

Teachers' knowledge of and attitudes towards ADHD in the Western Cape

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## Abstract

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most prevalent disorders of child psychiatry. It is estimated that at least one learner in every South African classroom is affected by the condition. Teachers' perceptions of ADHD-affected learners are influenced by their level of ADHD-related knowledge. Teachers' attitudes towards ADHD are known to affect their behaviour in the classroom. This study aimed to determine teachers' level of ADHD-related knowledge and teachers' attitudes towards the condition. A secondary aim was to establish whether any teacher characteristics significantly predict teacher knowledge and attitudes. The participants were 112 intermediate phase teachers from schools across the Western Cape. An adapted form of the ADHD-specific knowledge and attitudes of teachers (ASKAT) measure collected quantitative and qualitative data. The core, quantitative component of the research was supplemented by a qualitative component to allow for a richer appreciation of teachers' ADHD-related knowledge and attitudes. The results indicate that teachers' knowledge of ADHD is adequate. Teachers' feelings about teaching students who exhibit ADHD-type behaviours were largely negative. The overwhelming majority of teachers indicated a desire for more information about ADHD and classroom interventions to assist with educating ADHD-affected learners. ADHD-related training was identified as a significant predictor of teachers' knowledge of ADHD and their attitudes towards teaching affected-learners. The findings have direct implications for the training of new teachers and for the continued, in-service training of practicing teachers in light of South Africa's inclusive education policy.

Keywords: Attention deficit hyperactivity disorder, teacher knowledge, teacher attitudes, hyperactivity, inattention

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most prevalent disorders of child psychiatry. It is estimated that ADHD affects between 3 and 10% of school children in the United States and Europe (Meyer, Eilerstein, Sundet, Tshifularo, & Sagvolden, 2004; Polanczyk, de Lima, & Horta, 2007; Spencer, Biederman, & Mick, 2007). Studies of South African samples agree that national prevalence rates correspond to those of the United States and Europe, centring around 5% (Bakare, 2012; Meyer et al., 2004; Perold, Louw, & Kleynhans, 2010; Zeegers et al., 2010). ADHD is associated with academic, social and emotional difficulties (Harpin, Mazzone, Raynaud, Kahle, & Hodgkins, 2016).

Defining symptoms of childhood ADHD include inattention, hyperactivity and impulsivity that is developmentally inappropriate (American Psychiatric Association [APA], 2013). These symptoms are most pronounced in formal, academic settings where high demands are made of children's regulatory skills (Amod, Vorster, & Lazarus, 2013). The aforementioned defining symptoms must be present and persistent in at least two settings for a diagnosis of ADHD to be made. Thus, teachers play a vital role in providing observational information to clinicians about learner behaviour at school (Schellack, & Meyer, 2012). Since teachers are often the first to refer children for psychological assessment, an evaluation of their ADHD-specific knowledge and attitudes can provide insight into their capacity to accurately identify affected learners. Additionally, teachers' knowledge of and attitudes towards ADHD-type behaviours are known to impact their behaviour (Glass & Wegar, 2000). Whilst a number of studies have investigated teachers' knowledge of ADHD, relatively few have considered their attitudes. Furthermore, only a handful of such studies have been conducted in South Africa. This study aimed to establish what South African intermediate-phase teachers know about ADHD, and what their attitudes are towards the condition and towards learners who exhibit ADHD-associated behaviours. The investigation also considered whether any demographic characteristics predict teachers' knowledge, and

whether any demographic characteristics and teachers' knowledge predicted teachers' attitudes. The findings of this research have direct implications for the training of new teachers and the continued professional development of in-service teachers.

### **ADHD in the context of inclusive education**

Since the establishment of democracy in South Africa in 1994, various governmental policies have been implemented to promote equality. Perhaps the most significant policy with regards to the present study is the Education White Paper 6 (Department of Education, 2001), which outlines a framework of inclusive education. Inclusive education aims to address the diverse needs of all learners who experience barriers to learning (Dalton, Mckenzie, & Kahonde, 2012). The establishment of inclusive education has meant that children with learning barriers are commonly enrolled in mainstream schools. As a result, mainstream teachers are increasingly finding themselves teaching classes with diverse learning needs (Holtz & Lessing, 2002; Perold et al., 2010).

Holtz and Lessing (2002) estimate there to be at least one ADHD-affected learner in each South African classroom. To successfully include ADHD-affected learners into mainstream classes, teachers need to adopt a learner-centred pedagogical approach (Prosser, 2008). This involves (a) tailoring teaching methods to best suit the individual needs of learners; (b) differentiating curricula in terms of pacing and sequencing; and (c) implementing appropriate interventions to best serve learners with ADHD (Naiker, 2006). Learner-centred pedagogies that hold the experience of the individual learner central to the learning experience are at the heart of inclusive education.

### **Teachers' knowledge of ADHD**

For teachers to create an environment conducive to successful learning for ADHD-affected learners, it is imperative that they have a sound knowledge of the nature of ADHD and the pedagogical skills to manage ADHD-type behaviour in the classroom (Holtz &

Lessing, 2002). Alarming, a cross-national study of teachers' knowledge and misconceptions of ADHD concluded that, overall, teachers' knowledge was modest (Scuitto et al., 2016). Perold et al.'s (2010) study of a sample of primary school teachers in Cape Town demonstrated that the findings by Scuitto, Terjesen and Bender Frank (2000) held true for their South African sample. They concluded that teachers' knowledge of the condition was poor. Furthermore, Topkin, Roman and Mwaba (2015) found that primary school teachers in the Western Cape responded correctly to only 45% of the items in the widely used Knowledge of Attention Deficit Scale (KADDS). Mulholland, Cumming and Jung (2015) found that teachers in their Australian sample had an adequate level of ADHD-related knowledge. Teachers in their study knew most about ADHD symptoms and least about ADHD assessment and prevalence.

Scuitto, Terjesen, and Frank (2000) identified that prior experience teaching an ADHD-affected learner and receiving ADHD-specific training predicts teacher knowledge of the condition. Mulholland et al. (2015) confirmed the common finding that years of teaching experience predicts teachers' knowledge of ADHD (Anderson, Watt, Noble, & Shanley, 2012; Bekle, 2004).

### **Teachers' attitudes towards ADHD**

The findings of the aforementioned South African studies are cause for concern in light of the literature that indicates that knowledge about ADHD significantly influences teachers' attitudes about ADHD (Bornman & Donohue, 2013; Scuitto et al., 2000; Scuitto et al., 2016). Moreover, there is a known positive relation between training in inclusive education and teachers' sense of self-efficacy to teach ADHD-affected learners (Silverman, Hong, & Trepanier-Street, 2010). As reported by (Kos, Richdale and Hay, 2006), teachers' attitudes towards teaching ADHD-affected learners are moderated by their perceived competency. Anderson et al. (2012) explained that teachers' ADHD-related knowledge and

attitudes inform their teaching behaviour which in turn shapes the learning experience of affected learners. Teachers' attitudes are said to influence their pedagogical approach, their willingness to implement interventions, and their behaviour management strategies (Anderson et al.,2012). It is therefore, important to have an informed understanding of what teachers attitudes are towards ADHD and affected learners.

Notably, Bornman and Donohue (2013) are the only ones to have investigated South African teachers' attitudes towards ADHD. This study revealed that greater teacher knowledge was related to more positive attitudes towards inclusion. These findings echo the findings by Ohan, Cormier, Hepp, Visser, and Strain (2008), who found that Australian teachers with average to high levels of ADHD-related knowledge held more favourable beliefs about interventions than teachers with poor knowledge.

Mulholland et al. (2015) reported that teachers' feelings towards learners who exhibit ADHD-type behaviours were generally negative. Interestingly, this study found that as years of teaching experience increased, so teachers' attitudes towards teaching ADHD-affected learners became more negative. Moreover, they found that as teachers' ADHD-related knowledge increased, so too did their confidence in their ability to effectively teach affected learners, their desire for information and their desire to become more effective when teaching ADHD-affected learners.

Considering the role that teachers play in shaping the inclusive learning experience of ADHD-affected learners, this study sought to determine what teachers across the Western Cape know about ADHD and what their attitudes towards the condition are. A secondary aim was to determine whether any teacher characteristics significantly predict their knowledge of and attitudes towards ADHD. The findings of this research illustrate how well teachers are equipped to pedagogically cater for the needs of ADHD-affected learners in South Africa's diverse classrooms.

## Methods

### Design and Setting

An embedded mixed methods design was employed to investigate the three research questions. The core quantitative component of this research was supplemented by a simultaneously administered qualitative component. According to the influential scheme devised by Greene, Caracelli, and Graham (1989), this is a complementarity mixed-methods design. Results from the qualitative component were used to elaborate, enhance, illustrate and clarify the results from the quantitative component. The two methods allowed for a richer appreciation of teachers' ADHD-related knowledge and attitudes. Lastly, the investigation of the predictors of teacher knowledge (dependent variable) will enter teacher demographic information as the independent variables. The investigation of teacher attitudes (dependent variable) will enter teacher demographic information and teachers' knowledge as the independent variables.

### Participants

Intermediate phase teachers from 47 schools located across the Western Cape province of South Africa participated in this research ( $N = 112$ ). A preliminary power analysis suggested a minimum of 89 participants. Only teachers who taught a grade 4, 5 or 6 class at the time were eligible to participate. Most research in this area has studied samples of foundation phase teachers so this study sought to investigate an understudied population of teachers. Relevant participant demographic information is presented in Table 1.



