Mediterranean Nursing and Midwifery

Mediterr Nurs Midwifery DOI: 10.4274/MNM.2025.25389

ORIGINAL ARTICLE

The Relationship Between Professional Competency, Work Engagement and Perceived Future Employability in Nursing Students

Hemşirelik Öğrencilerinin Mesleki Yetkinlik, İşle Bütünleşme ve Gelecekteki İstihdam Edilebilirliği Arasındaki İlişki

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Abstract

Objective: To examine the relationship between professional competency, work engagement and perceived future employability of nursing students and the mediating role of work engagement.

Method: A cross-sectional correlational study was conducted in 2022 among 322 final-year nursing students. Data were obtained via an online survey using the Student Information Form, the Nursing Students' Professional Competence Self-Assessment scale, the Utrecht Work Engagement scale, and the Perceived Future Employment scale. The data were analyzed using descriptive statistics, Spearman's and Pearson's correlations, and multiple linear regression analysis. The mediating role was analyzed with Hayes' PROCESS Model 4.

Results: Demographic and academic characteristics, professional competency and work engagement scores of the students explained 53% of the perceived future employability. Professional competency had a direct effect on work engagement and perceived future employability. Moreover, work engagement had a direct effect on the perceived future employability. Although work engagement had a significant effect on the relationship between professional competency and perceived future employability, no mediating role was detected.

Conclusion: The study revealed the importance of professional competency and work engagement for nursing students' perception of future employability. It also highlights the role of work engagement and guides future studies aimed at supporting the involvement of nursing students in educational processes. Nurse educators and educational managers should organize educational programs that enhance students' professional competencies and ensure their engagement in nursing.

Keywords: Employability, nursing student, perceived future employability, professional competency, work engagement

Öz

Amaç: Bu çalışmanın amacı hemşirelik öğrencilerinin mesleki yetkinlik, işle bütünleşme ve gelecekteki istihdam edilebilirlik algısı arasındaki ilişkiyi ve işle bütünleşmenin bu ilişkideki aracılık rolünü incelemektir.

Yöntem: Çalışma, 2022 yılında kesitsel ve ilişkisel bir tasarım kullanılarak 322 son sınıf hemşirelik öğrencisiyle yürütüldü. Veriler, Öğrenci Bilgi formu, Hemşirelik Öğrencileri Yetkinlik ölçeği, Utrecht İşle Bütünleşme Ölçeği-Öğrenci formu ve Algılanan Gelecekteki İstihdam Edilebilirlik ölçeği ile çevrimiçi olarak elde edildi. Veriler, tanımlayıcı istatistikler, Spearman ve Pearson korelasyonu, çoklu doğrusal regresyon analizi ile analiz edildi. Aracılık analizlerini değerlendirmek için Hayes'in model 4'ü kullanıldı.

Bulgular: Öğrencilerin demografik ve akademik özellikleri, mesleki yetkinlik ve işle bütünleşme puanları gelecekteki istihdam edilebilirlik algısının %53'ünü açıkladı. Mesleki yetkinlik, isle bütünleşme ve gelecekteki istihdam edilebilirlik algısı üzerinde doğrudan bir etkiye sahipti. Ayrıca, işle bütünleşmenin gelecekteki istihdam edilebilirlik algısı üzerinde doğrudan bir etkisi vardı. İşle bütünleşmenin, mesleki yetkinlik ile algılanan istihdam edilebilirlik arasında anlamlı bir etkisi olmasına karşın aracılık rolü saptanmadı.

Sonuç: Çalışma, mesleki yetkinlik ve işle bütünleşmenin hemşirelik öğrencilerinin gelecekteki istihdam edilebilirlik algıları üzerindeki önemini ortaya koymaktadır. Ayrıca, işle bütünleşmenin rolüne dikkat çekmekte ve hemşirelik öğrencilerinin eğitim süreçlerine katılımını desteklemek için gelecekteki çalışmalara rehberlik etmektedir. Hemşire eğitimciler ve eğitim yöneticileri, eğitim süreçlerini öğrencilerin mesleki yetkinliklerini geliştirecek ve hemşirelikle bütünleşmeyi sağlayacak şekilde düzenlemelidir.

Anahtar Kelimeler: İstihdam edilebilirlik, hemşirelik öğrencisi, algılanan gelecekteki istihdam edilebilirlik, mesleki yetkinlik, işle bütünleşme

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Cite this article as: Gül D, Sönmez B, Kumral Özçelik S. The relationship between professional competency, work engagement and perceived future employability in nursing students. Mediterr Nurs Midwifery. [Epub Ahead of Print]

Received: 20.04.2025
Accepted: 28.11.2025
Epub: 28.11.2025

Introduction

The recent transformation of the labor market, characterized by rapid technological change and social and economic instability, has greatly influenced the structure of career paths (1). While lifetime employment in the same organization lost its importance in conceptions of career in the 20th century (2), the modern 21st-century understanding has replaced it with employment in a nonlinear, multifaceted, and unstable or variable environment (1).

It is stated that the participation rate of young people (aged 15-24) in the labour force shows a gradual decline (3). According to the Sustainable Development Goals (SDG) Report (4), 22.3% of the world's youth are neither in education, employment, nor training (4). In the report published by the UN, lifelong learning opportunities are promoted within the framework of quality education, aiming to increase the employability of young people by 2030 through emphasis on the development of their professional competencies (5). Accordingly, recent changes require students to take an active role in creating their own careers in order to be employable and to exhibit more effort, knowledge, skills, and confidence than were required in previous periods (6). They are thus expected to assume individual responsibility and manage their own careers (7,8).

