

# artikel anatomi

*by* Siska Rani

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# 1 Learning experience about human anatomy of health students during the pandemic COVID-19: A phenomenological study

Experiencia de aprendizaje sobre anatomía humana de estudiantes de salud durante la pandemia de COVID-19: un estudio de fenomenología

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## SUMMARY

1 **Introduction:** During COVID-19, health students should learn human anatomy online. By learning online, students have difficulty understanding the subject material. This study aims to explore the experiences of health students learning the anatomy of the human body during the COVID-19 pandemic. **Methods:** This study used a qualitative study with a phenomenological study approach. This study's participants were seven health students from two private universities in Pekanbaru city, which were

5 taken by purposive sampling. Data collection used in-depth interviews and was analyzed using the phenomenological method developed by Colaizzi.

2 **Results:** Researchers found five main themes, namely the learning process during the COVID-19 pandemic, obstacles to the online learning process, obstacles for students to learn the anatomy of the human body during the COVID-19 pandemic, student efforts to find references, and expectations of students learning anatomy during the COVID-19 pandemic.

**Conclusion:** Students experience several obstacles during participating in online learning while the pandemic occurs, especially in understanding the anatomy of the human body. Students make several efforts to add learning resources and hope there will be digital learning applications with animation and image features and detailed explanations of human anatomy. This study recommends that educational institutions use digital applications to support learning to make it easier for students to understand the anatomy of the human body.

1 **Keywords:** Anatomy of the human body, applications, digital, learning, online, student experience.

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## RESUMEN

**Introducción:** Durante el COVID-19, los estudiantes de salud aprendieron anatomía humana en línea. Al aprender en línea, los estudiantes tienen dificultades para comprender el material de la asignatura. Este estudio tiene como objetivo explorar las experiencias de los estudiantes de salud que aprendieron la anatomía

del cuerpo humano durante la pandemia de COVID-19. **Métodos:** Este estudio utilizó un estudio cualitativo con un enfoque de estudio fenomenológico. Los participantes de este estudio fueron siete estudiantes de salud de dos universidades privadas de la ciudad de Pekanbaru, que fueron tomados por muestreo intencional. La recolección de datos utilizó entrevistas en profundidad y fue analizada utilizando el método fenomenológico desarrollado por Colaizzi.

**Resultados:** Los investigadores encontraron cinco temas principales, a saber, el proceso de aprendizaje ante la pandemia de COVID-19, los obstáculos para el proceso de aprendizaje en línea, los obstáculos para que los estudiantes aprendan la anatomía del cuerpo humano durante la pandemia de COVID-19, los esfuerzos de los estudiantes para encontrar referencias, y expectativas de los estudiantes que aprenden anatomía durante la pandemia de COVID-19.

**Conclusión:** Los estudiantes experimentaron varios obstáculos durante la participación en el aprendizaje en línea mientras ocurrió la pandemia, especialmente en la comprensión de la anatomía del cuerpo humano. Los estudiantes hicieron varios esfuerzos para agregar recursos de aprendizaje y esperaron que haya aplicaciones de aprendizaje digital con características de animación e imagen y explicaciones detalladas de la anatomía humana. Este estudio recomienda que las instituciones educativas utilicen aplicaciones digitales para apoyar el aprendizaje y facilitar a los estudiantes la comprensión de la anatomía del cuerpo humano.

**Palabras clave:** Anatomía del cuerpo humano, aplicaciones, digital, aprendizaje, en línea, experiencia estudiantil.

## INTRODUCTION

The World Health Organization (WHO) determined the occurrence of a pandemic caused by the Novel Coronavirus Disease 2019 (COVID-19) on March 11, 2020 (1). Deaths due to this virus in Indonesia have been increasing since 2020. Indonesian President, Jokowi, issued a policy on implementing Large-Scale Social Restrictions (PSBB) (2-5). The enactment of PSBB impacts the learning process at all levels of education. The Decree of the Ministry of Education and Culture of the Republic of Indonesia in 2020 requires that all educational institutions carry out online or online-based learning processes (6).