Table 1

*Participant demographic characteristics (N= 112)*

Teacher demographics	Distributions <i>n</i> (%)
Age (years)	
Under 30	22 (20)
31-40	28 (25)
41-50	30 (27)
Over 50	32 (29)
Gender	
Female	88 (79)
Male	24 (21)
Teaching experience (years)	
Range	<5->40
Mode	21-30
Current grade	
4	44 (39)
5	27 (24)
6	41 (37)
Annual school fees	
No fee school	4 (4)
<R7500	18 (16)
R7500-R20000	24 (21)
R20000-R40000	30 (27)
R40000-R50000	15 (13)
>R50000	21 (19)
School ownership	
Public	69 (62)
Independent	43 (38)
School gender	
Co-educational	94 (84)
All girls	9 (8)
All boys	9 (8)
Taught a student who exhibited hyperactive or inattentive behaviours	
Yes	110 (98)
No	2 (2)
If yes, was the learner diagnosed with ADHD?	
Yes	96 (86)
No	14 (13)
N/A	2 (2)
Received in-service training about ADHD	
Yes	60 (54)
No	52 (46)

**Instruments**

**ADHD-Specific Knowledge and Attitudes of Teachers (ASKAT).** The self-report ASKAT questionnaire, developed by Mulholland (2016), is composed of four sections with two subscales, namely the scale for ADHD-specific knowledge (SASK) and the scale for ADHD-specific attitudes (SASA). The first section collects demographic data, the second is

the SASK, the third is the SASA, and the final section includes four open-ended questions that qualitatively assess teachers' attitudes (Mulholland, 2016).

The ASKAT was adapted and extended for the present study (Appendix A). The adapted version that was administered was composed of five parts. The demographics section (Part A) was adapted for a South African sample since the original instrument was designed for use in Australia. Questions that were irrelevant to this research, for example those relating to ancestry and birthplace, were omitted. Other questions about subjects and the types of schools that teachers teach at were removed because they were inappropriate for the intended sample. Additional questions were included.

Two short, self-developed vignettes about children diagnosed with ADHD were included as Part B. Each vignette was validated by a practicing clinical psychologist specializing in ADHD (Appendix B). The first described a young boy who displays many behaviours and characteristics typical of ADHD in a general, day-to-day, low-stakes classroom environment. The second vignette described a girl struggling to get through her test. Participants were asked to indicate who they would manage the ADHD-diagnosed learners in these scenarios. Responses to these vignettes gave an indication of teachers' intended behaviours. No limit was placed on the length of written responses. The vignettes were presented first to avoid any priming effects that may be induced by the following two sections.

The SASK (Part C) was left unchanged. It primarily measures teachers' ADHD-specific knowledge and includes 20 items with "true", "false", and "I don't know" offered as response options. The inclusion of an "I don't know" response deters participants from guessing with a 50% chance of being correct (Kos et al., 2006). The items assess teachers' knowledge about the characteristics, aetiology and management of ADHD (Mulholland, 2016). The items are scored as correct or incorrect based on established facts as per the

marking guidelines in existing surveys consulted in the development of the ASKAT (Mulholland, 2016). For the purposes of the present study, “I don’t know” responses were scored as incorrect. Scores can range from 0 to 20 with higher scores indicating greater ADHD-specific knowledge.

The SASA (Part D), also left unchanged, measures teachers’ ADHD-specific attitudes using 30 six-point Likert scale items. Teachers’ personal and professional attitudes towards ADHD and the teaching of affected learners are investigated by including items that reflect three components of an attitude: (1) cognitive beliefs, teachers’ evaluative thoughts and beliefs towards the condition and learners affected by it; (2) affective states, the moods and feelings of teachers when teaching ADHD-affected learners; (3) perceived control, the control teachers believe they have over performing behaviours associated with the management of ADHD (Mulholland, 2016). Response options ranged from 1 (“strongly disagree”) to 6 (“strongly agree”). Including 6-point Likert scale items without a midpoint requires participants to indicate the directionality of their attitudes. Response trends were interpreted.

The final section (Part E) asked four open-ended questions that allow for further understanding of teachers’ attitudes, as per the original ASKAT. One further question was added to the original items. A simple yes/no question assessed whether teachers approved of the use of psychostimulant medication for the management of ADHD.

The ASKAT demonstrates sound psychometric properties. Mulholland (2016) reports that the SASK has good internal consistency using both the split half method and Cronbach’s alpha coefficient ( $\alpha = .88$ ). The construct validity of the SASA scale was also supported by both exploratory and confirmatory factor analysis with principal axis factoring (Mulholland, 2016). Cronbach’s alpha values ranged between .77 and .89 for each factor, demonstrating good internal consistency (Mulholland, 2016).

## Procedure

The study was granted ethical clearance from the Research Ethics Committee of the University of Cape Town Psychology Department. Permission to conduct the study was granted by the Western Cape Education Department. The adapted ASKAT was then piloted on a convenience sample of 12 teachers. The pilot study revealed that the measure produced variable scores, was clearly understood by the South African participants, and did not indicate any floor or ceiling effects. No technical difficulties arose during the online administration of the pilot measure and so the study went ahead.

A list of schools and their contact details were obtained from the website of the Western Cape Education Department. Schools were organized according to the annual school fees charged for a grade 6 learner as an indicator of the school's relative socio-economic status (SES). Schools were grouped in six fee brackets: No-fee schools, <R7500, R7500-R20000, R20000-R40000, R40000-R50000, >R50000. There were far more schools in brackets R7500-R20000 and R20000-R40000 compared to no-fee schools. This disproportionality was dealt with by contacting all of the no-fee school principals and randomly sampling within each of the other brackets. In total, 350 schools were contacted. Principals of the randomly selected public and private schools were sent a letter informing them of the nature of the study and requesting permission to invite all the grade 4, 5, and 6 teachers at their school to participate (Appendix C). If the principals granted permission to contact their teachers, their respective school secretaries were sent a research invitation to be forwarded to the relevant teachers (Appendix D). The research invitation explained the purpose of the study and clearly outlined what participation involved. A link to the online questionnaire was embedded within the research invitation. The measure was administered via the SurveyMonkey platform ([www.surveymonkey.com](http://www.surveymonkey.com)).

Participants indicated their voluntary consent on the consent form displayed as the first page (Appendix E). Thereafter, the questionnaire began. Instructions of how to answer each question were displayed at the start of each of the five sections. The participants could complete the questions at their own pace.

### **Ethical considerations**

#### **Consent, voluntary participation, and confidentiality.**

Participants were made aware that their participation was entirely voluntary and that their responses were to remain anonymous. No information that could be used to identify individual participants was recorded in the questionnaire. In the invitation email, participants were made aware that their responses would remain confidential and that no feedback on individual responses would be provided to them or their schools. Participants were also made aware of their freedom to withdraw from the study at any point.

#### **Risks and benefits.**

There were no foreseeable negative consequences attached to participation. A second link included in the invitation email offered participants who had completed the questionnaire the opportunity to leave their contact details to be entered into a lucky-draw to win a book about ADHD for teachers. These contact details were recorded separately from their questionnaire responses to ensure confidentiality.

#### **Debriefing.**

Once the questionnaire was complete, a debriefing form was displayed (Appendix F) and participants were given the opportunity to withdraw from the study. The contact details of the researcher, the researcher's supervisor and the representative of the Research Ethics Committee of the University of Cape Town Psychology Department were included

## **Data analysis**

### **Quantitative analyses.**

Those teachers who only provided demographic information ( $n = 12$ ) were removed from the sample, leaving 112 usable questionnaires. Eleven of these questionnaires (9.8%) contained missing data, which was dealt with by pairwise deletion.

A correct response analysis (CRA) and frequency analysis (FA) were used to determine the ADHD-related knowledge teachers held reflected by responses to section C, the SASK. A total knowledge score was derived for each participant. Thereafter, a factor analysis was performed on the responses to part D, the SASA, which assessed teachers' attitudes. Exploratory factor analysis was used to extract factors representing the underlying dimensionality of the thirty items and composite factor scores were created for each extracted factor. Bivariate analyses determined which demographic characteristics should be entered into the multiple regression analyses. Finally, multiple regression analyses were employed to investigate whether teachers' demographic characteristics and level of knowledge predicted the attitudes they hold towards ADHD.

### **Qualitative analysis.**

A thematic analysis of all open-ended questions in Part B and Part E was conducted from the realist perspective. From this perspective the method of thematic analysis allows for the reporting of participants' experience, meaning and reality (Braun & Clarke, 2006). Braun and Clarke (2006) define thematic analysis as a method for recognising, analysing and describing patterned themes across a dataset. A theme describes some key aspect of the data in relation to the research question (Braun & Clarke, 2006). Themes do not 'emerge' during analysis; instead, the researcher plays a significant role in actively identifying, describing and interpreting themes that exist independently in the data. Thematic analysis was driven by the research questions and a semantic approach was adopted in the identification of themes.

Themes were identified by considering only the explicit meanings of what was written. No attempt was made to discern meaning beyond the semantic representation of responses. However, as this was not simply a descriptive exercise, an interpretation of the themes in relation to existing literature was offered.

Thematic analysis was conducted according to Braun and Clarke's (2006) guidelines. This involved six steps: (1) familiarization with the data through repeated reading; (2) generation of initial codes; (3) search for themes; (4) review of themes; (5) definition and naming of themes; (6) production of the final report. The six steps were not performed linearly; rather, Braun and Clarke (2006) advise that researchers move back and forth through the steps to ensure thorough analysis.