The International Council of Nursing (9) estimates a shortage of 14 million nurses worldwide due to current problems in the nursing profession, ongoing pressures from the pandemic, and an aging workforce. The coronavirus disease-2019 (COVID-19) pandemic has accelerated the global shortage of nurses, further highlighting the impacts of this shortage on health care (10,11). To achieve the SDG (12), the importance of developing a future workforce plan that will support and sustain the nursing workforce, including nurse supply and employment, has been underscored (10,12). Therefore, the World Health Organization (WHO) (13) states that all countries should increase their capacity to employ and retain nursing students upon graduation. Accordingly, engagement is considered a key factor in attracting and retaining the nursing workforce (11). Due to the evolving understanding of careers, job expectations have changed (14), and different approaches need to be adopted to ensure that nursing is considered a desirable career choice (15).

Main Points

- Professional competency had a direct effect on work engagement and perceived future employability.
- Work engagement had a direct effect on perceived future employability.
- Although work engagement played a significant role in the relationship between professional competency and perceived future employability, no mediating effect was detected.
- To promote the employment and retention of nursing graduates, strategies should be developed to improve students' professional competence throughout their education, to build self-confidence, and to help them engage with the profession.

Perceived Future Employability

The conservation of resources theory (16) defines employability as a personal resource with positive associations with both work and general well-being (17). Perceived future employability is defined as young adults evaluating their own skills (general and vocational skills related to finding and maintaining a job), experiences (job, work, and life experiences), communication networks (scope and usefulness of an individual's work and social connections), personal characteristics (capacities for self-knowledge and skill development), knowledge of the labor market (awareness of opportunities), and the credibility of institutions after completing their education or training (7,18). Future employability refers to an individual's assessment of their employability at a future point in time. Accordingly, young adults predict and assess future employment, employment retention, re-employment, and promotion potential as part of career development to successfully enter the labor market and improve their career competitiveness (19). In a study, university students students perceive their employability to be high (20). Onyishi et al. (21) have found that individuals who consider themselves talented, who have control over their lives, and who have a high sense of self-worth and emotional stability also have higher perceived employability. Ma and Bennett (22) state that students who perceive themselves as more employable exhibit higher academic engagement and lower levels of stress. Ye and Jiang (23) found that knowledge, professional skills (e.g., ability to apply nursing practices), general skills (e.g., social adaptability), and personal traits (e.g., ethics and self-efficacy) could be used to assess the employability of nursing students. Previous studies with university students have found positive relationships between perceived employability and career adaptability (24); between career ambition and university commitment (18); and between perceived employability and extraversion (25). Positive associations were also reported between well-being and life satisfaction (26) and between perceived employability and mental well-being, university reputation, career planning, organizational commitment, academic self-efficacy (17), proactive personality, the clinical learning environment (24), decision-making skills (20), social and human capital, and career self-management (22). A negative relationship with career distress was reported (18). In another study, a positive relationship was found between the perceived competency of university students and their future employability (8). Therefore, improving students' employability is of great importance to both students and higher education institutions (27).

Professional Competency

WHO (28) emphasizes the necessity of educating competent nurses to meet community health needs. Accordingly, in health care settings, it is necessary to identify the competencies required for the professional roles of nursing students to prepare them for future duties (29). Determining the competencies of nursing students can shorten the adaptation period of newly graduated nurses

in the clinic (30). This affects nursing students' decisions to remain in the nursing profession after graduation (31). Ma et al. (24) state that the clinical learning environment, which plays a vital role in developing nursing students' professional competency, has a positive effect on perceived employability. In a study conducted in Israel, the proportion of nursing students who preferred to work in hospitals after graduation increased by the fourth year compared with the measurement taken at the beginning of their education (31). In previous studies, nursing students'competencies were found to be at a good (32), while those conducted during the pandemic were found to be at moderate (33,34). In a study conducted during the pandemic, as the competency levels of nursing students increased, their probability of voluntarily starting to work increased (35).

Work Engagement

From a psychological point of view, a student's basic activities (e.g., attending classes, doing assignments, and passing exams) can be categorized as "work", and students' interest in schoolwork is considered similar to employees' interest in their work (36). Work engagement is a multidimensional concept that promotes students' success and experience, influences their academic progress, and involves their psychological participation in the learning process, and is associated with positive behaviors and academic success (37,38). Work engagement in students includes vigor (energy while studying), dedication (enthusiastic participation in lessons and considering one's work meaningful), and absorption (performing with maximal concentration, being involved in their lesson plan, and not understanding how time passes) (36). According to Chapman, students who are engaged in work choose tasks in accordance with their competencies, take action when given the opportunity, and show intense effort and focus on practicing what they have learned (39). In studies conducted with university students, academic engagement (22), university commitment (18), and student engagement (17) were each positively associated with future employability.

There is limited research examining the perceived future employability of young adults who have not yet completed their university education and who are still preparing for their future while making decisions based on their perceptions (18). A small number of studies have investigated the relationship between competency (8) and work engagement and employability (17,22). However, the literature search identified no studies involving nursing students that investigated the relationship between professional competency, work engagement, and perceived future employability. Accordingly, the aim of this research is to investigate the relationship between professional competency, work engagement, and perceived future employability (i), and the mediating role of work engagement in this relationship (ii), among final-year nursing students who completed their university education via distance education for several semesters due to the COVID-19 pandemic. This study draws attention to the need to develop policies to improve the professional competence and work engagement of nursing students, who will constitute the future nursing workforce. It will also help nurse educators evaluate academic processes.

Based on this literature, we formulate the research hypotheses by the following:

H1. Demographic and academic characteristics are associated with perceived future employability.

H2. Professional competency is associated work engagement and perceived future employability.

H3. Work engagement is associated with perceived future employability.

