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Parents' Perceptions of Online Education for Their Children with Attention Deficit Hyperactivity Disorder During the COVID-19 Pandemic in Saudi Arabia

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Abstract: The COVID-19 pandemic causes the sudden shift to the online educational provision in Saudi Arabia that prompted a slew of concerns, including difficulties meeting learning objectives and widening social disparities. As online education greatly influenced the academics of pupils, especially in case of a child suffering from attention deficit hyperactivity disorder (ADHD). Due to parents believe that they are unable to support their ADHD children with virtual learning due to a lack of understanding. The aim of the present study was to understand the importance of parents' perspectives in order to reveal the views of parents with ADHD in Saudi Arabia regarding teacher interaction with pupils or parents, assessment of homework and examination during distance learning in COVID-19 pandemic. Data were collected through a questionnaire which was reviewed by some experts in this field. The result showed that there were no statistically significant differences among responses of parents of the pupils with ADHD according to their background information (gender, age, marital status) towards teacher's dealing with pupils with ADHD within virtual classes. Furthermore, there were statistically significant differences at level (0.05) among the responses of parents of the pupils with ADHD according to (academic qualification) towards teacher's dealing with virtual classes. It is expected that the present study will be useful to lead classroom teachers to good treating for ADHD pupils and their parents to their duties and teacher duties. Consequently, it may help the teachers to adopt new strategies or teaching styles that can help in decreasing their failure in schools and can also help in improving the relationship between school and home for ADHD pupils.

Keywords: Attention Deficit Hyperactivity Disorder, COVID-19, Parents' Attitudes, Virtual Classes, Teachers

1. Introduction

During the COVID-19 pandemic several educational institutions were closed and teaching was shifted to virtual/distance learning. Saudi Ministry of Education (MOE) began offering online education in all government and private educational institutions immediately. Due to this sudden change in way of teaching, the pupils were puzzled as they were used to learn face-to-face under the supervision of a teacher [1]. The pandemic's sudden shift in educational provision prompted a slew of concerns, including difficulties meeting learning objectives and widening social disparities. Therefore, it would not be an exaggeration to say that the pupils' parents were one of the most essential learning agents at this time. As well, allowing the learning process to continue rather than end and allowing the children to attain at least part of their learning goals [2].

Pupils' academic success is largely dependent on their parents' capacity to provide this support, in terms of the parents' own understanding of many subjects and their ability to use digital tools and teach their children. From this perception the parents of pupils, who had to become homeschoolers in a matter of days without any prior training had a significant part in this predicament [3]. Despite the advantages that parents gained from homeschooling, they also faced a variety of problems, especially with attention deficit hyperactivity disorder (ADHD) students [1]. According to studies, parents believe they are unable to support their ADHD children with distance learning effectively due to a lack of understanding of learning principles. This emphasizes the

importance of examining parents' perspectives in order to uncover potential possibilities of collaboration between schools and children's parents [4].

Based on this, the current study aims to clarify the parent's attitudes towards online education for their children with ADHD in Saudi Arabia during the COVID-19 pandemic. The purpose of this study was to determine whether there are any changes in views about online learning among parents of children with ADHD in Saudi Arabia in terms of teacher interaction with the pupils, homework and assignments, exams and techniques of assessment and interaction between the teacher and parents.

1.1. Questions of the Study

1) To what extent do the parents of pupils with ADHD differ in terms of teachers dealing with virtual classrooms based on four background information including gender, age, marital status, and academic qualification?
2) How do the parents of pupils with ADHD differ in terms of gender, age, marital status, academic qualification when it regards to assignments and homework given to the pupils in virtual classes?
3) How do parents of children with ADHD differ in terms of gender, age, marital status, and academic degree when it regards to exams and evaluation procedures for children with ADHD?
4) In terms of communication between classroom teachers and parents of pupils with ADHD, how do parents of pupils with ADHD differ in terms of gender, age, marital status, academic qualification?

1.2. Null Hypothesis of the Study

In line with the above-stated research objectives the following null hypotheses were posed:

1) There are no statistically significant changes in parents' attitudes to teachers who deal with online courses for pupils with ADHD.
2) There are no statistically significant variations in parents' perceptions toward the assignments and homework offered to pupils with ADHD during virtual sessions.
3) There are no statistically substantial changes in parents' responses to exams and evaluation procedures for pupils with ADHD.
4) There are no statistically significant differences between the attitudes of parents of pupils with ADHD to classroom teacher-parent communication.

