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Audiology students' opinions towards COVID-19 pandemic: occupational perspective and future expectations

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ABSTRACT

Objective: This study aimed to evaluate the audiology students' opinions regarding their occupational perspective and their future expectations during the COVID-19 pandemic.

Methods: The study included 608 participants consisting of undergraduate and graduate students. Two question forms were used in the study. "Audiology students' opinions regarding their occupational perspective during the COVID-19 pandemic" containing 10 questions and "Audiology students' opinions regarding their future expectations" containing 8 questions were assessed.

Results: While the COVID-19 pandemic did not affect employment opportunities in the field of audiology, it significantly contributed to the increase of professional risks. Online education did not contribute to the learning process and professional competencies. More graduate students stated that the COVID-19 did not affect employment opportunities and increased professional risks but facilitated access to information compared to undergraduate students ($p < .05$). Undergraduate students stated that COVID-19 contributed more to the reconsideration of career plans and opinions about the profession compared to graduate students ($p < .05$). COVID-19 pandemic had a more negative effect on graduate students' future expectations compared to undergraduate students ($p < .05$).

Conclusion: To our view, the COVID-19 pandemic negatively influenced the occupational perspective of audiology students but did not affect their future expectations. While this process affected the career plan and perspective on the audiology profession of undergraduate students, it negatively impacted the professional risk perception and future expectations of graduate students.

KEYWORDS

COVID-19; pandemics; audiology; students

Introduction

The World Health Organisation declared the COVID-19 outbreak as a pandemic on 11th of March 2020 [1]. Several restrictive measures have been applied during the pandemic such as social distancing, quarantine practice, and the use of masks to prevent transmission in the world. These measures have changed the living conditions of people and have had negative effects on mental health [2]. The COVID-19 pandemic, which has rapidly affected the whole world, has caused many psychological difficulties as well as the risk of death in society. It has resulted in negative psychological effects on several groups such as healthcare professionals, children, adults, and elderly people [3–8]. One of the important populations where the pandemic has a negative psychological effect has also

been university students. Along with the pandemic, isolation measures and delays in the academic calendar of universities have created a negative psychological effect, especially in university students [9]. As a result of this; high levels of stress, anxiety, and depression have been reported by university students [10]. Besides, the circumstances involving alterations in the lifestyles of students, the influence on emotional relationships and economic status have led to challenges for university students [11]. In this context, the uncertainties in the professional life of university students may also prevent them to plan their future by feeling anxious and helpless. It has been already stated that anxiety is related to uncertainty in professional career planning [12,13].

The expectations and uncertainties should be emphasised in various professions during the

COVID-19 pandemic. However, it appears that the evaluation of the occupational effects of the pandemic will not fully reflect the truth due to the different application processes in each profession [14]. Therefore, it is important to emphasise that each profession should carry out its investigations separately. In the literature, no studies have been found evaluating the effect of the COVID-19 pandemic on the occupational perspectives of audiology students. Therefore, this study aims to evaluate the opinions of the audiology students' occupational perspectives and their future expectations during the COVID-19 pandemic. Our study hypothesizes that the COVID-19 pandemic affects both occupational perspectives and the future expectations of audiology students. In the future, this study could be a guide in determining the effect of the pandemic and the necessity of supporting studies for audiology students.

Material and methods

Participants and study design

This is a cross-sectional study. The sample size was determined using the software G*Power with the following input data: χ^2 of test family, goodness-of-fit model of the statistical test method, a desired statistical power of 80%, a significance level of 0.05, and effect size of 0.15, which resulted in 571 participants. In our study, a total of 608 participants who consisted of both undergraduate and graduate students of the audiology department were included. Eligibility criteria were: Being an audiology student who has still continued to online education during COVID-19 and volunteering to participate in the study. Written informed consent was received from all participants by confirming the box "I approve to participate in the study" via Google Forms.

Methods

Two question forms were used in our study. In the first question form, audiology students' opinions regarding their occupational perspectives were assessed. All students were asked 10 questions evaluating their professional choice and career planning (Questions 1–3), employment opportunities (Question 4), professional awareness (Question 5), professional risk perception (Questions 6 and 7), and their perspectives on online education (Questions 8–10) during COVID-19 period. "None", "Moderately", "A lot" responses were used as opinions in all the questions. In the second question form, audiology students'

opinions regarding their future expectations were assessed. All students were asked 8 questions evaluating their future expectations during the COVID-19 period. The responses were determined as "Yes" and "No" in all these questions.

