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## Determining the Views of Students with Chronic Kidney Disease about Online Learning Environment

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**Abstract.** Our study was carried out to evaluate the educational experiences of students who are at risk due to the pandemic and who have chronic renal impairment, during the pandemic process. Our research is a phenomenological pattern study from qualitative research methods. The sample of our study consists of 5 students with chronic renal impairment between the ages of 13 and 16, registered in an organ transplant center, and studying at public schools affiliated with the Ministry of National Education in the 2020-2021 academic year. Our data was collected and analyzed through a semi-structured form. The majority of the participants stated that they could not go to school enough, their priority was education and health, they wanted face-to-face education, they had difficulty in understanding the lessons in face-to-face education, and they wanted to receive education at home and dialysis center. As a result, students in this group cannot get efficiency from distance education. Considering the dialysis days and hours of the students in this group, a new formal education program can be created and more efficient education can be provided.

**Keywords.** Chronic kidney disease, online learning environment, distance learning.

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Chronic diseases are a process which generally requires one year or more of continuous medical care and limits the activities of the individual (www.cdc.gov.tr). These diseases reveal many changes in physical, psychological, and social aspects. As a matter of fact, these changes bring along a new adaptation process (Ak, 2014; Megari, 2013). Especially, the number of children diagnosed with chronic diseases which do not threaten life but affect and debilitate daily life is substantial (US National Centre for Chronic Disease Prevention and Health Promotion, 2009). Cancer, kidney failure, diabetes, and congenital anomalies constitute 15-50% of chronic diseases in children admitted to the hospital during childhood (Baysal, 1996; Martin & Nisa 1997; Toros et al., 2002).

The prevalence of chronic kidney failure is between 7% and 12% in the world (Romagnani et al., 2017). In the later stages of the disease, the most effective treatment is kidney transplantation; but for patients who do not have a suitable donor, the treatment is dialysis (Levey & Coresh, 2012). Dialysis is divided into hemodialysis and peritoneal dialysis. Peritoneal dialysis is performed through a catheter placed in the peritoneal cavity. Dialysis solution is given to the peritoneal cavity and after a certain period of time, this solution is drained and the procedure is performed (Goldstein et al., 2013). This procedure may cause problems such as peritonitis, bleeding, and fluid leakage (Yıldız & Karaaslan, 2019). However, the quality of life in peritoneal dialysis is better than hemodialysis (Wakeel et al., 2012).

Hemodialysis treatment is carried out by connecting the patient to the hemodialysis machine through a catheter or AV fistula (Tomar et al., 2016). Based on the need for dialysis, the frequency of connection to the hemodialysis machine varies between one and three days (Gülşay et al., 2020). Frequent dialysis and dependence on a centre negatively affect the quality of life for hemodialysis patients (Gerasimoula et al., 2015; Wakeel et al., 2012).

During periods of chronic kidney failure, when urea and uric acid and creatinine increase, neurological changes may occur that will prevent learning (Jabbari & Vaziri, 2018; Theofilou, 2012). In addition, problems such as hypotension and fatigue are common after hemodialysis (Çaydam & Pakyüz, 2016; Park et al., 2013; Tuna, 2018). In addition, they need to undergo continuous dialysis. Considering these situations, school life of school-age children with chronic kidney failure is often full of difficulties (Gan et al., 2018).

At this point, as it is known, most children and young people spend most of their lives in school. Those with chronic illnesses, on the other hand, may experience both academic lag and deterioration in social relations since they frequently lose contact with their teachers and peers (Hedstrom et al.,

2005; Shiu, 2005). Studies have shown that individuals who lead their lives in a normal way in terms of school and social relations can positively affect both the disease they experience and the worry they may experience in the process (Bessell, 2001). On the contrary, it was determined that individuals who are not attached to school and miss learning opportunities are reluctant to go to school again (Bessell, 2001; Haas & Nathan, 2008). In order for these chronically-ill students to maintain their school engagement and not miss out on educational opportunities, that is distance or co-education, should be used in education.

The pandemic that emerged in China in 2019 has affected the world in many different areas such as economy, health and education (Ahmad, 2020; Bai, 2020; Khoo, 2020; Sarkodie, 2020). During the pandemic, formal (face-to-face) education was suspended in many countries. After this break, especially distance and blended learning has become widespread all over the world. (Bozkurt, 2020).