2. Methodology

This study aims to identify the opinions of parents of pupils with ADHD about the experience of online education in the Saudi Arabia during the COVID-19 pandemic, as well as the difficulties they face and their satisfaction with online education. Descriptive analytical method was used to achieve study objectives and to test the hypotheses. It is the method in which the scientific researcher describes the various scientific phenomena and problems that fall within the scientific research department. Followed by the data collection and analyzed by the descriptive analytical approach, to determine the appropriate explanation and results. Scientific researchers can also through the concept of descriptive analytical approach put different phenomena in comparisons between similar phenomena, so that different data can be collected on the differences and similarities between those phenomena, which are the most important characteristics that distinguish the analytical descriptive approach from other scientific methods, and its uses in scientific research are greatly enhanced (*Al-Manara Consultancy, 2021*).

2.1. Sample of the Study

The populations of this study are the parents of pupils with ADHD who experienced online education in the Saudi Arabia during the COVID-19 pandemic. A total of 66 participants were recruited for the study.

2.2. Questionnaire Reliability and Validity

2.2.1. Reliability

Reliability of a questionnaire refers to its ability to get the same data when it is re-administered under the same conditions (Robson 2007) [15]. Reliability by Cronbach's Alpha method was found to be in the 0.798 – 0.828 and for the whole questionnaire it was 0.936. These values were good enough to proceed with our study (*Jones & Rattray* (2010) [17].

2.2.2. Construct Validity

It demonstrates that the statements in a questionnaire are actually measuring the construct it claims it is measuring (Brown, J. D. 1996) [9]. The results reached that all Pearson correlation coefficients between each item and the total score of the axis came in the range (0.475 – 0.789) which are positive, high and statistically significant at level (0.01). This means that the statements in each axis well measure it and accordingly the questionnaire enjoys high level of construct validity within its axes.

2.3. Likert Scaling

The below table 1 shows the weights for responding levels of the statements and the weighted mean – according to five-level Likert scale. It is a bipolar scaling method that measures either positive or negative response to a statement (Ubersax, 2006) [13].

Table 1. *Five-level Likert items.*

Answer	Weight	Weighted Mean
Strongly Disagree	1	1 –< 1.8
Disagree	2	1.8 –< 2.60
Undecided	3	2.60 –< 3.40
Agree	4	3.40 –< 4.20
Strongly Agree	5	4.20 – 5

2.4. Statistical Methods

The software statistical package for social science (SPSS) v24 was used to perform the statistical analysis, and the following techniques and test were used Cronbach's alpha for reliability, Pearson Correlation Coefficient for checking construct validity, Frequency and percentages to describe the sample according to demographics, Means and standard deviation to describe axes and Independent samples t-test and One-way analysis of variance (ANOVA) to answer research questions and test hypotheses [10]. The p-values <0.05 is considered significant. Below are the research questions and hypothesis:

Q1. *"To what extent do the parents of the pupils with ADHD of four background information (gender, age, marital status, academic qualification) are differ in terms of teacher's dealing with virtual classes?"*

This research question corresponds to the first null hypothesis ($H_0$1): There are no statistically significant differences among the responses of parents of the pupils with ADHD according to their four background's information (gender, age, marital status and academic qualification) towards teacher's dealing with virtual classes. To answer the first question and hypothesis, independent samples t-test and one-way analysis of variance (ANOVA) were used for the first axis (Teacher's Dealing with Pupils within Virtual Classes).

Q2. "*To what extent do the parents of the pupils with attention deficit hyperactivity disorder (ADHD) of four background information (gender, age, marital status, academic qualification) are differ with regard to assignments and homework assigned to the pupils during the virtual classes?"*

This research question corresponds to the second null hypothesis $H_0$2: There are no statistically significant differences among the attitudes of parents of the pupils with ADHD according to their four background's information (gender, age, marital status, academic qualification) towards the assignments and homework assigned to the pupils during the virtual classes. To answer the second question and its hypothesis, independent samples t-test and one-way analysis of variance (ANOVA) were used for the second axis (The Assignments and Homework Assigned to the pupils during the Virtual Class).

Q3. "*To what extent do the parents of the pupils with attention deficit hyperactivity disorder (ADHD) of four background information (gender, age, marital status, academic qualification) are differ with respect to the exams and evaluating methods for pupils with ADHD?"*

This research question corresponds the third null hypothesis $H_0$3: There are no statistically significant differences among the responses of parents of the pupils with ADHD according to their four background's information (gender, age, marital status and academic qualification) towards exams and evaluating methods for pupils with ADHD. To answer the third question and its hypothesis, independent samples t-test and one-way analysis of variance (ANOVA) were used for the third axis (Exams and Evaluating Methods).

Q4. "*To what extent do the parents of the pupils with ADHD of four background information (gender, age, marital status, academic qualification) are differ in terms of the communication between the classroom teachers and parents of pupil with ADHD?"*

This research question corresponds to the fourth null hypothesis $H_0$4: There are no statistically significant differences among the responses of parents of the pupils with ADHD according to their four background's information (gender, age, marital status and academic qualification) towards the communication between the classroom teachers and parents of pupil with ADHD. To answer the fourth question and to test the fourth hypothesis, independent samples t-test and one-way analysis of variance (ANOVA) were used for the fourth axis (Communicating between Teacher and Parents). The results were shown in the following table.