## **Results**

### **Quantitative analysis**

#### **Correct response analysis and frequency analysis.**

Teachers' level of ADHD-related knowledge was determined using CRA of the responses to the SASK. On average, teachers answered 78% of the SASK items correctly, which indicated that their ADHD-related knowledge was adequate ( $M= 15.68$ ,  $SD= 2.3$ ). Specifically, 24% of teachers' knowledge was excellent (scored >85%), 75% of teachers' knowledge was adequate (scored 50-85%) and only 2% of teachers' knowledge was poor (scored <50%). Items of the SASK assessed teachers' ADHD-related knowledge of four areas (see Appendix G for the correct response analysis frequency table). Generally, teachers knew the most about the symptoms of ADHD (89% correct), followed by knowledge of prevalence and assessment (71% correct) and knowledge of treatment (67% correct). Teachers knew the least about aetiology (67% correct), and almost half of the teachers were uncertain about whether the cause of ADHD is unknown. One item was answered

particularly poorly: a total of 69% of teachers incorrectly believed that special diets are an effective treatment for ADHD.

The responses to the 30-item SASA were frequency analysed to ascertain teachers' attitudes towards ADHD, the behaviours associated with the condition and children who exhibit such behaviours (see Appendix H for SASA item response frequency table). Overall, teachers agreed with more than half of the statements relating to negative feelings towards teaching ADHD-affected learners. For example, 64% of teachers reported that they find behaviours associated with ADHD irritating in the classroom. Moreover, 63% of teachers agreed that students who display ADHD-type behaviours cause them to experience stress and 80% of teachers stated that they find it challenging to teach students who exhibit behaviours associated with ADHD. Despite teachers agreeing with most statements around negative feelings towards teaching ADHD-affected learners 86% of the teachers disagreed with the statement that they dislike teaching classes containing students who display ADHD-type behaviours. Teachers largely agreed with all statements relating to positive feelings about teaching ADHD-affected learners. In fact, 91% of teachers agreed that when it comes to the differentiation of tasks and teaching styles, ADHD is a benefit to the growth of one's teaching skills. Additionally, 95% of teachers agreed that it is rewarding to see the accomplishments of students who display ADHD-type behaviours. Although 76% of teachers believed that ADHD is over-diagnosed, 95% believed that ADHD is a valid diagnosis. Generally, teachers disagreed with statements suggesting negative beliefs about ADHD and its associated behaviours. As many as 93% did not believe that children who exhibit ADHD-associated behaviours are deliberately misbehaving. With regards to accommodations for ADHD-affected learners, 97% indicated that they would refer a child for an assessment and 80% reported that they already differentiate their lessons and teaching styles. Responses about whether differentiated educational accommodations are easy to implement in the



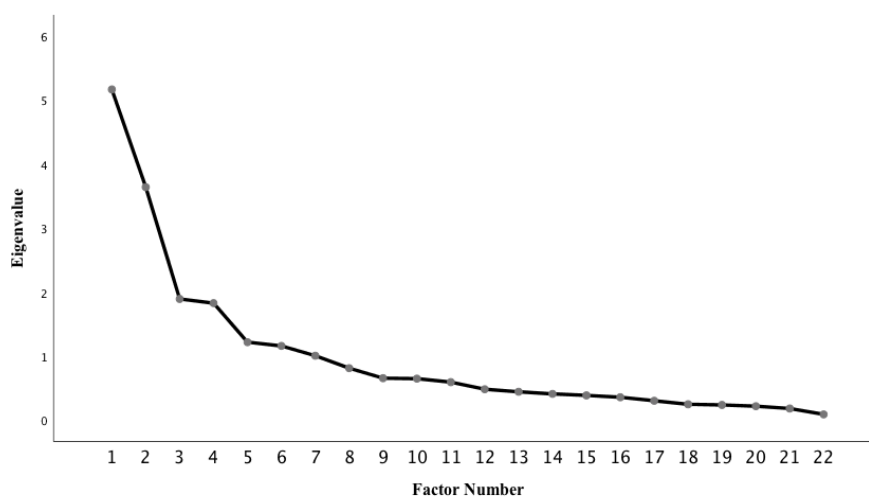
classroom were fairly divided, as 56% indicated that it is difficult to implement such accommodations. Interestingly, 63.4% of teachers felt that they have not received adequate professional development about managing ADHD-type behaviours yet more than 65% of teachers indicated that they i) can effectively teach students who exhibit behaviours associated with ADHD, ii) are knowledgeable about classroom intervention to manage misbehaviour, and iii) are knowledgeable about ADHD-type behaviours. The vast majority of teachers expressed their desire for more training about ADHD and appropriate classroom interventions, with responses to two training-related items being greater than 96%. Moreover, 93% of teachers agreed that they want to be more effective teaching students who display ADHD-type behaviours.

The final question of the measure in Part E was added to assess whether teachers approved of drug therapy for the management of ADHD. Of the 101 participants who answered the question, 61 (60%) answered “yes” and 40 (40%) answered “no”. The responses reflect the contentious nature of the topic; however, the teachers in this sample mostly agreed with the use of medication for the management of ADHD.

### **Exploratory factor analysis.**

An exploratory factor analysis was conducted on the 30-item SASA to investigate the underlying dimensions of teachers’ ADHD-related attitudes measured by the items, and to create composite scores for further analysis. A varimax, orthogonal rotation was performed to increase the interpretability of the factors (Abdi & Williams, 2010). Together the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy,  $KMO = .746$ , and the Bartlett’s test of sphericity,  $\chi^2 (190, N = 112) = 968.11, p < .001$ , indicated that factor analysis was an appropriate analysis method for the dataset. An initial analysis identified 10 factors with eigenvalues greater than Kaiser’s criterion of 1. Collectively, these 10 factors accounted for 71% of the total variance of the dataset which exceeded the 60% threshold for a satisfactory

factor solution suggested by Hair, Black, Babin, and Anderson (2010). Eight items with communality values below .30 were successively removed as these items contributed minimally to the common variance. Once these items were removed from the analysis, 7 factors with eigenvalues greater than 1 were produced and these collectively accounted for 61% of the total variance. A further two items with low communalities were removed. The screeplot suggested a four- or five-factor structure (Figure 1). When four factors were forced, the most plausible, parsimonious solution was produced (Table 2). The four factors accounted for 50% of the total variance. Whilst the items loaded similarly in both a four- and five- factor model, upon inspection, the items of the four-factor model loaded most coherently on to conceptually distinct factors. Coupled with this, the four factors identified by this analysis largely reflect the four factors identified by Mulholland, Cumming, and Jung (2015). Items with loadings greater than .40 were regarded as definitional to the factor. The four factors extracted were named: (1) feelings about teaching students who exhibit ADHD-type behaviours, (2) knowledge and training, (3) desire for better learning, and (4) beliefs about ADHD and its associated behaviours. Composite factor scores were created by adding the product of the factor loading and the raw score for each of the items loading onto each respective factor.



*Figure 1.* Screeplot of factor extraction

Table 2

*Factor loadings for exploratory principal factor analysis with Varimax rotation of the SASA*

*(N = 104)*

Item	Rotated component loadings			
	1. Feelings about teaching students who exhibit ADHD-type behaviours.	2. Knowledge and training	3. Desire for better training	4. Belief about ADHD and its associated behaviours
I find behaviours associated with ADHD irritating in the classroom.	<b>.791</b>			
I dislike teaching classes that contain students who display ADHD-type behaviours.	<b>.703</b>			
I find students who display ADHD-type behaviours cause me to experience stress.	<b>.654</b>			
Students who exhibit behaviours associated with ADHD interfere with my ability to effectively teach my class.	<b>.575</b>			
I find it challenging to teach students who exhibit behaviours associated with ADHD.	<b>.505</b>			
I find students who exhibit behaviours associated with are rewarding to work with.	<b>.542</b>			
I feel I can effectively teach students who exhibit behaviours associated with ADHD.		<b>.817</b>		
I feel I am knowledgeable about ADHD type behaviours.		<b>.714</b>		
I feel I am knowledgeable about classroom interventions to manage misbehaviour.		<b>.707</b>		
I feel I have received adequate professional development about managing ADHD-type behaviours.		<b>.634</b>		
I would like to know more about ADHD and its associated behaviours.			<b>.781</b>	
I would like to have more information about classroom interventions to assist me with educating students who display ADHD-type behaviours.			<b>.739</b>	
I want to be more effective teaching students who display ADHD-type behaviours.			<b>.642</b>	
When it comes to differentiation, I feel ADHD is a benefit to the growth of my teaching skills.			<b>.498</b>	

Students who exhibit behaviours associated with ADHD bring new perspectives to the topics I am teaching.			<b>.436</b>	
Students who exhibit behaviours associated with ADHD have no excuse for their poor behaviour if they do not have a formal diagnosis.				<b>.798</b>
Students who exhibit behaviours associated with ADHD misbehave because they don't want to follow the set rules.				<b>.761</b>
I believe children who exhibit ADHD type behaviours are deliberately misbehaving.				<b>.562</b>
Students who exhibit behaviours associated with ADHD need to try harder to focus on their school work.				<b>.539</b>
I believe ADHD is an excuse for poor parenting.				<b>.469</b>
Eigenvalues	2.91	2.45	2.41	2.38
% of variance	14.56	12.26	12.07	11.90
$\alpha$	.628	.829	.731	.769

Note. Loadings > .40 appear in bold. Loadings smaller than .40 have been suppressed for ease of examination.

