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ORIGINAL ARTICLE

On the way to the AI era: The view of health sciences faculty department students on AI and technological unemployment

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Abstract

As artificial intelligence-supported technologies begin to develop rapidly in the health sector, as in other fields, the concern that the need for professionals will decrease has brought about concerns about unemployment. This study aims to determine the health department students' perspective on artificial intelligence and their anxiety about technological unemployment. Artificial intelligence is developing today mainly in information technologies, and it is expected that professions that are application-based and require personalized interventions will be less affected. For this reason, four departments that are thought to be least and most affected by artificial intelligence development were taken. In this direction, the sample size was determined to be at least n=196 (each group n=49) with an effect size of 0.30, a margin of error of 0.05, a confidence level of 0.95, and a representative power of 0.95 universe, and the study was completed with n=206 participants. 86.89% of the participants (n=179) were female, and the age range was between 18 and 38. It was determined that the students studying in the department of exercise and sports sciences had the highest technological unemployment anxiety with 35.41, while the students studying in the department of midwifery had the lowest technological unemployment anxiety with 29.64. As a result of the study, it can be concluded that increasing anxiety about technological unemployment affects readiness for artificial intelligence. It is thought that providing students with information on how artificial intelligence can affect their professions and how this technology can be used, as well as practical courses such as artificial intelligence command language and robotics, will help reduce the anxiety of technology-related unemployment.

Keywords: Artificial intelligence, technology, unemployment, vocational training, students

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Introduction

Today's rapid changes in the field of technology have facilitated human life and have become an integral part of life. The use of technology is increasingly becoming a necessity rather than a preference or privilege [1].

Artificial intelligence (AI) has shown significant developments since the 1950s, when it started to develop with technological developments, especially in recent years [2]. While it was initially a computer program used only to perform basic mathematical operations and to develop evidence for mathematical theories, with today's developments, it has become capable of performing certain tasks, even complex tasks that some professionals can perform. These developments have accelerated the use of artificially assisted digital technologies in many areas of our daily lives, from spending time to communicating, from learning to working styles, and have become an indispensable part of our lives [3].

AI is defined as 'the ability of a digital computer or computer-controlled robot to perform tasks associated with intelligent beings' [4,5]. To put it another way, AI is the power to do things that humans do, like "reasoning, interpretation, generalization or learning from past experiences, decision-making, and communication" to reach a goal without being told exactly what to do [6-8].

Depending on technological developments, AI applications are used in various fields such as defense systems, automation, health, education, finance, automotive, transportation, and tape production [4,9]. With the development of AI, important changes have started to occur in the field of health, as well as in other sectors. Machine learning-based decision support systems today have replaced the decision support systems implemented in the 1900s. Currently, AI is used to speed up administrative and clinical processes, minimize human errors, increase efficiency and reduce costs. In 1976, the surgical field successfully used AI technology to diagnose acute abdominal pain through computer program analysis. Today, technologies that help people with diagnosis and treatment have come a long way very quickly. For example, devices that use AI can help surgeons do complicated procedures successfully. These technologies are also used to process and interpret x-rays and other images that show diseases, and deep learning is used to diagnose some diseases like cancer. Again, thanks to these technologies, it has started to be used in many areas, such as planning patient-specific treatment, recommending the appropriate medication according to the patient's symptoms, and ensuring the follow-up of the remote patient [10-15].

Specific to some professions in the health field, advances in AI will enable machines to best perform routine nursing care as determined by the fulfillment of prescribed procedures and nursing tasks [16]. In the midwifery profession, AI technologies are especially promising for obstetrics and gynecological issues, such as accurately monitoring the health status of pregnant women during pregnancy, identifying risk factors, predicting successful vaginal deliveries, and monitoring postpartum bleeding [17,18]. AI applications in the field of nutrition and dietetics are used in areas such as assessment of nutritional status, diet planning, and diet-disease relationships [19]. In exercise and sports sciences, AI technologies have started to be used in many areas, such as measuring body movements, monitoring the effects of exercise and sports programs, creating individual-specific programs with training management, analyzing sports injuries, and reducing the risk of injury by using wearable devices equipped with advanced biosensors [20].