3. Results

3.1. Demographic Characteristics of the Participants

A total of 46 (69.7%) participants were female and 20 participants were male. Majority of the participants were in the age group of 50 years and more, and only 7.6% were in the age group 20–30 years. Around 83.3% participants were married and rests were divorced. Also, most (42.4%) of the participants had bachelor's degree and only 3% had diploma (Table 2).

Table 2. *Demographic Characteristics of the Participants.*

Demographic Characteristics	Categories	n	%
Gender	Male	20	30.3%
	Female	46	69.7%
Age	20 – 30 Years old	5	7.6%
	31 – 40 Years old	21	31.8%
	41 – 50 Years old	16	24.2%
	50 Years old and more	24	36.4%
Marital Status	Married	55	83.3%
	Divorced	11	16.7%
Academic qualification	Middle school and less	3	4.5%
	Secondary school	24	36.4%
	Bachelor	28	42.4%
	Higher education (Master, Doctorate)	9	13.6%
	Diploma	2	3.0%
Total		66	100.0%

3.2. Participants' Attitudes Towards Online Education for Pupils with ADHD

To study the parent's attitude toward online education for pupils with ADHD, mean and standard deviation for the answers for the statements in each axis we calculated. According to the means, the statements had been ranked in descending order from the highest mean to the lowest.

3.3. Parents' Attitudes Towards Teacher's Dealing with Pupils Within Virtual Classes

Table 3 showed that the total score of the axis was 3.26 which denote undecided according to the five-level Likert scale. It implies that the general attitude of the parents is undecided toward teacher's dealing with pupils with ADHD within virtual classes as general. According to mean, the statements were ranked in descending order from the highest mean to lowest. Thus, the statements "the teacher introduces the new lesson by discussing with the pupils and asking appropriate questions" came in the first order with the highest mean (4.36) and level of response (strongly agree). Next, the statement "the teacher indicates the important topics that the pupils should focus on" came in the second with mean 4.20 and level of response as strongly agree. The statement "during the lesson explanation, the teacher uses smart tools and applications to draw the pupils' attention to the lesson" was fourth in order with mean 3.12 and level of response as undecided. Furthermore, the statement "the teacher allows my son to take a short break when he needs it (such as moving from the educational platform to drink or for something else)"was with the lowest mean (2.26) and thus level of response as disagree.

Table 3. *Parents' attitude towards teacher's dealing with pupils within virtual classes.*

Statements	Mean	SD	Acceptance Level	Rank
1. The teacher introduces the new lesson by discussing with the pupils and asking appropriate questions.	4.36	1.02	Strongly Agree	1
2. The teacher indicates the important topics that the pupils should focus on.	4.20	1.07	Strongly agree	2
3. The teacher allows my son to take a short break when he needs it (such as moving from the educational platform to drink or for something else).	2.26	1.32	Disagree	8
4. The teacher reviews with the pupils what they have learned in the new lesson.	3.85	0.98	Agree	3
5. During the lesson explanation, the teacher uses smart tools and applications to draw the pupils' attention to the lesson.	3.12	1.34	Undecided	4
6. The teacher cooperates with the pupil in case he is not able to use the Internet sufficiently, and gives him enough time to learn to do so.	3.05	1.25	Undecided	5
7. The teacher holds individual learning sessions for my son outside the period of presence on the online platform.	2.35	1.14	Disagree	7
8. The teacher provides the parents with electronic applications that help the pupil to learn.	2.92	1.26	Undecided	6
Total Score	3.26	1.17	Undecided	

3.4. Parents' Attitudes Towards Assignments and Homework Assigned to the Students During Virtual Class

The total score of the axis was 2.89 out of 5.0 which denotes "undecided according to five-level Likert scale. It implies the general attitude of the parents is undecided towards assignments and homework assigned to the students with ADHD during the virtual class. The statements "the teacher sends the required assignments via e-mail or the educational platform" was found with the highest mean (4.26) and level of response (strongly agree). Further, the statement "the teacher divides my son's long homework into short tasks" came in the fourth with mean 2.53 and level of response as undecided. The statement "my son is given one homework or assignment at a time was last with mean 2.30 and level of response as disagree (Table 4).

