engagement, efficacy in instructional studies, and efficacy in classroom

management. They argue that their model is superior to others since it includes this broader range of sub-scales and is still widely used in large scale research (Ma et al., 2021; Sokal et al., 2020). The measure is available in short form (12 questions) and long form (24 questions). It was decided that the short form would be used for the survey ($\alpha = .90$). The questionnaire (Appendix F) includes 12 statements, and participants respond to each statement on a nine-point Likert-scale. An answer of one corresponds with 'nothing', three with 'very little', five with 'some influence', seven with 'quite a bit' and nine 'a great deal'. Scoring of this measure is straight-forward as none of the questions are reverse scored.

ADHD Vignettes

Previous research in the field of ADHD and gender was searched for studies which used ADHD vignettes as a measure. Vignettes (Appendix G) were selected to ensure that the three presentations of ADHD were included. Vignettes B and C describe inattentive symptoms, Vignette A and E describe combined symptoms, while Vignette D describes hyperactive/impulsive. Participants were asked to read each vignette and select whether they felt the piece is most likely written about a boy, a girl or either gender. As the aim of the study was to measure gender bias some vignettes (B, C, and E) were de-gendered prior to their inclusion in the questionnaire. In each case gendered pronouns were changed to gender neutral pronouns and names were anonymised. Vignettes were also modified to fit into the Irish school model, and e.g. a nine-year-old was placed in third class. Vignette A was taken from Nolan's (2017) investigation of teacher gender biases towards ADHD and anxiety. Vignettes B and C were selected from the Coles et al. (2012) study of the gender gap in referrals for children with ADHD. Vignette from Pisecco et al. (2010) on the effect of child characteristics on teacher's acceptability of classroom based behavioural strategies and psychostimulant medication for the treatment of ADHD. Finally, Vignette E was extracted from Speerforck et al. (2021) investigating public beliefs about ADHD. Each vignette was

verified within its study as being created by or in consultation with psychiatrists or psychologists. Several research papers which utilised vignettes (Queally et al., 2010; Gonsalvez, 2012, Erfanian et al., 2020) were consulted in the development of the scoring for the vignettes in this study. It was decided the vignettes would be best scored on a continuum ($\alpha = .47$). Each answer of girl would receive a score of one, answers of either would score ten, while answers of boy would score 20. The maximum score achievable was 100, while the minimum was five. The continuum included in figure 1. depicts how a score of 15 or below indicates that the participant is biased towards girls, a score between 16 and 59 indicates a balanced perception between genders, and a score of 60 and above indicates biased towards boys.

Figure 1

The Scoring Continuum For Vignettes



ADHD and Anxiety Gender Bias Scale (AAGB) (Nolan, 2017)

Designed by Nolan (2017) to investigate teacher gender bias towards ADHD and anxiety, Nolan describes how this measure was designed because of the lack of measurement scales assessing gender bias in ADHD. The scale includes 20 statements to respond to. The scale uses a five-point Likert-scale, with one corresponding with 'strongly disagree', three as 'neutral' and five as 'strongly agree'. This scale (Appendix H) was modified to a seven-point Likert-scale (Appendix I) for this study to offer an even broader level of agreement or

disagreement for participants. In scoring this scale a 'neutral' response results in a score of zero, therefore scores closer to six indicate agreeance with a statement, and scores closer to one indicate dissent. For this study the AAGB scale was broken into two subscales: one for gender bias towards girls (GBG) (statements 2, 3, 5, 7, 9, 11, 15, 17, 18, 19) ($\alpha = .81$) and one for gender bias towards boys (GBB) (statements 1, 4, 6, 8, 10, 12, 13, 14, 16, 20) ($\alpha = .87$).

Knowledge of Attention Deficit Disorder's Scale (KADDS) (Sciutto et al., 2000).

Designed to measure teacher knowledge of ADHD, the KADDS (Appendix J) covers three specific areas: symptoms and diagnostics, treatment, and associated features/general information. The questionnaire can be split into three subscales using these three content areas. It was decided however, that for maximum insight into participant knowledge of ADHD all three subscales would be used in this study. Sciutto et al. report $\alpha = .86$ for the measure. In the questionnaire, participants are furnished with 39 statements about ADHD, and asked to select 'true', 'false' or 'don't know' in response to each one. One point is allocated for each correct answer, while incorrect answers, and 'don't know' receive a score of zero. The higher the score, the higher the participant's knowledge of ADHD is deemed.

Procedure

The study began with the attainment of ethical approval from Dublin Business School (DBS) ethics committee. The survey was built on Microsoft Forms and reformatted multiple times until it was deemed complete. Subsequently, the data collection process ensued, beginning with the previously described participant recruitment process. Potential participants were provided with a brief explanation of the study and the link for participation. The link directed participants to a self-report questionnaire on Microsoft Forms. Prior to commencing the survey, participants were required to read an information sheet and complete the consent form. Once the questionnaire was complete, participants were presented with the study debrief page. The data collection process lasted for a period of 4 weeks.

Ethics

Ethical practice was at the forefront of this project. As such, the Psychological Society of Ireland's (PSI) Code of Professional Ethics (PSI, 2019) was adhered to throughout the design and implementation of the research. These guidelines emphasise respect for participants, and adherence to promises of anonymity. Prior to the commencement of data collection or recruitment of participations, a detailed ethics proposal was submitted to the DBS ethics committee. The research was deemed to be low risk to participants due to the anonymous nature of the questionnaire, and the fact that the participants did not belong to a vulnerable population group. An ethical approach was taken to participant recruitment. As such, participants were given a synopsis of the purpose of the study prior to participation. They were also reminded that participation was voluntary. Care was taken to ensure that no potential participant was asked to do the survey by a superior. With this in mind, schools were contacted via their administration office rather than directly principals. Participants had to confirm that they had read a detailed explanation of the study, and how their data in their completion of the consent form before they could proceed to the questionnaire. It was also made clear to participants that their data could be withdrawn any time prior to submitting the survey, after which time it could not be withdrawn due to the anonymous nature in which it was collected. The potential for dissemination of data within the completed study was also made clear to participants, as well as the fact that the data would be stored in line with EU regulations; electronically in a secure location by the researcher for five years. No identifying information was collected from participants. Each question was multiple choice, therefore there was no risk of colloquialisms being collected. On completion of the survey, participants were presented with a debrief page. The debrief directed participants to trusted organisations such as Health Service Executive (HSE) and ADHD Ireland, which can provide further

information on ADHD. Email contact details for the researcher and supervisor also featured on the debrief for participants direct queries to regarding the research or their data.

3. Results

The primary aim of this study was to investigate levels gender bias among teachers in the recognition of ADHD. This was chosen as the criterion variable (CV). The predictor variables (PV) selected were teacher knowledge of ADHD (KADDS scores), teacher self-efficacy (TSES scores), level of experience teaching students with ADHD and participation in CPD about ADHD. Both descriptive and inferential statistics were generated during the data analysis process on SPSS. The descriptive statistics provide a demographical view of the participant sample, as well as an overview of mean scores (M) and standard deviations (SD) in the predictor and criterion variables.

Descriptive Statistics

Table 1 presents participant demographic information including current teaching setting, experience teaching students with ADHD, details of ADHD training, ADHD specific training during their initial teacher education (ITE) and engagement in CPD about ADHD.

Table 1

Demographic Results

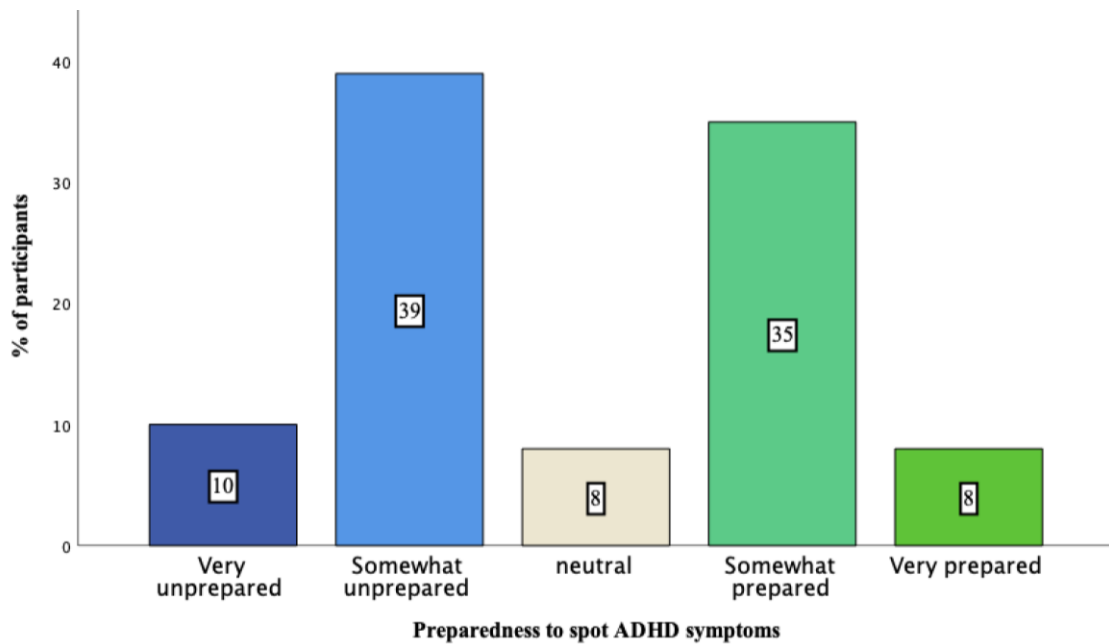
Variable	N	%
Age Bracket		
18-24	4	4
25-34	34	34
35-44	33	33
45-54	22	22
55-64	6	6
65+	1	1
Current Setting		
Junior Infants/Senior Infants	7	7
First/Second Class	13	13
Third/Fourth Class	6	6