These question forms were prepared by the researchers and transferred to the online environment using the "Google Forms" application. The links were randomly sent to 11 universities including both state universities and foundation universities that have a department of Audiology in Turkey. The recruitment and data collection occurred between May and July 2020. The data were collected with the "Google Forms" application and transferred to an Excel document.

Statistical analysis

IBM SPSS Statistics 26.0 package software was used for statistical analysis. Categorical data were expressed as numbers and percentages. Kolmogorov–Smirnov test was used to determine whether numerical data were normally distributed. Chi-square or Fisher's exact analysis (χ^2) was used to compare whether there was a difference between categorical groups. The cases where the p -value was $<.05$ were evaluated as statistically significant results.

Results

In total, 608 participants including undergraduate students and graduate students across Turkey submitted their opinions to the question forms. The mean age of the participants was 21.50 ± 3.06 years, 14.8% were male and 85.2% were female. Out of these participants, 89.1% of the students do not work in any workplace, and 10.9% work in different sectors (8.9% in the field of audiology, 2% outside the field of audiology) while continuing their university education at the same time. Socio-demographic information of the participants has been shown in Table 1.

The 65% of all audiology students stated that the COVID-19 pandemic did not change their perspectives on the profession of audiology (Question 1). The 37.8% reported that the COVID-19 pandemic did not lead to reconsidering their career planning (Question 2) and 54.3% reported that the COVID-19 pandemic did not contribute to the reconsideration of their professional choice (Question 3). The 48.4% of the students considered that the COVID-19 pandemic did not affect the employment opportunities in the field of audiology (Question 4). The 67.6% of the students notified that the COVID-19 pandemic did not

Table 1. Sociodemographic information of the participants.

Variations	Status	Education status					
		Undergraduate students		Graduate students		Total	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender	Male	72	13	18	32.1	90	14.8
	Female	480	87	38	67.9	518	85.2
Employment status	Unemployed	516	93.5	26	46.4	542	89.1
	Academical personal	0	0	13	23.2	13	2.1
	Public/university hospital	8	1.4	6	10.7	14	2.3
	Private hospital/private clinic	4	0.7	0	0	4	0.7
	Hearing aid centre	6	1.1	4	7.1	10	1.6
	Cochlear implant centre	1	0.2	0	0	1	0.2
	Rehabilitation centre	8	1.4	4	7.1	12	2
	Other	9	1.6	3	5.4	12	2
Age		Mean \pm SD: 21.03 \pm 2.03 Min–Max: 18–35		Mean \pm SD: 26.14 \pm 6.19 Min–Max: 19–35		Mean \pm SD: 21.50 \pm 3.06 Min–Max: 18–35	

contribute to the increase of awareness and importance in the field of the audiology (Question 5), 55.3% reported that the audiologist was at great risk in clinical applications during the COVID-19 pandemic (Question 6). The 41.8% of the students informed that the executed regulations for patients moderately limited clinical practices during the COVID-19 pandemic (Question 7), and 67.6% stated that online theoretical and practical courses did not contribute to professional competence during the COVID-19 pandemic (Question 8). The 65% of the students pointed out that transduction scientific activities to the online environment did not facilitate access to information at all during the COVID-19 pandemic (Question 9) and 58.9% thought that the COVID-19 pandemic did not contribute to the necessity of conducting academic and scientific activities in the field of audiology in the online environment (Question 10) (Table 2).

The 53.5% of the students were hopeful about the future of the profession of audiology (Question 1), 75% stated that affairs did not go as they wanted in the field of audiology (Question 2). The 80.4% of the students remarked that there is a meaning to make an effort in the profession of audiology and they believe to achieve what they want (Question 3). The rate of students who stated that the future of the profession of audiology seems uncertain was 73.2% (Question 4). The 66.1% of the students considered that they could gain good opportunities in the profession of audiology (Question 5), 86.7% hoped that they would succeed in the future (Question 6). The 50.2% of the students were adequately qualified to meet the professional requirements in the future, and 49.8% were not yet qualified enough (Question 7). The proportion of students who stated that everything would improve in the field of audiology comforted them was 69.1% (Question 8) (Table 3).