AI and AI-supported robotic technologies have started to cause significant changes. AI and robotic developments have enabled workers to perform the tasks they used to do. Studies indicate that in the near future the impact of these developments on employment will reach a level of concern, and technologically induced unemployment may increase, albeit in the short term [21,22]. Technological advances will radically change the structure and organization of the healthcare sector, and it is estimated that 800 million workers worldwide could be replaced by robots by 2030. A robotic revolution is already taking place in healthcare, with robots

making tasks and procedures more efficient and safer [16]. In a study conducted in the UK, it is stated that with the development of AI, 35 percent of jobs may disappear in the next 10 to 20 years [11]. Can AI and robot technologies replace health professionals as a result of rapid technological developments in the health ecosystem? Is it safe to ensure patient safety and sustainability of care through professional changes? It is stated that it brings to mind the questions [7,23]. There is also a need to study how professionals position their professions in the face of this developing technology, their desire to benefit from this technology, and the impact of technological developments on employment in their professions.

The literature review lacks a study that examines the perspectives of students in the faculty of health sciences regarding AI and unemployment anxiety caused by technological advancements. In this framework, it is thought that determining the students' view of AI and unemployment anxiety due to the development of technology on the way to becoming a health professional will contribute to filling the gap in the literature. In this way, it is evaluated that it will provide useful information for professions to prepare themselves for this technology in the inevitable artificial intelligence revolution, to adapt to changing conditions and to change learning curricula.

The goal of study, it was aimed to determine the health department students' view of AI and their anxiety about technological unemployment.

Materials and Methods

Type and hypotheses of the research

The study is descriptive, with the following statement serving as its main research hypotheses:

- H_1: There are differences between departments in terms of AI readiness scale and sub-dimension scores.
- H_2: There are differences between departments in terms of technological unemployment anxiety scale and sub-dimension scores.
- H_3: There is a significant relationship between the departments studied, AI readiness and technological unemployment anxiety.

Time of research, sample selection, number of sampling and data collection

It was aimed to make a comparison between midwifery and nursing departments, which are thought to be least affected by the development of AI, and students studying nutrition and dietetics and exercise and sports sciences (four department groups), which are thought to be most affected by the development of AI. Power analysis determined the number of samples. The snowball sampling method collected the data online between 21 June 2024 and 15 December 2024. Since the study was not limited to any university, the snowball sampling method was preferred due to its advantage in data collection. In accordance with the design of the study, students who were known to be studying in one of the departments of Nutrition and Dietetics, Midwifery, Nursing and Exercise and Sports Sciences were asked to fill out the survey link online.

According to the calculation made using the G*power 3.1 program, the sample size was determined to be at least n=196 (Group 1: Nutrition and Dietetics (n=49), Group 2: Midwifery (n=49), Group 3: Nursing (n=49), Group 4: Exercise and Sports Sciences (n=49)) with an effect size of 0.30, a margin of error of 0.05, a confidence level of 0.95 and a population representativeness of 0.95 [24].

Data collection instruments

The research will utilize a questionnaire form consisting of three parts. In the first part, the 6-question 'Socio-Demographic Information' questionnaires were created by the researcher, and in the second part, the 'Medical AI Readiness Scale' was used. Karaca et al. developed the scale. The scale consists of 22 questions and 4 sub-dimensions (Cognition Factor, Ability Factor, Vision Factor, Ethics Factor). The scale is scored with a 5-point Likert-type response scale. *Cronbach's alpha* coefficient of the scale was calculated as 0.88. The higher the scores obtained from the scale, the higher the readiness for AI [25]. Civelek and Pehlivanolu (2020) developed the 'Technological Unemployment

Anxiety Scale' for the third part. The researchers prepared the scale using a 5-point Likert type, consisting of 12 items. The scale has three sub-dimensions as 'Lack of Technical Skill, Incremental Technological Improvements and Technological Disruption'. *Cronbach's alpha* coefficient of the scale was calculated between 0.82 and 0.90 in the sub-dimensions [26]. The higher the scores obtained from the scale, the higher the technological unemployment anxiety. The necessary permissions (via e-mail) were obtained for the use of the scales.

In this study, *Cronbach's* α internal consistency coefficient was calculated for scale reliability. Cronbach's α was 0.93 for the AI readiness scale and 0.95 for the technological unemployment scale.