Online-based learning is students' use of the internet in learning activities. Student

participation in online-based learning activities is essential to developing instructional skills and knowledge of the relevant learning content (7,8). Students' perceptions of online learning provide convenience in accessing lecture materials and motivation (9-11). Besides that, it helped to understand the material for learning individually and in groups and support active learning (12).

Online learning media is a medium that is of interest to students. It can increase interaction in the learning process and easily access and communicate with classmates and teachers (13). Even so, students prefer face-to-face learning (offline) in class. Students revealed that online learning needs to buy internet quota frequently to stay online. These results showed that the need is increasing. It will make it difficult for students from remote areas to get a stable internet network (14,15).

Anatomy courses explain the human body's structure, including joints, muscles, bones, organs, and nerves. Anatomy is a basic science in medicine. Anatomy makes a doctor able to understand the patient's disease condition well. Besides that, anatomy is also needed as a basis by nurses, midwives, dentists, physiotherapists, and all health-related professions (16). Learning anatomy requires students to understand theories, concepts, and facts and conduct a discovery process. In general, the activity of finding concepts can be implemented through practical activities. Practicum is one of the learning strategies that can attract students' interest in developing science concepts because practicum can provide knowledge and experience directly to students to observe a phenomenon that occurs. Hence, students will better understand the concepts being taught (14,17).

The biggest problem students face in practicum is the lack of understanding of the practicum process because they are not directly involved in the practice. The advantage is that the time and place of the practicum are more flexible because it can be performed anytime and anywhere (18). Based on the previous results, practical learning activities during the COVID-19 pandemic were mostly carried out in various universities (19,20). Therefore, the form of experimental practicum with simple tools and materials is most often applied and sought after by most students. Some practicums are still being carried out offline by

considering strict health protocols. The form of the lecturer's explanation regarding the practicum procedure that is regarded as optimal is the use of the form of a module book or practicum manual accompanied by a detailed description. This study aimed to explore in-depth information about the experiences of health students studying the anatomy of the human body during the COVID-19 pandemic.

## METHODS

This study used a qualitative phenomenological design. The participants were seven health students studying the human body's anatomy at two private health universities in Pekanbaru city. Then, the study variables were students learning the anatomy of the human body during the COVID-19 pandemic, sex, and age. Each variable was asked using a checklist format and interview guide. Data collection used in-depth interviews with informants, field notes, and a voice recorder. However, data analysis used the Colaizzi method. Data validation used the data triangulation method. This research has passed the health research ethics test at Health Research Ethics Committee Sekolah Tinggi Ilmu Kesehatan Hang Tuah Pekanbaru with the letter number: 111/KEPK/STIKes-HTP/II/2022.

## RESULTS

From the results of the study there were five research themes, which are: the learning process during the COVID-19 pandemic, obstacles to the online learning process, obstacles to learning the anatomy of the human body, efforts to add references to the anatomy of the human body, and hopes for an application to learn the anatomy of the human body.

### The learning process during the COVID-19 pandemic

The learning process during the COVID-19 pandemic was viewed by student explanations regarding the media and learning methods used.

In addition, excerpts from participant statements can be seen in the description below:

"...that were full courses online learning by Zoom, it's difficult. ...it is admitted that we should have... every semester there is a practicum. Still, because at that time online was very constrained.... ...for example, in the first semester, the lessons were basics, physiology, chemistry, biology, and Anatomy, and it was hard to understand it, it is hard to learn online at that time." (P2)

### Obstacles to The Online Learning Process

Constraints in the online learning process experienced by participants in this study were caused by internet signal interference. According to the participants' answers below:

"...the only thing that makes it not smooth is sometimes the network or package (internet) costs." (P1)