### **Bivariate analyses.**

Considering the measure's recent development and its debut on a South African sample, an exploratory approach was adopted to determine the predictors for the regression analyses. Several *t*-tests and ANOVAs were conducted to establish whether composite SASA factor scores differed significantly across demographic characteristics. The factor composite scores did not differ significantly across teacher gender, school fees, school gender-type, experience teaching a child who displayed hyperactive or inattentive behaviours, and class size (all *ps* > .05). However, the composite scores differed significantly across: age for factor 3,  $t(102) = 3.83, p < .001$ ; years of teaching experience for factor 3,  $t(102) = -3.50, p = .001$ ; whether or not teachers had taught a learner with an ADHD diagnosis for factor 1,  $t(100) = 2.64, p = .01$ , and 2,  $t(100) = -4.16, p < .001$ ; the number of ADHD-diagnosed learners that they currently teach for factor 1,  $t(102) = 2.37, p = .02$ , and 2,  $t(102) = -3.91, p < .001$ ; and whether or not they have ever received any in-service training about ADHD for factor 1,  $t(102) = 2.37, p = .02$ , and 2,  $t(102) = -3.91, p < .001$ .

### **Multiple regression analyses.**

Multiple regression analyses were used to examine the relationships between the predictor variables mentioned above, and the dependent variables (teacher knowledge and the four SASA composite factor scores). Five backward, stepwise multiple regressions were performed and predictor variables were entered together in one block as there were no *a priori* reasons to suggest an order of entry (see Table 3).

Assumptions were upheld for all regression analyses. Two categorical variables, age and teaching experience, were recoded into dichotomous variables. Evidence from the bivariate analyses indicated that composite factor scores differed significantly between teachers over 50 years old and those younger than 50 (recoded as 0 for “Under 50”, and 1 for “Over 50”), and between teachers with less than 5 years of teaching experience and those who had taught for more than 5 years (recoded as 0 for “> 5 years”, and 1 for “< 5 years”).

***Multiple regression of teacher knowledge.*** For this regression, teacher knowledge was excluded as a predictor variable. Whether teachers had received any in-service training about ADHD was the only significant predictor of teacher knowledge. More training was a significant predictors of greater knowledge.

***Multiple regression of factor 1.*** Experience teaching a learner diagnosed with ADHD and whether in-service training about ADHD had been received were significant predictors of teachers’ feelings about teaching students who exhibit ADHD-type behaviours. Having taught an ADHD-diagnosed learner and having received training significantly predicted that teachers would disagree with negatively phrased statements about feelings about teaching students who exhibit ADHD-type behaviours.

***Multiple regression of factor 2.*** Experience teaching a learner diagnosed with ADHD, number of ADHD-diagnosed learners currently teaching, in-service training about ADHD received and teacher knowledge were significant predictors in the regression model

of knowledge and training. Those teachers who have past or current experience of teaching an ADHD-diagnosed learner were more likely to agree with positively phrased statements relating to their knowledge and training. Similarly, teachers who have received training and who have good knowledge of ADHD were more likely to agree with positively phrased statements about knowledge and training.

***Multiple regression of factor 3.*** Desire for better training was significantly predicted by age and teaching experience in the regression model. Teachers younger than 50 were significantly more likely to indicate their desire for better training than teachers older than 50. Having less than 5 years of teaching experience significantly predicted a greater desire for training.

***Multiple regression of factor 4.*** None of the variables significantly predicted teachers' beliefs about ADHD and its associated behaviours.

All of the regression models were significant ( $p < .01$ ) except the model of factor 4 ( $p = .07$ ). Across all multiple regressions no Variance Inflation Factor (VIF) scores were greater than 10 indicating no issues with multicollinearity. Furthermore, tolerance values were all high. A review of all of the semi-partial correlations indicated no cause for concern.

Table 3

*Multiple regression models of teacher training and the four factors of teacher attitudes*

Model	<i>B</i>	<i>Beta</i>	<i>p</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>
<b>Teacher knowledge</b>				.08	.07
In-service training about ADHD received	1.24	.28	.003		
<b>Factor 1</b>				.13	.10
Age	1.11	.17	.082		
Experience teaching a learner diagnosed with ADHD	-1.36	-.20	.048		
In-service training about ADHD received	-1.23	-.21	.036		
<b>Factor 2</b>				.30	.27
Experience teaching a learner diagnosed with ADHD	1.92	.25	.009		
Number of ADHD-diagnosed learners currently teaching	.31	.19	.036		
In-service training about ADHD received	1.20	.22	.017		
Teacher knowledge	.22	.18	.001		
<b>Factor 3</b>				.17	.15
Age	-1.17	-.26	.009		
Teaching experience	1.08	.23	.018		
<b>Factor 4</b>				.03	.02
In-service training about ADHD received	-.97	-.18	.067		

**Qualitative analysis**

Written responses to the vignettes in Part B and the open-ended questions in part E were analysed using thematic analysis. One key theme was identified; management. A number of subthemes were recognised as being facets of this over-arching theme.

**Management.**

Teachers consistently recognised that learners who exhibit ADHD-associated behaviours are different and in need of support and management. ADHD was regularly problematised. Teachers described a number of pedagogical strategies that they would employ to manage ADHD-affected learners in general day-to-day and high-stakes scenarios. The description of such strategies provided insight into what they know and what kinds of behaviours they employ to manage behaviours associated with ADHD. Views about whether ADHD is manageable in mainstream education were divided. Recognition of teachers'

knowledge and skill deficits were noted throughout. Teachers frequently indicated that they would benefit from ADHD-specific training.

### ***1.1 The ADHD problem.***

Participants explained that ADHD is a significant problem in their classrooms. ADHD-affected learners were frequently described as “frustrating”, “irritating” and “exhausting”. The challenge that the management of the condition poses was clear throughout. This sentiment is exemplified in the response by participant 64:

*ADHD and its associated behaviours is increasing, more and more learners are displaying the symptoms. It makes it difficult to manage in a class of 36 learners where 6 learners do not stay on task or follow the class rules by shouting out and constantly engaging their peers in discussion which is often not related to the work at hand. It is frustrating and tiring.*

There was a strong belief that ADHD interferes with the teaching and learning process. A statement made by participant 52 illustrates the shared belief of many participants that children who exhibit behaviours associate with ADHD are problematic:

*“They fidget a lot. Do not pay attention in class. Distract others. Talk incessantly. Can be unkind and intolerant of others. Do not display good manners. Often out of their desk disrupting others. Don't work well in groups. Untidy presentation of school tasks; unfinished or incomplete work. Shout out in class.”*

Teachers generally described ADHD-affected learners as more disruptive if they exhibit more externalising, hyperactive or “busy” behaviours in comparison to those who are simply inattentive and distracted.

### ***1.2 Management strategies.***

In response to the vignettes teachers frequently offered a range of strategies for the management of ADHD-type behaviours including: isolating the affected learner, encouraging



supportive peer collaboration, differentiation of tasks, allowing hyperactive learners opportunities to be physically active, verbal prodding to remain on task, parental involvement, time management support, and lastly, drug therapy. These responses illustrated that teachers acknowledge that ADHD is a problem and that they are engaging in helpful management strategies based on what they know. A response by participant 49 exemplifies the kinds of responses teachers provided to the first vignette describing an ADHD-affected boy in general classroom scenario:

*Place an organised pupil next to him. Place a reminder chart on his desk - whiteboard marker friendly to tick off. Help him to organise his space by having specific areas for books, textbooks, stationery. Give him extra time to finish work. Allow him to move around at certain intervals. Place my hand on his shoulder when he shouts out to remind him to wait his turn. Place him at my table during tests/assessments and let him do them in sections with a break in between. Allow him to manipulate e.g. play dough while I'm teaching. Adapt a worksheet/work so that only what is necessary to see if he understands is completed by him. If he is struggling with cursive allow him to write in print. Use a timer to keep him on track while working.*

Whilst the appropriate differentiation of tasks was a frequently suggested strategy, as seen in the extract above, some teachers explained that they would “lower the goal posts a bit” (participant 13). This is a problematic attitude as it suggests that some teachers set lower standards for, and have lowered expectations of, ADHD-affected learners. Many teachers did point out that what works for one child does not necessarily work for another and that they engaged in trial and error regarding effective behaviour management strategies. Interestingly, a number of teachers did mention the use of drug therapy; however, most explained that

attempts should be made to implement behavioural interventions first before resorting to medication.

### ***1.3 Manageability in mainstream.***

Teachers' attitudes towards teaching ADHD-affected learners were divided. Many teachers explained that with correct diagnosis and medication, appropriate intervention, and consistent monitoring ADHD-affected learners can be effectively included in a mainstream classroom. Conversely, just as many teachers felt strongly that "it is difficult to handle in a mainstream classroom without support" (participant 88). An ADHD-affected learner requires close monitoring, creative lesson differentiation, consistent reminders of boundaries, and patience. Thus, the demands of teachers are heightened. As noted by some teachers, they have a responsibility to meet the learning needs of all the learners in their class.

However, others argued that despite the challenges that affected-learners pose, they are capable of effectively teaching them in a mainstream classroom. Support seemed to be regarded as an enabling factor as teachers explained that correct diagnosis by a professional, consistent collaboration between the teacher and parents as well as support from systems within the school can empower teachers to effectively teach ADHD-affected learners.

