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# Modelling the Factors that Influence the Awareness on ADHD of Children Among Primary School Teachers: A PLS – SEM approach

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**Abstract**: Attention Deficit Hyperactive Disorder (ADHD) is among the most discovered psychological problems among children in Malaysia. Children with ADHD will face problems with their academic performance since they lack focus and attention in class. This study aimed to investigate the factors influence the awareness of ADHD among children among primary school teachers using PLS-SEM approach. Primary data was used by the researchers as the source of data for this study by distributing the questionnaires. SmartPLS was used to define the effects between the variables. Based on the output, the relationship between awareness and perception has a moderate positive linear relationship while knowledge and attitude have a weak positive relationship towards awareness. The result also shows that knowledge and attitude have significant influences towards awareness. Hence, teachers should gain more knowledge about ADHD. Besides, teachers should have a positive attitude towards the students that have discipline problems because they may suffer from ADHD.

**Keywords**: ADHD, Awareness, PLS-SEM

## 1 Introduction

One of the most common mental disorders affecting children is attention-deficit hyperactive disorder (ADHD). It is a serious public health issue that affects both children and adults. There are three categories of ADHD: primarily unattended, children and adolescents with the ability to stay focused; predominantly hyperactive-impulsive children and adolescents experience repetitive activity that is not suitable for the environment and hasty actions that occur in an unthoughtful moment; and mixed form, whereby children and adolescents encounter all the symptoms [1].

The ADHD Institute websites state that a mean worldwide prevalence of ADHD of 2.2% overall has been estimated in children and adolescents aged less than 18 years. The mean prevalence of ADHD in adults aged 18 to 44 years from a range of countries in Asia, Europe, the Americas and the Middle East was reported as 2.8% overall. Ministry of Health Malaysia stated in MyHealth websites that Malaysian children 4.3% of children aged from five to fifteen years old suffer ADHD in Malaysia and commonly are boys which shows an increase of 0.4% since 2008 which is 3.9%. They also stated a few complications that are often faced by ADHD children which of one this ADHD often co-exists with other psychology disorder where the children are stubborn, has temper outbursts and appear disobedient.

ADHD can cause a serious problem in how well children do in school, how well they are making friend and their attitude towards society. Children who are diagnosed with ADHD tend to have a different behaviour compared with their normative peers and are hard to manage. According to Egbochuku and Abikwi [2] half of the children with ADHD will be visible when they are 5 years old, and the majority of them will start to exhibit problems in the way of behaving once they have started going to school when they had to listen to teacher command and obey school rules. Having difficulty

blending in with surroundings will not only affect their social it will also affect their academic performance.

As a consequence, that teachers play important role in helping diagnose ADHD in children at an early stage because the students and teachers know how normal students behave in the classroom. According to Salwani et al. [3] a study that has been conducted in Kuala Lumpur, Malaysia the researcher concludes that agreement between the respondent was weak in recording ADHD symptoms. There are no meaningful differences for adolescents and teachers in all subtypes in ADHD symptoms report. This study also stated that teacher has a poor ability to detect ADHD symptoms other than adolescents and parents. Teachers are at a disadvantage because teachers cannot observe activities specific to the home setting encountered by adolescents and witnessed by their parents.

It is difficult to detect ADHD in students because they look just like normal students, but the difference is by the way they behave in their surroundings. Hence, the teachers need to be aware of ADHD and able to recognize ADHD students. There may be people with ADHD who have never been diagnosed with ADHD, but they have to live filled with problems directly related to the symptoms. The purpose of the paper is to identify the variables (knowledge, attitude, perception and experience) that influence the awareness of ADHD of children among primary school teachers. The paper will help to understand the issues surrounding awareness of ADHD that may lead to the exposure of handling any disorder children especially teachers and parents.

## 2 Literature Review

### A. Awareness

Research has been conducted in India to find out primary school teacher awareness on ADHD. Based on the research it can be concluded that the majority of the teachers were aware of ADHD disorder. A study by Shetty & Rai [4] revealed teaching experience and knowledge affect teachers' awareness towards ADHD. The previous study by Qashqari et al. [5] stated that improvement is needed for medical students to have a higher level of knowledge about ADHD. This study also stated that medical students are not well educated or aware of ADHD features, diagnosis, and management. Age, gender, completing their paediatric/psychiatry rotation, or special interests have no correlations that were found. French et al. [6] stated that Attention Deficit Hyperactivity Disorder (ADHD) is underdiagnosed in many European countries and the method of receiving diagnosis and treatment is dynamic and variable. In this study, four primary themes were identified which are the need for education, misconceptions, and stigma, constraints with recognition, management and treatment and lastly multidisciplinary. The finding suggests that many factors that play a role in the recognition of ADHD with a strong recurring theme of a significant need for better education on ADHD. According to Sayal et al. [7], the community affected by ADHD around the world is estimated at an average of 5%. This study also showed that the data from other countries primarily indicate that ADHD is still relatively under-recognized and under-diagnosed, particularly among girls and older children. Furthermore, to reduce ADHD-related stigma, it is important to enhance the knowledge amongst parents, teachers and primary care clinicians. This study recommended that access to care may be improved by enhancing the knowledge and communication between these key adults.