Ethics committee approval

Necessary permission for the study was obtained from Malatya Turgut Özal University Non-Interventional Clinical Research Ethics Committee with the letter dated 02.06.2024 and numbered E-30785963-020-226535. Necessary information was provided to the participants and their approval was obtained before the survey was administered. Participants were required to read the information text and tick the checkbox indicating that they voluntarily participated in the study before the data filling stage. There is no conflict of interest between the participants and the authors.

Statistical analysis

The analyses of the data included in the study were carried out with SPSS (Statistical Program in Social Sciences) 25 programme. The *Kolmogorov Smirnov Test* was used to check whether the data were normally distributed. The significance level (p) was accepted as 0.05 for comparison tests. Mean, standard deviation, number and percentages were used as descriptive values.

Since the variables were normally distributed according to the groups (p>0.05), the analyses were continued with parametric test methods. ANOVA test was used in group comparisons. After ANOVA test, pairwise comparisons (*post-hoc*) were made with *Tukey test*. For categorical variables, cross tabulations were created and *chi-square* analysis was applied.

Since the variables included in the study showed normal distribution, *Pearson* correlation coefficient was used. Correlation coefficients are criteria that give information about the strength (degree) and direction of the relationship between variables. Correlation coefficients vary between -1 and +1. Signs indicate the direction of the relationship. While the strength of the relationship increases as it approaches -1 and +1, it decreases as it approaches 0. Values frequently used in the evaluation of the findings are interpreted as 0.00 - 0.19 no relationship (insignificantly low relationship), 0.20 - 0.39 weak relationship, 0.40 - 0.69 moderate relationship, 0.70 - 0.89 strong relationship and 0.90 - 1.00 very strong relationship [27]. In a positive relationship, both variables increase and decrease at the same level, while in a negative relationship, one variable increases while the other decreases.

Results

A total of n=206 participants participated in the study. 86.89% (n=179) of the participants were female and 13.11% (n=27) were male. The age range was 18-38 years. Sociodemographic data of the participants are given in Table 1.

The study included n=53 students from the department of nutrition and dietetics, n=50 students from the department of midwifery, 52 students from the department of nursing, and 51 students from the department of exercise and sports sciences. A statistically significant difference was found between the departments (nutrition and dietetics, nursing, midwifery, exercise and sports sciences) in terms of age (p<0.05). According to intragroup comparisons, a difference was found between the departments of nutrition-dietetics and the department of exercise-sports sciences (p=0.002) (Table 1).

A statistical difference was found between the departments (nutrition and dietetics, nursing, midwifery, exercise and sport sciences) according to gender, income, class and time spent on the internet daily (p<0.05) (Table 2).

Since the differences between the groups were significant in the technological unemployment anxiety scale and its sub-dimensions, namely, lack of technological skills, intra-group

Table 1. Sociodemographic characteristics of the students participating in the study.

Variable	Group	Nutrition and Dietetics		Midwifery		Nursing		Exercise and Sports Sciences	
		n	%	n	%	n	%	n	%
Gender	Female	52	98.1	50	100.0	43	82.7	34	66.7
	Male	1	1.9			9	17.3	17	33.3
Classroom	Grade 1	8	15.1	36	72.0	31	59.6	24	47.1
	Grade 2	9	17.0	14	28.0	11	21.2	27	52.9
	Grade 3	21	39.6			10	19.2		
	Grade 4	15	28.3						
	Total	53	100.0	50	100.0	52	100.0	51	100.0
Daily Internet Usage	Less than 1 hour	0	0.0	1	2.0	0	0.0	0	0.0
	1-2 hours	2	3.8	0	0.0	5	9.6	3	5.9
	2-3 hours	8	15.1	21	42.0	13	25.0	21	41.2
	3-4 hours	12	22.6	8	16.0	14	26.9	12	23.5
	More than 4 hours	31	58.5	20	40.0	20	38.5	15	29.4
Household income	Under 5000 TL	2	3.8	3	6.0	1	1.9	1	2.0
	Between 5000-10000 TL			4	8.0	4	7.7	9	17.6
	Between 10000-15000 TL	3	5.7	13	26.0	6	11.5	13	25.5
	Between 15000-20000 TL	5	9.4	12	24.0	13	25.0	5	9.8
	Between 20000-25000 TL	2	3.8	5	10.0	4	7.7	3	5.9
	Between 25000-30000 TL	10	18.9	4	8.0	2	3.8	10	19.6
	Between 30000-40000 TL	5	9.4	4	8.0	5	9.6	9	17.6
	Between 40000-50000 TL	11	20.8	1	2.0	11	21.2	1	2.0
	50000 TL and above	15	28.3	4	8.0	6	11.5		
Total		53	25.7	50	24.3	52	25.2	51	24.8