Table 4. *Parents' attitudes towards the assignments and homework assigned to the students during the virtual class.*

Statements	Mean	SD	Acceptance Level	Rank
1. The teacher assigns appropriate homework to my son's individual characteristics and needs.	2.41	1.15	Disagree	6
2. The teacher explains the homework instructions in a clearly and simply.	3.50	1.04	Agree	2
3. The teacher divides my son's long homework into short tasks.	2.53	1.34	Undecided	4
4. My son is given one homework or assignment at a time.	2.30	1.21	Disagree	8
5. The teacher allows my son to give a non-written answer (such as drawing, or answering orally).	2.32	1.31	Disagree	7
6. The teacher gives my son more time to complete the required tasks and duties.	3.35	1.25	Undecided	3
7. The teacher sends the required assignments via e-mail or the educational platform.	4.26	1.27	Strongly Agree	1
8. The teacher sends reminders about required assignments and activities at the end of the school day.	2.44	1.61	Disagree	5
Total Score	2.89	1.27	Undecided	

3.5. Parents' Attitudes Towards Exams and Evaluating Methods

According to Table 5, the total score of the axis is 2.96 which denote undecided according to five-level Likert scale, i.e., the general attitude of the parents is undecided toward exams and evaluating methods for the pupils with ADHD. The statement "the teacher uses the continuous evaluation method for the pupil's performance in the education subjects" was first with the highest mean (3.88) and level of response as agree. The statement "the pupil is trained on way of performing the exams, such as understanding the instructions, making sure to finish solving the question before moving on to the next question, reviewing the answers" came second with mean 3.65 and level of response as agree followed by the statement "the pupil is given extra time to perform the exam" with mean (3.47) and level of response as

agree. The statement "the teacher uses different assessment methods to suit the characteristics and needs of each pupil"was last with mean 2.06 and level of response as disagree.

Table 5. *Parents' attitudes towards exams and evaluating methods.*

Statements	Mean	SD	Acceptance Level	Rank
1. The teacher uses the continuous evaluation method for the pupil's performance in the education subjects.	3.88	0.95	Agree	1
2. The pupil is trained on way of performing the exams, such as: (understanding the instructions, making sure to finish solving the question before moving on to the next question, reviewing the answers).	3.65	1.10	Agree	2
3. The teacher modifies the tests and the evaluating method to suit the characteristics of the pupil.	2.14	1.07	Disagree	7
4. The teacher divides the tests into several parts and conducts them on different days instead of one long test.	3.08	1.24	Undecided	4
5. The teacher cooperates with the parents to train the pupil for the exams at home.	3.00	1.31	Undecided	5
6. The teacher tests the pupil alone, or within a small group.	2.39	1.18	Disagree	6
7. The pupil is given extra time to perform the exam.	3.47	1.07	Agree	3
8. The teacher uses different assessment methods to suit the characteristics and needs of each pupil.	2.06	1.15	Disagree	8
Total Score	2.96	1.13	Undecided	

Table 6. *Parents' attitudes towards communicating between teacher and parents.*

Statements	Mean	SD	Acceptance Level	Rank
1. The teacher understands my son's characteristics and his needs.	2.91	1.20	Undecided	6
2. The teacher sets regular dates to meet with parents via Internet applications or phone calls.	3.33	1.15	Undecided	4
3. The teacher tells me about my son's positive behaviours so we can work together to support and encourage him.	3.05	1.48	Undecided	5
4. The teacher informs me about my son's behavioural problems and guides me to the use appropriate methods of dealing in order to work together to modify them.	3.50	1.30	Agree	2
5. The teacher constantly provides me with sufficient information about my son's academic performance.	2.77	1.24	Undecided	7
6. The teacher sends homework through e-mail or the educational platform.	4.35	0.98	Strongly Agree	1
7. The teacher sends a reminder of my son's homework and activities at the end of the school day.	2.05	1.34	Disagree	8
8. The teacher receives the parent's inquiries and answers them	3.35	1.13	Undecided	3
Total Score	3.16	1.23	Undecided	

3.6. Parents' Attitudes Towards Communicating Between Teacher and Parents

According to Table 6, the total score of the axis is 3.16 which denote undecided according to five-level Likert scale, i.e., the general attitude of the parents is undecided toward communicating between teacher and parents of pupils with ADHD. The statement "the teacher sends homework through e-mail or the educational platform" came first with the highest mean (4.35) and level of response as strongly agree followed by the statement "the teacher informs me about my son's behavioral problems and guides me to use appropriate methods of dealing in order to work together to modify them" came in the second with mean 3.50 and level of response as agree. The statement "the teacher sends a reminder of my son's homework and activities at the end of the school day" was last with mean 2.05 and level of response as disagree.

3.7. Results of Question and Hypothesis of the Study

Tables 7-10 shows the results of independent samples t-test and one-way analysis of variance to test the differences between participants' attitudes toward teacher's dealing with virtual classes, assignments and homework assigned to the students during virtual class, communicating between teacher and parents and exams and evaluating methods according to their background information (gender, age, marital status and academic qualification).

