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Psychopathology in virtual education for primary school students in the COVID-19 pandemic: A qualitative analysis

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Abstract:

BACKGROUND: COVID-19 virus continues to be an international concern, challenging psychological resilience in all areas, especially virtual education, making the psychopathology and problems more evident.

MATERIALS AND METHODS: The present study is a qualitative study of conventional content analysis, in which 24 participants (14 parents, 5 teachers, and 5 principals) were selected by purposive sampling from primary schools in Zahedan. Data collection tools included semi-structured interviews with open-ended questions. Interviews continued until reaching data saturation. The transcripts of the interviews were coded according to Graneheim and Lundman's 5-step approach, and then, the codes were classified according to the specified axes. For accuracy and exactness of information, the researchers used the criteria of validity, verifiability, reliability, and transferability.

RESULTS: The results of this study include two categories, "e-learning infrastructure" and "psychopathology," indicating the importance of creating, using, and strengthening cyberspace infrastructure for the use of education in primary schools during COVID-19 pandemic.

CONCLUSION: The results indicated that identifying these cases and attempting to eliminate them can reduce psychopathology and improve the quality of virtual education for students. Moreover, this can help principals and educational planners have new insights so that they can focus on solving psychological problems in e-learning and provide their supportive planning.

Keywords:

COVID-19, elementary school, pandemics, psychopathology, virtual education

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Introduction

The prevalence of COVID-19 has become an international concern, challenging the psychological resilience in all areas, and education is no exception to this rule. Thus, an effective learning strategy is required to deal with this pandemic.^[1] Immediately after being closed, schools began e-learning as an emergency option to continue their education in a new environment.^[2] In addition, long school closures and homestays are likely to have negative effects on

students' physical and mental health,^[3,4] among which one can refer to sedentary lifestyle, the prevalence of overweight and obesity, increased duration of screen use,^[5-7] the effect on sleeping time,^[8] and inadequate nutritional status.^[9] Continuous activity in virtual networks, apart from its benefits, can also bring damages that affect the mental health of students.^[10-12] In the virtual environment, owing to the lack of face-to-face communication, there is not much pedagogy. Given the focus of e-learning on memorization and lack of attention to higher levels of learning, fostering creativity faces serious obstacles^[13]

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and will experience a significant decline in global learning.^[14] Distance learning is urgent, flexible, and challenging at the same time. Besides all the benefits, such as saving time and studying in a comfortable and relaxed environment, it is inconsistent with the flexibility of e-learning, as it becomes difficult to manage time with too much homework. Moreover, students must deal with other problems and barriers including high Internet costs and persistent Internet access as well as the challenges of technology, and lack of skill and experience will make learning in cyberspace more tiring than classroom (physical) learning.^[15] With millions of students using a variety of social networks, they are exposed to many threats and harms, each of which can have detrimental negative effects.^[16] Excessive use of the Internet leads to severe psychological and intellectual dependence. With the advent of the Internet and computers in families, intellectual and emotional separation occurs between parents, teachers, and students.^[17] The digital gap has placed numerous limitations on unprivileged students based on their learning ability and socioeconomic status, resources, and opportunities.^[2] Subsequently, television started to be regarded as an educational medium and formally engaged in public education throughout the country.^[18] The disadvantage of this type of education was its one-sidedness and lack of interaction between the teacher and the student, until an application called the students' social network (known as SHAD) was designed and the required learning was provided in this environment.^[19] At present, teachers' concerns for vulnerable students is one of the most stressful aspects of their job. For example, some families have only one mobile phone and are competing with their parents and siblings for the right time and need this technology to do their homework.^[20] These challenges exist for teachers in all educational institutions, as they have to work at different intervals and with insufficient resources, and disagreements over how to present material to students have increased the workload of teachers.^[21,22] The results of this study can help plan the optimal use of education and express the benefits and features of learning and the challenges that hinder the achievement of educational goals in virtual classes of e-learning in primary schools during the COVID-19 pandemic. The results of this study can help plan the optimal use of education and express the benefits and features of learning and the challenges that hinder the achievement of educational goals in virtual classes.

Materials and Methods

Study design and setting

This is a qualitative study that was conducted by content analysis method. The research field of the present study included the schools of districts 1 and 2 of the

Department of Education in Zahedan 2021; it has been attempted to sample individuals from different cultural and geographical backgrounds.

Study participants and sampling

The participants include parents, teachers, and principals of primary school students in Zahedan. Sampling of this study was conducted purposefully based on inclusion criteria (individuals who were rich in information, spoke fluently, and were satisfied and actively willing to participate in the study and share information). Interviews continued until data saturation.