Variable	Nutrition and Dietetics		Midwifery		Nursing		Exercise and Sports Sciences	
Age	Mn ± Sd	(Min - Max)	Mn ± Sd	(Min - Max)	Mn ± Sd	(Min - Max)	Mn ± Sd	(Min - Max)
	21.09 ± 2.31	(18-34)	20.28 ± 3.02	(18-38)	20.67 ± 2.12	(18-29)	19.82 ± 1.29	(18-22)
Test	F=0.289, p=0.033*							
n	53		50		52		51	
%	100		100		100		100	

n; number, %; Percentage, Mn: Mean Sd; Standard deviation, F; ANOVA test value, *p<0.05; There is a statistical difference between the groups.

comparisons were made. After the ANOVA test, *Tukey test* was used for intra-group comparisons and the departments of nutrition and dietetics, nursing, midwifery, exercise and sports sciences were compared pairwise (Table 3).

A statistical difference was found between the midwifery department and the exercise - sports sciences department in the scores of the technologically unemployment anxiety scale (p=0.003) and its sub-dimensions, incremental technological improvements (p=0.001) and technological disruption (p=0.001) (p<0.05) (Table 3).

A statistical difference was found between the nursing and exercise - sports sciences departments in the scores of the technologically unemployment anxiety scale (p=0.004) and its sub-dimension, technological disruption

Table 2. Comparison of sociodemographic characteristics of the students participating in the study.

Variable	Group		Section Read				Total	χ^2	*p*
			Nutrition and Dietetics	Midwifery	Nursing	Exercise and Sports Sciences			
Gender	Female	**n**	52	50	43	34	179	27.857	**0.001***
		%	98.1%	100.0%	82.7%	66.7%	86.9%		
	Male	**n**	1	0	9	17	27		
		%	1.9%	0.0%	17.3%	33.3%	13.1%		
Classroom	Grade 1	**n**	8	36	31	24	99	37.638	**0.001***
		%	15.1%	72.0%	59.6%	47.1%	48.1%		
	Grade 2	**n**	9	14	11	27	61		
		%	17.0%	28.0%	21.2%	52.9%	29.6%		
	Grade 3	**n**	21	0	10	0	31		
		%	39.6%	0.0%	19.2%	0.0%	15.0%		
	Grade 4	**n**	15	0	0	0	15		
		%	28.3%	0.0%	0.0%	0.0%	7.3%		
Daily Internet Usage	Less than 1 hour	**n**	0	1	0	0	1	25.993	**0.011***
		%	0.0%	2.0%	0.0%	0.0%	0.5%		
	1-2 hours	**n**	2	0	5	3	10		
		%	3.8%	0.0%	9.6%	5.9%	4.9%		
	2-3 hours	**n**	8	21	13	21	63		
		%	15.1%	42.0%	25.0%	41.2%	30.6%		
	3-4 hours	**n**	12	8	14	12	46		
		%	22.6%	16.0%	26.9%	23.5%	22.3%		
	More than 4 hours	**n**	31	20	20	15	86		
		%	58.5%	40.0%	38.5%	29.4%	41.7%		
Household income	Under 5000 TL	**n**	0	3	1	1	5	17.809	**0.001***
		%	0.0%	6.0%	1.9%	2.0%	2.4%		
	Between 5000-10000 TL	**n**	2	4	4	9	19		
		%	3.8%	8.0%	7.7%	17.6%	9.2%		
	Between 10000-15000 TL	**n**	3	13	6	13	35		
		%	5.7%	26.0%	11.5%	25.5%	17.0%		
	Between 15000-20000 TL	**n**	5	12	13	5	35		
		%	9.4%	24.0%	25.0%	9.8%	17.0%		
	Between 20000-25000 TL	**n**	2	5	4	3	14		
		%	3.8%	10.0%	7.7%	5.9%	6.8%		
	Between 25000-30000 TL	**n**	10	4	2	10	26		
		%	18.9%	8.0%	3.8%	19.6%	12.6%		
	Between 30000-40000 TL	**n**	5	4	5	9	23		
		%	9.4%	8.0%	9.6%	17.6%	11.2%		
	Between 40000-50000 TL	**n**	11	1	11	1	24		
		%	20.8%	2.0%	21.2%	2.0%	11.7%		
	50000 TL and above	**n**	15	4	6	0	25		
		%	28.3%	8.0%	11.5%	0.0%	12.1%		
Total		**n**	53	50	52	51	206		
		%	100.0%	100.0%	100.0%	100.0%	100.0%		

n; number, %; Percentage, *p<0.05; there is a statistical difference between the groups.