Table 7. *Difference among the responses of parents of the pupils with ADHD according to their gender, age, marital status, academic qualification towards teacher's dealing with pupils within virtual classes.*

Variable	Groups	Mean	SD	Test Value	P-Value
Gender	*Male*	2.99	0.80	T = -1.90	.062
	Female	3.39	0.77		
Age	*20 - 30 Years old*	2.90	1.14	F = .535	.660
	31 - 40 Years Old	3.32	0.79		
	41 - 50 Years Old	3.39	0.57		
	50 Years Old and More	3.21	0.87		
Marital Status	*Married*	3.28	0.78	T = .373	.710
	Divorced	3.18	0.89		
Academic Qualification	*Middle School and Less*	3.59	0.32	F = 2.65	.041
	Secondary School	3.02	0.89		
	Bachelor	3.27	0.63		
	Higher Education (Master, Doctorate)	3.52	0.82		
	Diploma	4.63	0.53		

Table 8. *Difference among the responses of parents of the pupils with ADHD according to their gender, age, marital status, academic qualification towards the assignments and homework assigned to the students during the virtual class.*

Variable	Groups	Mean	SD	Test Value	P-Value
Gender	Male	2.61	0.79	T = -1.86	.067
	Female	3.01	0.82		
Age	20 - 30 Years Old	2.43	0.92	F = .958	.418
	31 - 40 Years Old	2.85	0.89		
	41 - 50 Years Old	3.12	0.63		
	50 Years Old and More	2.87	0.86		
Marital Status	Married	2.86	0.83	T = -.743	.460
	Divorced	3.06	0.84		
Academic Qualification	Middle School and Less	2.88	0.33	F = 1.10	.364
	Secondary School	2.75	0.84		
	Bachelor	2.93	0.81		
	Higher Education (Master, Doctorate)	2.88	0.85		
	Diploma	4.00	1.06		

Table 9. *Difference among the responses of parents of the pupils with ADHD according to their gender, age, marital status, academic qualification towards exams and evaluating methods.*

Variable	Groups	Mean	SD	Test Value	P-Value
Gender	Male	2.74	0.67	T = -1.62	0.111
	Female	3.06	0.76		
Age	20 - 30 Years Old	2.60	0.84	F = 1.89	0.141
	31 - 40 Years Old	2.95	0.79		
	41 - 50 Years Old	3.30	0.55		
	50 Years Old and More	2.81	0.75		
Marital Status	Married	2.90	0.71	T = -1.50	0.139
	Divorced	3.26	0.88		
Academic Qualification	Middle School and Less	2.79	0.26	F = 1.75	0.150
	Secondary School	2.80	0.82		
	Bachelor	3.19	0.69		
	Higher education (Master, Doctorate)	2.61	0.62		
	Diploma	3.44	0.62		

Table 10. *Difference among the responses of parents of the pupils with adhd according to their gender, age, marital status, academic qualification towards communicating between teacher and parents.*

Variable	Groups	Mean	SD	Test Value	P-Value
Gender	Male	3.03	0.84	T = -.92	.360
	Female	3.22	0.79		
Age	20 - 30 Years Old	2.90	1.02	F = .914	.440
	31 – 40 Years Old	3.35	0.87		
	41 – 50 Years Old	3.24	0.52		
	50 Years Old and More	3.01	0.85		
Marital Status	Married	3.10	0.76	T = -1.49	.141
	Divorced	3.49	0.96		
Academic Qualification	Middle School and Less	3.29	0.51	F = .364	.833
	Secondary School	3.05	0.89		
	Bachelor	3.19	0.89		
	Higher Education (Master, Doctorate)	3.22	0.39		
	Diploma	3.69	0.08		

According to Table 7, by comparing p-values and level of significance (0.05), it was found that the p-values corresponding to gender, age and marital status were greater than the level of significance (0.05), therefore, there are no statistically significant differences among the responses of parents of the pupils with ADHD according to their gender, age, marital status towards teacher's dealing with virtual classes. The p-value for academic qualification was found to be 0.041 (<0.05), therefore, there was a statistically significant differences among the responses of parents of the pupils with ADHD according to academic qualification towards teacher's dealing with virtual classes.

Tables 8-10 shows that all the p-values were greater than the level of significance (0.05), therefore, there was no statistically significant differences among the responses of parents of the pupils with ADHD according to their gender, age, marital status and academic qualification towards the assignments and homework assigned to the pupils during the virtual class, exams and evaluating methods for pupils with ADHD and communicating between teacher and parents.