Variable	N	%
Fifth/Sixth Class	13	13
Special Education Setting (Primary)	20	20
Post-Primary	37	37
Management	4	4
Number of students taught with ADHD		
Less than 5	38	38
6 – 10	34	34
11 – 15	13	13
More than 15	15	15
ADHD training in ITE		
Yes	16	16
No	77	77
Don't remember	7	7
CPD about ADHD		
Yes	50	50
No	50	50
	M	SD
Post-Qualification Experience	15.14	9.33

The sample included 59% primary teachers, and 37% post-primary as well as 4% teachers in school management roles, with a M of 15.14 years post-qualification experience. 38% reported teaching less than five children with diagnosed ADHD, 34% between 6-10, 13% between 11-15 and 15% with more than 15. 16% reported receiving ADHD specific training during their ITE, while 77% did not, and 7% could not recall. Furthermore, 50% reported engaging in CPD about ADHD, and 50% did not. The self-report results of preparedness to recognise symptoms of ADHD is presented in Table 2.

Table 2

Self-Report Preparedness to Recognise ADHD symptoms



49% of participants reported feeling in some way underprepared for recognising the symptoms of ADHD in a student.

Gender Bias Measures

Three separate measures of gender bias were included in the questionnaire: vignette scores (VGB), AAGB girl scores (GBG) and AAGB boy scores (GBB). The M and the SD of the VGB as well as the variance, range, minimums, and maximums are presented in table 3.

Table 3

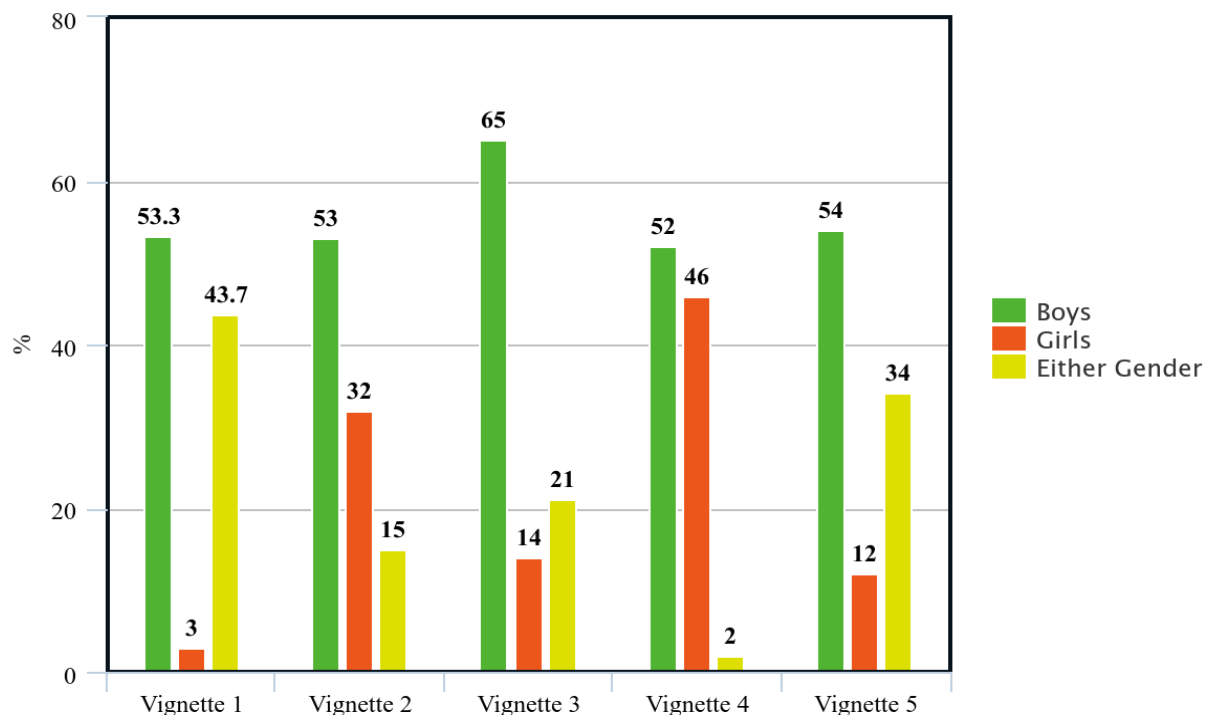
Results Breakdown of Vignettes (VGB)

Vignette	ADHD Type Described	M	SD	Variance	Range	Minimum	Maximum
1	Combined	14.07	5.44	29.62	19	1	20
2	Inattentive	8.62	2.28	39.41	19	1	20
3	Inattentive	10.84	5.65	31.95	19	1	20
4	Hyperactive/Impulsive	14.42	5.32	28.37	19	1	20
5	Combined	12.32	6.22	38.73	19	1	20
Total Score		60.04	16.60	275.41	69	31	100

The M overall score for this measure was 60.04. The maximum score achievable was 100, with any score over 60 indicating gender bias towards boys. This indicates that on average participants did show an amount of gender bias towards boys when assigning gender to each of the case studies. Over half of the participants assigned the gender of boy in each vignette. The largest percentage of participants (32%) chose to assign the gender of girl on vignette 2, which described an inattentive presentation of ADHD. The results of the vignettes are presented in Figure 2.

Figure 2

Graphical Representation of Vignette Answers



GBG and GBB results are presented in table 4.

Table 4

Results of the AAGB Girl (GBG) and Boy (GBB) subscales

Variable	M	SD	Variance	Range	Minimum	Maximum
GBG	19.89	8.30	68.87	43	5	48
GBB	19.89	7.39	54.57	31	8	39

The maximum score on each sub-scale was 60. Anything over 30 in the GBG would indicate a gender bias towards girls, and over 30 in the GBB would indicate gender bias towards boys. The M score was 19.89 for GBG, and 19.89 for GBB. This indicates that participants did not show gender bias towards either gender in their answers. Results from two of the statements from the AACB scale are presented in Table 5.

Table 5

Breakdown of the Results of Two AAGB Statements

	Strongly Disagree %	Disagree %	Slightly Disagree %	Neutral %	Slightly Agree %	Agree %	Strongly Agree %
Boys are more likely to have ADHD than girls	8%	31%	9%	9%	23%	12%	8%
Girls are more likely to have ADHD than boys	28%	46%	11%	11%	4%	0%	0%

43% of participants agreed in some form that ADHD was more likely present in boys, while 4% of participants agreed that ADHD was more likely present in girls, and 85% disagreed with this statement to some degree. The answers to these statements infer that there are some gender bias tendencies towards boys.

The descriptive statistics of participant scores in KADDS are presented in table 6.

Table 6*Results of the KADDS*

Variable	M	SD	Variance	Range	Minimum	Maximum
KADDS Overall	19.07	6.33	40.09	28.00	2	30
Associated Features	7.25	2.81	7.90	13	0	13
Symptoms/Diagnosis	5.86	1.86	3.43	8	1	9
Treatment	5.28	2.47	6.18	9	1	10

The M score in the KADDS was 19.07 (49%), with an SD of 6.33, indicating an average knowledge of ADHD. The minimum score was 2 indicating an extremely low knowledge of ADHD, and a maximum of 30 indicating a moderately high knowledge of ADHD. Participants scored best in the associated features sub-scale, with a M score of 7.25 and SD of 2.81. In the symptoms/diagnosis subscale the M was 5.86, and SD 1.86. Finally, the treatment sub-scale returned a M of 5.28 and SD 2.47.

The descriptive statistics of the TSES are presented in table 7.

Table 7*Breakdown of the TSES results*

Variable	M	SD	Variance	Range	Minimum	Maximum
TSES Overall	85.78	11.13	123.87	64.00	44.00	108.00
Student Engagement	26.67	4.75	22.65	27.00	9.00	36.00
Instructional Strategies	29.87	3.93	15.43	17.00	19.00	36.00
Classroom Management	29.25	3.96	15.66	24.00	12.00	36.00

The results indicate a moderately high level of efficacy among participants with the M score per question at 7.14, which matches the statistics provided by Tschannen-Moran and Hoy (2001). The M scores for all three subscales were similarly high inferring that on average participants had a strong sense of self-efficacy. One participant scored the maximum of 108, indicating excellent teaching self-efficacy, the lowest score was 44 which would indicate a poor level of self-efficacy.