### ***1.4 Knowledge and skills deficit.***

Teachers frequently reported that they did not feel adequately equipped with the knowledge and skills to effectively manage ADHD-affected learners. Participant 62 expressed this notion succinctly:

*I think it can be frustrating because I am not equipped or trained to deal with such behaviours. I think it can be managed once a person has the knowledge to do so.*

This teacher explained that without appropriate knowledge about ADHD and effective management strategies, teachers become frustrated. This frustration influences teachers' attitudes towards teaching ADHD-affected learners. Talking about ADHD,

participant 70 explained that “it is a behaviour that if teachers approached with a more positive attitude could result in happier and very productive little human beings”. This view emphasises that knowledge and skills training would give teachers the confidence to teach affected learners with a more positive attitude.

### **Discussion**

The aim of this study was to establish what teachers across the Western Cape know about ADHD and what their attitudes are towards the condition. A second aim was to identify any significant predictors of teachers’ ADHD-related knowledge and attitudes. The results suggest that, overall, teachers possess an adequate level of ADHD-related knowledge. Teachers’ attitudes towards teaching ADHD-affected learners were generally negative; however, most did report that they find it rewarding to work with affected-learners. Despite teachers’ confidence in their own knowledge and training about ADHD, teachers indicated a great desire for better training. ADHD-specific training was found to predict three of the four factors that were extracted using principal factor analysis.

#### **What do teachers know about ADHD?**

Overall, teachers’ knowledge of ADHD was adequate. On average, teachers correctly answered 78% of the items in the knowledge subscale. Their mean performance was considerably better than that of the teachers in Mulholland et al.’s (2015) study, who correctly answered 62% of the same items. Teachers were most knowledgeable about symptoms and least knowledgeable about aetiology. This confirms Mulholland et al.’s (2015) finding that teachers are most knowledgeable about symptoms. This finding is supported by a number of other South African studies who have measured teacher knowledge using a variety of teacher samples (Amod et al., 2013; Kern & Seabi, 2008; Perold et al., 2010). The majority of teachers believed that special diets are an effective treatment for ADHD, which is a common misconception identified in the literature (Ohan et al., 2008; Topkin, Roman, &

Mwaba, 2015). Whilst Sciutto et al. (2000) found that past experience teaching an ADHD-diagnosed learner predicted teacher knowledge, the results indicated that training about ADHD was the only significant predictor of teacher knowledge.

Thematic analysis revealed that teachers recognise that hyperactivity and inattention are key symptoms of the condition that require active management by the teacher. Teachers frequently described the high prevalence of the condition as being particularly problematic. This suggests that teachers are acutely aware of the condition. Promisingly, not only were teachers found to have an adequate level of ADHD knowledge but also 90% of teachers indicated that they would refer a child for assessment. This evidence supports the argument that teachers are able to identify learners who might be affected by ADHD and are willing to refer such learners for an assessment. However, despite teachers' adequate overall knowledge, many teachers reported that they lack the knowledge and skills to effectively teach ADHD-affected learners as identified by the 'knowledge and skills deficit' subtheme. A finding consistent with the findings by Bornman and Donohue (2013).

### **What are teachers attitudes towards ADHD?**

The majority of teachers indicated that they find behaviours associated with ADHD irritating and that they dislike teaching classes that contain students who display ADHD-type behaviours. This finding confirms that of Mulholland et al. (2015) who reported similar negative attitudes towards teaching affected learners. These attitudes were mirrored in 'the ADHD problem' subtheme where teachers voiced their frustration about teaching busy learners who interfere with their ability to effectively teach their class.

Despite their frustration, the large majority of teachers indicated that they believe teaching ADHD-affected learners is a benefit to the growth of their teaching skills. Suggesting that despite the challenges of teaching ADHD-affected learners, teachers regard ADHD as a motivator of pedagogical growth. Literature in this area is lacking.

Whilst 81% of teachers reported that they already change their lessons and teaching styles more than half find educational accommodations difficult to implement in a general education classroom. These sentiments were illustrated in the ‘manageability in mainstream’ subtheme where teachers argued that they battle to meet the high demands of ADHD-affected learners whilst also catering for the educational needs of the rest of the learners in their class.

Teachers indicated that they felt confident in their ability to effectively teach ADHD-affected learners. They also felt they are knowledgeable about ADHD-type behaviours and interventions to manage misbehaviour. Regardless of this confidence, 63% believed that they have not received adequate professional development about managing ADHD-type behaviours. Moreover, the overwhelming majority of teachers indicated a strong desire for better training about ADHD and classroom interventions to assist with educating affected learners. This desire for training was clearly articulated by teachers in their written responses as identified in the ‘knowledge and training deficit’ subtheme. These findings confirm the finding by Bornman & Donohue (2013).

Finally, 60% of teachers indicated that they approve of drug therapy for the management of ADHD. This finding is congruent with a finding by (Snider, Busch, & Arrowood, 2003).

### **Which teacher characteristics predict their attitudes?**

A series of multiple regressions identified a number of significant predictors of teachers’ attitudes. Experience teaching learners diagnosed with ADHD and receiving ADHD-specific training significantly predicted teachers’ attitudes towards teaching ADHD-affected learners. As noted by Sherman, Rasmussen, and Baydala (2008), teachers with positive attitudes about teaching learners with special needs can promote learner success. Those who had experience teaching an ADHD-affected learner and those who had received training were more likely to disagree with statements such as “ I find behaviours associated

with ADHD irritating in the classroom”. Conversely, Mulholland et al. (2015) found that teachers with more teaching experience were more likely to agree with such statements, indicating that with experience teachers become less tolerant of disruptive behaviours.

Teachers’ attitudes towards their own knowledge and training were predicted by experience teaching an ADHD-diagnosed learner, the number of ADHD-diagnosed learners they are currently teaching, ADHD-related training, and their level of knowledge. Those teachers who have previous or current experience teaching ADHD-diagnosed learners reported a greater sense of self-efficacy in relation to their ability to teach ADHD-affected learners. Furthermore, those who had received training and had a good level of ADHD-related knowledge were more likely to agree with statements like “I feel I am knowledgeable about ADHD-type behaviours”. Evidence from the thematic analysis supported these attitudes as teachers argued that with the correct management and support, ADHD is manageable in mainstream education. Similarly, Mulholland et al. (2015) also found teacher knowledge to predict teachers’ answers to items of the ‘knowledge and training’ factor.

Age and years of teaching experience significantly predicted teachers’ desire for better training regarding ADHD. Teachers older than 50 years indicated significantly less of a desire for better training than those younger than 50 years. Teachers with less than 5 years of teaching experience indicated a greater desire for training about ADHD than those who have been teaching for more than 5 years. These two predictors were not found by Mulholland et al. (2015) who found that teachers’ knowledge and birthplace influenced teachers’ desire for better training.

Unlike Mulholland et al. (2015) who found that knowledge predicted three of the four factors, this study found training to significantly predict three of the four factors. However, knowledge and training are closely related because, as shown in this study, training significantly predicts knowledge. Furthermore, knowledge was found to significantly predict

teachers' attitudes towards knowledge and training. Therefore, in order to improve both teachers' ADHD-related knowledge and attitudes, directed training about ADHD and how to implement appropriate classroom interventions should be prioritized.

### **Limitations**

The findings of this study need to be interpreted in the context of some important limitations. Firstly, the findings cannot not be generalised as they are not representative of the teaching population of the Western Cape. Many teachers at very under-resourced schools did not complete the questionnaire. It is possible that the online administration of the measure could have excluded some teachers who do not have internet access. Also, a result of the way that the qualitative research component was designed, no probing of participants responses was possible. Consequently, the qualitative data analysis was restricted by the brevity of some responses. Self-report measures are known to be associated with social-desirability bias (Demetriou, Ozer, & Essau, 2015). This study did attempt to guard against this by prioritizing confidentiality, however it is impossible to determine the role that social desirability might have biased teachers' reports of their attitudes.

### **Directions for future research**

Future research should investigate samples of intermediate phase teachers as this group of teachers is largely underrepresented in the literature. Whilst this study did attempt to consider teachers' behaviour by including two vignettes, future studies should look to extend the investigation by assessing teachers' actual classroom behaviour. It would be useful to establish whether teachers' level of ADHD-related knowledge and their attitudes towards ADHD significantly predict their ability to effectively teach ADHD-affected learners.

### **Implications for practice**

Teacher training programmes and professional-development initiatives should focus on developing teachers' knowledge about ADHD aetiology and recommended treatments

since teachers in this study knew least about these knowledge areas. Furthermore, training initiatives should be skills-based in an effort to equip teachers with practical ways of managing hyperactive and inattentive behaviours in the classroom. Since years of teaching experience did not predict teachers' knowledge, teachers of all experience levels should be targeted for ADHD-training.