There was a significant difference between undergraduate and graduate students regarding the occupational perspective of audiology students in questions of 1, 2, 4, 6, 8, 9, and 10 ($p < .05$) (Table 2). There was a significant difference between undergraduate and graduate students in terms of their future expectations in all questions ($p < .05$) (Table 3).

Discussion

The COVID-19 pandemic has the potential to affect university students physically, academically, financially, and psychologically. Along with the COVID-19 pandemic, higher education institutions across the country switched the education procedures from face-to-face to online in order to prevent the spread of the novel coronavirus [15]. For this reason, it is possible that this situation may cause changes as to occupational perspective and future expectations of students.

In our study, regarding occupational perspective, all students reported that COVID-19 pandemic did not affect their employment opportunities. Associated with this finding, in the literature, a survey that evaluated the impact of the COVID-19 pandemic on university students was conducted on approximately 1500 students at the Arizona State University in the United States of America. It was found that 40% of students lost their jobs, internships, or job offers due to COVID-19 [16]. This finding is inconsistent with our study. This difference may be due to the fact that the students included in the study of Aucejo et al. [16] were not audiology students. From a wide perspective, since Audiology is a growing science and healthcare profession, it can be expected to increase employment opportunities. Students also stated that COVID-19 pandemic significantly influence on the increase of professional risk. The reason may be

Table 2. Distribution of audiology students' opinions regarding their occupational perspectives according to their educational status during the COVID-19 pandemic.

Questions	Opinions	Total n (%)	Educational status		p
			Undergraduate students n (%)	Graduate students n (%)	
Question 1	To what extent did the COVID-19 pandemic change your perspective on the profession of audiology?	395 (65)	348 (63)	47 (83,9)	.007*
	Moderately	161 (26,5)	155 (28,1)	6 (10,7)	
	A lot	52 (8,6)	49 (8,9)	3 (5,4)	
Question 2	To what extent did the COVID-19 pandemic lead you to reconsider your career planning?	None	197 (35,7)	33 (58,9)	.003*
	Moderately	193 (31,7)	180 (32,6)	13 (23,2)	
	A lot	185 (30,4)	175 (31,7)	10 (17,9)	
Question 3	To what extent did the COVID-19 pandemic contribute to reconsider your professional choice?	None	292 (52,9)	38 (67,9)	.100
	Moderately	144 (23,7)	135 (24,5)	9 (16,1)	
	A lot	134 (22)	125 (22,6)	9 (16,1)	
Question 4	To what extent did the COVID-19 pandemic affect the employment opportunities in the field of the audiology?	None	263 (47,6)	31 (55,4)	.012*
	Moderately	164 (27)	158 (28,6)	6 (10,7)	
	A lot	150 (24,7)	131 (23,7)	19 (33,9)	
Question 5	To what extent did the COVID-19 pandemic contribute to the increase of awareness and importance in the field of the audiology?	None	367 (66,5)	44 (78,6)	.081
	Moderately	123 (20,2)	113 (20,5)	10 (17,9)	
	A lot	74 (12,2)	72 (13)	2 (3,6)	
Question 6	How much risk did you think the audiologist was at in clinical applications during the COVID-19 pandemic?	None	64 (11,6)	9 (16,1)	.042*
	Moderately	199 (32,7)	189 (34,2)	10 (17,9)	
	A lot	336 (55,3)	299 (54,2)	37 (66,1)	
Question 7	To what extent did the executed regulations for patients limit your clinical practices during the COVID-19 pandemic?	None	132 (23,9)	13 (23,2)	.331
	Moderately	254 (41,8)	235 (42,6)	19 (33,9)	
	A lot	209 (24,4)	185 (33,5)	24 (42,9)	
Question 8	To what extent did online theoretical and practical courses contribute to your professional competence during the COVID-19 pandemic?	None	381 (69)	30 (53,6)	.018*
	Moderately	129 (21,2)	115 (20,8)	14 (25)	
	A lot	68 (11,2)	56 (10,1)	12 (21,4)	
Question 9	To what extent did the transduction of scientific activities to the online environment contribute to your professional competence during the COVID-19 pandemic?	None	367 (66,5)	28 (50)	.004*
	Moderately	140 (23)	126 (22,8)	14 (25)	
	A lot	73 (12)	59 (10,7)	14 (25)	
Question 10	To what extent did the COVID-19 pandemic contribute to the necessity of conducting academic and scientific activities in the field of audiology in the online environment?	None	331 (60)	27 (48,2)	.030*
	Moderately	143 (23,5)	131 (23,7)	12 (21,4)	
	A lot	107 (17,6)	90 (16,3)	17 (30,4)	