4. Discussion

Attention Deficit Hyperactivity Disorder (ADHD) is a type

of psychological disease that begins in childhood and is caused by a delay in neurodevelopment. When a youngster is unable to obey commands and maintain control over his movements, he becomes distracted and unable to concentrate on what he hears or does. These people are easily distracted by little things, and these basic things are capable of severely distracting them. This disorder spreads among pupils, causing the student to lose attention on the teacher's explanations of the lessons or to lose his academic seat in the classroom. This has a significant impact on his academic performance, and IQ has nothing to do with it [5, 16]. There are three varieties, the first of which is the compound, in which the youngster is distracted in addition to being hyperactive. In the case of the second type, the children's activity is rather typical, but they lack focus. A youngster who is very active but also has a high level of attention characterizes the last type, and it is the least prevalent group among students in Saudi Arabia [5]. According to earlier studies, the prevalence of ADHD in Egyptian schools is around 12 percent, whereas the lowest proportion was 9 percent in Qatar and Oman, and the highest percentage was 14-16 percent in the UAE and Saudi Arabia [8]. As a previous research has revealed that children and adolescents spend the majority of their days at school and studying, and this environment is incompatible with the behavior of children with ADHD. As a result, they find it challenging to participate in a school and study setting that requires commitment and discipline [6, 16].

The purpose of this study was to determine whether there are any changes in views about online learning among parents of children with (ADHD) in Saudi Arabia, in terms of: 1) Teacher interacts with the students, 2) Homework and assignments are assigned, 3) Exams or techniques of assessment and 4) Interaction between the teacher and the parents. Our research is expected to be a useful resource for teachers, ADHD pupils, and parents of ADHD pupils in Saudi Arabia. This research will theoretically contribute to the understanding of the pupils with ADHD and helps in improving the provided service for them even after the end of pandemic [1, 11]. It is expected that the research results will be useful to lead classroom teachers to good treating for attention deficit hyperactivity disorder pupils. In addition, lead parents of ADHD pupils to their duties and the classroom teachers' duties. Consequently, they may help the classroom teachers to adopt new techniques, strategies and teaching styles that can help in decreasing their failure in schools. The results also can help in improving the relationship between school and home, and work together to find the best for ADHD pupils.

The sample of this study consists of 66 parents of pupils with ADHD who experience online education in Saudi Arabia during the Corona pandemic. The results revealed that 69.7% of the parents are female, and the majorities 83.3% are still married and 42.4% of the participants have bachelor degree. The general attitude of the participants is undecided toward teacher's dealing with pupils with ADHD within virtual classes as general; but they strongly agree to (*The teacher introduces the new lesson by discussing with the pupils and asking appropriate questions*) and (*The teacher indicates the important topics that the pupils should focus on*), and they disagree to (*The teacher holds individual learning sessions for my son outside the period of presence on the online platform*) and (*such as moving from the educational platform to drink or for something else*). The general attitude of the participants is undecided toward the assignments and homework assigned to the pupils with ADHD during the virtual class; but they strongly agree to (*The teacher sends the required assignments via e-mail or the educational platform*), and they disagree to (*The teacher allows my son to give a non-written answer (such as drawing, or answering orally*) and (*My son is given one homework or assignment at a time*). The general attitude of the participants is undecided toward exams and evaluating methods of pupils with ADHD; but they agree to (*The teacher uses the continuous evaluation method for the pupil's performance in the education subjects*) and (*The pupil is trained on way of performing the exams, such as: (understanding the instructions, making sure to finish solving the question before moving on to the next question, reviewing the answers)*), and they disagree to (*The teacher modifies the tests and the evaluating method to suit the characteristics of the pupil*) and (*The teacher uses different assessment methods to suit the characteristics and needs of each pupil*). The general attitude of the participants is undecided toward communicating between teacher and parents of pupils with ADHD; but they strongly agree to (*The teacher sends homework through e-mail or the educational platform*), and they disagree to (*The teacher sends a reminder of my son's homework and activities at the end of the school day*).

Statically there are no statistically significant differences among the responses of parents of the pupils with attention deficit hyperactivity disorder (ADHD) according to their background information (gender, age, marital status) towards teacher's dealing with pupils with ADHD within virtual classes. There is a statistically significant difference at level (0.05) among the responses of parents of the pupils with attention deficit hyperactivity disorder (ADHD) according to (academic qualification) towards teacher's dealing with virtual classes.