### **Conclusion**

This study investigated what intermediate phase teachers across the Western Cape know about ADHD and what their attitudes towards the condition are. This study also sought to determine whether any teacher characteristics determined their level of ADHD-related knowledge and attitudes. The results demonstrate that teachers' knowledge of ADHD was adequate, and in fact, superior to the average knowledge scores reported in South African and international literature. Teachers' attitudes towards teaching learners who exhibit ADHD-type behaviours were largely negative. However, despite the challenges of teaching affected learners, teachers find them rewarding to work with. Teachers who have received ADHD-specific training were more knowledgeable and held more positive attitudes towards teaching learners who exhibit ADHD-type behaviours. Significantly, teachers' age, years of teaching experience, experience teaching an ADHD-diagnosed learner, training, teacher knowledge, and the number of ADHD-diagnosed learners one is currently teaching predicted the nature of teachers' attitudes. Teachers' responses to open-ended questions provided useful insight into their attitudes. Notably, teachers expressed a great desire for training about ADHD and appropriate interventions for the management of ADHD-associated behaviours as they perceive ADHD to be a significant challenge to their teaching. These findings highlight the importance of providing teachers with training to further develop their ADHD-related knowledge and to improve their attitudes towards the condition. This will empower teachers



to create learning environments that are conducive to academic and social success for ADHD-affected learners in South Africa's diverse classrooms.

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## Appendix A

Modified ASKAT

# ADHD-specific knowledge and attitudes of teachers (ASKAT)

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### Part A: Demographic Questions *Please write an answer in the spaces provided*

1. Age: \_\_\_\_\_
2. Gender: Male / Female / Other \_\_\_\_\_
3. How many years have you been teaching: \_\_\_\_\_
4. What grade do you teach?: \_\_\_\_\_
5. In which suburb is your school situated? \_\_\_\_\_
6. Which quintile does your school fall under? (*Please tick*) :
   
 1     2     3     4     5
7. What are the annual school fees at your school? R \_\_\_\_\_
8. Which gender type best represents your school?
   
 Boys' School     Girls' School     Co-Educational School
9. What is your highest educational qualification? (*Please tick*)
   
 No formal teaching qualification     Bachelor of Education Degree
   
 Diploma     Post Graduate Certificate in Education (PGCE)
   
 Honours degree in education     Master's Degree     Ph.D.
10. How many learners do you have in your class? \_\_\_\_\_
11. Have you taught a student who exhibited hyperactive or inattentive behaviours? Yes / No
   
 (if No, go to question 12)
   
 If yes:
  - a) Did that student have an ADHD diagnosis? Yes / No
  - b) Do you currently teach a student who exhibits hyperactive or inattentive behaviours? Yes / No



- c) How Many? \_\_\_\_\_  
 d) How many learners that you teach currently have an ADHD diagnosis? \_\_\_\_\_

12. Have you received any in-service training about Attention Deficit Hyperactivity Disorder

(ADHD)? (Please tick)            Yes            No

**Part B: Vignettes**    *Please read the short scenarios below and type an answer in the blocks provided.*

Vignette 1:

Alex is in your class and has been diagnosed with ADHD. You often have to ask him to stop talking and distracting the other learners around him. He battles to sit still in his chair and often shouts out the answers without putting up his hand. Alex fidgets with his pencils and often loses his books and stationery. You notice that he doesn't usually manage to complete his work and the work that he does complete is very messy with many careless mistakes. He seems easily distracted and regularly forgets his homework at home. Alex seems bright yet his marks are lower than most of the class.

***How would you adapt your teaching to manage Alex?***

Vignette 2:

Your class is busy writing a test. You walk around and notice that, as usual, Nontando is still on question 1 while the rest of the learners are busy answering question 8. She is taking too long to finish her test. You know that Nontando has been diagnosed with ADHD. She often seems as though she is daydreaming or in her own world. She avoids tasks that involve sustained concentration and usually makes a lot of careless mistakes. Her work is often incomplete and she battles to follow through with instructions.

***How do you deal with Nontando in this test situation?***

**Part C: Scale for ADHD-specific knowledge (SASK)**

*Please answer the following questions to the best of your ability.*

1	ADHD is a neurobiological, developmental disorder.	True	False	I don't know
2	Special diets (e.g. reduced sugar, wheat free, lactose free, additive free) are an effective treatment for ADHD.	True	False	I don't know
3	Children with ADHD tend to have poor concentration.	True	False	I don't know
4	A combination of stimulant medication and behaviour management is an effective treatment for ADHD.	True	False	I don't know
5	There are different subtypes of ADHD which can present with different behaviours.	True	False	I don't know
6	ADHD can be inherited.	True	False	I don't know
7	Children with ADHD can present with hyperactive behaviours, inattentive behaviours, or a combination of both.	True	False	I don't know
8	Children with ADHD are easily distracted.	True	False	I don't know
9	Children with ADHD benefit from stricter parenting and schooling.	True	False	I don't know
10	ADHD is caused by too much sugar in the diet.	True	False	I don't know
11	Children who have the hyperactive type of ADHD often talk excessively, and have difficulty staying in their seat.	True	False	I don't know
12	ADHD is caused by poor parenting.	True	False	I don't know
13	Children with ADHD can choose to be better behaved.	True	False	I don't know
14	Some children can present with inattentive or hyperactive behaviours, yet not meet the criteria for an ADHD diagnosis.	True	False	I don't know

15	There is approximately 1 child in every class that exhibits ADHD type behaviours.	True	False	I don't know
16	Children with ADHD often have problem concentrating on table-top work.	True	False	I don't know
17	Children with ADHD often fail to give close attention to their work and make careless mistakes.	True	False	I don't know
18	Teachers are often the first to recognise ADHD type behaviours and refer children for assessment.	True	False	I don't know
19	The cause of ADHD is unknown.	True	False	I don't know
20	Children who present with ADHD behaviours, regardless of ADHD diagnosis, can benefit from individualised behaviour management strategies.	True	False	I don't know

### Part D: Scale for ADHD-specific attitudes (SASA)

*We would like to know the degree to which you agree or disagree with the following statements. Please read the paragraph below and then indicate your response to the following statements. There are no "right" or "wrong" answers. Please circle the choice that most corresponds with your response.*

The behavioural characteristics associated with ADHD can manifest in different ways within the classroom setting. Students who exhibit ADHD associated behaviours often fail to give close attention to detail, make careless mistakes, have difficulty sustaining attention and do not seem to listen when spoken to directly. Students, who display ADHD type behaviours have difficulty organizing themselves, are easily distracted, lose things, and are forgetful. Often, they have problems with orientation (i.e. where to orientate their attention within the classroom), lose assessment criteria, books, or other equipment, often fidget and leave their seat, avoid tasks that require sustained mental effort, run about or climb excessively, have difficulty doing things quietly, talk excessively and have difficulty waiting their turn, interrupt others and may come to class unprepared to learn, without any note taking equipment.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Students who exhibit						
<b>1</b> behaviours associated with ADHD:						
<b>a</b>	1	2	3	4	5	6
	are rewarding to work with					
<b>b</b>	1	2	3	4	5	6
	interfere with my ability to effectively teach my class					
<b>c</b>	1	2	3	4	5	6
	perform well in some subjects and not others					
<b>d</b>	1	2	3	4	5	6
	have no excuse for their poor behaviour if they do not have a formal diagnosis					
<b>e</b>	1	2	3	4	5	6
	misbehave because they don't want to follow the set rules					
<b>f</b>	1	2	3	4	5	6
	need more structure and discipline, not assistance with their academic work					
<b>g</b>	1	2	3	4	5	6
	bring new perspectives to the topics I am teaching					
<b>h</b>	1	2	3	4	5	6
	need to try harder to focus on their school work					
<b>2</b> I believe:						
<b>a</b>	1	2	3	4	5	6
	ADHD is over diagnosed					

**b** ADHD is a valid diagnosis      **1**      **2**      **3**      **4**      **5**      **6**

**c** ADHD is an excuse for  
poor parenting      **1**      **2**      **3**      **4**      **5**      **6**

children who exhibit

**d** ADHD type behaviours  
are deliberately  
misbehaving      **1**      **2**      **3**      **4**      **5**      **6**

**Strongly Disagree**      **Disagree**      **Somewhat Disagree**      **Somewhat Agree**      **Agree**      **Strongly Agree**

**3** I would:

**a** refer a student who  
exhibited ADHD-type  
behaviours in my  
classroom to the school  
counsellor for a possible  
ADHD assessment      **1**      **2**      **3**      **4**      **5**      **6**

like to know more about

**b** ADHD and its associated  
behaviours      **1**      **2**      **3**      **4**      **5**      **6**

**c** like to have more  
information about  
classroom interventions to  
assist me with educating  
students who display  
ADHD-type behaviours      **1**      **2**      **3**      **4**      **5**      **6**

**4** I find:

behaviours associated with							
<b>a</b>	ADHD, irritating in the classroom	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
students who exhibit							
<b>b</b>	ADHD-type behaviours rude	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
it challenging to teach							
students who exhibit							
<b>c</b>	behaviours associated with ADHD	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
it rewarding to see the							
accomplishments of							
<b>d</b>	students who display ADHD-type behaviours	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
students who display							
ADHD-type behaviours							
<b>e</b>	cause me to experience stress	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>5</b>	When it comes to differentiation, I feel:						
ADHD is a benefit to the							
<b>a</b>	growth of my teaching skills	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>b</b>	I don't have the time	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>c</b>	I already change my lessons and teaching styles	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

educational

	accommodations for						
	students with ADHD-type						
<b>d</b>	behaviour are easy to	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
	implement in a general						
	education classroom						

**6** I feel I am knowledgeable  
about:

<b>a</b>	ADHD-type behaviours	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
	classroom interventions to						
<b>b</b>	manage misbehaviour	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

**7** I feel:

	I have received adequate						
	professional development						
<b>a</b>	about managing ADHD-	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
	type behaviours						

	I can effectively teach						
	students who exhibit						
<b>b</b>	behaviours associated	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
	with ADHD						

	I want to be more effective						
	teaching students who						
<b>c</b>	display ADHD-type	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
	behaviours						

**Part E: Open-ended Questions**

1. How would you describe students who display hyperactive behaviours?

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2. How would you describe students who display inattentive behaviours?