* $p < .05$ χ^2 test (chi-square test).**Table 3.** Distribution of audiology students' opinions regarding their future expectations according to their educational status during the COVID-19 pandemic.

Questions	Opinions	Total n (%)	Educational status		p
			Undergraduate students n (%)	Graduate students n (%)	
Question 1	I am hopeful about the future of the profession of audiology.	Yes	311 (56,3)	14 (25)	.000*
	No	283 (46,5)	241 (43,7)	42 (75)	
Question 2	Affairs are not going as I want in the field of audiology.	Yes	407 (73,7)	49 (87,5)	.023*
	No	152 (25)	145 (26,3)	7 (12,5)	
Question 3	It is really no benefit that tries to achieve the competence in the profession of audiology. I am not going to achieve that anyway.	Yes	97 (17,6)	22 (39,3)	.000*
	No	489 (80,4)	455 (82,4)	34 (60,7)	
Question 4	The future of the profession of audiology seems uncertain.	Yes	396 (71,7)	49 (87,5)	.011*
	No	163 (26,8)	156 (28,3)	7 (12,5)	
Question 5	I do not believe that I can gain good opportunities in the profession of audiology.	Yes	175 (31,7)	31 (55,4)	.000*
	No	402 (66,1)	377 (68,3)	25 (44,6)	
Question 6	I hope to be successful in the profession of audiology in the future.	Yes	487 (88,2)	40 (71,4)	.000*
	No	81 (13,3)	65 (11,8)	16 (28,6)	
Question 7	I am adequately qualified to meet the professional requirements.	Yes	259 (46,9)	46 (82,1)	.000*
	No	303 (49,8)	293 (53,1)	10 (17,9)	
Question 8	It comforts me to think that everything will improve in the field of audiology.	Yes	395 (71,6)	25 (44,6)	.000*
	No	188 (30,9)	157 (28,4)	31 (55,4)	

* $p < .05$ χ^2 test (chi-square test).

related to fact that the profession of audiology requires contact with patients. In particular, during the examinations and rehabilitation practices in

audiology clinics, concerns about utilising of protective equipment and patients not to be informed about infection control can cause increasing the professional

risk. These issues might be alleviated by taking precautions against infection and by providing standardisation in all audiology clinics.

COVID-19 changed the attitude of undergraduate students more compared to graduate students towards the profession of audiology (Question 1). As compared to graduate students, a higher proportion of undergraduate students considered that the COVID-19 pandemic contributed to the revision of their career plans (Question 2). Graduate students probably thought that they were adequately qualified in the professional field with both face-to-face education and clinical practices during their undergraduate period before the pandemic and thus, they may have been less affected. However, as for the undergraduate students, instead of the face-to-face and practical education, the application of online education due to the pandemic may lead to change in their perspectives on the profession. This could cause anxiety in undergraduate students because they would not receive adequate education. Therefore, undergraduate students have presumably created a desire to make changes in their career planning. Unfortunately, since there is a lack of knowledge in the literature investigating the effects of the COVID-19 pandemic on audiology students, these results could not be evaluated together with the literature results.

As compared to undergraduate students, a higher proportion of graduate students pointed out that the COVID-19 pandemic did not affect employment opportunities (Question 4) and increased professional risks (Question 6). According to the previous study, the COVID-19 pandemic was demonstrated to have had a significant effect on the expectations of students for the labour force after university graduation. Regarding the expectations of students, finding a job before graduation decreased by approximately 20% compared to the pre-COVID-19 period in the study. These results showed that students consider the pandemic to have a long-term effect on the labour market [16]. In our study, unlike the literature, graduate students reported that employment opportunities were not affected during the COVID-19 pandemic [16]. We think that the employment opportunities were assessed more realistically by graduate students because they were already entered the working life. Nonetheless, it should be also noted that undergraduate students had also ideas about the employment opportunities since they were able to find opportunities for clinical observations in the various subsections of audiology within the scope of the curriculum with summer internship and clinical practice courses

during their education period. Therefore, all students were able to give responses relevant to questions as to occupational perspectives.