Inferential Statistics

Hypothesis 1: Knowledge of ADHD (KADDS) will have an effect on gender bias.

To investigate the effect of ADHD knowledge on gender bias, three separate linear regressions were performed, each measuring KADDS scores against a separate gender bias score: vignette gender bias scores (VGB), AAGB subscale for gender bias towards girls (GBG), and AAGB subscale for gender bias towards boys (GBB)

VGB.

Initial assumption checks for the predictor with the criterion ($r=.25$), multivariate outliers (Mahal distance Maximum = 7.26), normality (Histogram & Normal plots look normal) and linearity (Partial plots indicate approximate linearity) suggest the assumptions of the regression have been met. Using the linear regression, it was found that KADDS scores do predict VGB ($F(1, 88) = 6.00, p = .016, R^2 = .33$) (KADDS, $\beta = -.25, p = .016, CI (95\%) - 1.25, -.13$), therefore the null can be rejected. The significant negative relationship between VGB scores and KADDS scores indicates greater knowledge of ADHD predicts lower gender bias towards boys.

GBG.

Initial assumption checks for the predictor with the criterion ($r=.17$), multivariate outliers (Mahal distance Maximum = 7.03), normality (Histogram & Normal plots look normal) and linearity (Partial plots indicate approximate linearity) suggest the assumptions of the regression have been met. Using the linear regression, it was found that KADDS scores do not predict GBG ($F(1, 87) = 2.60, p = 0.111, R^2 = .03$) (KADDS, $\beta = -.17, p = .111, CI (95\%) -.51, .05$), therefore the null cannot be rejected.

GBB.

Initial assumption checks for the predictor with the criterion ($r=.28$), multivariate outliers (Mahal distance Maximum = 7.18), normality (Histogram & Normal plots look

normal) and linearity (Partial plots indicate approximate linearity) suggest the assumptions of the regression have been met. Using the linear regression it was found that KADDS scores do predict GBB ($F(1, 85) = 7.44, p = .008, R^2 = .09$) (KADDS, $\beta = -.28, p = .008, CI (95\%) -.57, -.09$), therefore the null can be rejected. The significant negative relationship between GBB scores and KADDS scores indicates greater knowledge of ADHD predicts lower gender bias towards boys.

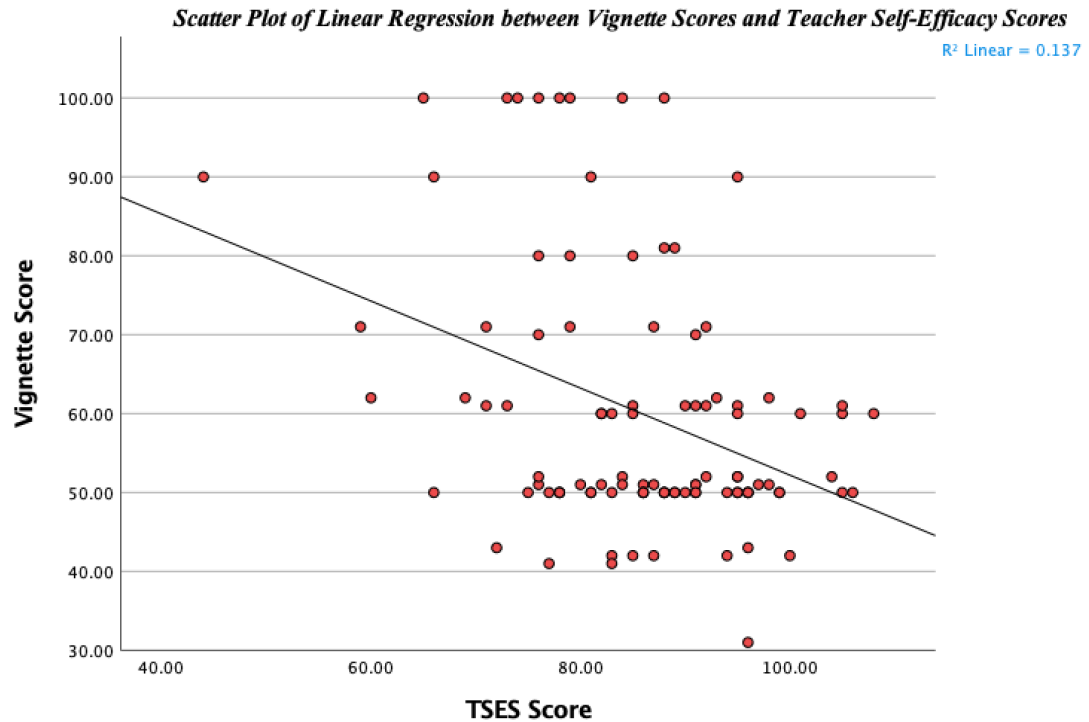
Hypothesis 2: Teacher self-efficacy scores will influence gender bias.

To investigate the effect of teacher self-efficacy scores on gender bias, three separate linear regressions were performed, each measuring teacher self-efficacy (TSES) scores against a separate gender bias score (VGB, GBG, GBB).

VGB.

Initial assumption checks for the predictor with the criterion ($r=.37$), multivariate outliers (Mahal distance Maximum = 14.10), normality (Histogram & Normal plots look normal) and linearity (Partial plots indicate approximate linearity) suggest the assumptions of the regression have been met. Using the linear regression, it was found that TSES scores do predict VGB ($F(1, 98) = 15.54, p < .001, R^2 = .13$) (TSES, $\beta = -.37, p < .001, CI (95\%) -.83, -.27$), therefore the null can be rejected. The highly significant negative relationship between TSES scores and VGB indicates that teachers with higher self-efficacy scores scored lower in gender bias towards boys.

Figure 3



GBG.

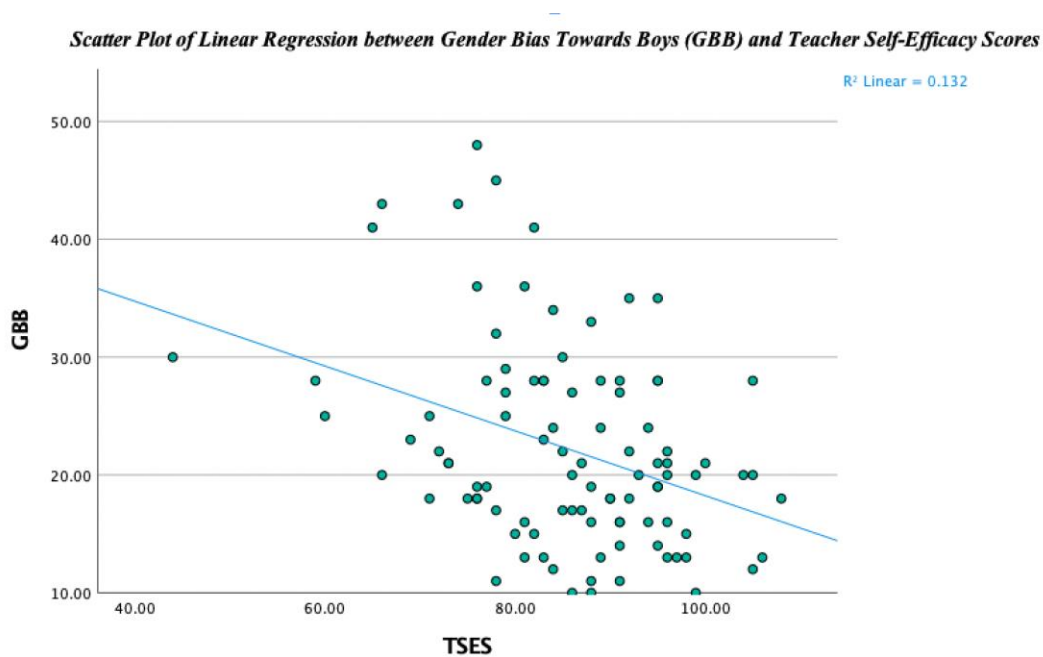
Initial assumption checks for the predictor with the criterion ($r=.36$), multivariate outliers (Mahal distance Maximum = 13.63), normality (Histogram & Normal plots look normal) and linearity (Partial plots indicate approximate linearity) suggest the assumptions of the regression have been met. Using the linear regression, it was found that TSES scores do predict GBG ($F(1, 93) = 13.72, p < .001, R^2 = .12$) (TSES, $\beta = -.36, p < .001, CI (95\%) -.38, -.11$), therefore the null can be rejected. The highly significant negative relationship between TSES scores and GBG indicates that teachers with higher self-efficacy scores scored lower in gender bias towards girls.

GBB.

Initial assumption checks for the predictor with the criterion ($r=.36$), multivariate outliers (Mahal distance Maximum = 13.83), normality (Histogram & Normal plots look normal) and linearity (Partial plots indicate approximate linearity) suggest the assumptions of the regression have been met. Using the linear regression, it was found that TSES scores do

predict GBB ($F(1, 95) = 14.40, p = <.001, R^2 = .12$) (TSES, $\beta = -.36, p < .001, CI (95\%) -.42, -.13$), therefore the null can be rejected. The highly significant negative relationship between TSES scores and GBB indicates that teachers with higher self-efficacy scores scored lower in gender bias towards boys.