H4. Work engagement plays a mediating role between professional competency and perceived future employability.

Material and Method

Study Design

This study employed a cross-sectional, correlational design.

Participants

The study population consisted of final-year students enrolled in the nursing departments of two state universities (n=569) and three foundation universities (n=133) in İstanbul during the 2021-2022 academic year (n total=702). A non-probability sampling method was used to select universities. The sample size was calculated using the formula for a known population, with a 95% confidence level and a 0.05 margin of error, resulting in a required minimum sample of 251 students. The study sample consisted of students in the final year of nursing faculties who were selected by convenience sampling and who agreed to participate in the study (n=322; total response rate =44.86%).

Data Collection

The data were collected online between January and June 2022, using the Student Information Form, the Competency Inventory of Nursing Students (CINS), the Utrecht Work Engagement Scale-Student Forms (UWES-SF), and the Perceived Future Employability Scale (PFES). The informed consent form and the data collection instruments were transferred to a Google Form, and the link was shared with the students via WhatsApp. They were informed about the research methods and that their participation was voluntary. Participants were assured that their confidentiality would be maintained during the research process. The data were securely stored on a password-protected computer. Throughout the data analysis process, confidentiality was ensured by the statistical consultant. The total time required to complete all measures was approximately 20 to 25 minutes.

Data Collection Tools

Student Information Form

The Student Information Form consisted of nine questions about age, gender, university, high school, grade point average, family income level, place of childhood, willingness to choose nursing, and intent to work as a nurse after graduation.

Competency Inventory of Nursing Students

Hsu and Hsieh (40) developed CINS to measure the level of competency in studies, and Ülker (41) adapted it into Turkish. The scale consists of 43 items and is responded to using a 7-point Likert-type scale (1 = strongly disagree to 7 = strongly agree). The subscales are as follows: "clinical biomedical science, general clinical skills, critical thinking and reasoning, caring, ethics and accountability, and lifelong learning". Overall scores on the scale range from 43 to 301 points. Higher scores indicate a high level of competence, whereas lower scores indicate inadequate competence. The Cronbach's α of the original scale was between 0.91 and 0.98 (40). The Cronbach's α of the subscales were between 0.79 and 0.97, while it was 0.97 for the overall scale (41). In this study, Cronbach's α of the subscales ranged between 0.81 and 0.96, and it was 0.97 for the overall scale.

Utrecht Work Engagement Scale-Student Forms

UWES-SF, consisting of 9 items, was developed by Schaufeli and Bakker (42) to measure the level of work engagement of students and was adapted to Turkish by Çapri et al. (36). It consists of nine items, with three items in each subscale named vigor, dedication, and absorption. Responses were recorded on a 5-point Likert-type scale (1 = never to 5 = always). Higher scores obtained from the scale indicate an increased level of work engagement, while lower scores indicate decreased work engagement. The Cronbach's α of the original scale ranged between 0.70 and 0.76 for the subscales, and 0.84 for the overall scale (42). In the Turkish adaptation, it was found to range between 0.72 and 0.74 for the subscales and 0.88 for the overall scale (36). In this study, Cronbach's α of the subscales was between 0.73 and 0.85, while it was 0.90 for the overall scale.

Perceived Future Employability Scale

PFES was developed by Gunawan et al. (18) to measure young adults' perceptions of future employability; its Turkish adaptation was conducted by Alkın et al. (43). The scale consists of 6 subscales, each comprising 4 items (24 items total), and is completed using a 6-point Likert-type scale (1 = strongly disagree to 6 = strongly agree). The subscales are as follows: "perceived future network, perceived expected experiences, perceived future personal characteristics, anticipated reputation of educational institutions, perceived future labor market knowledge, and perceived future skills". Higher scores indicate that young adults are ready for work or working life and that their views on their career planning and future are positive. The Cronbach's α of the original scale was 0.95 for the overall scale, while it ranged between 0.88 and 0.95 in the subscales (18). In the Turkish adaptation, values ranged from 0.82 to 0.93 for the subscales and were 0.95 for the overall scale (43). In this study, Cronbach's α of the subscales was between 0.88 and 0.92, while it was 0.96 for the overall scale.

Statistical Analysis

The SPSS 26.0 (IBM® SPSS® Corp, Armonk, NY) program was used to analyze the data. SPSS PROCESS v4.1 was used for the mediation analysis in accordance with Hayes' (44) model 4. Normality was assessed using skewness and kurtosis (absolute values <2) (45). All scales and subscales, except Professional Competency, were normally distributed. Descriptive statistics were used to summarize student characteristics and scale scores. Correlations between the scales were determined using Spearman's and Pearson's correlation coefficients. Correlation coefficients were classified as follows: <0.20, very weak; 0.20-0.39, weak; 0.40-0.59, moderate; 0.60-0.79, strong; and ≥0.80, very strong (46). The Cronbach's α was used to identify the internal consistency of the scales. To assess the multicollinearity among the variables, the variance inflation factor and tolerance values were calculated. Multiple linear regression analysis was used to examine variables influencing perceived future employability. Variables related to the students' demographic and academic characteristics were added to the regression model as independent variables using the enter method. Continuous variables were added directly to the regression model, while ordinal and nominal variables were added as dummy variables. The overall score obtained from the PFES was included in the models as the dependent variable, while other variables served as independent variables. The mediating role of work engagement was examined using 5,000 bootstrap samples at the 95% confidence level, and the Variance Accounted For (VAF) was calculated to assess mediation. VAF <0.20 indicates no mediating effect, 0.20-0.80 indicates a partial mediating effect, and ≥0.80 indicates a full mediating effect (47).