There are no statistically significant differences among the responses of parents of the pupils with attention deficit hyperactivity disorder (ADHD) according to their four background's information (gender, age, marital status and academic qualification) towards the assignments and homework assigned to the students during the virtual class. There are no statistically significant differences among the responses of parents of the pupils with attention deficit hyperactivity disorder (ADHD) according to their four background's information (gender, age, marital status, academic qualification) towards exams and evaluating methods for pupils with attention deficit hyperactivity disorder (ADHD). There are no statistically significant differences among the responses of parents of the pupils with attention deficit hyperactivity disorder (ADHD) according to

their four background's information (gender, age, marital status, academic qualification) towards the communication between the classroom teachers and parents of pupil with attention deficit hyperactivity disorder (ADHD). Accordingly, some studies revealed that teachers and parents of ADHD pupils experience challenges while employing distance-learning methods during the COVID –19 pandemic. It was the worldwide pandemic that began at the end of 2019 and continues to this day, affecting all facets of life. (SARS-CoV-2) causes the viral strain (COVID-19), which is a fast spreading viral illness. COVID-19 virus is related to various viruses that previously infected bats and damage the respiratory system in particular, according to genomic analyses, and the patient may develop acute respiratory syndrome [7]. As a result, Saudi Arabia has produced teacher-training courses focusing on how to cope with these students, and scientific methods to satisfy these limits have been presented [4]. Instructors play a vital role in reading more about the issue of ADHD, which affects a substantial proportion of school kids in Saudi Arabia, according to an outbreak of studies conducted on Saudi teachers. As a result, over 90% of teachers have a solid understanding of the subject, especially in light of the current "COVID-19 pandemic," where teachers' roles for pupils suffering from this syndrome have grown because of the rise of distance learning. Consequently, while carrying out the distance learning process, teachers face higher obstacles with these pupils [4]. When dealing with a pupil with ADHD, the teacher can increase the number of tests in order to enhance the pupil's academic accomplishment. This does not mean that the child is being punished, but rather that the teacher is attempting to improve the pupil's academic achievement. The teacher must teach the pupil how to answer questions, how to avoid evading and becoming sidetracked while doing so, in addition to inspiring him to improve his academic achievements [3]. According to various studies, parents believe they are unable to support their ADHD children with distance learning effectively due to a lack of understanding of learning principles. Aside from that, parents do not know enough about some issues. This emphasizes the importance of examining parents' perspectives in order to uncover potential possibilities of collaboration between schools and children's parents [4, 12].

5. Conclusion

During the pandemic of COVID-19 in Saudi Arabia children spent most of their time on virtual classroom for studying but this atmosphere was incompatible with the behavior of students with ADHD. Our study consists of 66 parents of pupils with ADHD who experience online education in the Saudi Arabia during the pandemic. The present study showed that general attitude of the participants toward teacher's dealing with pupils with ADHD within virtual classes, who agreed that teacher should introduces the new lesson by discussing with the pupils and asking appropriate questions. Toward the assignments and homework assigned to the pupils with ADHD during the virtual class, participants agreed that teacher should send the required assignments via e-mail or the educational platform and do not accept the non-written answer or answering orally. Moreover attitudes of parents toward the exams and evaluating methods of pupils with ADHD was positive with fact that teacher should uses the continuous evaluation method for the pupil's performance in the education subjects and believes that teacher should not modifies the tests or evaluating method that suit to the characteristics of individual pupil. The study showed that there are no statistically significant differences among the responses of parents of the pupils with ADHD according to their four background's information (gender, age, marital status, academic qualification) towards the communication between the classroom teachers and parents of pupil with ADHD. Therefore, there should be proper training of teachers who deals with pupils with ADHD and parents should also get fully involved during their virtual classes to help them gain concentration in studies. Further research should be done with broader group of participants from different countries on the challenges faced by classroom teachers in distance learning for pupils with ADHD.

Conflict of Interest

The authors declare that they have no competing interests.

Availability of Data and Materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Ethical Approval and Consent to Participate

Ethical approval was taken from the Institutional Review Board (IRB) of the university. Participants were explained about the study and consent form was signed before participation.

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Appendix

Supplementary Data

Reliability of a questionnaire refers to its ability to get the same data when it is re-administered under the same conditions (*Robson* 2007) [15]. In fact, reliability for quantitative research focuses mainly on stability and consistency. According to *Parahoo* (2006) [14] reliability is

recommended but not sufficient condition for validity. The stability of a questionnaire is the degree to which it provides similar results on being administered twice. Reliability coefficients range from 0.00 to 1.00, with higher values indicating greater reliability. According to *Jones & Rattray* (2010) [17] good reliability is indicated by a coefficient > 0.8, so we will attempt to achieve reliability of this level or greater.

Table 11. *Reliability test by Cronbach's Alpha method.*

Axes	No of Items	Cronbach's Alpha
First Axis: Teacher's Dealing with Pupils within Virtual Classes	8	.828
Second Axis: The Assignments and Homework Assigned to the Pupils during the Virtual Class	8	.798fff
Third Axis: Exams and Evaluating Methods	8	.806
Fourth Axis: Communicating between Teacher and Parents	8	.805
Overall the Questionnaire	32	.936

Construct Validity

Construct validity is one way to test the validity of a questionnaire; it is used in education, the social sciences, and psychology, and many other fields of science. It demonstrates that the statements in a questionnaire are actually measuring the construct it claims it is measuring (*Brown, J. D. 1996*) [9]. There are several methods to test validity, one of them is Pearson Correlation Coefficient which has chosen by the researcher to test the relationship between each item and the total score of the axis it belongs to.