Figure 4



Hypothesis 3: Experience teaching children with ADHD will have a negative correlation with gender bias scores.

To test this hypothesis, three separate one-way analysis of variance were performed with experience teaching children with ADHD as the independent variable against the dependent variable of gender bias (VGB, GBG, GBB).

VGB.

A one-way analysis of variance recorded no significant differences in gender bias between the four groups ($F(3, 96) = 1.27, p = .289$), therefore the null cannot be rejected as teaching experience did not predict gender bias scores.

GBG.

A one-way analysis of variance recorded no significant differences in gender bias between the four groups ($F(3, 93) = 2.50, p = .064$), therefore the null cannot be rejected as teaching experience did not predict gender bias scores.

GBB.

A one-way analysis of recorded no significant differences in gender bias between the four groups ($F(3, 91) = 1.81, p = .152$), therefore the null cannot be rejected as teaching experience did not predict gender bias scores.

Hypothesis 4: Engagement in CPD about ADHD will have an effect on gender bias scores.

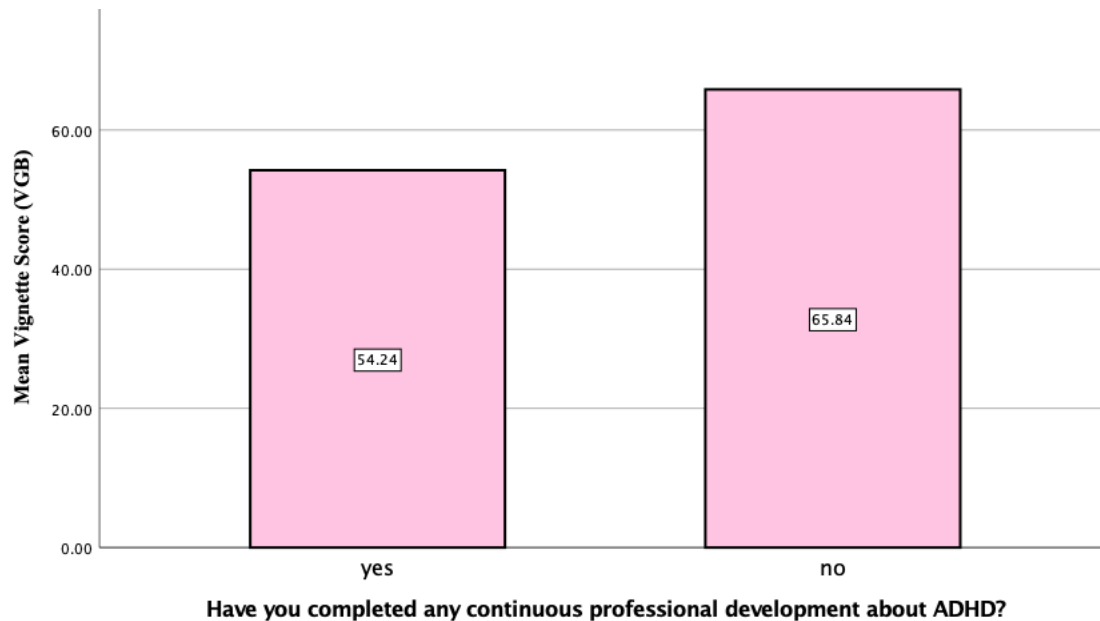
To test this hypothesis, three separate independent samples t-tests were performed, comparing gender bias scores (VGB, GBG, GBB) between participants who had received CPD about ADHD and those who had not.

VGB.

An independent samples t-test found that there was a statistically significant difference between participants who had participated in CPD on ADHD ($M = 54.24, SD = 9.87$) and those who had not ($M = 65.84, SD = 19.76$) ($t(98) = -3.71, p < .001, CI(95\%) - 17.80, -5.37$). Therefore, the null can be rejected as participation in CPD did predict gender bias scores. The highly significant negative relationship between those who had completed CPD in ADHD and their VGB scores indicates participants were significantly less likely to display gender bias in their vignette answers than those in the group who had completed no CPD. The results of this are presented in Figure 5.

Figure 5

Results of the independent t-test between CPD and non-CPD groups



GBG.

An independent samples t-test found that there was a statistically significant difference between participants who had participated in CPD on ADHD ($M = 17.78$, $SD = 6.322$) and those who had not ($M = 21.95$, $SD = 9.47$) ($t(95) = -2.56$, $p = .006$, $CI (95\%) -7.43, -.94$). Therefore, the null can be rejected as participation in CPD did predict gender bias towards boys scores. The results indicate that those who engaged in CPD about ADHD scored lower in gender bias towards girls in the recognition of ADHD symptoms.

GBB.

An independent samples t-test found that there was a statistically significant difference between participants who had participated in CPD on ADHD ($M = 17.85$, $SD = 5.23$) and those who had not ($M = 21.80$, $SD = 8.56$) ($t(93) = -2.73$, $p = .008$, $CI (95\%) -6.83, -1.07$). Therefore, the null can be rejected as participation in CPD did predict gender bias towards boys scores. The results indicate that those who engaged in CPD about ADHD scored lower in gender bias towards boys in the recognition of ADHD symptoms.

4. Discussion

The aim of this research project was to identify whether there was evidence of gender bias in teacher's perception of ADHD, and to investigate several potential influencing factors of this gender bias. This chapter will first discuss levels of gender bias among participants, subsequently, each predictor variable (PV) of gender bias will be discussed. The strengths of the study will be elucidated, as well as the strengths and limitations. Finally, implications and potential applications of the research and the conclusion will be presented.

Gender Bias

Three separate measures of gender bias were used during the course of this study: VGB, GBG and GBB. The mean scores recorded by the vignettes was 60.04, with anything over 60 being regarded as gender bias towards boys. On each of the five vignettes presented to participants, over 50% of the answers indicated that participants believed the vignette was describing a boy. This concurs largely with other published studies investigating gender bias among teachers in the recognition of ADHD symptoms in students such as the study by Scuitto et al. (2004) in the United States, and that of Nolan (2017) in Ireland. Both studies concluded that teachers were more likely to recognise symptoms of ADHD in boys over girls. Given the key role that teachers play in the recognition and referral of children with ADHD symptoms (Coles et al., 2012; NCSE, 2023), this may potentially add some insight to the emerging picture of the imbalance ADHD diagnoses among children in Ireland. The highest percentage of participants choose the option of girl for vignette 2 (32%), which presented a case of inattentive ADHD. The literature argues that because girls more often present with inattentive symptoms, teachers may be less likely to refer them for diagnostics and treatment (Arnold, 1996; Scuitto et al., 2000; Lynch & Davison, 2024). The results of vignette 2 could potentially lend support this assertion that some teachers may unconsciously associate inattentive symptoms with girls.

Conversely to the VBG scores, the AAGB scales, both boys and girls returned a different picture of gender bias among participants, with scores indicating no significant gender bias towards boys or girls. Vonkova et al. (2016) discuss how answers to self-report measures, such as the Likert scale in the case of the AAGB can sometimes have inaccuracies as various factors such as culture, and economic background may lead participants to perceive statements differently. This differential item functioning, also discussed by Weiss and Roberts (2018), can lead to decreased accuracy and reliability in self-report measures. Vonkova et al. (2016) recommend supporting self-report measures with vignettes to measure the same variable, describing the vignettes as an “anchoring” method. In their research investigating dishonest behaviour among students, they concluded that students were more likely to make more accurate judgements about behaviour when evaluating case-studies presented as vignettes, when compared to self-reports on their own behaviour. Haufman et al. (2019) had similar results in their study with a sample of teachers. The disparity between the GBG and GBB scores with the VGB scores in this study leave open the possibility that when participants were asked to self-report their gender bias, they could make more considered decisions, while when presented with a case study, their unconscious gender bias influenced their decisions. Supporting this hypothesis is the fact that two items, one the GBG, and one on the GBB scales returned contradictory results to the overall AAGB scores, wherein participants were asked to answer whether they felt that ADHD was more likely present in girls, and in then in boys. As described in the results chapter, 43% of participants agreed that ADHD was more likely to be present in boys than girls, while only 4% of participants answered that ADHD was more likely present in girls. Furthermore 85% of participants disagreed to some degree with the premise that ADHD is more present in girls. The answers to these two specific items do indicate a level of gender bias towards boys.