Distance learning is a planned learning activity that removes the time and space limits and presents many teaching applications to its participants in electronic or non-electronic environments (Altıparmak, 2011). The necessity of distance learning activities aims to ensure that every student who cannot find the appropriate time, place, and environment receives quality education (Şen et al., 2010).

Blended learning, another education method that gained importance after the pandemic, consists of the strengths of distance education and the strengths of formal (face-to-face) education (Oh, 2006). The basic condition of achieving success in blended learning depends on ensuring that distance and formal teaching methods are carried out systematically and regularly (Kahyaoğlu & Küçükaya, 2014). The implementation and dissemination of distance or co-education is extremely necessary to ensure equality of opportunity in education, especially for students who have chronic diseases or who need to stay in hospital for a long time for treatment (Şen et al., 2010).

The aim of this study is to determine the views of students with end-stage chronic kidney disease, who are at risk during the pandemic and formal education, and who require continuous follow-up or treatment, regarding distance and coeducation. Our study contributes to the literature by determining the views of students with chronic diseases regarding the maintenance of disease follow-ups for those with chronic diseases and at the same time, distance and co-education models, which are the education forms that are likely to balance the productivity of these students in education.

## Method

In this study, a phenomenological design, one of the qualitative research methods, was used to determine the views of students with chronic renal impairment about the distance education method they carried out in the 2020-2021 academic year. Phenomenological pattern studies are the studies conducted to describe experiences lived in a certain field (Tekindal & Arsu, 2020).

### Study Group

Students with chronic kidney disease who study in public schools affiliated to the Ministry of National Education in the 2020-2021 academic year participated in this study. The sample of the study is the criterion sample from the purposive sample group. Criterion sampling is obtained by using one or more criteria related to the phenomenon being examined in order to ensure maximum variation in qualitative studies (McNabb, 2015). The distributions of some demographic characteristics of the sample group are given in Table 1.

Table 1.

*Distribution of Some Demographic Characteristics of the Participants*

Characteristics	n	%	Total
Gender	Male	3	60
	Female	2	40
Age	13	1	20
	14	2	40
	15	1	20
	17	1	20
Currently Ongoing Dialysis Type	Hemodialysis	3	60
	Peritoneal Dialysis	2	40
Total Chronic Kidney Failure Treatment Time	Less than 10 years	2	40
	10 years or above	3	60

## **Data Collection Tools**

The study used qualitative research method and phenomenological design to evaluate the experiences of a limited group. Structured interview questions were prepared to collect relevant data. The structured interview technique is closed-ended and resembles questionnaires or attitude scales in which the individual answers his/her own information (Robson, 1993; Wragg, 1994). Structured interview questions were asked online, taking into account the health status of the participants, and the answers were recorded.

Our study was carried out with patients aged between 13 and 16, registered in the national waiting list of Private Antalya Medical Park Hospital, Organ Transplantation Centre. 5 of the 6 patients on the list voluntarily agreed to participate in the study. The data were collected after the necessary permissions were obtained from the coordination unit of the institution where the relevant data was collected and from the parents of the students.

Our data were collected online using a form containing 4 socio-demographic and 9 open-ended interview questions. Interview questions consist of questions developed by Wilkie (2014) and necessary permissions were obtained. After the related questions were translated into our language, the opinions of an organ transplant coordinator, two teachers, and a nurse were received. It was rearranged in terms of clarity, relevance, and adequacy within the scope of expert opinions and took its final form.

In order to ensure the credibility of our study, sufficient time was given to the participants in the data collection process and our data was examined by three researchers. Incomprehensible words were corrected with participant confirmation. The language used by the participants was Turkish and the data collection form was created accordingly. In order to ensure transferability, the data were transferred directly from the data collection form. A common data collection form was used to ensure dependability and the data were analyzed by three researchers. The suitability of the study group, the adequacy of the data, and the suitability of the analysis was ensured by obtaining the opinion of an expert in order to ensure confirmability.

## **Data Analysis**

In the qualitative analysis phase, it consists of the opinions of students who have chronic kidney disease and still attend a school, regarding the distance education studies they continue in the 2020-2021 academic year. Also, direct quotations were made from the views of the participants, and they were described and analyzed according to the answers given to the interview questions.

The limitation of the study was that our sample was a group at risk due to the pandemic, so data collection was done through a semi-structured form. For this reason, it can be shown that body language analysis could not be done and in-depth questions could not be asked.