### B Knowledge in ADHD

According to Alfageer et al. [8] two-third of the teachers had a piece of knowledge about ADHD. The teachers who had taught a child with ADHD or either attended a course had significantly more knowledge about the disorder. Most of the teachers learned about the disorder from multiple sources. Those who attended any course on ADHD had significantly more knowledge about the disorder. The study also stated that teachers who taught a child with ADHD had a better understanding of the disorder. Youssef et al. [9] stated the majority of the total respondent had low knowledge of ADHD. Based on the result the important factor that influences the total knowledge score is education level.

Nevertheless, respondents obtaining ADHD instruction when studying and educating someone with ADHD also had a significant impact on ADHD awareness. A study by Guerra and Brown [10] investigated the broad field of knowledge of teachers was related to the recognition of symptoms but had a low score in the recognition of general knowledge and treatment for the disorder. Although the teacher's awareness of ADHD is poor in previously examined studies, but a study conducted by Moldavsky et al. [11] has shown that most respondents understand the presence of a problem. Moldavsky et al. [11] research provides support to Guerra and Brown [12] where it stated that respondents were usually knowledgeable about the symptoms of ADHD but the majority of them had a difficult time recognizing symptoms in a certain student. Similarly, Taghi [13] stated that most of the teachers do not know about the cause of this disorder. The result shows that there is no significant difference between teacher's knowledge and variables such as school, gender, and record of services, but there is a significant difference between teacher's knowledge and level of education.

### C Attitude towards ADHD Students

Youssef et al. [9] stated respondents see ADHD as a serious and real issue that comes to the surface. They felt that children are irresponsible for their way of behaving and thought that children who suffer from ADHD are troublesome to the classroom. Therefore, since handling children with ADHD is a more challenging, the respondents thought that special education teachers should educate the ADHD children. However, a previous study by Aly et al. [14] stated that most of the teachers had an insufficient level of knowledge toward ADHD while half of the teachers had a positive attitude toward ADHD. Manju [15] conducted a study in Kolkata to estimate the understanding and manner of primary school teachers concerning ADHD. The result demonstrates the teachers that had a positive attitude towards ADHD are the majority. Based on the study, the researcher compare does teachers' attitudes had anything to do with their qualifications. The result revealed that professional qualification does not affect teachers' attitudes towards ADHD. Basudan et al. [16] investigated the level of knowledge and attitude of the school teachers of female primary schools in Jeddah about ADHD. The recent improvement in its rehabilitation calls for social intervention through school-based programs, requiring knowledgeable teachers. Thereafter, more than half of teachers claimed they knew about ADHD, the true question of the knowledge test revealed a far smaller percentage who showed good knowledge of ADHD. Only older teachers had significantly better knowledge. Meanwhile, more than one half of the teachers perceive that the first step in the management strategy when suspecting ADHD is the child's referral to a therapist and asking for attendance of the parents.

### D Perception of ADHD

Watters et al. [17] study shows that majority of participants confessed that they thought that ADHD to be constrained to childhood. The respondent considered ADHD is as a childhood disorder and abandon the fact that adults may suffer it too. Teachers' misconception of proper educational placing of ADHD students as an effective educational strategy is also one challenge that hugely impacts the academic and overall success of these children explained in Woyessa et al. [18]. There were some arguments between researchers about ADHD in Curtis et al. [19] study which stated that the children's behaviours result from difficulties in learning and failure in academics while other researchers stated that ADHD is a specific clinical condition that usually co-occurs with difficulty in learning. In the study psychosocial intervention was suggested to improve learning skills in children while some other researchers noted that classroom-based behavioural and parent training are more effective. Hence, comprehension of teachers' perception of intervention will eventually provide information regarding teacher consultation to clinicians. Meanwhile, in Kern et al. [12] study, they conclude that the teachers recognize the disorder's physiological and neurological basis, they perceive emotional dysregulation, poor diet, inadequate parenting, and other barriers to learning as additional underlying causes. Furthermore, it emerged that medication was the preferred method of intervention despite the participants' awareness of alternative methods of intervention, despite the environmental factors the teachers cited as causal factors related to ADHD. A comparison of the research of private and public-school teachers showed no significant difference in their perceptions regarding ADHD aetiology, interventions, or incidence rates.