Hypothesis One – Teacher Knowledge of ADHD

This hypothesis proffered that knowledge of ADHD (KADDS) would have a negative relationship with gender bias. Three linear regressions were performed, one with each gender bias score (VGB, GBG, GBB). The linear regression results indicated that there was not a significant relationship between KADDS and GBG scores. However, the VGB and GBB results both returned a significant negative relationship with KADDS. This indicates that as KADDS scores rose, VGB and GBB scores lowered, supporting hypothesis one. This supports the results of the research by Flanagan and Climie (2018) who proffered that sufficient knowledge of ADHD is key to enabling teachers to accurately identify symptoms of ADHD and that of Ohan (2008) who concluded that higher levels of ADHD knowledge meant teachers were more likely to refer students on for diagnostics. While there is little published research on the relationship between knowledge of ADHD and gender bias, the results of this study returned significant relationships between the two variables, which could warrant further research. Finally, the mean scores of teacher knowledge of ADHD recorded in this survey was 19.07 (49%). This was lower than the results recorded by Ward (2014), where the mean scores returned at 56% and higher than those recorded by Al-Moghamsi and Aljohani (2018) (38%), which they described as sub-optimal. The scores recorded in this study suggest that there are gaps in Irish teacher's knowledge about ADHD, with 49% of participants self-reporting that they did not feel prepared to recognise ADHD symptoms in their students. This could be due to lack of knowledge about ADHD. The demographic results recorded 77% of participants reporting they did not receive any ADHD training during their initial teacher education, and a further 7% reporting that they could not remember if they had. This suggests more could be done to educate teachers on the ADHD.

Hypothesis Two – Teacher Self-Efficacy

It was hypothesized that higher teacher self-efficacy scores would result in lower levels of gender bias. Three separate linear regressions were carried out (VGB, GBG, and

GBB) against TSES scores. Each linear regression returned a highly significant negative relationship between TSES and gender bias (VGB, GBG, GBB). This suggests that higher teacher self-efficacy scores are significantly linked with lower levels of gender bias towards boys and girls in the recognition of ADHD symptoms. While there is a lack of empirical research investigating the links between teacher self-efficacy and teacher gender bias in ADHD, Tschannen-Moran and Hoy (2001) assert that teachers with higher self-efficacy are more capable of supporting students with additional needs. The results of this study indicate that teachers with higher teacher self-efficacy are less likely to display gender bias in the recognition of ADHD symptoms, suggesting support for the premise of Tschannen-Moran and Hoy (2001).

Hypothesis Three – Experience Teaching Students with ADHD

This hypothesis was investigated by carrying out three one-way ANOVAs, with experience teaching children ADHD as the independent variable against VGB, GBG, and GBB. The results from all three ANOVAs indicated no significant difference in gender bias scores between groups. This was an unexpected result, and contradictory to the hypothesis. While there was an absence of comparable research regarding gender bias and experience teaching children with ADHD, the results did appear to be in contradiction with the majority of previous research on the topic, with Ward (2014) and Anderson et al. (2012) both asserting that ADHD knowledge and the ability to recognise the symptoms of ADHD in students were positively correlated with experience teaching children with ADHD. While Moldavsky et al. (2013) did not however experience with ADHD as a predictor for teachers' ability to spot the symptoms of ADHD in a student, however they did not offer an analysis as to the potential reason for this, and therefore cannot offer any insight into the results of this study. On examination of the number of participants in each of the teaching experience categories it is clear that participant numbers are skewed towards those with less experience with children

who have ADHD (72% of participants fell into teaching less than 10 students with ADHD categories), which may have led to an inaccurate result.

Hypothesis Four – Participation in CPD about ADHD

To investigate this hypothesis, three separate independent samples t-tests were carried out comparing gender bias scores between participants who had participated in CPD about ADHD and those who had not. The results very much supported the hypothesis that those who had engaged with CPD about ADHD would return lower gender bias scores. The VGB test returned a highly significant result with those who had engaged in CPD scoring a mean of 11.6 points less on the VGB than those who had. This would indicate that participation in CPD may result in the lowering of unconscious levels of gender bias in teachers in the recognition of ADHD symptoms. This very much concurs with the study, also carried out in an Irish context, by Lynch and Davison (2024), who concluded that CPD would better enable participants to recognise ADHD symptoms in girls and boys.

Strengths and Limitations of the Study

There are several strengths and limitations to this research project. Looking first to the strengths, this project endeavoured to fill a gap in Irish psychological research identified by Nolan (2017) in the area of teacher gender bias in ADHD. The results of this study provide further evidence to lend support to the assertion of Nolan (2017) that teachers are biased towards the recognition of ADHD in boys. Furthermore, this study also endeavoured to explore some of the potential influencing factors on teacher gender bias scores, which for the factors of teacher knowledge of ADHD, teacher self-efficacy and experience teaching students with ADHD, was novel research in an Irish context. The investigation of the relationship between CPD on ADHD and gender bias lends further support to the conclusions drawn by Lynch and Davison (2024) regarding its importance in the recognition of ADHD symptoms in boys and girls.

The reliability of the measures used was also a strength in this study, with the KADDS, TSES and AAGB all returning strong reliability scores. The use of vignettes is a further strength in the study as it acts as an anchor for the self-report measure, they were compared to. The study is also highly replicable due to its methodological strengths. Furthermore, an appropriate sample of teachers was attained. The sample size was moderate in size (n=100) and included a diverse mix of teachers from both primary and post-primary backgrounds and a diverse range of teaching experience.

The sample also serves as a limitation of the study, particularly with the imbalance in gender of participants (male=15, female=85). In a study investigating gender bias, a more representative sample of both males and females may give greater insight into whether gender bias is equally present in male and female teachers, as well as the direction in which that gender bias may lean. However, it is important to note that Ireland itself has a gender imbalance in its teaching population with 87% female teachers in primary schools and 70% in post-primary (CSO, 2019). These figures are in fact in line with the ratio of males to females' responses attained by this study. The imbalance of experience teaching students with ADHD was also a limitation, as it may have potentially skewed the results of the relationship between gender bias and experience with ADHD (hypothesis 4).

Additionally, although research has used the method of vignettes as an anchoring tool, the reliability of the vignettes measure was .47, which was significantly lower than the desired .7 score for measures and could be seen as a limitation of the research as well.

Future Research

This subject is still an under-explored topic in Irish research. Given that some of the research was novel, there is definitely a requirement for further research in a number of key areas. The first of these areas recommended for further research is the relationship between teacher knowledge of ADHD and teacher gender bias. This project returned significant

negative relationships between knowledge of ADHD and gender bias towards boys. Similarly, teacher self-efficacy scores returned highly significant negative relationships with gender bias scores. Further research in both of these areas could assist in the construction of practical solutions to tackle gender bias in teaching populations. This research supported existing research asserting that participation in CPD about ADHD can assist in lowering gender bias scores. Further research into which elements of CPD are most effective in tackling gender bias and educating teachers on both male and female symptoms could be highly valuable for bodies which design such CPD.

Implications and Applications

This research adds to a pool of research which implies that there is a level of teacher gender bias in the recognition of ADHD symptoms, with ADHD more likely to be associated with boys than girls. This concurs with the aforementioned figures from CAMHS (2014), and a general acceptance in research circles that ADHD is more commonly diagnosed in boys than girls. With an estimated prevalence of 6% of Irish children with ADHD (McNamara et al., 2018), and the fact that teachers play a key role in the recognition and referral of ADHD for diagnostics (NCSE, 2023), it is strongly recommended that ADHD specific training should be incorporated into all initial teacher education courses and that all teachers should receive high quality CPD training about ADHD routinely throughout the course of their career. This will ensure that teachers have a comprehensive and up to date knowledge of the presentation of ADHD symptoms in both boys and girls. Furthermore, this will enable teachers to better support and understand their students who have ADHD both diagnosed and undiagnosed.

Conclusion

In conclusion, this study endeavoured to examine levels of gender bias among Irish teachers, as well as the factors that may influence their levels of gender bias. The results of

this study indicate that there are potentially significant levels of gender bias among Irish teachers towards the ideation of ADHD presenting more commonly in boys. Furthermore, significant links were drawn between teacher knowledge of ADHD and gender bias, teacher self-efficacy and gender bias and participation in CPD and gender bias. This is an under-researched area of Irish educational psychology, and the results from this study have highlighted the various areas that are in need of further research. It can however be concluded when the results of this study are juxtaposed beside conclusions drawn by other Irish studies such as that of Nolan (2017), Ward (2014) and Lynch and Davison (2024), that there is a need for Irish teachers to receive and engage in high quality ADHD specific training in order to address gaps in knowledge about ADHD as well as perceptions of how ADHD manifests in both boys and girls.

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Appendix A

Research Project Information Sheet

Please read the following information, and decide whether you are happy to proceed.

My name is Joanna Hughes and I am conducting research in the Department of Psychology at Dublin Business School that explores the relationship between gender and ADHD symptoms. This research is being conducted as part of my studies and will be submitted for examination.

What are the objectives of the study? The nature of this study requires participants to complete a set of surveys to explore the following topic of teacher perception of ADHD and gender.

Why have I been asked to participate? I would like to collect information from fully qualified teachers working in Ireland regarding their understanding and perception of ADHD in boys and girls.

What does participation involve? You are invited to take part in this study and participation involves completing and returning the attached anonymous survey. While the survey asks some questions that might cause some minor negative feelings, it has been used widely in research. If any of the questions do raise difficult feelings for you, contact information for support services are included on the final page. Participation is completely voluntary and so you are not obliged to take part.