The researcher first refers to schools at the appointed time and identifies the people meeting the inclusion criteria and interviews them. The main method of data collection was in-depth, semi-structured interviews with open-ended questions, and people's responses guided the subsequent interview process. After obtaining informed consent from the participants, the interviews were recorded by a voice recorder. The interviews were conducted individually in a quiet atmosphere away from the hustle and bustle of school or other places where participants felt comfortable (mostly in empty classrooms or in the school's health room or the open courtyard of the school). They were assured of the confidentiality of information and anonymity. It was also stated that participation in the research

Table 1: The demographic characteristics of the participants of the present study

Variable	Parents	Teachers	Principals
Gender (n)			
Man	2		
Woman	12	5	5
Educational level (n)			
Primary school	2		
High school diploma	3		
BA/BS	6	4	4
MA/MS	2	1	1
Ph.D.	1		
Age (n)			
30-39	6		
40-49	7	5	4
50 and older	1		1
Number of children studying at school (n)			
1	5		
2	7		
3	2		

Table 2: The checklist of interview guide questions

Number	Question
1	What issues and problems have you faced during the school closure regarding your children's education?
2	How did you help your child with virtual education and homework?

Table 3: Categories and subcategories related to virtual education infrastructures in “psychological damages in virtual education in primary schools during coronavirus disease 2019 pandemic”

Subcategory	Secondary categories	Quotes
The educational problems of mobile phones	Internet problems	The internet was poor. Sometimes, the students said that “teacher, our net is connected from midnight.” Unfortunately, 50% of the students have internet access from midnight
	Internet costs	The student’s father is a construction worker. He buys a 1-month internet package every day. Since he does his homework, the internet data is quickly over. The costs are really high
	Novelty of virtual training	Most parents do not have the required media literacy and skills to use the novel software required for education, and for this reason, they deal with numerous problems in mastering and monitoring their children’s performance for completing homework in cyberspace
	Problems of mobile phones	I, as the teacher as well as the students and their families had the problem of not having access to a smartphone, and it was difficult to keep up with e-learning, and as a result, the level of education was reduced among students
	Problems of national media education	As I was not familiar with this new method of education, I chose education through national media (television) for my child, and the main problem was the interference of educational programs broadcast by national media with my son’s class programs in schools and the lack of full coverage of all courses
	Reduced quality of education	When I teach Persian word writing in the face-to-face class, when a student is not doing well in writing a word, I soon realize that this student did not understand, for example, the letter “ط,” (in English this letter is T) but in virtual education this is not the case. The student’s problem cannot be monitored and unfortunately the quality of education is highly reduced
Shad system’s problems	Lack of access to Shad system	Because we have to teach through Shad system, this network unfortunately had a very poor performance last year, for example, educational videos, pictures or other assignments were not easily sent to students and we had many problems Installing Shad on mobile phones was associated with many problems, and many teachers and students were involved in installing and running Shad for several weeks, and still did not have a complete and usable installation
	Education quality problems	There was cheating in sending homework in Shad and almost all the students were copying from each other and it was seen that the weak student of the class was doing the homework like the smart student of the class and there was no control to prevent them from doing so. The efficiency and quality of learning were clearly decreasing
	Shad system’s infrastructure problems	We really experienced that the distance learning and e-learning system is successful when its infrastructure is ready, for example, installing and using happy software required a smartphone, and we saw that some families do not have a mobile phone and using it needs the required literacy while some parents were illiterate

is completely optional and it is possible for them to withdraw at any stage of the study. To conduct the interviews normally, before the interview, the researcher provided a brief introduction, and after stating the purpose of the research for the participants and enumerating the importance of their information in advancing the study, the participants were primarily asked questions so that the participants know more about the research. Then, more specialized questions, related to the purpose of the research, were asked. They were also asked to give details on feelings and events to the researcher. Sometimes exploratory questions such as “Can you explain more about this?” “What do you mean?” were asked, and based on the answers, the next questions were asked. The average interview duration was 20 min. All interviews were conducted by the researcher.

Data collection tool and technique

According to the 5-step approach of Graneheim and

Lundman, immediately after the first interview, the researcher used and typed the transcript of the interviews in Word 2010, and as recommended by Olson, the researcher used and typed a conventional draft. The entire text of the interviews was read word for word with great care and patience, and then, the initial codes were extracted. Next, the codes, which were similar in meaning and concept and could be grouped together, were placed in one subcategory, and their relationship to each other was determined. Finally, codes and subcategories fell into the main categories, which were more comprehensive in terms of concept.