### Obstacles in Learning the Anatomy of The Human Body

The obstacles in learning the human body anatomy experienced by the participants in this study were the difficulty in understanding the material and the absence of practicum. It is evidenced by the following excerpts from the participants' answers:

"There are many problems because the names of the body parts are a bit difficult to memorize, it's like there are many different parts from top to bottom, so it's like remembering all the names of the parts contained. In anatomy, it is a bit lacking bang. ...because there's also a lot of anatomies that must be explained, especially from top to bottom, it's one point... one point, but there are so many derivatives, there are more points at the bottom, so it's like eh to understand one. Still, you have to understand everything, so it's like ...that's the problem with memorizing the names or the important parts" (P5).

### Efforts to add references to human anatomy

Students' efforts to add references to the anatomy of the human body during the



COVID-19 pandemic are by looking for books in the library or looking for materials on the internet. Following are the following snippets of participants' answers:

*"...Then there is also this lecturer who usually sends radiology textbooks which is in general, the name is Merrill's and Bone Ranger's books, that's the big radiology book. ...more so diligently looking at old notes, looking at old study materials" (P2)*

*"...sometimes go to Google, look for journals about anatomy" (P3)*

#### Expectations for the creation of an application to learn the anatomy of the human body

The expectations for the creation of this application to learn the anatomy of the human body are illustrated by the following participant answers:

*"...In the application, I want it to be complete, so it includes the position of the object of the human body. Everything is clear in it. ...perhaps a special feature can be made which can display the human body part in detail down to the smallest bones or organs. ...the human bones, the organs of the body, all of them should be detailed in pictures or videos, that's also good, so later the student can move it on their touch screen, right?" (P2)*

### DISCUSSION

Participants stated that participants who experienced the lecture method were replaced by the previous face-to-face (offline) now carried out remotely or from their respective homes (online) used by each campus, namely the online method. This is in line with the Ministry of Education and Culture, which stated that all types of learning are required to apply the online system (6).

Most of the participants revealed that the learning media that is often used online is Zoom meetings. Learning media using Zoom provides benefits such as this media being an alternative liaison between lecturers and students. Zoom is also one of the learning media that can be used for free and is one of the learning media that can

continue lectures while educators are COVID-19. This is in line with Sidpra et al. (2020) (18), who indicated that Zoom and Google Meet are learning media that most educational institutions use as video conferencing technology, where the meeting participants are in different locations and can interact with each other digitally when carrying out online learning (21). This result is in line with the opinion stated that the use of technology is undeniable in learning during the COVID-19 pandemic. The platform that is widely used is Google Meet (20,22).

In addition, most of the participants revealed that when learning online, they experienced problems, namely the instability of the internet network. The problem is due to the quality of the provider or the power outage, especially for those who use Wi-Fi. The network will be lost due to a blackout. Another thing that happens to students during the online learning process is that the voice of the lecturer is too small, or the voice is intermittent, resulting from instability in the network. This will be a negative impact when the material from the lecturer is not channelled smoothly to students and results in communication or ineffectiveness in digesting the learning material. Therefore, during the learning process, the network becomes an important thing to fix because the network is the main link between lecturers and students as a substitute for direct class meetings. If the network is not stable, it will cause an unfavourable situation during the lecture process. Research by Hutaaruk and Sidabuta in 2020 stated that the basic obstacle for students is the internet network problem (21). In urban areas, many internet service providers with adequate internet network capabilities support the online learning process. However, in rural areas, there are very few choices of internet service providers. From what is available, it turns out that the internet network quality is inadequate, so it does not support online learning.

The availability of an internet quota in supporting online learning certainly impacts the availability of funds, thus requiring students to spend more funds for the quota. This is in line with Ningsih's research (2020) which states that online learning results in increased spending and will make it difficult for students from several areas that are difficult to get a stable internet network (12).