Ethical Considerations

The ethics committee approval İstanbul University-Cerrahpaşa Rectorate Social and Human Sciences Research Ethics Committee Presidency (date: 12.10.2021, approval number: 207759) was obtained. Written institutional permission was obtained from the faculty administrations where the research was conducted. Permission was obtained by e-mail from the authors who developed the scale or its adaptation. The students were informed about the research via an informed consent form (research purpose, duration, voluntary participation, confidentiality, access to the researcher, the right to withdraw at any time, etc.) and were permitted to complete the data collection instruments after providing consent to participate via a Google Form. No monetary compensation or other reward was offered for study participation. All procedures were carried out in compliance with comparable ethical norms or with the 1964 Helsinki Declaration and its subsequent revisions.

Results

Nursing Students Characteristics

The majority of the 322 students were aged 18-23 years (85.1%); the mean age was 22.33 years [standard deviation (SD)=2.45; range 18-50 years]. Of the students, 79.8% were female, and 87.9% were studying at a public university. 64.3% graduated from Anatolian high school, and 39.8% lived in the metropolitan area during their childhood. Fifty-two-point eight percent of participants rated their family's income level as moderate. The grade point average of most students ranged from 3.01 to 3.50 (48.8%). 79.8% chose nursing willingly, while 89.8% stated that they planned to work as nurses after graduation.

Descriptive Findings and Correlation Matrix Related to the Scales

The overall CINS score was 266.21 (SD=30.33). The overall average score of the UWES-SF was 2.87 (SD=0.95). The overall PFES score was 121.72 (SD=18.43) (Table 1). Assessment of correlations between overall scale scores showed a very weak but statistically significant correlation between the CINS and the UWES-SF ($r=0.169$, $p<0.05$), and a strong, highly significant correlation between the CINS and the PFES ($r=0.621$, $p<0.05$). A weak but statistically significant correlation was observed between the UWES-SF and PFES ($r=0.270$, $p<0.05$) (Table 1).

Variables Affecting the Perceived Future Employability

In this study, Model 1, consisting of the variables related to the nursing students' characteristics, was significant and explained 9.5% of the perceived future employability ($p<0.001$). In the model, studying at a private university, graduating from a general high school, living in a city during childhood, and not being willing to work as a nurse after graduation were considered significant. Variations in studying at a private university and in living in a city during childhood were associated with increased levels of perceived future employability, whereas graduating from a general high school and not being willing to work as a nurse after graduation were associated with decreased perception levels (Table 2). When the overall CINS score was added to the model (model 2), the model was significant and explained 50.7% of the variance in perceived future employability, representing a 41.2% increase ($p<0.001$). In the model, studying at a private university, living in a city during childhood, and the overall CINS score were significant. When the overall average score of the UWES-SF was added to model 1, the resulting model 3 explained 14.3% of perceived future employability, an increase of 4.8% ($p<0.001$). Only the overall UWES-SF average score was considered significant in the model. When the CINS and UWES-SF were included together in model 1, the resulting model 4 was significant and explained 53% of the perceived future employability (an increase of 43.5%; $p<0.001$). In the model, studying at a private university, living in a city during childhood, the overall CINS score, and the overall average score of the UWES-SF were considered significant (Table 2). Accordingly, H1 was confirmed.

The Mediating Role of Work Engagement

In this study, professional competency had a direct effect on work engagement [$\beta=0.005$; SE=0.001; $p=0.003$; (95% CI: 0.001-0.008)] and on perceived future employability [$\beta=0.426$; SE=0.024; $p<0.001$; (95% CI: 0.378-0.473)], taking into account the mediating role of work engagement in the relationship between professional competency and perceived future employability. H2 was confirmed. Moreover, the direct effect of work engagement on the perceived future employability ($\beta=3.077$; SE=0.763; $p=0.000$; 95% CI: 1.574-4.580) was significant. H3 was also confirmed. A significant indirect effect was found for the mediating role of work commitment. The indirect effect of work engagement (0.015) was low (effect ≤15), and it had no mediating role, according to VAF=0.037 (<0.20) (Table 3). Thus, H4 was not confirmed.

Discussion

Professional Competency of the Nursing Students

The results obtained in the current study were discussed in relation to a limited number of research findings on the subject. The professional competency levels among nursing students were high in this study. This result is similar to the results of other studies that used a similar sample (32,40,48). It is gratifying that students who received distance education during the COVID-19 pandemic rated their professional competency as high. In a study performed in Spain, nursing students had a medium level of competency (49), but in Korea it was found that students' basic competencies were lower compared with pre-COVID-19 levels, while their problem-solving ability (50).

Work Engagement of the Nursing Students

The level of work engagement among nursing students was moderate. Similarly, other studies of nursing students found a moderate level of engagement (11,51-54). A study (55) found that the perceived level of engagement among psychology students in the UK decreased between the first evaluation at the beginning of the academic year and the fourth month. However, in a study conducted during the pandemic, Natarajan and Joseph (56) found high levels of student engagement among nursing students. This result indicated that students were academically focused on their classes, although not to a high degree; they were not completely disinterested and placed importance on school-related tasks.