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3. What do you think about ADHD and its associated behaviours?

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4. What is your opinion about classroom interventions used with students who exhibit ADHD associated behaviour?

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5. Do you think that a learner exhibiting features of ADHD should take medication e.g. Ritalin?  
(Please circle) Yes / No



## Appendix B

Letter to confirm vignette validation



Address: 247 Main Road, Claremont, 7708  
PO Box: 23293, Claremont, 7735  
Telephone: 021 671 1204  
Fax: 021 683 8215  
Website: [www.claremontpractice.co.za](http://www.claremontpractice.co.za)  
Admin: [admin@claremontpractice.co.za](mailto:admin@claremontpractice.co.za)  
Accounts: [accounts@claremontpractice.co.za](mailto:accounts@claremontpractice.co.za)

July 2018

To whom it may concern

**RE: ADHD research vignettes**

Miss Claire Yarde-Leavett consulted with me during July 2018, with regards to her Psychology Honours research project. She is registered at the University of Cape Town and her research is looking at the how South African teachers understand and consider Attention Deficit/ Hyperactivity Disorder (ADHD).

As part of my own PhD research project, I work with parents and children who are diagnosed with ADHD. I also consult with many children and families at my practice, who struggle with symptoms of this disorder.

Claire uses case examples or vignettes as part of her research methodology. Due to my personal experience working with ADHD, she asked me to read and comment on the examples that she included as part of her study. In my professional opinion, these vignettes accurately depict ADHD-type behaviour and symptoms, that might typically be observed by a teacher in a classroom setting.

Please do not hesitate to contact me for any further details.

Warm regards,

Mareli Fischer

Practice number 0496472 / PS0117811

## **Appendix C**

### Letter to school principals

Dear (insert name of school principal)

This letter serves to inform you about a study that I, Claire Yarde-Leavett, am conducting in my capacity as a postgraduate student researcher in the Psychology Department at the University of Cape Town. My research aims to investigate intermediate phase teachers' knowledge of and attitudes towards Attention Deficit Hyperactivity Disorder (ADHD) across the Western Cape.

Your school has been selected for inclusion in this study using a random stratified sampling technique, which aims to represent the stratified nature of the quintile system that organizes our South African schools. The study has been granted ethical approval by the Research Committee of the University of Cape Town Psychology Department and has been approved by the Western Cape Education Department (see attachment).

I would like to ask for your permission to contact all of your grade 4, 5 and 6 teachers to invite them to participate in my study. If you do grant this permission I will send an email to your school secretary requesting that a research invitation be sent to the relevant teachers. However, if you feel that you would not like your teachers to participate in the study you will not be contacted further.

#### **The participants:**

The study is particularly interested in the ADHD- specific knowledge and attitudes of teachers in the intermediate phase. For this reason, only teachers who currently teach grade 4, 5 or 6 are to be included as participants.

#### **What the research involves:**

The study involves completing an online questionnaire that assesses teachers' knowledge of and attitudes towards Attention Deficit Hyperactivity Disorder. Teachers can complete the questionnaire in their own time at their own pace.

#### **Consent, confidentiality and voluntary participation:**

Teachers' consent to participate in the study is entirely voluntary and they may withdraw from the study at any time. No information that could be used to personally identify any of the individual participants will be recorded. Only the researcher and her supervisors will have access to the responses obtained from the questionnaire. Lastly, to ensure confidentiality no feedback about the ADHD-specific knowledge and attitudes of teachers who participate will be sent back to your school.

#### **The risks of taking part:**

There are no foreseeable risks associated with participation by teachers.

#### **The benefits of taking part:**

Teachers will be asked if they would like to be sent a summary of the research findings out of courtesy for participating in the research. Additionally, as compensation for the time that teachers take to complete the questionnaire they will invited to leave their name and contact details to be entered into

a lucky draw to win a book about ADHD. Notably, this information will be recorded separately from results of the questionnaire. Should the research findings go on to be published you will be sent a copy of the publication.

Please inform me of your decision to either grant or deny me permission to send research invitations the relevant teachers at your school in writing at your earliest convenience. In the event that I do not hear back from you within five working days I will give you a call to follow up.

Should you have any questions about the rights of research participants, or complaints about the study then please contact Rosalind Adams. However, if you have any further general questions about participation or the nature of the study then please contact the researcher, Claire, or her supervisor, Lauren Wild.

Claire Yarde-Leavett

Lauren Wild

Rosalind Adams

Student researcher

Supervisor

Contact person for the Research

Department of Psychology,  
UCT

Ethics Committee of the  
University of Cape Town  
Psychology Department

[cyardeleavett@gmail.com](mailto:cyardeleavett@gmail.com)

[lauren.wild@uct.ac.za](mailto:lauren.wild@uct.ac.za)

[rosalind.adams@uct.ac.za](mailto:rosalind.adams@uct.ac.za)

071) 7202203

(021) 6504607

(021) 6503417

Kind regards

Claire Yarde-Leavett

## Appendix D

Research invitation email

Dear (insert name of teacher)

**You are invited to take part in a study that explores what intermediate phase teachers know about Attention Deficit Hyperactivity Disorder (ADHD).**

Claire Yarde-Leavett is a postgraduate student in the Psychology department at the University of Cape Town and she would like to invite you to join her study investigating teachers' knowledge and attitudes about ADHD.

**What the research is about:**

The research aims to add to what is known about intermediate phase teachers' ADHD-specific knowledge and attitudes in the Western Cape.

**What the research involves:**

Participation will involve completing a questionnaire online, which you may complete at your own pace.

Participation is entirely voluntary and the researcher guarantees the confidentiality and anonymity of individuals who participate. If you agree to participate only the researcher and her supervisors will have access to the responses however the identity of the individuals will not be known.

If you do agree to participate you may withdraw from the study at any time without facing any penalties. Should you wish to partake, you will be asked to give your consent that the information you provide can be used for research purposes. The final findings of this research will be written up in research publications.

**The risks of taking part:**

There are no risks in taking part in this research. Your participation is entirely voluntary and there is no penalty for withdrawing from the study. Choosing not to participate will not affect you negatively in any way.

**The benefits of taking part:**

If you do consent to participate in this study you will by the end of the study have a clear idea of what ADHD is and how it typically manifests in classroom settings. You will also gain more of an insight into your own knowledge of and attitudes towards ADHD through the completion of the questionnaire. If you do complete the questionnaire you may leave your contact details by clicking on the second link to be entered into a lucky draw to win a book about ADHD. Please indicate whether you would like to be sent a summary of the research findings once the study is complete.

If you would like to participate in this study please click on the link below

(link to SurveyMonkey questionnaire)

If you would like to leave your contact details to be entered into the lucky draw then click on the link below

(link to leave contact details on SurveyMonkey)

Should you have any questions about participation in this study please do not hesitate to contact any of the following:

Claire Yarde-Leavett

Student researcher

Department of Psychology,  
UCT

[cyardeleavett@gmail.com](mailto:cyardeleavett@gmail.com)

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Lauren Wild

Representative of the  
Research Ethics Committee of  
the University of Cape Town  
Psychology department

[lauren.wild@uct.ac.za](mailto:lauren.wild@uct.ac.za)

Rosalind Adams

Secretary at the Psychology  
department, UCT

[rosalind.adams@uct.ac.za](mailto:rosalind.adams@uct.ac.za)

Best wishes

Claire Yarde-Leavett

## Appendix E

### Participant consent form

#### Teacher Consent Form

- I have had the study explained to me and I understood all that has been read.
- I have been able to ask questions and all my questions have been answered satisfactorily.
- I understand that I can change my mind at any point and it will not affect me in any way.
- I understand that no personal identifying information will be released in any form.
- I do not feel that I will be forced to take part in this research and I will be doing so of my own free will.

I hereby agree to participate in the research:

I consent to (please select 'YES' or 'NO' below):

	YES
--	-----

	NO
--	----

## Appendix F

### Participant debriefing form

Thank you for participating in this study! We hope you enjoyed the experience. This form provides background about our research to help you learn more about why the study was conducted.

The purpose of this study was to investigate intermediate phase teachers' knowledge of and attitudes towards ADHD across the Western Cape. The vignettes at the beginning of the study were included to give an indication of how you would manage ADHD-diagnosed learners in typical classroom settings. The following sections of the questionnaire assessed your ADHD-specific knowledge and attitudes. A correlation between knowledge and attitude results will be conducted and this will contribute to what is known about this relationship. The findings of the research are of significant importance because research around this topic has largely investigated foundation phase teachers.

As you know, your participation in this study is voluntary. If you so wish, you may withdraw after reading this debriefing form, at which point all records of your participation will be destroyed. Please select the option below if you wish to do this:

	Yes
--	-----

Other teachers at your school have also been invited to participate in the study. Because of this, it is important that you do not talk about this project. We hope you will support our research by keeping your knowledge of this study confidential.

As compensation for your time please click on the second link in the invitation email and leave your contact details to be entered into a luck draw to win a book about ADHD.