Data accuracy and trustworthiness

The validity of this study was evaluated based on Lincoln and Guba’s criteria including credibility, confirmability, dependability, and transferability.^[23] For data credibility, the transcribed text of the interview and the codes were reviewed with the participants and the ambiguities were checked and corrected. For data

Table 4: Categories and subcategories related to psychological damages in virtual education learning in “psychological in virtual education” in primary schools during the coronavirus disease 2019 pandemic”

Category	Subcategory	Quotes
Psychological and mental damages of students	Cyberspace availability and psychological hazards	Given the conditions imposed by COVID-19, the Internet was suddenly accessible to all children, it was abused a lot. For example, most of the time, the students had mobile phones in their hands and claimed that we were attending our classes, but they were surfing the net. Or, for example, because it is a public education group, other students send content to the group that is unrelated to the lesson and that the children had better not see and may suffer from psychological damage
	Boredom of cyberspace	The children were really tired of cyberspace and school closure, and they felt confused at home, my son was counting the moments for the reopening of schools
	School closures and the emergence of physical and mental problems	When the schools were closed, as it was sudden and unexpected, the children were shocked, that was very difficult and unbearable, they became unplanned, their sleeping and resting hours were disturbed, their nutrition was in poor condition, they used too much TV and computer; these conditions led to gradual inactivity and obesity, and this was worrying
Psychological and mental damages of parents and teachers	Fear and anxiety about the disease	Fear of transmission and high prevalence of new mutations of the disease, especially the delta mutation, incomplete vaccination, noncompliance with health protocols by the general public and especially students, and fear of being infected with the disease have caused psychological and mental problems for both parents and teachers
	Teachers' workload	Using a personal phone and buying internet packages at personal expense, double activity during nonoffice hours, responding to students and parents 24 h a day, producing educational content without full familiarity with the software used have all increased the workload of teachers, and reduced the quality of education

COVID-19=Coronavirus disease 2019

dependability, data collection, implementation, coding, and data analysis were conducted simultaneously. For increasing transferability, people with different socioeconomic characteristics and from different parts of the city were sampled and interviewed. Finally, for data confirmability, the text of the interviews and the codes were reviewed and approved by the supervisor and the consultant.

Ethical consideration

<https://ethics.research.ac.ir/IR.ZAUMS.REC.1399.469>.

Results

24 participants (14 parents, 5 teachers, 5 school principals) participated in this interview, 2 were men and 22 were women [Table 1]. The guide questions are designed in the form of two general questions [Table 2]. “psychological damages in virtual education in primary schools during coronavirus disease 2019 pandemic” It includes two subcategory that : 1- The educational problems of mobile phones , which includes 6 secondary category with titles: Internet problems, Internet costs, Novelty of virtual training, Problems of mobile phones, Problems of national media education, Reduced quality of education. 2- Shad system’s problems, which includes 3 secondary category with titles: Lack of access to Shad system, Education quality problems, Shad system’s infrastructure problems [Table 3]. “psychological in virtual education” in primary schools during the coronavirus disease 2019 pandemic”It includes two category that : 1-Psychological and mental damages of students, which includes 3 subcategory with titles: Cyberspace availability and

psychological hazards, Boredom of cyberspace, School closures and the emergence of physical and mental problems, 2-Psychological and mental damages of parents and teachers which includes 2 subcategory with titles: Fear and anxiety about the disease, Teachers’ workload [Table 4].

Discussion

So far as is known, this qualitative study is the first research in Zahedan that has examined the psychopathology in the virtual education of primary school students during the COVID-19 pandemic. Participants described a series of cases and reports related to e-learning infrastructure and psychopathology. The problems of e-learning on mobiles and the problems of SHAD system are related to e-learning infrastructure. Moreover, the psychopathology imposed on students, teachers, and parents is included as well. Most of the participants stated that Internet problems and poor connection quality and frequent bandwidth failures prevent students from accessing the full content of existing activities or content online. Such conditions can have negative effects on learners’ learning process.^[24,25] Internet costs are relatively high for many schools and parents.^[26] One of the most important problems for students in using the capacity of cyberspace for education and training is the problems of mobile phones and lack of the required equipment, especially phones and tablets, which is a common problem for many people. With the rising cost of cell phones and tablets, the purchasing power of many families has declined, resulting in students having to either use their parents’ phones or be