## Results

The opinions of the students who participated in the research related to continuing their education are shown in Table 2.

Table 2.

### *Continuation & Absenteeism Status of Students*

<b>Remarks</b>	<b>Participants</b>
I am absent because I am regularly hospitalized	P1, P2
I am absent because the disease process is very intense	P4
I continue my education	P3, P5

Two of the participants stated that they could not continue their education life by saying "*because I am hospitalized regularly*" and one of them "*because the disease process is very intense*". 40% of the participants answered "*I can continue my education*".

Table 3.

### *Average Total Absences during Face-to-Face Training*

<b>Remarks</b>	<b>Participants</b>
At least two days a week	P2
I can go for a week and cannot go for a month.	P1
I just take education at home	P4
I try my best not to be absent.	P3, P5

Table 3 shows the answers given by the students regarding their total absenteeism. While one of the participants said, "*At least two days a week, I can go for a week and cannot go for a month, I just take education at home*", while two others answered as "*I try my best not to be absent.*".

Table 4.

### *Responses to Identify Key Priorities*

<b>Remarks</b>	<b>Participants</b>
Going to school	P1, P4
My medicines	P2
My health	P3, P4, P5

Table 4 shows the answers given by the students related to their basic priorities. While the majority of the participants answered this question as *"my health"*, two people answered *"going to school"* and one answered *"my medicine"*.

Table 5.

*Opinions Regarding Face-to-Face Education*

<b>Remarks</b>	<b>Participants</b>
I find face-to-face education more understandable and positive.	P1, P5
Because of my illness, I don't want face-to-face training.	P2, P3
I want face-to-face education because I socialize and have friends.	P4

When Table 5 is examined, the answers given by the students about face-to-face education are included. Two of the participants answered, *"I find face-to-face education more understandable and positive"*, the other two replied *"I do not want face-to-face education because of my illness"* and one person replied *"I want face-to-face training because I socialize and have friends"*.

Table 6.

*Opinions Related to Distance Education*

<b>Remarks</b>	<b>Participants</b>
I do not lag behind my subjects	P2, P5
I have trouble understanding the lesson	P2, P4, P5
I have a problem with the Internet	P3
Not effective	P3
I do not find it positive	P4
I have never attended distance education classes.	P1

When Table 6 is examined, the answers given by the students about distance education are included. While the majority of the participants gave the answer *"I have difficulty in understanding the lesson"*, two people answered *"I do not lag behind my subjects"*, one person answered *"I have a problem with the Internet"*, *"not effective"* and *"I have never attended distance education courses"*.

Table 7.

*The Effect of Distance Education on Success*

<b>Remarks</b>	<b>Participants</b>
I have never attended distance education classes.	P1
There is no change in my achievement	P2
Distance education did not affect my success positively because I felt tired after dialysis.	P3, P4
Since I had to go to the hospital all the time, I could not participate in distance education much.	P5

When Table 7 is examined, there are answers given by the students about the effect of distance education on course success. To this question, 40% of the participants answered "*Distance education did not affect my success positively because I felt tired after dialysis*", and 20% answered "*I have never attended distance education classes*", "*There is no change in my success*" and "*Since I had to go to the hospital all the time, I could not participate in distance education much*".

Table 8.

*Opinions Regarding the Most Appropriate Education Method*

<b>Remarks</b>	<b>Participants</b>
I can't continue but face-to-face training	P1, P3, P4, P5
Private school for the chronically ill	P2
Unnecessary lessons should be eliminated, chronically ill students should go to school for less time	P3, P5

When Table 8 is examined, it is asked which education method is the most suitable for students with chronic diseases. While the majority of the participants answered "*I can't continue, but face-to-face education*", two answers were "*Unnecessary lessons should be eliminated, chronically ill students should go to school for less time*" and one answer was "*Private school for the chronically ill*".

Table 9.

*What Attendees Want to Add*

<b>Remarks</b>	<b>Participants</b>
I want a teacher at home or dialysis centre	P1, P4, P5
Solutions should be produced for the education of those with chronic diseases.	P2
I want teachers to pay more attention to us	P5

Table 9 includes the thoughts that the participants wanted to add regarding the subject, apart from the questions. 60% of the participants answered "I want a teacher at home or dialysis center", 20% answered "Solutions should be produced for the education of those with chronic diseases" and "I want a kidney transplant".