(p=0.009) (p<0.05) (Table 3).

In the comparisons made between the departments (nutrition and dietetics, nursing, midwifery, exercise and sports sciences) in the technological unemployment anxiety scale and its sub-dimensions, which are lack of technological skills, incremental technological improvements, technological disruption, the AI readiness scale and its sub-dimensions, which are cognition, ability, vision and ethics scores, it was observed that the effect sizes were lower than 0.10 and had a low level of effect size (Table 3).

Since the differences between the groups in the cognitive and predictive scores, which are sub-dimensions of the medical artificial intelligence readiness scale, were significant, intra-group comparisons were made. After the ANOVA

Table 3. Comparison of the technological unemployment anxiety scale and sub-dimension scores of the students participating in the study by groups.

Variables	Groups	Mn ± Sd	F	*p*-Value	ɳ2
Lack of Technical Skill	Nutrition and Dietetics	8.28 ± 2.76	***4.977***	***0.002****	0.069
	Midwifery	9.22 ± 2.89			
	Nursing	9.08 ± 2.57			
	Exercise and Sports Sciences	10.29 ± 2.44			
Incremental Technological Improvements	Nutrition and Dietetics	11.49 ± 3.35	***5.740***	***0.001****	0.079
	Midwifery	10.52 ± 3.2			
	Nursing	11.71 ± 3.79			
	Exercise and Sports Sciences	13.35 ± 3.6			
Technological Disruption	Nutrition and Dietetics	10.42 ± 3.14	***6.340***	***0.001****	0.086
	Midwifery	9.9 ± 3.42			
	Nursing	8.94 ± 3.34			
	Exercise and Sports Sciences	11.76 ± 3.5			
Technological Unemployment Anxiety	Nutrition and Dietetics	30.19 ± 7.72	***6.790***	***0.001****	0.092
	Midwifery	29.64 ± 7.28			
	Nursing	29.73 ± 8.14			
	Exercise and Sports Sciences	35.41 ± 7.42			

n; number, %; Percentage, Mn: Mean Sd; Standard deviation, F; ANOVA test value, *p<0.05; There is a statistica difference between the groups, η^2; eta coefficient (effect size).

Table 4. Comparison of medical artificial intelligence readiness scale and sub-dimension scores of students participating in the study by groups.

Variables	Groups	Mn ± Sd	F	*p*-Value	η^2
Cognition	Nutrition and Dietetics	23.43 ± 5.5	***4.193***	***0.007****	0.059
	Midwifery	23.04 ± 4.3			
	Nursing	24.06 ± 5.75			
	Exercise and Sports Sciences	26.25 ± 4.23			
Ability	Nutrition and Dietetics	28.28 ± 5.32	1.788	0.151	0.026
	Midwifery	26.78 ± 4.6			
	Nursing	27.35 ± 6.93			
	Exercise and Sports Sciences	29.02 ± 3.72			
Vision	Nutrition and Dietetics	9.81 ± 2.41	***2.949***	***0.034****	0.042
	Midwifery	9.6 ± 2.25			
	Nursing	10.5 ± 2.32			
	Exercise and Sports Sciences	10.67 ± 1.52			
Ethics	Nutrition and Dietetics	10.89 ± 2.15	0.392	0.759	0.006
	Midwifery	10.52 ± 1.95			
	Nursing	10.5 ± 2.76			
	Exercise and Sports Sciences	10.51 ± 1.71			
Medical Artificial Intelligence Readiness	Nutrition and Dietetics	72.42 ± 13.81	2.367	0.072	0.034
	Midwifery	69.94 ± 10.38			
	Nursing	72.4 ± 15.79			
	Exercise and Sports Sciences	76.45 ± 8.39			

n; number, %; Percentage, Mn: Mean Sd; Standard deviation, F; ANOVA test value, *p<0.05; There is a statistical difference between the groups, η^2; eta coefficient (effect size).

test, *the Tukey test* was used in intra-group comparisons and the nutrition and dietetics, nursing, midwifery, exercise and sports sciences departments were compared pairwise (Table 4).