## 3 Methodology

This study was carried out from the cross-sectional study that made of stratified sampling to assess teacher awareness on ADHD. Ethical approval for this study was received from the Kelantan State Education Department in Kota Bharu to distribute the questionnaire. The target sample consists of teachers from 20 primary Malay-medium National schools involved in Special Education Integrated Program in Kota Bharu who educate students in regular classes and students under Special Education Integrated Program.

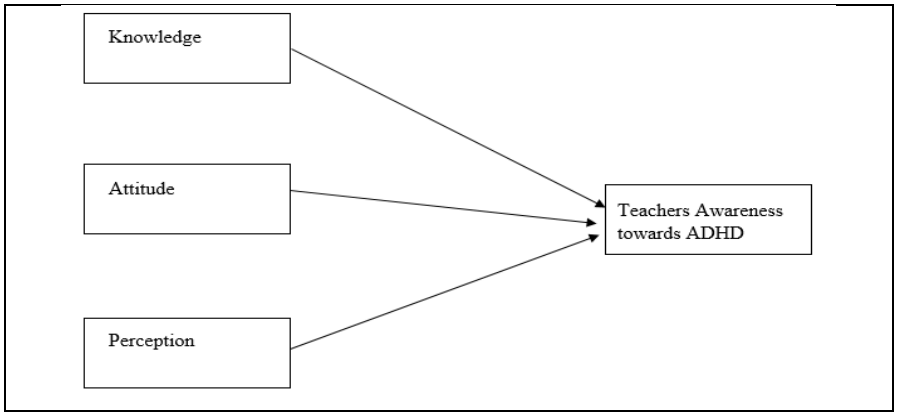


Figure 1: Theoretical framework of teachers' awareness towards ADHD

Figure 1 shows the theoretical framework of the independent variables that contribute to the awareness of primary school teachers towards Attention Deficit Hyperactive Disorder (ADHD) among children in Kota Bharu while the dependent variable is the teacher's awareness towards ADHD. This study was used Confirmatory Factor Analysis to test the dimensionality of a construct. This test mainly measures the model (model measurement) so that it can describe the dimensions and indicators of behaviour in reflecting latent variables namely teachers' awareness by looking at the factor loading of each aspect that forms a construct. Confirmatory Factor Analysis (CFA) is also used to test the validity of the extracts and the reliability of the constructs of the indicators (items) forming latent constructs.

### A. Instrument

A questionnaire was used in the previous report by Shetty & Rai [4]; Qashqari et al. [5]; Guerra and Brown [12]; Bussing et al. [20]; Youssef et al. [9] was adapted for use in this study based on author review and a pilot study was an appropriate Cronbach's Alpha was set to check the reliability was above 0.7. The final instrument contained five sections. In Section A (Demographic Information) there were four (4) items consists age, sex, teaching experience and speciality with multiple choice. For Section B (Awareness of ADHD), Section C (Knowledge of ADHD), Section D (Teacher's Perception towards ADHD) and Section E (Teachers Attitude towards ADHD Students) a five (5) Likert scales with 1 as strongly disagree, 2 as disagree, 3 as neutral, 4 as agree and 5 as strongly agree were used.

### B Procedure

The school was selected by sample size calculator Raosoft, due to restrictions and limitations the sample size that has been determined where three out of 20 schools. Then, the sample size was calculated using Return Path Sample Calculator Online, resulting in 115 teachers being selected from this study out of 162. A stratified random sampling procedure was used to select 115 teachers out of 162 teachers. After the researcher received legal permission from Kelantan State Education Department in Kota Bharu to conduct a survey, questionnaires were distributed by using a web-based

survey method to all selected teachers in the three schools. Respondents need to respond directly to the questionnaire by completing the survey questions.

### C Analysis

The collected data were analysed by using SmartPLS Software with independent variables such as knowledge, attitude and perception and awareness as a dependent variable. SmartPLS constructs Structural Equation Modelling (SEM) with a model that makes complex relationships more plausible because of any numerical aspect, whether observed as non-experimental data from a survey or latent. Descriptive statistics were calculated for Section A to describe the demographic characteristics of primary school teachers in this study. In addition, by examining the latent variable correlations, the results showed that significant correlations existed between the factors. Structural Equation Modelling with Partial Least Square (PLS-SEM) approach on SmartPLS were applied to identify the variable that influences awareness of ADHD. The reliability and validity of the data were tested by Cronbach's Alpha, Average Variance Extracted (AVE) and square root of AVE or Heterotrait-Monotrait Ratio (HTMT).