Table 1.
Descriptive Findings and Correlation Matrix of the Scales (n=322)

Subscale and overall scale	Mean (SD)	Min-Max.	1	2	3	4	5	6	7	8	9
1.CINS-clinical biomedical science	28.37 (4.53)	10-35	α:0.81								
2.CINS-general clinical skills	42.84 (6.16)	21-49	0.654**	α:0.93							
3.CINS-critical thinking and reasoning	23.31 (3.90)	10-28	0.615**	0.761**	α:0.89						
4.CINS- caring	37.34 (5.04)	15-42	0.479**	0.651**	0.612**	α:0.92					
5.CINS-ethics and accountability	97.03 (10.71)	35-105	0.500**	0.688**	0.643**	0.734**	α:0.96				
6.CINS-lifelong learning	37.33 (4.64)	16-42	0.511**	0.597**	0.653**	0.554**	0.712**	α:0.87			
7.CINS total	266.21 (30.33)	111-301	0.729**	0.885**	0.842**	0.801**	0.871**	0.779**	α:0.97		
8.UWES-SF-vigor	2.62 (0.97)	1-5	0.230**	0.113*	0.178**	0.154**	0.056	0.157**	0.171**	α:0.85	
9.UWES-SF- dedication	3.40 (0.93)	1-5	0.356**	0.270**	0.263**	0.280**	0.268**	0.298**	0.336**	0.700**	α:0.81
10.UWES-SF - absorption	3.19 (0.97)	1-5	0.245**	0.202**	0.192**	0.231**	0.155**	0.169**	0.231**	0.632**	0.705**
11.UWES-SF total	2.87 (0.95)	1-5	0.209**	0.129*	0.168**	0.157**	0.071	0.162**	0.169**	0.844**	0.707**
12.PFES-perceived future network	19.89 (3.59)	4-24	0.426**	0.450**	0.498**	0.445**	0.474**	0.503**	0.547**	0.320**	0.427**
13.PFES -perceived expected experiences	19.99 (3.67)	5-24	0.452**	0.468**	0.466**	0.416**	0.491**	0.559**	0.558**	0.253**	0.380**
14.PFES -perceived future personal characteristics	20.67 (3.31)	6-24	0.355**	0.467**	0.449**	0.447**	0.510**	0.517**	0.545**	0.208**	0.358**
15.PFES -anticipated reputation of educational institution	19.45 (4.41)	4-24	0.325**	0.431**	0.376**	0.347**	0.415**	0.468**	0.458**	0.139*	0.233**
16.PFES -perceived future labour market knowledge	20.56 (3.42)	7-24	0.391**	0.519**	0.521**	0.514**	0.545**	0.528**	0.599**	0.272**	0.413**
17.PFES-perceived future skills	21.16 (3.12)	9-24	0.434**	0.579**	0.510**	0.580**	0.632**	0.595**	0.672**	0.179**	0.360**
18.PFES total	121.72 (18.43)	44-144	0.435**	0.536**	0.497**	0.530**	0.570**	0.564**	0.621**	0.264**	0.416**

Table 1.
Continued

Subscale and overall scale	10	11	12	13	14	15	16	17	18
1.CINS-clinical biomedical science									
2.CINS-general clinical skills									
3.CINS-critical thinking and reasoning									
4.CINS- caring									
5.CINS-ethics and accountability									
6.CINS-lifelong learning									
7.CINS total									
8.UWES-SF-vigor									
9.UWES-SF- dedication									
10.UWES-SF - absorption	α:0.73								
11.UWES-SF total	0.803**	α:0.90							
12.PFES-perceived future network	0.353**	0.323**	α:0.88						
13.PFES -perceived expected experiences	0.303**	0.257**	0.792**	α:0.91					
14.PFES -perceived future personal characteristics	0.265**	0.219**	0.766**	0.817**	α:0.89				
15.PFES -anticipated reputation of educational institution	0.170**	0.135*	0.560**	0.545**	0.558**	α:0.91			
16.PFES -perceived future labour market knowledge	0.322**	0.280**	0.709**	0.694**	0.713**	0.652**	α:0.92		
17.PFES-perceived future skills	0.259**	0.191**	0.668**	0.721**	0.755**	0.568**	0.829**	α:0.92	
18.PFES total	0.321**	0.270**	0.868**	0.881**	0.885**	0.774**	0.886**	0.868**	α:0.96

*1-7 column Spearman Rho, 8-18 column Pearson Corelation Analysis, *, ** means= r*
CINS= Competency Inventory of Nursing Students, UWES-SF= Utrecht Work Engagement Scale-Student Forms, PFES= Perceived Future Employability Scale, α= Cronbach alpha, SD= Standart deviation, Min= Minimum, Max= Maximum

Table 2.
Variables Affecting Future Employability (n=322)

	Model 1					Model 2				
	β	(95% CI)		t	p	β	(95% CI)		t	p
		Lower bound	Upper bound				Lower bound	Upper bound		
Constant	**101.764**	**81.195**	**122.334**	9.736	<0.001**	10.197	-8.726	29.12	1.060	0.290
Age	0.759	-0.127	1.644	1.686	0.093	0.146	-0.512	0.804	0.435	0.664
Gender (male)	3.726	-1.333	8.786	1.449	0.148	3.324	-0.41	7.058	1.752	0.081
University (private)	8.734	2.506	14.961	2.760	0.006**	5.655	1.044	10.267	2.413	0.016*
High school (HVHS)	2.736	-4.066	9.537	0.791	0.429	3.069	-1.951	8.088	1.203	0.230
High school (general)	-7.952	-15.498	-0.405	-2.074	0.039*	-2.274	-7.887	3.338	-0.797	0.426
High school (other)	-0.889	-9.126	7.347	-0.213	0.832	-0.576	-6.655	5.502	-0.187	0.852
High school (science high school)	-1.926	-9.079	5.227	-0.530	0.597	-1.504	-6.783	3.776	-0.560	0.576
Place of residence during childhood (village-town)	-4.832	-11.325	1.66	-1.465	0.144	-3.814	-8.607	0.979	-1.566	0.118
Place of residence during childhood (city)	7.417	1.465	13.37	2.452	0.015*	4.547	0.14	8.954	2.030	0.043*
Place of residence during childhood (metropolis)	0.52	-4.588	5.629	0.200	0.841	0.059	-3.711	3.83	0.031	0.975
Voluntarily choosing nursing (no)	-4.144	-9.218	0.929	-1.607	0.109	0.445	-3.342	4.231	0.231	0.817
Intend to work as a nurse (no)	-7.705	-14.289	-1.121	-2.303	0.022*	-2.593	-7.493	2.307	-1.041	0.299
General point average (2.01-2.50)	4.455	-5.078	13.989	0.920	0.359	2.838	-4.201	9.876	0.793	0.428
General point average (3.01-3.50)	4.029	-0.684	8.741	1.682	0.094	0.014	-3.499	3.527	0.008	0.994
General point average (3.51-4.00)	5.521	-0.982	12.024	1.671	0.096	0.338	-4.503	5.18	0.138	0.891
Family income level (< minimum wage)	-0.581	-5.087	3.925	-0.254	0.800	-1.257	-4.583	2.069	-0.744	0.458
Family income level (good + very good)	-2.746	-8.837	3.346	-0.887	0.376	-3.09	-7.585	1.406	-1.352	0.177
CINS total	-	-	-		-	0.403	0.354	0.453	15.949	<0.001**
UWES-SF total	-	-	-		-	-	-	-		-
Model	F=2.987, p<0.001, AdjR^2=0.095, SE=17.515 Durbin Watson=2.067					F=19.310, p<0.001, AdjR^2=0.507, SE=12.926 Durbin Watson=2.000				