### **Discussion and Conclusion**

Chronic renal impairment treatment causes patients to spend most of their time in hospitals and dialysis centers. This situation causes individuals to fall behind in education and social activities. The most effective treatment for end-stage kidney disease is kidney transplantation (Wolfe et al., 1999). Kidney transplantation is performed from living and cadaveric donor (Mahendran & Barlow, 2014).

Patients without living donors are placed on the national waiting list of the Ministry of Health for cadaver donor kidneys (Murat, 2016). It may take days or years to report a suitable kidney. During this period, the treatment is continued with dialysis. However, dialysis treatment can negatively affect the physical and social development of children in developmental age.

It is known that waste products whose levels increase in the blood in chronic kidney failure affect mental functions (Jabbari & Vaziri, 2018; Theofilou, 2012). It is thought that learning will be more difficult in this period before dialysis. In addition, hemodynamic problems encountered after hemodialysis will disrupt the physiological balance and affect the sustainability of education. In peritoneal dialysis, patients are not dependent on a dialysis center. Dialysis should be the first choice for patients in this group. However, frequent peritoneal infections reduce the effectiveness of dialysis.

In this study, pediatric patients with chronic kidney disease and affected by educational life disorders are included. The fact that they have chronic kidney disease and have to receive dialysis treatment continuously affects their education life negatively. Within the scope of the study, it was tried to determine the opinions of the participants regarding distance education, which they had the opportunity to experience for the first time due to the pandemic. When the field survey was conducted, it was determined that there was no study conducted in our country on the subject.

According to the results of the study, when the participant students were asked whether they went to school or not, it was determined that two of the participants continued their education despite the difficulties they experienced, and the other three participants largely missed their lessons. Another question was related to determining the priorities of the participants. Most of the answers given were recorded as "health".

When the participants were asked regarding their opinions about face-to-face education, the majority of the participants stated that they wanted face-to-face education. This result is similar to the study of Sarı and Nayır (2020) with secondary school students. As a result of the related study, it was concluded that the students believe that face-to-face education is more beneficial than distance education and that face-to-face interaction is necessary for a good education. As a result of the study conducted by Johnson et al. (2000) on student satisfaction with regard to course quality, it was found that the students in the face-to-face lesson group had a more positive opinion than the distance education group.

When the answers of the participants related to distance education were examined, it was determined that the majority of the answers were negative. In two answers, it was stated that distance

education did not fall behind from the courses. A similar conclusion was reached by the study Kaynar et al. (2020). As a result of the related study, the majority of the students stated that they had some problems in distance education and that their education life was negatively affected. Çakın and Akyavuz (2020) reached a similar conclusion in their study. Especially, Internet problems and technical inadequacy have emerged as an important problem related to distance education.

It was determined as another result that participants with chronic kidney disease did not have any positive opinions while expressing the effect of distance education on course success. Özgöl et al. (2017) reached a similar conclusion. When students were asked regarding the effect of distance education on course success, they stated that there was not enough feedback and distance education did not have a positive contribution to course success since it caused distraction. Another remarkable response is that although the participants could not participate in the face-to-face education as desired, they still wanted to continue the face-to-face education. In addition, they stated that they want to eliminate some courses for students with chronic illnesses and absenteeism problems, as they have absenteeism problems, and they want to go to school for a shorter period of time, unlike other students. Another participant answered this question that there should be a private school for students with chronic diseases.

When the participants were asked what they would like to add last, the majority of the participants stated that they wanted a private teacher for them. Similarly, another participant stated that they wanted their current teachers to communicate with them more. These conclusions are similar to Wilkie's (2014) study with students with chronic illness. As a result of the related study, the participants stated that they expected more attention from their teachers and that they wanted private teachers to be assigned to them.

As a result, it was determined that the students participating in the study could not get enough efficiency from distance education. It was determined that although the students have difficulties while participating in face-to-face education during their illness, they want to continue their education life in a formal way with a new education program to be specially prepared for these students with chronic illnesses or with private teachers. At this point, it is predicted that an education model specially prepared for the students in this group, taking into account the type of dialysis, the number of days of dialysis and dialysis hours, will positively affect students with chronic diseases both in terms of morale and educational success.

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## Conflict of Interest

It has been reported by the authors that there is no conflict of interest.

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## Ethical Standards

Participants in the study are voluntarily to participate in the study within the framework of the Declaration of Helsinki. Necessary permissions were obtained from the participants and their families.

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