## 4 Results

### A Reliability Test

The pilot study included 18 randomly chosen primary school teachers from the three selected primary schools in Kota Bharu. Cronbach's alpha coefficient was used to test the reliability of the measures for the variable.

Table 1: Reliability Test for Each Section

| Section | Cronbach's Alpha | Cronbach's Alpha Based on Standardized Item | N of Items |
|---|---|---|---|
| **Awareness** | 0.750 | 0.739 | 13 |
| **Knowledge** | 0.907 | 0.923 | 12 |
| **Perception** | 0.842 | 0.849 | 15 |
| **Attitude** | 0.722 | 0.722 | 10 |

The value of Cronbach's alpha for each section is greater than 0.70 which is appropriate. However, when the pilot study was conducted, the researchers received several complaints about the number of items for each section which the respondents deemed, a lot. Furthermore, the researcher decided to remove several items in each section, but the value of Cronbach alpha is still retained above 0.70, if the Cronbach's Alpha is 0.80 or higher is the better it is.

Table 2: New Reliability Test for Each Section

| Section | Cronbach's Alpha | Cronbach's Alpha Based on Standardized Item | N of Items |
|---|---|---|---|
| Awareness | 0.873 | 0.868 | 9 |
| Knowledge | 0.925 | 0.930 | 10 |
| Perception | 0.861 | 0.871 | 10 |
| Attitude | 0.816 | 0.815 | 8 |

After items B4, B5, B9, B13, C5, C12, D1, D7, D8, D12, D13, E1 and E6 are removed. All the sections have Cronbach's alpha value greater than 0.80 which indicates the measuring instrument reliability has good accuracy and stability after items were deleted. Since the questionnaires are more reliable, the new questionnaires proceed in the actual study.

## B Descriptive Analysis and SEM-PLS results

As illustrated in Table 3, the study included 115 teachers. A respondent aged between 41 and 50 years old is the most respondent that answers the questionnaire with 41.7% (48) respondent compared to the respondents aged between 20 and 30 years old with 18.3% (21). For variable gender, most of the respondents that answer the questionnaire are female which consists of 81.7% (94) of the overall respondent while the rest are male with 18.3% (21). Next, the majority of the respondent involved in this survey had teaching experience for more than 15 years with 37.4% (43) of the total respondent compared to the respondents that only has less than 2 years of teaching experience which is 7.8% (9).

Table 3: Descriptive Statistics of Demographic Profile

| Variable | Frequency (N= 115) | Percentage (%) |
|---|---|---|
| **Age** | | |
| 20 - 30 years old | 21 | 18.3 |
| 31 - 40 years old | 23 | 20.0 |
| 41 - 50 years old | 48 | 41.7 |
| 51 - 60 years old | 23 | 20.0 |
| **Gender** | | |
| Female | 94 | 81.7 |
| Male | 21 | 18.3 |
| **Teaching Experience** | | |
| Less than 2 years | 9 | 7.8 |
| 2 until 5 years | 11 | 9.6 |
| More than 5 - 10 years | 26 | 22.6 |
| More than 10 - 15 years | 15 | 13.0 |
| More than 15 - 20 years | 43 | 37.4 |
| More than 20 years | 11 | 9.6 |

As demonstrated in Table 4, knowledge and perception have a p-value less than alpha (0.05) indicating that the variable was significant. Next, only one exogenous latent variable (perception) has the correlation value was 0.634 which is a moderate relationship while knowledge has a weak positive relationship with endogenous latent variable. Furthermore, one exogenous latent variable (attitude) was not significant because the p-value is greater than 0.05 which indicates that there is no relationship between attitude and awareness towards ADHD.

Table 4: Correlation of Latent Variable

| | Knowledge | Perception | Attitude |
|---|---|---|---|
| **Correlation(p-value)** | 0.286 (0.02) | 0.634 (< 0.000) | 0.139 (0.140) |

Results of screening and cleaning data discussed the missing value, outlier, and normality of the data. For missing value, as realised from Table 5, there are no observations that have a missing value hence, there is no data to be deleted. Next, Mahalanobis Distance was used to check whether there were existing outliers or not in the data. From the probability that has been computed, there are no observations that have an outlier since all the values of the probability are greater than 0.001.