Graduate students were also notified that the COVID-19 pandemic increased professional risks. This could be explained by the fact that audiology is a profession that requires contact with patients. The COVID-19 pandemic has contributed to the prominence of tele-audiology applications which have gained momentum in the world. We believe that the execution of rehabilitation applications through tele-audiology may reduce professional risks during the COVID-19 pandemic [17].

More undergraduate students stated that online education contributed less to their professional competence compared to graduate students (Question 8). The reason might be the fact that undergraduate students feel lack of knowledge and practice as audiology science requires practical applications and courses, with intense theoretical education during the bachelor period. With the COVID-19 restrictions and regulations, undergraduate students may have felt professional inadequacy and dissatisfaction. Recent studies have also reported that online education cannot replace with face-to-face education in the field of health sciences during the COVID-19 pandemic [18–20]. These outcomes are compatible with our findings. More graduate students reported that the transmission to online education facilitated access to the knowledge (Question 9) and academic activities should be conducted as online (Question 10). It can be considered with the conversion of online education that the opportunities such as available time and space independence, uninterrupted communication, easy accessibility, obtaining unlimited information at a low cost may result in the benefits to the graduate students in terms of learning process. Besides, more graduate students reported that access to knowledge in the COVID-19 pandemic period has become easier since graduate education term mostly directed students to perform scientific research and literature follow-up. We also think that participation to the scientific activities such as symposiums, congresses, webinars with free or low registration fees and elimination of costs such as transportation, accommodation, etc., might contribute to graduate students to think this way.

Regarding future expectations of all audiology students, in only 2 of the 10 questions (Questions 2 and Question 4) was negatively found low. This led us to think that COVID-19 did not affect future expectations of audiology students. Unlike the participants in Aucejo's study, our participants hope most likely that this

unfavourable period will be temporary and improved soon. We think that longer follow-up studies are required to conduct in revealing the effects of this process.

In our study, undergraduate students were found to have high future expectations compared to graduate students. Zengin et al. [21] demonstrated that the more education level of university students correspond the less future expectations of them. The results of our study are consistent with those of Zengin et al. We think that graduate students, who had the chance to do their profession both during and before the pandemic, felt more the negative effects of the restrictions of COVID-19 pandemic. This may cause weakening of their future expectations in the profession of audiology.

 have three main limitations that must be addressed. First, there was no sociodemographic information in our participants about the residence of place, the grade levels in their universities, source of income. These data could relatively contribute to the strength of the study. Second limitation is that the question forms were created by the researchers. Questionnaires with proven validity and reliability could be used. The last limitation is that this study is a cross-sectional in which we have collected the data between May and July 2020 during the ongoing COVID-19 process. Obtained findings have only demonstrated the time interval at which we collected the data. It is therefore necessary to carry out follow-up studies in a wider time frame.

To the best of our knowledge, this study is the first report evaluating the occupational perspectives and future expectations of audiology students during the COVID-19 pandemic. COVID-19 pandemic negatively affected the occupational perspective of audiology students but did not affect their future expectations. While this process negatively affected the career plan and occupational perspective of undergraduate students, it negatively impacted the professional risk perception and future expectations of graduate students. Evaluating the occupational perspectives and future expectations of audiology students with more samples in broad time frame may be useful in determining the effect of the COVID-19 pandemic on these students.

Institution and ethics approval and informed consent

An approval was received from local ethics committee in Ankara Yıldırım Beyazıt University (Project no: 08.10.2020-05). Written approval was received from all subjects involved in the study.

Author contributions

KK initiated, designed the study, collected data, literature review, directed the data analysis and wrote the manuscript. MK initiated, designed the study, made the data analysis, literature review, directed the data analysis and wrote the manuscript. EKO initiated, designed the study, literature review, directed the data analysis and wrote the manuscript. BM initiated, designed the study, made the data analysis, discussed the analysis and wrote the manuscript.

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