deprived of education. In 2016, Wilkinson provides insights into the implications of successful tablet learning and how we, as teachers, use the tablet as a tool to provide a more engaging and successful learning environment; this has a positive impact on student achievement and actual learning in the classroom.^[27] Given the novelty of virtual education, teachers with years of experience in teaching with traditional methods find it difficult to learn and adapt to the new approach of e-learning. Most teachers are not aware of the importance of e-learning as an effective method of teaching and learning and do not have enough information in this field.^[24] Strengthening the Internet infrastructure, as well as the infrastructure for producing educational content in schools, meeting the needs of unprivileged students, and justifying students and parents on how to use cyberspace seem to be the measures that are required to be taken as soon as possible. In order for the education of students not to be interrupted during the period of physical distancing and for the curricula to continue according to the predetermined program, the education was provided through television and in cooperation with Amoozesh Channel; its main goal was to observe educational justice. Although successful experiences were gained in this field, given the diversity of courses and majors, it was not possible to offer all courses in the form of television education. The most important disadvantages and problems of national media education were its one-sidedness and lack of interaction between teacher and student.^[19] However, it was used as a complementary or supportive role for the class teacher.^[28] Most of the communication in the primary school, especially the first grade, results from teacher–student interactions, and since this interaction will not be established in virtual education, we will naturally see a serious decrease in the quality of education at this stage. Some problems include teachers' inability to access technology, lack of school facilities to support e-learning, problems in explaining content, students' limited access to the Internet, students' financial background, and lack of a supportive system for parents. However, teachers argued that the e-learning system would indeed help them with their responsibility to carry out the teaching and learning process during COVID-19 outbreak. Sometimes, online content is all theoretical and does not allow students to practice and learn effectively.^[29-31] Most of the participants mentioned the problems of "SHAD" system (student social network) and the lack of access to SHAD system. Lack of access to SHAD system as well as problems such as lack of Internet infrastructure, lack of smartphones and tablets, low awareness and unfamiliarity of parents and students with working in this virtual environment, and limitations and disorders that exist in this educational software, have made virtual education face numerous problems in terms of the quality of learning in SHAD system. Jie

proposed that the construction of a joint health education system for primary schools based on "Internet Plus" will solve a wide range of problems in health education; students can, thus, access health education resources in a cost-effective way more conveniently and easily with a high quality.^[32] The study conducted by Basilaia and Kvavadze examines the school education process online, investigates the various operating systems available, and identifies government-sponsored items, such as the online portal, the TV school teams, and Microsoft for public schools and other options such as Zoom, Slack and Google Meet, and EduPage platform that can be used for online education and live communication; examples of their use are provided as well.^[33] This is similar to SHAD software supported in our country by the government, and it is hoped that the software infrastructure problems will be resolved. Thus, it is expected that with the development of the necessary infrastructure such as developing the global Internet network and increasing its speed, creating interaction-based educational software, and using experiences gained in this pandemic, we will see increasing prosperity of virtual education in Iran, so that even after the outbreak of COVID-19, we will see this type of training alongside face-to-face training.^[19] Most of the participants mentioned psychopathology in virtual education and mental damages in students, teachers, and parents. Regarding availability of cyberspace and the psychological dangers, what is frequently mentioned is the amount of time the students spend in cyberspace. In the long run, this will be associated with a lot of psychopathology for students and there are concerns about their online security. Cyberspace and irreparable damage that this environment can do to the personality and social image of students are issues to be considered, and the prevention of which is the responsibility of educational organizations, especially the families.^[34-36] Boredom of cyberspace was another issue. The research has indicated that students are upset and anxious about online learning strategies and cyberspace. Online education has created physical problems such as headaches, backaches, eye fatigue, and earaches in students due to access to and use of laptops, smartphones, and handsfree devices used for distance learning classes. According to the students, this was a new kind of stress and they were nervous and tired of e-learning due to the virtual education and the inability to talk face to face with the students and the feeling of not communicating with them and observing the physical distancing.^[37-39] The closure of schools and the emergence of physical and mental problems was another important point raised by the participants. Common physical problems include new onset of sleep problems due to anxiety^[40,41] inactivity and decreased physical activity increased social media use time and improper and poor nutritional status.^[9,42-44] On the other hand, students in school, in addition

to learning the relevant courses, learn life skills and social etiquette, so if the school closure is prolonged, they will mostly experience psychological and mental damages. The breaking news of school closure caused panic and anxiety, as school closures, physical distancing, and other restrictions can lead to negative psychological conditions such as anxiety and fear, and these can affect the well-being of students as a result of the shock^[39,45-47] Fear and anxiety about illness have involved all people, especially parents of primary school students and teachers with a wide range of anxiety disorders (such as obsessions fear of being infected and dying, fear of transmitting the disease to another person, fear of being infected through social interactions or having contact with objects, and fear of being infected in public places).^[48,49] On the other hand, due to virtual education and increased workload of teachers to produce content, online education and reviewing and giving feedback to students' assignments, software infrastructure problems and Internet costs, etc., teachers suffer from psychopathology as well.^[34]

Limitation and recommendation

The current study had several limitations. This study was conducted in Zahedan schools during virtual learning; the results may not be generalizable to other regions. Another limitation of this study was that the COVID-19 pandemic affected individuals' willingness to participate in the study, which could lead to selection bias. Despite the limitations, the current study can still add.

Conclusion

The results have indicated that identifying these cases and attempting to eliminate them can reduce psychological damages and improve the quality of virtual education for students. Moreover, this can help principals and educational planners have new insights so that they can focus on solving psychological problems in e-learning and provide their supportive planning.

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Conflicts of interest

There are no conflicts of interest.

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