Table 5: Univariate Statistics

| | Missing | | No. of Extremes | |
|---|---|---|---|---|
| | Count | Percent | Low | High |
| **Awareness** | 0 | .0 | 0 | 0 |
| **Knowledge** | 0 | .0 | 0 | 0 |
| **Perception** | 0 | .0 | 0 | 0 |
| **Attitude** | 0 | .0 | 0 | 0 |

Stage I is the measurement model. The measurement model will be discussing the Indicator reliability, Internal consistency, Convergent and Discriminant Validity. Figure 2 shows the factor loadings in the first model before deletion which are less than 0.70. In th37 items are Awareness towards ADHD, Knowledge of ADHD, Teacher's Perception towards ADHD and Teacher's Attitude towards ADHD. At the above figure, there are ten items which are B1, B3, B7, B8, D1, D10, E5, E6, E7 and E8 values that are less than cut off point 0.70.

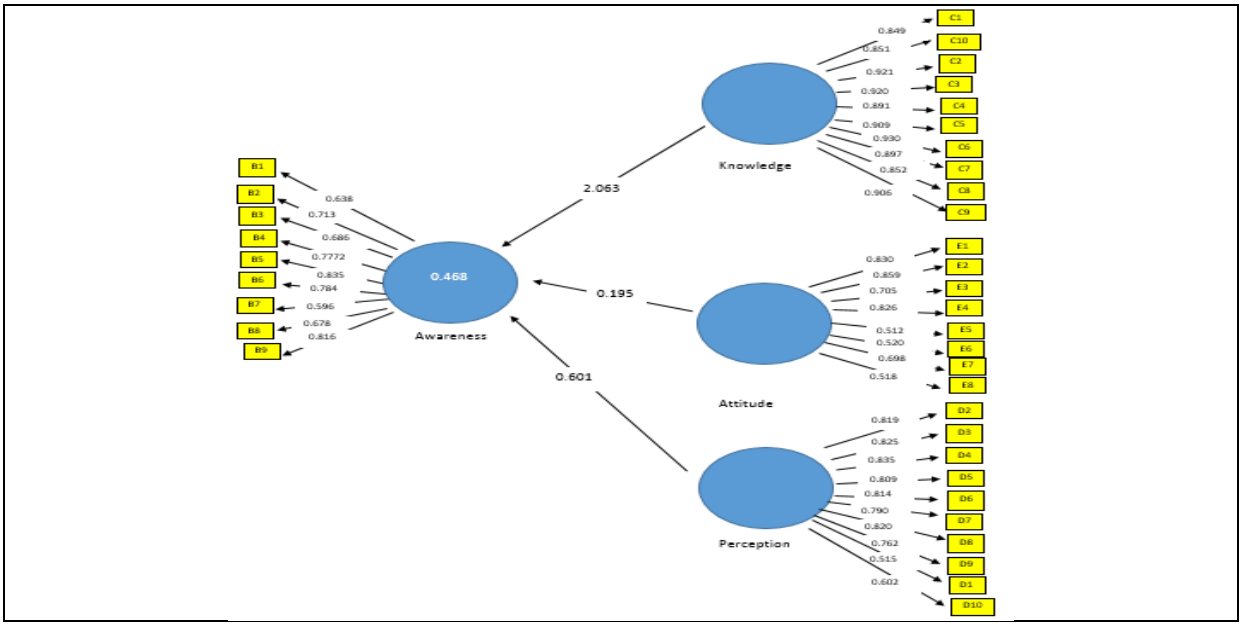


Figure 2: Model diagram of confirmatory factor influence toward Awareness

As shown in the table below the result indicates that all the items of awareness towards ADHD, knowledge of ADHD, teacher's perception towards ADHD and teacher's attitude towards ADHD have values greater than 0.70. Meanwhile, the cut point for Cronbach's alpha is 0.70, revealing from the above result that all variables have values of Cronbach's alpha that exceeded the minimum value that is satisfied. The composite reliability values for all variables are higher than 0.60.