Table 2.
Continued

	Model 3					Model 4				
	β	(95% CI)		t	p	β	(95% CI)		t	p
		Lower bound	Upper bound				Lower bound	Upper bound		
Constant	92.637	72.174	113.1	8.909	<0.001**	6.384	-12.206	24.974	0.676	0.500
Age	0.617	-0.248	1.481	1.404	0.161	0.064	-0.58	0.709	.0197	0.844
Gender (male)	3.244	-1.685	8.173	1.295	0.196	3.003	-0.65	6.655	1.618	0.107
University (private)	7.97	1.899	14.041	2.583	0.01	5.212	0.701	9.724	2.273	0.024*
High school (HVHS)	2.848	-3.771	9.467	0.847	0.398	3.137	-1.767	8.042	1.259	0.209
High school (general)	-8.176	-15.521	-0.831	-2.191	0.029	-2.582	-8.069	2.905	-0.926	0.355
High school (other)	-2.649	-10.707	5.408	-0.647	0.518	-1.797	-7.768	4.175	-0.592	0.554
High school (science high school)	-1.766	-8.728	5.196	-0.499	0.618	-1.405	-6.564	3.754	-0.536	0.592
Place of residence during childhood (village-town)	-4.174	-10.5	2.152	-1.298	0.195	-3.388	-8.077	1.3	-1.422	0.156
Place of residence during childhood (city)	7.681	1.886	13.475	2.608	0.01	4.806	0.498	9.115	2.195	0.029*
Place of residence during childhood (metropolis)	0.944	-4.032	5.92	0.373	0.709	0.364	-3.324	4.052	0.194	0.846
Voluntarily choosing nursing (no)	-2.774	-7.753	2.204	-1.097	0.274	1.264	-2.459	4.987	0.668	0.505
Intend to work as a nurse (no)	-6.012	-12.468	0.444	-1.833	0.068	-1.565	-6.381	3.251	-0.640	0.523
General point average (2.01-2.50)	4.1	-5.18	13.38	0.869	0.385	2.637	-4.242	9.515	0.754	0.451
General point average (3.01-3.50)	3.411	-1.185	8.006	1.461	0.145	-0.303	-3.739	3.134	-0.173	0.862
General point average (3.51-4.00)	4.015	-2.352	10.383	1.241	0.216	-0.559	-5.311	4.194	-0.231	0.817
Family income level (< minimum wage)	-1.26	-5.657	3.136	-0.564	0.573	-1.707	-4.965	1.552	-1.031	0.304
Family income level (good + very good)	-2.793	-8.722	3.135	-0.927	0.355	-3.113	-7.506	1.28	-1.394	0.164
CINS total	-	-	-	-	-	0.392	0.344	0.441	15.781	<0.001**
UWES-SF total	4.395	2.352	6.438	4.233	<0.001**	3.027	1.503	4.55	3.909	<0.001**
Model	F=3.974, p<0.001, AdjR²=0.143, SE=17.045 Durbin Watson=2.051					F=19.963, p<0.001, AdjR²=0.530, SE=12.630 Durbin Watson=2.006				

*Lineer regression (enter method), Dependent variable= Perceived future employability, *p<0.05= Significant level, **p<0.01= High level significant, HVHS= Health Vocational Health School, AdjR²= Adjusted R², SE= Standart error of the estimate, CI= Confidence interval, ß= Unstandardized Beta, CINS= Competency Inventory of Nursing Students= UWES-SF= Utrecht Work Engagement Scale-Student Forms*

Table 3.
Total, Direct and Indirect Effect of Work Engagement on the Relationship between Professional Competency and Perceived Employability (n=322)

					95% CI	
	Effect	**SE**	**t**	**p**	**Lower**	**Upper**
Total effect	0.426	0.024	17.588	<0.001**	0.378	0.473
Direct effect	0.411	0.024	17.095	<0.001**	0.362	0.457
Indirect effect (CINS Utrecth)	0.015[b]	0.006[b]			0.004[a]	0.030[a]

***p<0.01= High level significant, [a]Based on 5000 bootstrap samples, [b]These values indicate significant parts, CI= Confidence interval, SE= Standart error of the estimate*

Perceived Future Employability of the Nursing Students

In this study, similar to the one conducted among a sample of nursing students (24), their perceived future employability was at a high level. In other studies conducted in university students, perceived future employability was above average (57,60) in some and high (18,20,26,61) in others. Li et al. (62) found that 69% were employed as nurses within six months after graduation, and employment rates reached 80% within three years. In a study, university students' perceived employability was high (20). However, a study (55) found that university students' attitudes toward employability declined over time. In a study in Turkey, the majority of nursing students wanted to remain in nursing after graduation, and 46.4% reported that they could find a job within a year of graduation (63). This study indicates that most nursing students hold positive views about their future and feel prepared for working life. It is an expected and gratifying result that most of the students have willingly chosen nursing and intend to work as nurses after graduation.