A statistical difference was found between the midwifery department and the exercise - sports sciences department in the cognition and vision score (p=0.003), which is a sub-dimension of the medical artificial intelligence readiness scale (p<0.05) (Table 4).

In the comparisons made between the departments (nutrition and dietetics, nursing, midwifery, exercise and sports sciences) in the medical artificial intelligence readiness scale and

its sub-dimensions, cognition, ability, vision and ethics scores, it was observed that the effect sizes were lower than 0.10 and had a low level of effect size (Table 4).

No statistical difference was found between the departments (nutrition and dietetics, nursing, midwifery, exercise and sports sciences) in the AI readiness scale and its sub-dimensions, ability and ethics scores (p>0.05) (Table 4).

Sports sciences has the highest score in the technological unemployment anxiety scale and its sub-dimensions, which are lack of technological skills, incremental technological improvements, technological disruption, AI readiness scale and its sub-dimensions, which are cognition, ability, and vision, while nutrition and dietetics has the highest score in ethics score (Table 4).

Relationships between scales by departments

A statistically significant negative relationship was found between the technological skills deficiency, which is the sub-dimension of the technological unemployment anxiety scale, and the medical AI readiness scale skill scores (p<0.05). As technological skill deficiency scores increase, AI readiness scale skill scores will decrease (Table 5).

There was a statistically significant negative relationship between technological skills deficiency, which is the sub-dimension of the technological unemployment anxiety scale, and cognitive and skill scores, which are the cognitive and skill scores of the medical AI readiness scale and its sub-dimensions (p<0.05). As the technological skills deficiency scores increase, the cognitive and skill scores of the medical AI readiness scale and its sub-dimensions will decrease (Table 6).

There was a statistically significant negative relationship between technological skills deficiency, which is the sub-dimension of the technological unemployment anxiety scale, and cognitive, skill, foresight and ethics scores, which are the cognitive, skill, foresight and ethics scores of the medical AI readiness scale and its sub-dimensions (p<0.05). As the technological skills deficiency scores increase, the scores of the medical AI readiness scale and its sub-dimensions of cognitive, skill, foresight and ethics will decrease (Table 7).

There was a statistically significant negative relationship between the cognitive scores, which is the sub-dimension of the medical AI readiness scale, and the technological unemployment anxiety scale and its sub-dimensions of technological skills deficiency, continuous technological developments, destructive technological developments scores (p<0.05). As

Table 5. Correlation analysis between scale scores for nutrition and dietetics students.

Points	Value	Cognition	Ability	Vision	Ethics	Medical AI Readiness
Lack of Technical Skill	r	-0.189	***-0.312****	-0.185	-0.059	-0.237
	p	0.174	***0.023***	0.184	0.673	0.087
Incremental Technological Improvements	r	0.023	0.017	0.186	0.139	0.070
	p	0.872	0.905	0.183	0.321	0.621
Technological Disruption	r	-0.128	-0.168	0.031	-0.013	-0.112
	p	0.363	0.228	0.826	0.927	0.424
Technological Unemployment Anxiety	r	-0.110	-0.173	0.027	0.034	-0.100
	p	0.433	0.216	0.849	0.810	0.475

r; *Pearson* correlation coefficient, *p<0.05; There is a statistically significant relationship between the scores.

Table 6. Correlation analysis between scale scores for midwifery students.

Points	Value	Cognition	Ability	Vision	Ethics	Medical AI Readiness
Lack of Technical Skill	r	***-0.385****	***-0.311****	-0.030	-0.256	***-0.313****
	p	***0.035***	***0.028***	0.835	0.073	***0.025***
Incremental Technological Improvements	r	-0.125	-0.002	-0.217	-0.015	-0.102
	p	0.389	0.990	0.130	0.919	0.480
Technological Disruption	r	-0.233	-0.206	-0.122	0.045	-0.206
	p	0.103	0.151	0.398	0.758	0.151
Technological Unemployment Anxiety	r	-0.277	-0.221	-0.165	-0.087	-0.265
	p	0.051	0.123	0.253	0.547	0.063

r; *Pearson* correlation coefficient, *p<0.05; There is a statistically significant relationship between the scores.