Furthermore, the researchers found that participants experienced problems when studying the anatomy of the human body. Students had difficulty understanding and digesting the material because the anatomy of the human body has detailed theoretical properties and many memorizations and medical or foreign languages that are less familiar and known. Participants generally find it difficult to remember and memorize these body parts, especially during the COVID-19 pandemic, because learning human anatomy is not in class and laboratory practicums face-to-face but online. Therefore, it can be assumed that during the COVID-19 pandemic, educational institutions should use technology to select learning media. This is in accordance with Singhal's research in 2020, which stated that during the COVID-19 pandemic, education was recommended to facilitate virtual labour availability (22). So that students still get a good understanding of the material presented through the practicum method. This research is also in line with research stating that to increase students' understanding of the material obtained by the practical method, it is very effective to use a virtual laboratory (23).

Human anatomy material will likely be given through practicum through a virtual laboratory to utilize technology during the COVID-19 pandemic. Therefore, this matter needs to be considered by Health Education providers to achieve student competence related to understanding the anatomy of the human body. To overcome the lack of understanding related to the explanation given by the lecturer, students make independent learning efforts by looking for references related to the topic of the lesson. These references are obtained from books given or directed by lecturers for reading materials that can be read repeatedly. Participants revealed that books related to their majors had become a must-have, both printed and digital (e-books). Following the research, one of the efforts to increase student learning outcomes is to make the best use of existing learning resources (24). Learning resources are everything available around the learning environment that can be used to facilitate optimal learning outcomes.

In addition to printed or digital books, students also seek information by browsing journals related to learning topics, especially on Google

and YouTube. For example, students look for videos related to the anatomy of the human body. This shows that digital media is very influential in the online learning process. Retnani's research in 2022 suggests that learning using online media in education is an innovation that aims to convey information to students through electronic media to increase student knowledge and skills (25). Similar to this study, it was found that students using online learning media will be a source of additional knowledge from the materials provided by the lecturer and become a way for students to be independent and become curious about the anatomy of the human body.

With the obstacles faced by students in studying the anatomy of the human body during the COVID-19 pandemic, students chose the hope of creating human body anatomy learning applications supported by pictures, interactive animations, videos, and explanations about the parts of the human body. Students also stated that animation would be interesting and exciting because animation is an image that can move. Therefore, this becomes an attraction for students when studying anatomy, which can be explored from various directions on the anatomy of the image. Furthermore, the animation will be more interesting if it is not solely in the form of black and white images yet can be added with different colours in each anatomical part. Therefore, the focus of the anatomy part that students will explore. This is in line with Miranto and Wardani in 2019, who showed that the application of bright colours was chosen for the reason of causing visual acuity so that users can more easily remember the information contained in it (26).

The shape of the anatomy is also expected to use 3D technology, where this feature will simplify and clarify from large parts to the smallest parts of the human anatomy, such as musculoskeletal which describes the skeletal framework, and cardiovascular, which describes the heart to blood vessels. This is in accordance with the previous research that 3D modelling is the process of making a three-dimensional surface mathematical representation of an object with certain software (27). In the medical world, using 3D models to describe the details of body organs. Participants also hope that the application of human anatomy will be accessible via smartphones to increase mobility

and efficiency when studying human anatomy. This follows Sholihah and Agustina's research in 2019, which stated that learning 3D animation of the Android-based human anatomy system can improve student learning outcomes per the application of the given learning media (28). Therefore, applications with Android-based 3D features are assumed to improve student understanding in studying the anatomy of the human body.

### CONCLUSION

The experience of health students in learning the anatomy of the human body during the COVID-19 pandemic is facing obstacles during the online learning process related to unstable internet signals, experiencing difficulties in understanding human anatomy learning due to not being supported by a practicum, efforts to increase knowledge sources in understanding body anatomy humans by browsing material on the internet and reading books independently and hoping for digital applications that make it easier to learn the anatomy of the human body. Therefore, this study recommends educational institutions use digital learning media to facilitate student understanding of studying human anatomy.

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