Table 6: Reflective Outer Models

| Latent Variable | Indicator | Factor Loadings | Cronbach's Alpha | Composite Reliability |
|---|---|---|---|---|
| **Awareness towards ADHD** | B2 | 0.713 | 0.893 | 0.879 |
| | B4 | 0.772 | | |
| | B5 | 0.835 | | |
| | B6 | 0.784 | | |
| | B9 | 0.816 | | |
| **Knowledge of ADHD** | C1 | 0.849 | 0.888 | 0.910 |
| | C2 | 0.851 | | |
| | C3 | 0.921 | | |
| | C4 | 0.920 | | |
| | C5 | 0.891 | | |
| | C6 | 0.909 | | |
| | C7 | 0.930 | | |
| | C8 | 0.897 | | |
| | C9 | 0.852 | | |
| | C10 | 0.906 | | |
| **Teacher's Perception towards ADHD** | D2 | 0.819 | 0.972 | 0.975 |
| | D3 | 0.825 | | |
| | D4 | 0.835 | | |
| | D5 | 0.809 | | |
| | D6 | 0.814 | | |
| | D7 | 0.790 | | |

| | | | | |
|---|---|---|---|---|
| | D8<br>D9 | 0.820<br>0.762 | | |
| **Teacher's Attitude towards ADHD** | E1<br>E2<br>E3<br>E4 | 0.830<br>0.859<br>0.705<br>0.826 | 0.919 | 0.933 |

Regarding the table above, the AVE value for Awareness, Knowledge, Perception and Attitude is 0.644, 0.798, 0.666 and 0.676 consequently which is acceptable. Consequently, the convergent validity is approved.

Table 7: Average Variance Extracted (AVE)

| Variable | Average Variance Extracted (AVE) |
|---|---|
| **Awareness** | 0.644 |
| **Knowledge** | 0.798 |
| **Perception** | 0.666 |
| **Attitude** | 0.676 |

Table 8 shows that the square root of AVE of Attitude is 0.822 which is greater than the correlations between Attitude and Awareness, Knowledge and Perception which is 0.252, 0.004 and 0.148. Then, the same observation was made towards latent variables Awareness, Knowledge and Perception. It can be concluded that the discriminant validity is established since all the square root of AVE of latent variables is greater than the correlations between latent variables. Besides checking the value for AVE, the discriminant validity also can be checked using Heterotrait-Monotrait Ratio (HTMT).

Table 8: Fornell-Larcker Criterion

| | Attitude | Awareness | Knowledge | Perception |
|---|---|---|---|---|
| **Attitude** | **0.822** | | | |
| **Awareness** | 0.252 | **0.803** | | |
| **Knowledge** | 0.004 | 0.278 | **0.893** | |
| **Perception** | 0.148 | 0.634 | 0.371 | **0.816** |

Table 9 reveals the HTMT value between Attitude and Awareness, Knowledge and Perception is 0.292, 0.087 and 0.161. Then, the same observation was made on the other columns. Since all the HTMT values of latent variables are below 1.0, it is confirmed that the discriminant validity is accepted.

Table 9: Heterotrait-Monotrait Ratio (HTMT)

| | Attitude | Awareness | Knowledge |
|---|---|---|---|
| **Awareness** | 0.292 | | |
| **Knowledge** | 0.087 | 0.287 | |
| **Perception** | 0.161 | 0.690 | 0.384 |

Based on table 10, the Confirmatory factor analysis (CFA) was achievable by considering the value of the indicator reliability and internal consistency was satisfied. Moreover, the convergent validity value was approved with all thresholds are accepted. In stage II, the structural model would also discuss multicollinearity, effect size, coefficient of determination, global goodness of fit, predictive relevance, checking structural path coefficient in bootstrapping and structural model summary.

Table 10: Summary of Measurement Model

| Measurement Model | Summary |
|---|---|
| **Indicator Reliability and Internal Consistency** | • All the values of Cronbach's alpha are greater than 0.70 which is satisfied. |
| **Convergent Validity** | • All the AVE values are greater than threshold 0.50 which is accepted. Consequently, the convergent validity is approved. |
| **Discriminant Validity** | • Discriminant validity is established since all the square root of AVE of latent variables is greater than the correlations between latent variables.<br>• All the HTMT values of latent variables are below than 1.0. HTMT is better than the Fornell-Larcker method. |

Multicollinearity can be checked throughout the value of collinearity statistic (VIF). Table 11 depicts the VIF values for all the predictor latent variables that were lower than five. Thus, collinearity among the formative items of the latent variables was not problematic. Furthermore, checking effect size can be proceeded.