Table 7. Correlation analysis between scale scores for nursing students.

Points	Value	Cognition	Ability	Vision	Ethics	Medical AI Readiness
Lack of Technical Skill	r	***-0.490****	***-0.434****	***-0.354****	***-0.381****	***-0.487****
	p	***0.001***	***0.001***	***0.010***	***0.005***	***0.001***
Incremental Technological Improvements	r	***-0.303****	-0.069	0.128	0.108	-0.103
	p	***0.029***	0.629	0.365	0.447	0.468
Technological Disruption	r	***-0.293****	-0.145	-0.039	0.027	-0.171
	p	***0.035***	0.305	0.783	0.852	0.225
Technological Unemployment Anxiety	r	***-0.416****	-0.229	-0.068	-0.059	-0.272
	p	**0.002**	0.103	0.630	0.676	0.051

r; *Pearson* correlation coefficient,*p<0.05; There is a statistically significant relationship between the scores.

Table 8. Correlation analysis between scale scores for exercise and sports science students.

Points	Value	Cognition	Ability	Vision	Ethics	Medical AI Readiness
Lack of Technical Skill	r	0.004	0.147	-0.189	0.035	0.040
	p	0.977	0.303	0.184	0.806	0.778
Incremental Technological Improvements	r	0.173	0.050	***0.472****	***0.554****	***0.308****
	p	0.225	0.726	***0.000***	***0.000***	***0.028***
Technological Disruption	r	0.170	-0.061	***0.478****	***0.297****	0.206
	p	0.232	0.671	***0.000***	***0.034***	0.147
Technological Unemployment Anxiety	r	0.165	0.044	***0.392****	***0.420****	0.260
	p	0.246	0.760	***0.004***	***0.002***	0.066

r; *Pearson* correlation coefficient, *p<0.05; There is a statistically significant relationship between the scores.

the cognitive scores, which are the sub-dimension of the medical AI readiness scale, increase, the technological unemployment anxiety scale and its sub-dimensions of technological skills deficiency, continuous technological developments, destructive technological developments scores will decrease (Table 7).

There was a statistically significant positive relationship between the scores of continuous technological developments, which is the sub-dimension of the technological unemployment anxiety scale, and the scores of foresight and ethics, which are the medical AI readiness scale and its sub-dimensions (p<0.05). As the scores of continuous technological developments, which is the sub-dimension of the technological-induced unemployment anxiety scale, increase, the scores of the medical AI readiness scale and its sub-dimensions, foresight and ethics, will increase (Table 8).

It was found that there was a statistically significant positive relationship (p<0.05) between the scores of foresight and ethics on the medical AI readiness scale and the scores of destructive technological developments on the technological unemployment anxiety scale. The technological unemployment anxiety scale has sub-dimensions that measure how worried people are about bad technological developments. As the scores for these sub-dimensions rise, so will the scores for medical AI readiness and foresight (Table 8).

It was found that the scores on the technological unemployment anxiety scale were significantly linked to the scores on the foresight and ethics sub-dimensions of the medical AI readiness scale (p<0.05). Table 8 shows that as the technological unemployment anxiety scale scores go up, so will the foresight and ethics scores, which are parts of the medical AI readiness scale.

Discussion

AI is becoming more and more involved in our daily lives and this increase is reflected in the field of health. Due to the applications in the field of health technologies supported by AI, health professionals need to use these technologies effectively and have sufficient knowledge about their effects on the patient, health system and society [28].

In a study conducted by Özbek Güven et al. (2024) on students in the department of medicine, the AI readiness score was determined as 72.03. Demir Kaymak et al. (2024) conducted a study on midwifery and nursing students, and the AI readiness score of nursing students was determined as 72.03 and the score of midwifery students as 69.82 [14,29]. In this study, the AI

readiness score of nursing students was 72.40 and the AI readiness score of midwifery students was 69.94. The study reveals similar results. There was no significant relationship between the general score of AI readiness and the departments in our study. However, the fact that the scores of students in the midwifery department were relatively low could mean that these students are less interested in AI because the midwifery profession is more based on practice and will be less affected by today's technologies that use AI. The cognitive and foresight dimensions, which are parts of the AI readiness scale, showed a big difference between the departments. Also, students from the nursing department did better than students from the midwifery department on both of these dimensions, which supports this point of view.