Right to withdraw Participants have the right to withdraw from the research at any time for whatever reason. Participation is anonymous and confidential. Thus, responses cannot be attributed to any one participant. For this reason, it will not be possible to withdraw from participation after the questionnaire has been submitted.]

Are there any benefits from my participation? While there will be no direct benefit from participation studies like this can make an important contribution to our understanding this topic further. As such, the findings from this study may be presented at national and international conferences and will be submitted for publication in peer-reviewed journals. Interim and final reports will be prepared. However no individual participant will be identified in any publication or presentation. Individuals will not be offered any monetary or other rewards for their participation.

Are there any risks involved in participation? There are no known risks associated with participation. Any inconvenience involved in taking part will be limited. Any questions prior to participation can be asked following the review of this sheet. After participation, a debriefing stage will be offered where any further questions will be answered, or any questions can be emailed to my email address below.

Confidentiality All individual information collected as part of the study, be used solely for research purposes. The questionnaires will be securely stored and data from the questionnaires will be transferred from the paper record to electronic format and stored on a password protected computer. They will be stored safely and will not be publicly displayed or published without prior consent. Data collected is stored in the EU, for five years, and will be used for research purposes to generate research content such as publications and presentations.

Please note this research has been ethically approved by the DBS College Human Research Ethics Committee.

Further Details

Should you require any further information about this project, please contact Joanna Hughes 10612092@mydbs.ie. My supervisor, Dr. Pauline Hyland: pauline.hyland@dbs.ie.

Appendix B

Consent Form

1. By taking part in this survey I understand *

Please select 4 options.

- I consent to my data being used in this project and understand that this data collection will be completely anonymous.
- I confirm I am a teacher working in the Republic of Ireland
- The data I share will be used for research purposes and this project may be published in the DBS library and a national or international research journal.
- The data I share cannot be withdrawn after submission due to the fact that it is anonymously collected, and that this data will be stored securely for 5 years post-completion of the project.

Appendix C

Debrief

Thank you for your participation in this survey.

For more information about ADHD visit the following sources for information:

<https://adhdireland.ie/>

<https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/paediatrics-the-hyperactive-child.pdf>

For more information about this research project, or if you have any questions please contact:

Researcher:

Joanna Hughes

email: XXXXXXXXXXXX

Research Supervisor:

Dr Pauline Hyland

email: XXXXXXXXXXXX

Appendix D

Copy of the Questionnaire

24/03/2024, 12:23

Τεστέρ Κνωσέδγε οφ ΑΔΗΑ

Teacher Knowledge of ADHD

Investigating teacher's knowledge of ADHD symptoms in boys and girls

Researcher: Joanna Hughes - Dublin Business School - Contact: 10612092@mydbs.ie
Research Supervisor: Dr. Pauline Hyland, Head of Undergraduate Psychology Research, Dublin Business School
Contact: pauline.hyland@dbs.ie

* Required

Please read the following information, and decide whether you are happy to proceed.

My name is Joanna Hughes and I am conducting research in the Department of Psychology at Dublin Business School that explores the relationship between gender and ADHD symptoms. This research is being conducted as part of my studies and will be submitted for examination.

What are the objectives of the study? The nature of this study requires participants to complete a set of surveys to explore the following topic of teacher perception of ADHD and gender.

Why have I been asked to participate? I would like to collect information from fully qualified teachers working in Ireland regarding their understanding and perception of ADHD in boys and girls.

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Please note this research has been ethically approved by the DBS College Human Research Ethics Committee.

Further Details

Should you require any further information about this project, please contact Joanna Hughes 10612092@mydbs.ie. My supervisor, Dr. Pauline Hyland: pauline.hyland@dbs.ie.

1. By taking part in this survey I understand *

Please select 4 options.

- I consent to my data being used in this project and understand that this data collection will be completely anonymous.
- I confirm I am a teacher working in the Republic of Ireland
- The data I share will be used for research purposes and this project may be published in the DBS library and a national or international research journal.
- The data I share cannot be withdrawn after submission due to the fact that it is anonymously collected, and that this data will be stored securely for 5 years post-completion of the project.

2. What age bracket do you fit into

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65+

3. What gender do you identify as

- Female
- Male
- Non-binary

4. How many years experience teaching post-qualification do you have? *

The value must be a number

5. What class grouping best describes the setting you currently teach in?

- Junior-Senior Infants
- 1st-2nd Class
- 3rd-4th Class
- 5th-6th Class
- Special Education
- Secondary School
- Management Role

6. Roughly how many children have you taught with diagnosed ADHD in your career? *

- less than 5
- 6-10
- 11-15
- More than 15

7. Did you receive specific training during your initial teacher training about ADHD? *

- Yes
- No
- Don't remember

8. If you answered yes to the above please rate how useful this training in preparing you to work with ADHD

- | Not useful at all | Slightly useful | Unsure | Useful | Very Useful |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

9. Have you completed any continuous professional development about ADHD? *

- Yes
- No

10. If you answered yes to the above, please rate how useful this training for teaching children who have ADHD

- | | Not useful at all | Slightly useful | Unsure | Useful | Very Useful |
|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Please select one | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

11. How prepared do you feel to recognise the symptoms of ADHD in a child? *

- | | Very unprepared | Somewhat unprepared | Neither prepared nor unprepared | Somewhat prepared | Very prepared |
|---------------------------------------|-----------------------|-----------------------|---------------------------------|-----------------------|-----------------------|
| Please select the one that fits best. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Teacher Self Efficacy

Read each statement and select the option that best describes how you feel about it.

12. How much can you do to get through to the most difficult students?

- Nothing
- Very little
- Little
- Somewhat Little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

13. How much can you do to control disruptive behaviour in your classroom

- Nothing
- Very Little
- Little
- Somewhat Little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

14. How much can you do to motivate students who show low interest in school work

- Nothing
- Very Little
- Little
- Somewhat Little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

15. How much can you do to get students to believe they can do well in school?

- Nothing
- Very Little
- Little
- Somewhat little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

16. How much can you do to help your students value learning

- Nothing
- Very Little
- Little
- Somewhat little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

17. How much can you do to ensure you craft good questions for your students?

- Nothing
- Very little
- Little
- Somewhat little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

18. How much can you do to get your students to follow classroom rules?

- Nothing
- Very little
- Little
- Somewhat little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

19. How much can you do to calm a student who is disruptive or noisy?

- Nothing
- Very little
- Little
- Somewhat little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

20. How much can you do to establish a classroom management system with a new group of students?

- Nothing
- Very little
- Little
- Somewhat little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

21. How much can you do to use a variety of different assessment strategies?

- Nothing
- Very little
- Little
- Somewhat Little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

22. How much can you do to provide an alternative explanation or example when students are confused?

- Nothing
- Very Little
- Little
- Somewhat little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

23. How much can you do to assist families in helping their children to do well in school

- Nothing
- Very Little
- Little
- Somewhat little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

24. How much can you do to implement alternative learning strategies in your classroom?

- Nothing
- Very Little
- Little
- Somewhat Little
- Neutral
- A bit
- Quite a bit
- More than a bit
- A great deal

ADHD Case Studies

Read each case study and select whether you feel the piece is most likely written about a boy, a girl or either gender

25. Child A is 9 years old and in 3rd class. Their teacher for the past 6 months observed that, in comparison to their peers, they talk excessively in the classroom, fidget with their hands and often leave their seat without permission. The class is generally quiet and task-focused. In relating with others, Child A struggles to wait their turn and frequently interrupts conversations. They shout out the answers to questions even before they have been completed. They find it difficult to pay close attention to detail and often make careless mistakes in their schoolwork. They avoid tasks that take a lot of mental effort for a long period of time, and their mum reports a similar situation at home where they avoid doing homework. They are easily distracted and often appear to be daydreaming. They struggle to get organized for any activity, do not follow instructions and fails to finish work. This does not seem to be due to a failure to understand instructions. In general they are often forgetful.
- Boy
- Girl
- Either
26. Child B is a 9-year-old in 4th class. Their teacher describes them as having difficulty keeping attention focused in work and play activities. Child B often makes careless mistakes in their work and fails to pay close attention to details. Although they are obedient and seem to understand instructions, they frequently fail to complete their assigned duties, work and chores. In addition, Child B seems to avoid work that requires sustained mental effort, such as schoolwork and homework. When spoken to directly, Child B often appears to not listen, as if they are off in a daze. It is likely that their inability to sustain attention contributes to their difficulty in organizing everyday tasks. Child B experiences the same problems both at home and at school, and has been this way since before playschool.
- Boy
- Girl
- Either
27. Child C is a 9-year-old in 3rd class. Their teacher describes them as forgetful in their daily activities as they frequently lose or misplace items necessary for tasks and activities, such as notebooks, books, pencils, keys, or gym shoes. It is likely that Child C's forgetfulness contributes to their difficulty in organizing their daily duties, work, and activities. As well, Child C displays difficulty in keeping their attention focused during tasks and leisure activities as they are easily distracted by people, events, and trivial details in their environment. Furthermore, they display a tendency to procrastinate and are often reluctant to begin or engage in challenging academic and mental tasks, such as written work. Child C experiences the same problems both at home and at school, and has been this way since before Junior Infants.
- Boy
- Girl
- Either

28. Child D is a 10 year old in 4th class who always seems to be "on the go," frequently fidgets, and talks excessively. In addition, they have a tendency to blurt out answers before questions have been completed, have a difficult time waiting their, and often interrupts others. Child D also disrupts the class by leaving their seat at inappropriate times. All of these behaviours seem to contribute to the difficulties that they have been experiencing at school.