Table 11: Inner VIF

| Variables | Awareness towards ADHD |
|---|---|
| **Knowledge of ADHD** | 1.163 |
| **Teacher's Perception towards ADHD** | 1.189 |
| **Teacher's Attitude towards ADHD** | 1.025 |

The effect size shown in table 12 for factor knowledge of ADHD is 0.005 indicate that there is no effect since the effect size was less than 0.02. Besides, values for factor teacher's perception towards ADHD have a strong impact because the effect size is 0.511 which is greater than 0.35. In comparison, values for factor teacher's attitude towards ADHD have a small effect, as the effect size is 0.047, which is less than 0.15. The value of R-square in table 12 is 0.431 which exceeds the cut-off value of 0.333 for an average of R-square effect sizes whereby 43.10% of the variance in awareness towards ADHD is explained by the exogenous latent variables (knowledge of ADHD, teacher's perception towards ADHD, and teacher's attitude towards ADHD) while the remaining is explained by other factors. It also enables the researcher to conclude, as being such, that the model has better explaining power.

Table 12: Effect Size, $f^2$ and Coefficient of Determination

| Independent Variables | Effect Size | R square |
|---|---|---|
| **Knowledge of ADHD** | 0.005 | 0.431 |
| **Teacher's Perception towards ADHD** | 0.511 | |
| **Teacher's Attitude towards ADHD** | 0.047 | |

Table 13 showed that since the $Q^2$ value is 0.261 greater than 0.15, indicating predictive relevance accepted, it can thus be concluded that the structural model must be able to accurately predict the endogenous latent variable indicators (awareness towards ADHD).

Table 13: Construct Cross Validated Redundancy

| | SSO | SSE | $Q^2$ |
|---|---|---|---|
| **Awareness towards ADHD** | 575.000 | 424.868 | 0.261 |
| **Knowledge of ADHD** | 1150.000 | 1150.000 | |
| **Teacher's Perception towards ADHD** | 920.000 | 920.000 | |
| **Teacher's Attitude towards ADHD** | 460.000 | 460.000 | |

SmartPLS can generate t-Statistics for significance testing of both the inner and outer model, using a procedure called bootstrapping. The path coefficient will be significant if the t-Statistics is larger than 1.96 by using a two-tailed t-test or a 5% significance level.

It can be seen in the result of Table 14 that only the linkage "Perception-Awareness" was (0.059) means that it is not significant. All other path coefficients within the inner model are highly significant. In addition, the highest β value is 0.588. So, the Teachers' Attitude toward ADHD Students is the most crucial factor in influencing Awareness of ADHD.

Table 14: Hypotheses testing results

| | **Path Coefficient (β)** | **t-Statistics** | **p-Values** | **Hypothesis status** |
|---|---|---|---|---|
| There is a significant influence between knowledge and awareness | 0.165 | 2.421 | 0.016 | Supported |
| There is a significant influence between perception and awareness | 0.059 | 0.859 | 0.391 | Not Supported |
| There is a significant influence between attitude and awareness | 0.588 | 9.214 | 0.000 | Supported |

The outer model loading can be explored after reviewing the path coefficient by using a t-statistic to check whether each item is highly significant to contribute towards its latent variable. After reviewing the path coefficient for the inner model, the outer model was explored by checking the t-statistic in the “Outer Loading (Means, STDEV, T-Values)” window. As presented in Table 15 all the t-statistics are larger than 1.96 so it can be concluded that the outer model loading is a highly significant contribution between items and its latent variable.

Table 15: T-Statistic of Outer Model Loading

| **Items** | **Awareness** | **Knowledge** | **Perception** | **Attitude** |
|---|---|---|---|---|
| **B2** | 10.514 | | | |
| **B4** | 22.428 | | | |
| **B5** | 39.283 | | | |
| **B6** | 16.709 | | | |
| **B9** | 28.280 | | | |
| **C1** | | 9.421 | | |
| **C2** | | 10.436 | | |
| **C3** | | 10.570 | | |
| **C4** | | 10.723 | | |
| **C5** | | 10.320 | | |
| **C6** | | 10.561 | | |
| **C7** | | 10.662 | | |
| **C8** | | 9.822 | | |
| **C9** | | 10.572 | | |
| **C10** | | 9.718 | | |
| **D2** | | | 24.002 | |
| **D3** | | | 32.916 | |
| **D4** | | | 26.498 | |
| **D5** | | | 30.583 | |
| **D6** | | | 21.313 | |
| **D7** | | | 18.127 | |
| **D8** | | | 29.258 | |
| **D9** | | | 15.978 | |
| **E1** | | | | 7.281 |
| **E2** | | | | 9.694 |