In line with our study question, AI readiness scores were calculated as 76.45 in exercise and sports sciences, 72.42 in nutrition and dietetics, 72.42 in nursing and 69.94 in midwifery. However, it was determined that there was no significant difference between AI readiness scores between departments and H1 hypothesis was rejected. Again, as a result of the study, a negative and statistically significant relationship was found between the skill scores of the students in the departments of nutrition and dietetics, midwifery and nursing from the sub-dimensions of the AI readiness scale and the lack of technological skills, which is the sub-dimension of the technological resource unemployment anxiety scale (p<0.05). A study conducted in 2023 revealed that student nurses' readiness to adopt AI was significantly affected by their self-assessed technological competence, their understanding of AI-supported technologies, and the perceived use of AI in nursing practice [30]. Obiekwe et al. (2024) stated in their study that there was a lack of knowledge about AI among the participants, as the majority of the participants did not receive any formal training on AI [31]. In fact, if students are informed about how they can integrate AI into their future careers and benefit from it, each department's view of AI will change significantly.

In a study conducted by Yılmaz et al. (2021) on health sciences faculty students, it was determined that students expressed their views on the use of AI in health with positive views, negative views, concerns, and a lack of knowledge [28]. Again, in some studies, participants stated that they believed that AI and robots would help nurses in patient care, reduce the workload of nurses, and that they believed that such technologies would not replace nurses but would help them [32,33]. However, other studies indicate that healthcare workers fear the possibility of losing their jobs as AI systems take over routine tasks or the need to adapt to new roles [31,34-38].

Gherheş (2018) found in his study that approximately three-quarters of people think that there will be fewer jobs in the future due to AI and concluded that unemployment anxiety among individuals increases as AI technologies advance [39]. In a panel data study of 33 Organization for Economic Co-operation and Development (OECD) countries, Bordot (2022) found that robots and AI are positively related to the total unemployment rate [40]. In this study, it was determined that there was a significant difference between the students of the department of exercise and sports sciences and the students of the departments of nutrition and dietetics, midwifery and nursing in the technological unemployment anxiety scale, but there was no significant difference between the departments of nutrition and dietetics, midwifery and nursing. It was determined that the highest technological unemployment anxiety scale score was found in exercise and sport sciences students with 35.41, and the lowest score was found in midwifery students with 29.64. In line with these results, H_2 hypothesis was accepted. The results once again show that there is a link between the status of jobs being changed by AI and technology-induced unemployment anxiety in some sub-dimensions. However, the lack of a link between the overall scores does not support the H_3 hypothesis. It can be said that this study partially overlaps with the study conducted by Gherheş (2018). It can be inferred that as the students' anxiety that AI will take their place in the performance of their own professions in the future increases, their readiness for AI decreases.

The study results are limited to the university student group it was conducted in. Again, since

the study was conducted using the snowball sampling method, which is one of the improbable sampling methods, there may be limitations arising from the sampling method.

Conclusion

The study concludes that an increase in technological unemployment anxiety impacts the preparedness for AI. It was determined that the department with the highest technological unemployment anxiety was in exercise and sports sciences, and the least anxiety was in the midwifery department. Another sub-dimension of the AI readiness scale, cognitive and foresight, showed a significant relationship between departments.

It is thought that the implementation of formal training on how AI can affect students' professions and how to benefit from it will help reduce technology-related unemployment anxiety. In this direction, it would be useful to include courses such as usage areas of artificial intelligence, artificial intelligence and ethics, artificial intelligence command language and robotics in the curricula of departments in the faculty of health sciences. In this way, students can be informed about what artificial intelligence is and how they should use it. In addition, it is recommended that these trainings should include commanding artificial intelligence and practical training on the use of artificial intelligence integrated robotic technologies. Again, it would be useful to use artificial intelligence supported simulations in students' vocational courses. In this way, it is thought that it will be possible to show how this technology can be utilized in the performance of professions, not as a competitor in the inevitable move towards the age of artificial intelligence.

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Conflict of interest

There is no conflict of interest among the authors.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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