The Relationship Between Professional Competency, Work Engagement and Perceived Future Employability in Nursing Students

The CINS overall score and the PFES overall score showed a high level of correlation. The fact that students rated their perceived future skills — a subscale of perceived future employability — at a high level explains this relationship. No studies have examined the relationship between professional competence and perceived future employability among nursing students. In a study of senior master's-degree students in Economics, Social Sciences, and Engineering, a moderate positive correlation was found between perceived competency and employability (8). A weak correlation was found between the overall PFES score and the overall UWES-SF score. In studies of university students, a strong relationship was observed between perception of employability and both academic engagement (22) and career adaptability (24). Similarly, there was a weak relationship between the perception of employability and student engagement (17). In the current study, the relationship between the CINS and the overall average score of the UWES-SF was very weak. Capone et al. (17) found a moderate positive relationship between university students' academic self-efficacy and student engagement. The weak relationship found between the perception of professional competency and work engagement may be associated with the distance-learning system implemented during the COVID-19 pandemic. It is necessary to explore this result through further research conducted with graduates.

Variables Affecting the Perceived Future Employability of the Nursing Students

When variables affecting students' perception of future employability were evaluated, studying at a private university, graduating from a general high school (negative association), living in a city during childhood, and not being willing to work as a nurse after graduation were found to significantly affect nursing students' perceived employability. A study of American and Korean university students (64), found that, in the United States of America sample, financial resources had a significant effect on work volition, occupational engagement, and perceptions of future decent work. In the Korean sample, a negative relationship was observed between financial resources and perceptions of future decent work of and professional engagement. It has been stated that students who study at private universities and come from wealthy families may not experience financial restrictions and will not have financial concerns (64). In a study of nursing students in China (65), economic restrictions had a significant negative effect on work volition, career adaptation, and perceptions of future decent work. In this study, although the level of family income was found to have no significant effect, when considering studying at a private university and living in a city during childhood, those who had more financial resources and opportunities were found to have a positive attitude toward future working life. It indicates an important finding for educators: the demographic and academic characteristics of students and their professional competencies and work engagement explain more than half of the perceived future employability.

The Role of Work Engagement in the Effect of Professional Competency on the Perceived Future Employability

Students' levels of professional competency had a significant effect on work engagement and perceived future employability. Although work engagement had a weak but

significant effect on this relationship, it was not found to have a mediating role. Accordingly, when professional competency and work engagement are integrated, the explained variance in perceived future employability increases. Work engagement explains part of the relationship between the level of professional competency and perceived future employability. It has been shown that, during the COVID-19 pandemic, as the competency levels of nursing students increased, their likelihood of volunteering to work increased (35). Importantly, this study is the first to determine this relationship in a sample of nursing students. Atay and Yerin Güneri (66) found that self-efficacy was the strongest predictor of employment hope. In a previous study, self-efficacy and academic performance were found to serve as chain mediators in the relationship between achievement motivation and college students' employability (67). Monteiro et al. (8) found that career adaptability mediated certain competency subscales and university students' perception of employability. Although academic competencies are a prerequisite for employment, graduating students need to be equipped with career management resources for a smooth transition into the labor market (8). Therefore, students' high perceived professional competence indicates that they are integrated into nursing and prepared for working life.

Limitations and Future Directions

Data were collected through students' self-reports. Students' assessment of their professional competencies based on their self-reports may not reflect actual results. In future studies, professional competency should especially be evaluated by educators. Convenience sampling is another limitation. Additionally, the cross-sectional data collection method did not detect a causal relationship between the variables. Therefore, it is recommended to collect data at different time points in future studies and to evaluate the relevant effects. Finally, the data were collected only from the faculties in Istanbul. Although various state and foundation universities were included in the sample, it is recommended that comparisons be conducted across cities and countries.

Conclusion

This study, which determined significant relationships between professional competency, work engagement, and perceived future employability among nursing students, is one of the first studies to examine these variables together. In the study, the competency levels and perceived future employability were high, while work engagement was moderate. In addition, students' demographic and academic characteristics, professional competencies, and work engagement levels explain more than half of students' perception of future employability. The findings demonstrate the importance of professional competency and work engagement for nursing students' perceptions of future employability. It also demonstrates the role of work engagement and guides future studies aimed at supporting nursing students' participation in educational processes.

Implications of Nursing and Practice

Today, as the health workforce shortage deepens and youth participation in the labor force becomes increasingly important, it is necessary to improve perceptions of future employability to attract and retain nursing students in the profession. Accordingly, institutional and individual strategies should be addressed. Since the current and future health labor market requires students to prepare for careers that demand the ability to plan, adapt, and evaluate their competencies to meet future health workforce requirements, nursing students need to manage their individual careers by taking responsibility for their employability (e.g., participating in scientific meetings, courses, and certificate programmes).