Boy

Girl

Either

29. Child E is 9 years old. Their teacher describes them as always moving, from squirming in their seat to wandering around the classroom, chattering endlessly instead of doing their work. Their teacher says that Child E doesn't do what she asks them to do, such as cleaning out their desk, despite constant instructions. Their starts work late because they often misplace what they need. While doing their work, they get side-tracked into doing something else and turns in their work without checking. According to their parents, Child E never seems to focus on what they say or ask of them, even when they repeat themselves. Their behavior with other children their age is similar. They often intrude on what others are doing, and don't wait for their turn or concentrate on what's happening in the game.

Boy

Girl

Either

ADHD Knowledge

31. Most estimates suggest that ADHD occurs in approximately 15% of school age children.

- True
- False
- Don't Know

32. Current research suggests that ADHD is largely the result of ineffective parenting skills.

- True
- False
- Don't Know

33. ADHD children are frequently distracted by extraneous stimuli.

- True
- False
- Don't Know

34. ADHD children are typically more compliant with their fathers than with their mothers.

- True
- False
- Don't Know

35. In order to be diagnosed with ADHD, the child's symptoms must have been present before age 7.

- True
- False
- Don't Know

36. ADHD is more common in the 1st degree biological relatives (i.e. mother, father) of children with ADHD than in the general population.

- True
- False
- Don't Know

37. One symptom of ADHD children is that they have been physically cruel to other people.

- True
- False
- Don't Know

38. Antidepressant drugs have been effective in reducing symptoms for many ADHD children.

- True
- False
- Don't Know

39. ADHD children often fidget or squirm in their seats.

- True
- False
- Don't Know

40. Parent and teacher training in managing an ADHD child are generally effective when combined with medication treatment.

- True
- False
- Don't Know

41. It is common for ADHD children to have an inflated sense of self-esteem or grandiosity.

- True
- False
- Don't Know

42. When treatment of an ADHD child is terminated, it is rare for the child's symptoms to return.

- True
- False
- Don't Know

43. It is possible for an adult to be diagnosed with ADHD.

- True
- False
- Don't Know

44. ADHD children often have a history of stealing or destroying other people's things.

- True
- False
- Don't Know

45. Side effects of stimulant drugs used for treatment of ADHD may include mild insomnia and appetite reduction.

- True
- False
- Don't Know

46. Current wisdom about ADHD suggests two clusters of symptoms: One of inattention and another consisting of hyperactivity/impulsivity.
- Yes
- No
- Don't Know
47. Symptoms of depression are found more frequently in ADHD children than in non-ADHD children.
- True
- False
- Don't Know
48. Individual psychotherapy is usually sufficient for the treatment of most ADHD children.
- True
- False
- Don't Know
49. Most ADHD children "outgrow" their symptoms by the onset of puberty and subsequently function normally in adulthood.
- True
- False
- Don't Know
50. In severe cases of ADHD, medication is often used before other behavior modification techniques are attempted.
- True
- False
- Don't Know

51. In order to be diagnosed as ADHD, a child must exhibit relevant symptoms in two or more settings (e.g., home, school).
- True
- False
- Don't Know
52. If an ADHD child is able to demonstrate sustained attention to video games or TV for over an hour, that child is also able to sustain attention for at least an hour of class or homework.
- True
- False
- Don't Know
53. Reducing dietary intake of sugar or food additives is generally effective in reducing the symptoms of ADHD.
- True
- False
- Don't Know
54. A diagnosis of ADHD by itself makes a child eligible for placement in special education.
- True
- False
- Don't Know
55. Stimulant drugs are the most common type of drug used to treat children with ADHD.
- True
- False
- Don't Know

56. ADHD children often have difficulties organizing tasks and activities.

- True
- False
- Don't Know

57. ADHD children generally experience more problems in novel situations than in familiar situations.

- True
- False
- Don't Know

58. There are specific physical features which can be identified by medical doctors (e.g., pediatrician) in making a definitive diagnosis of ADHD.

- True
- False
- Don't Know

59. In school age children, the prevalence of ADHD in males and females is equivalent.

- True
- False
- Don't Know

60. In very young children (less than 4 years old), the problem behaviors of ADHD children (e.g., hyperactivity, inattention) are distinctly different from age appropriate behaviors of non-ADHD children.

- True
- False
- Don't Know

61. Children with ADHD are more distinguishable from normal children in a classroom setting than in a free play situation.

- True
- False
- Don't Know

62. The majority of ADHD children evidence some degree of poor school performance in the elementary school years.

- True
- False
- Don't Know

63. Symptoms of ADHD are often seen in non-ADHD children who come from inadequate and chaotic home environments.

- True
- False
- Don't Know

64. Behavioral/Psychological interventions for children with ADHD focus primarily on the child's problems with inattention.

- True
- False
- Don't Know

65. Electroconvulsive Therapy (i.e. shock treatment) has been found to be an effective treatment for severe cases of ADHD.

- True
- False
- Don't Know

66. Treatments for ADHD which focus primarily on punishment have been found to be the most effective in reducing the symptoms of ADHD.

- True
- False
- Don't Know

67. Research has shown that prolonged use of stimulant medications leads to increased addiction (i.e., drug, alcohol) in adulthood.

- True
- False
- Don't Know

68. If a child responds to stimulant medications (e.g., Ritalin), then they probably have ADHD.

- True
- False
- Don't Know

69. Children with ADHD generally display an inflexible adherence to specific routines or rituals.

- True
- False
- Don't Know

Appendix E

Demographic Information

Demographic Information

2. What age bracket do you fit into

18-24

25-34

35-44

45-54

55-64

65+

3. What gender do you identify as

Female

Male

Non-binary

4. How many years experience teaching post-qualification do you have? *

The value must be a number

5. What class grouping best describes the setting you currently teach in?

- Junior-Senior Infants
- 1st-2nd Class
- 3rd-4th Class
- 5th-6th Class
- Special Education
- Secondary School
- Management Role

6. Roughly how many children have you taught with diagnosed ADHD in your career? *

- less than 5
- 6-10
- 11-15
- More than 15

7. Did you receive specific training during your initial teacher training about ADHD? *

- Yes
- No
- Don't remember

8. If you answered yes to the above please rate how useful this training in preparing you to work with ADHD

- | Not useful at all | Slightly useful | Unsure | Useful | Very Useful |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

9. Have you completed any continuous professional development about ADHD? *

- Yes
- No

10. If you answered yes to the above, please rate how useful this training for teaching children who have ADHD

- | | Not useful at all | Slightly useful | Unsure | Useful | Very Useful |
|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Please select one | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

11. How prepared do you feel to recognise the symptoms of ADHD in a child? *

- | | Very unprepared | Somewhat unprepared | Neither prepared nor unprepared | Somewhat prepared | Very prepared |
|---------------------------------------|-----------------------|-----------------------|---------------------------------|-----------------------|-----------------------|
| Please select the one that fits best. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Appendix F

Teacher's Sense of Self-Efficacy Scale (Tschannen-Moran & Hoy, 2001)

Teachers' Sense of Efficacy Scale¹ (short form)

Teacher Beliefs		How much can you do?								
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.		Nothing	Very Little			Some Influence		Quite A Bit	A Great Deal	
1.	How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2.	How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3.	How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4.	How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5.	To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6.	How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7.	How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8.	How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9.	How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10.	To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11.	How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12.	How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Appendix G

Vignettes

ADHD Case Studies

Read each case study and select whether you feel the piece is most likely written about a boy, a girl or either gender

25. Child A is 9 years old and in 3rd class. Their teacher for the past 6 months observed that, in comparison to their peers, they talk excessively in the classroom, fidget with their hands and often leave their seat without permission. The class is generally quiet and task-focused. In relating with others, Child A struggles to wait their turn and frequently interrupts conversations. They shout out the answers to questions even before they have been completed. They find it difficult to pay close attention to detail and often make careless mistakes in their schoolwork. They avoid tasks that take a lot of mental effort for a long period of time, and their mum reports a similar situation at home where they avoid doing homework. They are easily distracted and often appear to be daydreaming. They struggle to get organized for any activity, do not follow instructions and fails to finish work. This does not seem to be due to a failure to understand instructions. In general they are often forgetful.
- Boy
- Girl
- Either
26. Child B is a 9-year-old in 4th class. Their teacher describes them as having difficulty keeping attention focused in work and play activities. Child B often makes careless mistakes in their work and fails to pay close attention to details. Although they are obedient and seem to understand instructions, they frequently fail to complete their assigned duties, work and chores. In addition, Child B seems to avoid work that requires sustained mental effort, such as schoolwork and homework. When spoken to directly, Child B often appears to not listen, as if they are off in a daze. It is likely that their inability to sustain attention contributes to their difficulty in organizing everyday tasks. Child B experiences the same problems both at home and at school, and has been this way since before playschool.
- Boy
- Girl
- Either
27. Child C is a 9-year-old in 3rd class. Their teacher describes them as forgetful in their daily activities as they frequently lose or misplace items necessary for tasks and activities, such as notebooks, books, pencils, keys, or gym shoes. It is likely that Child C's forgetfulness contributes to their difficulty in organizing their daily duties, work, and activities. As well, Child C displays difficulty in keeping their attention focused during tasks and leisure activities as they are easily distracted by people, events, and trivial details in their environment. Furthermore, they display a tendency to procrastinate and are often reluctant to begin or engage in challenging academic and mental tasks, such as written work. Child C experiences the same problems both at home and at school, and has been this way since before Junior Infants.
- Boy
- Girl
- Either