Should you have any questions about this study please do not hesitate to contact any of the following:

Claire Yarde-Leavett

Lauren Wild

Rosalind Adams

Student researcher

Representative of the Research

Secretary at the Psychology

Department of Psychology, UCT

Ethics Committee of the  
University of Cape Town  
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[cyardeleavett@gmail.com](mailto:cyardeleavett@gmail.com)

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[rosalind.adams@uct.ac.za](mailto:rosalind.adams@uct.ac.za)

0717202203

## Appendix G

### *Correct response analysis frequencies (N=110)*

Survey Item	True	I don't know	False	
<b>Aetiology</b>				
1	ADHD is a neurobiological, developmental disorder.	77 (70%)*	23 (20.5)	10 (8.9%)
6	ADHD can be inherited.	72 (64.3)*	23 (20.5)	15 (13.4)
10	ADHD is caused by too much sugar in the diet.	6 (5.4)	12 (10.7)	92 (82.1)*
12	ADHD is caused by poor parenting.	1 (.9)	3 (2.7)	106 (94.6)*
19	The cause of ADHD is unknown.	24 (21.4)*	53 (47.3)	33 (29.5)
<b>Treatment</b>				
2	Special diets (e.g. reduced sugar, wheat free, lactose free, additive free) are an effective treatment for ADHD.	77 (68.8)	14 (12.5)	19 (17)*
4	A combination of stimulant medication and behavioural management is currently recommended as an effective treatment for ADHD.	95 (84.8)*	9 (8)	6 (5.4)
9	Children with ADHD benefit from stricter parenting and schooling.	18 (16.1)	11 (9.8)	81 (72.3)*
20	Children who present with ADHD behaviours regardless of ADHD diagnosis can benefit from individualised behaviour management strategies.	103 (92)*	6 (5.4)	1 (.9)
<b>Symptoms</b>				
3	Children with ADHD tend to have poor concentration.	98 (87.5)*	1 (.9)	11 (9.8)
5	There are different subtypes of ADHD which can present with different behaviours.	101 (90.2)*	9 (8)	0 (0)
7	Children with ADHD can present with hyperactive behaviours, inattentive behaviours or a combination of both.	106 (94.6)*	1 (.9)	3 (2.7)
8	Children with ADHD are easily distracted.	103 (92)*	2 (1.8)	5 (4.5)
11	Children who have the hyperactive type of ADHD often talk excessively, and have difficulty staying in their seats.	101 (90.2)*	4 (3.6)	5 (4.5)
13	Children with ADHD can choose to be better behaved.	13 (11.6)	7 (6.3)	90 (80.4)*
14	Some children can present with inattentive or hyperactive behaviours, yet not meet the criteria for an ADHD diagnosis.	102 (91.1)*	7 (6.3)	1 (.9)
16	Children with ADHD often have a problem concentrating on table-top work.	94 (83.9)*	9 (8)	7 (6.3)



17	Children with ADHD often fail to give close attention to their work and make careless mistakes.	101 (90.2)*	3 (2.7)	6 (5.4)
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Prevalence/ Assessment

15	There is approximately 1 child in every class that exhibits ADHD-type behaviours	73(65.2)*	22(19.6)	15(13.4)
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18	Teachers are often the first to recognise ADHD-type behaviours and refer children for assessment.	86(76.8)*	12(10.7)	12(10.7)
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*Note.* \*denotes the correct response to the item.

## Appendix H

### *SASA item response frequencies (n=104)*

Item	Strongly disagree <i>n</i> (%)	Disagree <i>n</i> (%)	Somewhat disagree <i>n</i> (%)	Somewhat agree <i>n</i> (%)	Agree <i>n</i> (%)	Strongly agree <i>n</i> (%)
<b>Negative feelings towards teaching learners with ADHD.</b>						
I find behaviours associated with ADHD irritating in the classroom.	9 (8.7)	15 (14.4)	12 (11.5)	46 (44.2)	18 (16.1)	4 (3.8)
I dislike teaching classes that contain students who display ADHD-type behaviours.	25 (24)	42 (40.4)	22 (21.2)	14 (13.5)	1 (.9)	0 (0)
I find students who display ADHD-type behaviours cause me to experience stress.	6 (5.8)	16 (15.4)	16 (15.4)	46 (44.2)	15 (14.4)	5 (4.8)
I find students who exhibit ADHD-type behaviours rude.	15 (14.4)	42 (40.4)	21 (20.2)	23 (22.1)	3 (2.9)	0 (0)
Students who exhibit behaviours associated with ADHD interfere with my ability to effectively teach much class.	4 (3.8)	18 (17.3)	14 (13.5)	46 (44.2)	16 (15.4)	6 (5.8)
I find it challenging to teach students who exhibit behaviours associated with ADHD.	3 (2.9)	9 (8.7)	9 (8.7)	37 (35.6)	37 (35.6)	9 (8.7)
Students who exhibit behaviours associated with ADHD need more structure and discipline, not assistance with their academic work.	20 (19.2)	22 (21.2)	18 (17.3)	28 (26.9)	15 (13.4)	1 (.9)
<b>Positive feelings towards teaching students with ADHD.</b>						
When it comes to differentiation, I feel ADHD is a benefit to the growth of my teaching skills.	0 (0)	4 (3.8)	5 (4.8)	25 (24)	45 (43.3)	25 (22.3)
Students who exhibit behaviours associated with ADHD bring new perspectives to the topics I am teaching.	1 (1)	6 (5.8)	7 (6.7)	7 (6.7)	34 (30.4)	18 (16.1)
I find it rewarding to see the accomplishments of students who display ADHD-type behaviours.	1 (.9)	0 (0)	0 (0)	7 (6.3)	45 (43.3)	51 (45.5)
Students who exhibit behaviours associated with ADHD are rewarding to work with.	4 (3.8)	9 (8.7)	17(16.3)	35 (33.7)	31 (29.8)	8 (7.7)
<b>Negative beliefs about ADHD and its associated behaviours.</b>						
I believe ADHD is over diagnosed.	1 (1)	15 (14.4)	9 (8.7)	49 (47.1)	19 (18.3)	11 (10.6)
Students who exhibit behaviours associated with ADHD need to try harder to focus on their school work.	11 (10.6)	25 (24)	17 (16.3)	34 (32.7)	15 (13.4)	2 (1.8)

I believe ADHD is an excuse for poor parenting.	45 (43.3)	36 (34.6)	8 (7.7)	10 (9.6)	5 (4.8)	0 (0)
Students who exhibit behaviours associated with ADHD misbehave because they don't want to follow the set rules.	46 (44.2)	34 (32.7)	14 (13.5)	7 (6.7)	2 (1.8)	1 (.9)
Students who exhibit behaviours associated with ADHD have no excuse for their poor behaviour if they do not have a formal diagnosis.	39 (37.5)	40 (38.5)	9 (8.7)	9 (8.7)	5 (4.8)	2 (1.9)
I believe children who exhibit ADHD type behaviours are deliberately misbehaving.	43 (41.3)	48 (46.2)	6 (5.8)	6 (5.8)	0 (0)	1(1)
Positive beliefs about ADHD and its associated behaviours.						
I believe ADHD is a valid diagnosis.	0 (0)	0 (0)	5 (4.8)	21 (20.2)	54 (51.9)	24 (23.1)
Students who exhibit behaviours associated with ADHD perform well in some subjects and not others.	2 (1.9)	1(1)	5 (4.8)	14 (13.5)	64 (61.5)	18 (17.3)
Accommodations.						
I would refer a student who exhibited ADHD-type behaviours in my classroom to the school counsellor for a possible ADHD assessment.	0 (0)	3 (2.9)	0 (0)	12 (11.5)	56 (53.8)	33 (31.7)
When it comes to differentiation, I feel I already change my lessons and teaching styles.	0 (0)	8 (7.7)	12 (11.5)	40 (38.5)	34 (32.7)	10 (9.6)
When it comes to differentiation, I feel educational accommodations for students with ADHD-type behaviour are easy to implement in a general educational classroom.	9 (8.7)	24 (23.1)	26 (25)	26 (25)	16 (15.4)	3 (2.9)
When it comes to differentiation, I feel I don't have time.	15 (14.4)	26 (25)	21 (20.2)	28 (26.9)	10 (9.6)	4 (3.8)
Knowledge and training.						
I feel I have received adequate professional development about managing ADHD-type behaviours.	12 (11.5)	34 (32.7)	20 (19.2)	26 (25)	12 (10.7)	0 (0)
I can effectively teach students who exhibit behaviours associated with ADHD.	5 (4.5)	9 (8.7)	22 (21.2)	46 (44.2)	19 (18.3)	3 (2.9)
I feel I am knowledgeable about classroom interventions to manage misbehaviour.	4 (3.8)	12 (11.5)	17 (16.3)	39 (37.5)	28 (26.9)	4 (3.8)
I feel I am knowledgeable about ADHD-type behaviours.	3 (2.9)	10 (9.6)	12 (11.5)	48 (46.2)	27 (26)	4 (3.8)
Desire for more training.						
I would like to know more about ADHD and its associated behaviours.	1 (1)	2 (1.9)	0 (0)	9 (8.7)	52 (50)	40 (38.5)
I want to be more effective teaching students who display ADHD-type behaviours.	0 (0)	2 (1.9)	2 (1.9)	14 (13.5)	45 (43.3)	41 (36.6)

I would like to have more information about classroom interventions to assist me with educating students who display ADHD-type behaviours.	1 (1)	2 (1.9)	1 (1)	12 (11.5)	32 (30.8)	56 (53.8)
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