Table 12. *Construct validity by method of Pearson correlation coefficient.*

Axes	Item No.	Pearson Correlation Coefficient	Item No.	Pearson Correlation Coefficient
First Axis: Teacher's Dealing with Pupils within Virtual Classes	Q1	.668**	Q5	.789**
	Q2	.649**	Q6	.680**
	Q3	.483**	Q7	.671**
	Q4	.717**	Q8	.767**
Second Axis: The Assignments and Homework Assigned to the Pupils during the Virtual Class	Q1	.515**	Q5	.649**
	Q2	.762**	Q6	.614**
	Q3	.657**	Q7	.671**
	Q4	.677**	Q8	.649**
Third Axis: Exams and Evaluating Methods	Q1	.575**	Q5	.685**
	Q2	.725**	Q6	.656**
	Q3	.598**	Q7	.676**
	Q4	.637**	Q8	.666**
Fourth Axis: Communicating between Teacher and Parents	Q1	.646**	Q5	.710**
	Q2	.608**	Q6	.607**
	Q3	.716**	Q7	.475**
	Q4	.736**	Q8	.728**

(**) correlation is significant at level (0.01) (*) correlation is significant at level (0.05).

The results reached that all Pearson correlation coefficients between each item and the total score of the axis came in the range (0.475 – 0.789) which are positive, high and statistically significant at level (0.01). This means that the statements in each axis well measure it and accordingly the questionnaire enjoys high level of construct validity within its axes.

References

[1] Alshaikh, et al. (2021). Impact of COVID-19 on the Educational Process in Saudi Arabia: A Technology–Organization–Environment Framework. MDPI, 13 (7103), 2-8.

[2] Bridianne, et al. (2018). Parental attitudes towards an online, school-based, mental health service: implications for service design and delivery. https://www.tandfonline.com/, 11 (17), 1-15.

[3] Al-Omari, A.-M., M. (2015). Knowledge of and Attitude towards Attention deficit Hyperactivity Disorder among Primary School Teachers. https://www.tandfonline.com/, 21 (2), 128-139.

[4] Fahad Alanazi, Y. A. (2021). Knowledge and attitude of Attention-Deficit and Hyperactivity Disorder (ADHD) among male primary school teachers, in Riyadh City, Saudi Arabia. journal of family medicine and primery care, 1218-1226.

[5] Swanson. (2021). Teacher Knowledge of Attention Deficit Hyperactivity Disorder. RMLE Online journal, 36 (3), 1-7.

[6] Oraif, E. (2021). The Impact of COVID-19 on Learning. MDPI, 99 (11), 1-5.

[7] SAGA. (2020). Coronavirus Pandemic: A Serious Threat to Humanity. Journal of Health Management, 22 (1), 1-2.

[8] Alshehri, e. (2020). Schoolteachers' Knowledge of Attention-Deficit/ Hyperactivity Disorder—Current Status and Effectiveness of Knowledge Improvement Program. MDPI, 17 (5605), 1-10.

[9] Brown, J. D. (1996). Testing in language programs. Upper Saddle River, NJ: Prentice Hall Regents, pp. 231-249.

[10] Omair A. (2015) Selecting the appropriate study design for your research: Descriptive study designs January 2015 Journal of Health Specialties 3 (3): 153. DOI: 10.4103/1658-600X.159892.

[11] https://www.manaraa.com/post/5537/What-is-meant-by-descriptive-analytical-approach?

[12] Banerjee A, Chaudhury S, Singh DK, Banerjee I, Mahato AK, Haldar S. (2007) Statistics without tears - inputs for sample size calculations. Indian Psychiatr Jr. 2007; 16: 150–2.

[13] Uebersax, John S. (2007) "Likert Scales: Dispelling the Confusion." Statistical Methods for Rater Agreement. 31 Aug. 2006. 20 Oct. 2007.

[14] Parahoo, K. (2006). Nursing research: principles, process and issues, 2nd Ed, Palgrave Macmillan, Houndsmill.

[15] Robson C. (2007). How to do a Research Project: a guide for undergraduate students. Blackwell Publishing, Oxford.

[16] Polit, D. F. and Beck, C. T. (2010) Essentials of Nursing Research: Appraising Evidence for Nursing Practice. 7th Edition, Wolters Kluwer Health/Lippincott Williams & Wilkins, Philadelphia.

[17] Jones M. & Rattray J. (2010) Questionnaire design. In The Research Process in Nursing, 6th edn. (Gerrish K. & Lacey A., eds), Wiley-Blackwell, Oxford.