28. Child D is a 10 year old in 4th class who always seems to be "on the go," frequently fidgets, and talks excessively. In addition, they have a tendency to blurt out answers before questions have been completed, have a difficult time waiting their, and often interrupts others. Child D also disrupts the class by leaving their seat at inappropriate times. All of these behaviours seem to contribute to the difficulties that they have been experiencing at school.

- Boy
- Girl
- Either

29. Child E is 9 years old. Their teacher describes them as always moving, from squirming in their seat to wandering around the classroom, chattering endlessly instead of doing their work. Their teacher says that Child E doesn't do what she asks them to do, such as cleaning out their desk, despite constant instructions. They start work late because they often misplace what they need. While doing their work, they get side-tracked into doing something else and turn in their work without checking. According to their parents, Child E never seems to focus on what they say or ask of them, even when they repeat themselves. Their behavior with other children their age is similar. They often intrude on what others are doing, and don't wait for their turn or concentrate on what's happening in the game.

- Boy
- Girl
- Either

Appendix H

Anxiety and ADHD Gender Bias Scale (Nolan, 2017)

Please read the below statements and rate on a scale of 1 – 5 how much you agree with them, where 1 is “Strongly Disagree” and 7 is “Strongly Agree”

	1	2	3	4	5
	Strongly Disagree		Neutral		Strongly Agree
1. Boys are more likely to have ADHD than girls	1	2	3	4	5
2. Girls are more likely to have an anxiety disorder than boys	1	2	3	4	5
3. Girls with anxiety disorders are odd	1	2	3	4	5
4. Boys with ADHD are unpredictable	1	2	3	4	5
5. Girls with anxiety disorders could snap out of it if they wanted to	1	2	3	4	5
6. Boys with ADHD misbehave because they are bold	1	2	3	4	5
7. Girls with anxiety disorders are to blame for their problems	1	2	3	4	5
8. Boys with ADHD could control their behaviour if they really wanted to	1	2	3	4	5
9. Girls with anxiety disorders are self-centred	1	2	3	4	5
10. Boys with ADHD could do better if only they tried harder	1	2	3	4	5
11. Girls are more likely to have ADHD than boys	1	2	3	4	5
12. Boys are more likely to have an anxiety disorder than girls	1	2	3	4	5
13. Boys with anxiety disorders are self-centred	1	2	3	4	5
14. Boys with anxiety disorders are odd	1	2	3	4	5
15. Girls with ADHD are unpredictable	1	2	3	4	5
16. Boys with anxiety disorders could snap out of it if they wanted to	1	2	3	4	5
17. Girls with ADHD misbehave because they are bold	1	2	3	4	5
18. Girls with ADHD could control their behaviour if they really wanted to	1	2	3	4	5
19. Girls with ADHD could do better if only they tried harder	1	2	3	4	5
20. Boys with anxiety disorders are to blame for their problems	1	2	3	4	5

Appendix J

Knowledge of Attention Deficit Disorder Scale (KADDS) (Scuitto et al., 2004)

Knowledge of Attention Deficit Disorders Scale
Please answer the following questions regarding Attention Deficit Hyperactivity Disorder (ADHD). If you are unsure of an answer, respond Don't Know (DK), DO NOT GUESS.
<p>1. Most estimates suggest that ADHD occurs in approximately 15% of school age children.</p> <p><input type="checkbox"/> True</p> <p><input type="checkbox"/> False</p> <p><input type="checkbox"/> Don't Know</p>
<p>2. Current research suggests that ADHD is largely the result of ineffective parenting skills.</p> <p><input type="checkbox"/> True</p> <p><input type="checkbox"/> False</p> <p><input type="checkbox"/> Don't Know</p>
<p>3. ADHD children are frequently distracted by extraneous stimuli.</p> <p><input type="checkbox"/> True</p> <p><input type="checkbox"/> False</p> <p><input type="checkbox"/> Don't Know</p>
<p>4. ADHD children are typically more compliant with their fathers than with their mothers.</p> <p><input type="checkbox"/> True</p> <p><input type="checkbox"/> False</p> <p><input type="checkbox"/> Don't Know</p>
<p>5. In order to be diagnosed with ADHD, the child's symptoms must have been present before age 7.</p> <p><input type="checkbox"/> True</p> <p><input type="checkbox"/> False</p> <p><input type="checkbox"/> Don't Know</p>
<p>6. ADHD is more common in the 1st degree biological relatives (i.e. mother, father) of children with ADHD than in the general population.</p> <p><input type="checkbox"/> True</p> <p><input type="checkbox"/> False</p> <p><input type="checkbox"/> Don't Know</p>
<p>7. One symptom of ADHD children is that they have been physically cruel to other people.</p>

<input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
8. Antidepressant drugs have been effective in reducing symptoms for many ADHD children. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
9. ADHD children often fidget or squirm in their seats. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
10. Parent and teacher training in managing an ADHD child are generally effective when combined with medication treatment. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
11. It is common for ADHD children to have an inflated sense of self-esteem or grandiosity. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
12. When treatment of an ADHD child is terminated, it is rare for the child's symptoms to return. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
13. It is possible for an adult to be diagnosed with ADHD. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
14. ADHD children often have a history of stealing or destroying other people's things. <input type="checkbox"/> True

<input type="checkbox"/> False <input type="checkbox"/> Don't Know
15. Side effects of stimulant drugs used for treatment of ADHD may include mild insomnia and appetite reduction. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
16. Current wisdom about ADHD suggests two clusters of symptoms: One of inattention and another consisting of hyperactivity/impulsivity. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
17. Symptoms of depression are found more frequently in ADHD children than in non-ADHD children. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
18. Individual psychotherapy is usually sufficient for the treatment of most ADHD children. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
19. Most ADHD children "outgrow" their symptoms by the onset of puberty and subsequently function normally in adulthood. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
20. In severe cases of ADHD, medication is often used before other behavior modification techniques are attempted. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
21. In order to be diagnosed as ADHD, a child must exhibit relevant symptoms in two or more settings (e.g., home, school). <input type="checkbox"/> True

<input type="checkbox"/> False <input type="checkbox"/> Don't Know
22. If an ADHD child is able to demonstrate sustained attention to video games or TV for over an hour, that child is also able to sustain attention for at least an hour of class or homework. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
23. Reducing dietary intake of sugar or food additives is generally effective in reducing the symptoms of ADHD. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
24. A diagnosis of ADHD by itself makes a child eligible for placement in special education. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
25. Stimulant drugs are the most common type of drug used to treat children with ADHD. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
26. ADHD children often have difficulties organizing tasks and activities. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
27. ADHD children generally experience more problems in novel situations than in familiar situations. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
28. There are specific physical features which can be identified by medical doctors (e.g., pediatrician) in making a definitive diagnosis of ADHD. <input type="checkbox"/> True

<input type="checkbox"/> False <input type="checkbox"/> Don't Know
29. In school age children, the prevalence of ADHD in males and females is equivalent. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
30. In very young children (less than 4 years old), the problem behaviors of ADHD children (e.g., hyperactivity, inattention) are distinctly different from age-appropriate behaviors of non-ADHD children. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
31. Children with ADHD are more distinguishable from normal children in a classroom setting than in a free play situation. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
32. The majority of ADHD children evidence some degree of poor school performance in the elementary school years. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
33. Symptoms of ADHD are often seen in non-ADHD children who come from inadequate and chaotic home environments. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
34. Behavioral/Psychological interventions for children with ADHD focus primarily on the child's problems with inattention. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
35. Electroconvulsive Therapy (i.e. shock treatment) has been found to be an effective treatment for severe cases of ADHD.

<input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
36. Treatments for ADHD which focus primarily on punishment have been found to be the most effective in reducing the symptoms of ADHD. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
37. Research has shown that prolonged use of stimulant medications leads to increased addiction (i.e., drug, alcohol) in adulthood. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
38. If a child responds to stimulant medications (e.g., Ritalin), then they probably have ADHD. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know
39. Children with ADHD generally display an inflexible adherence to specific routines or rituals. <input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Don't Know