| | | |
|---|---|---|
| **E3** | | 5.006 |
| **E4** | | 5.947 |

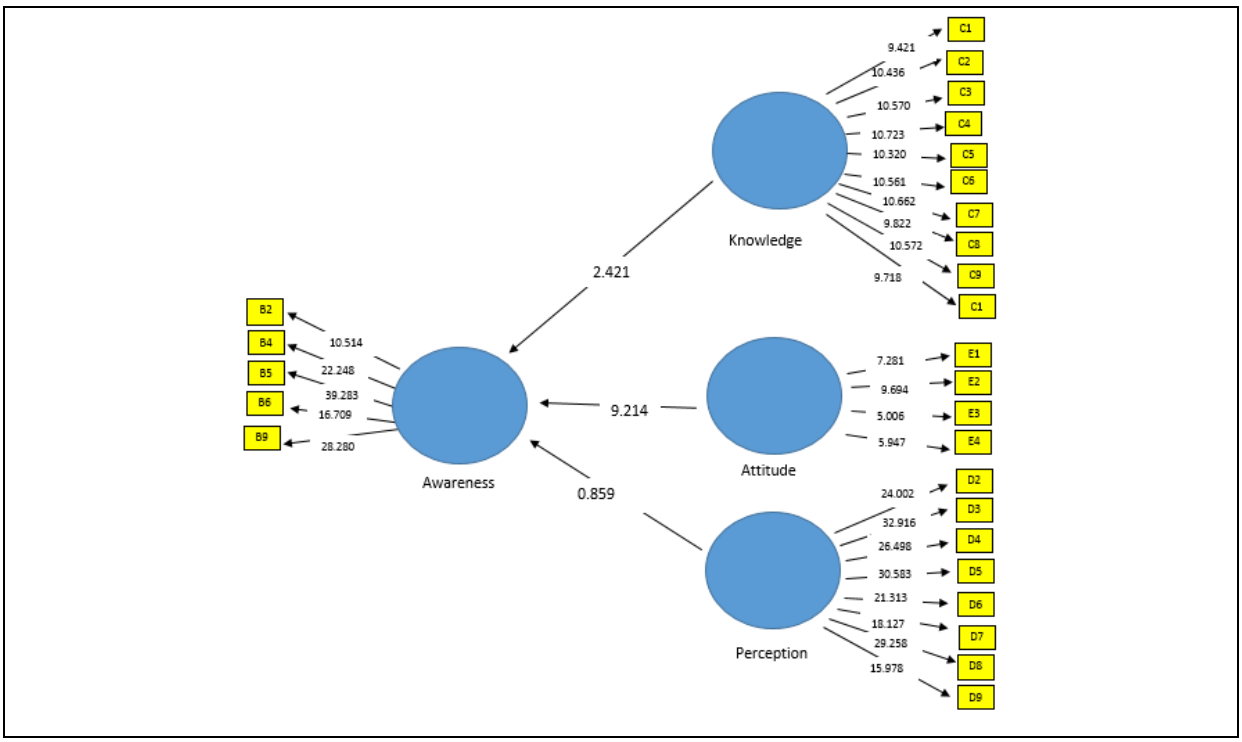


Figure 3: Structural Equation Model for the Final Model

Figure 3 shows that the final model after deleting the factor loadings with less than 0.7 value. The final items left are B2, B4, B5, B6, B9, C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, D2, D3, D4, D5, D6, D7, D8, D9, E1, E2, E3 and E4 which is 27 items left overall. There are five items in section Awareness, ten items in section Knowledge, eight items in section Perception and four items in section Attitude.

It can be concluded that multicollinearity does not exist indicates the model has a good fit. Although the model has a small effect towards the Awareness of ADHD but the model is still significant. It is also found that Attitude towards ADHD students is the most significant influence critically in affecting Awareness of ADHD.

## 5 Conclusion

This study brings theoretical assistance by developing and validating a scale to measure factors that influence the awareness of ADHD of children among teachers. The three factors produced in the model revealed a good fit, demonstrating that perceptive needs and limitations as well as knowledge and attitude are suitable components to measure the awareness toward school teachers'. The resulted items showed valid factors loadings and high values of consistency and reliability through both CFA procedures (PLS-SEM) strengthening the validity of the model.

Several limitations of the study can be highlighted. The generalization of results is not potential due to the detailed context and the small number of school teachers who participated in the study. However, research determinations should be prolonged on testing and the scale in a variety of informative frameworks to improve its robustness and flexibility. An additional limitation of the research arises from the small number of items obtained from the statistical processing of the data,

representation of possible hitches to future researchers if item elimination was needed in their adjusted studies.

A future research path will be to develop a research group to investigate the perceptions and acceptance towards awareness for university students. The claim of the validated instrument on a sample of the university education system would emphasize the comparative analysis of teachers' awareness.

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