Within the scope of institutional strategies to achieve SDG, educational administrators and nurse educators should design educational curricula to ensure integration with work by developing students' professional competencies. Therefore, educators should ensure that students integrate theory and practice in authentic learning environments through exposure to effective role models. Thus, it is recommended to increase clinical and field practices. Students' confidence in their knowledge, skills, abilities, and competencies will increase through these practices, thereby facilitating their integration into the nursing profession. This will also facilitate the employability of nursing students who consider themselves professionally competent and passionate about their work.

Ethics Committee Approval: The ethics committee approval İstanbul University-Cerrahpaşa Rectorate Social and Human Sciences Research Ethics Committee Presidency (date: 12.10.2021, approval number: 207759) was obtained.

Informed Consent: Written institutional permission was obtained from the faculty administrations where the research was conducted.

Footnotes

Author Contributions: Concept – D.G., B.S.; Design – D.G., B.S.; Data Collection or Processing – D.G., B.S., S.K.Ö.; Analysis or Interpretation – D.G., B.S., S.K.Ö.; Literature Search – D.G.; Writing – D.G., B.S., S.K.Ö.

Declaration of Interests: No conflict of interest was declared by the authors.

Funding: The authors declared that this study received no financial support.

References

1. Lodi E, Zammitti A, Magnano P, Patrizi P, Santisi G. Italian adaption of self-perceived employability scale: psychometric properties and relations with the career adaptability and well-being. Behav Sci. 2020;10(5):82. [Crossref]
2. Bennett D, Ananthram S, Lindsay S, Benati K, Jevons C. Employability beliefs of business students by gender and year

of study: implications for higher education. The Int J Manag Educ. 2022;20(2):100654. [Crossref]
3. International Labour Organization (ILO). Youth Employment. n.d. [Internet]. [cited 2025 Feb 3]. [Crossref]
4. United Nations (UN). The Sustainable Development Goals Report. 2021. [Internet]. [cited 2025 Feb 4]. [Crossref]
5. Kestin T, Van den Belt M, Denby L, Ross K, Thwaites J, Hawkes M. Getting Started with The SDGs in Universities: A Guide for Universities, Higher Education Institutions, and the Academic Sector. 2017. [Internet]. Australia/Pacific, Melbourne [cited 2025 Feb 12]. [Crossref]
6. Savickas ML. Life design: a paradigm for career intervention in the 21st century. J Couns Dev. 2012;90(1):13-19. [Crossref]
7. Gunawan W, Creed PA, Glendon AI. Young adults' perceived future employability: antecedents and consequences. Int J Educ Vocat Gui. 2021;21(1):101-122. [Crossref]
8. Monteiro P, Ferreira JA, Almeida LS. Self-perceived competence and self-perceived employability in higher education: the mediating role of career adaptability. J Furth High Educ. 2020;44(3):408-422. [Crossref]
9. International Council of Nurses (ICN). The Global Nursing Shortage and Nurse Retention. 2021. [Internet]. ICN; 11 March 2021 [cited 2025 Feb 12]. [Crossref]
10. Buchan J, Catton H, Shaffer FA. Sustain and Retain in 2022 and Beyond: The Global Nursing Workforce and the Covid-19 Pandemic. 2022. [Internet]. Philadelphia, USA [cited 2025 Feb 12]. [Crossref]
11. Wang L, Yu P. Impact of exemplar education program on the professional commitment of nursing students: a quasi-experimental study. Nurse Educ Today. 2021;107:105118. [Crossref]
12. International Council of Nurses (ICN). Nurses: A Voice to Lead-Achieving the Sustainable Development Goals. 2017. [Internet]. Geneva: ICN; 2017 [cited 2025 Feb 12]. [Crossref]
13. World Health Organization (WHO). State of the World's Nursing: Investing in Education, Jobs and Leadership. 2020. [Internet]. Geneva: WHO; 6 Apr 2020 [cited 2025 Feb 10]. [Crossref]
14. Sönmez B, Gül D, Ispir Demir D, Emiralioglu R, Erkmen T, Yıldırım A. Antecedents and outcomes of nurses subjective career success: a path analysis. J Nurs Scholarsh. 2021;53(5):604-614. [Crossref]
15. Raymond A, James A, Jacob E, Lyons J. Influence of perceptions and stereotypes of the nursing role on career choice in secondary students: a regional perspective. Nurse Educ Today. 2018;62:150-157. [Crossref]
16. Hobfoll SE. Conservation of resources: a new attempt at conceptualizing stress. Am Psychol. 1989;44(3):513-524. [Crossref]
17. Capone V, Marino L, Park MSA. Perceived employability, academic commitment, and competency of university students during the covid-19 pandemic: an exploratory study of student well-being. Front Psychol. 2021;12:788387. [Crossref]
18. Gunawan W, Creed PA, Glendon AI. Development and initial validation of a perceived future employability scale for young adults. J Career Assess. 2019;27(4):610-627. [Crossref]
19. Chen W, Shao K, Xiao Q, Mai Y. Development and validation of Chinese college students' future employability scale. Front Psychol. 2023;14:1063437. [Crossref]
20. Jackson D, Wilton N. Perceived employability among undergraduates and the importance of career self-management, work experience and individual characteristics. Higher Education Research and Development. 2017;36(4):747-762. [Crossref]
21. Onyishi IE, Enwereuzor IK, Ituma AN, Omenma JT. The mediating role of perceived employability in the relationship between core self-evaluations and job search behavior. Career Dev Int. 2015;20(6):604-626. [Crossref]
22. Ma Y, Bennett D. The relationship between higher education students' perceived employability, academic engagement and stress among students in China. Education + Training. 2021;63(5):744-762. [Crossref]
23. Ye BR, Jiang XY. Study of an evaluation index system of nursing undergraduate employability developed using the Delphi method. Int J Nurs Sci. 2014;1(2):180-184. [Crossref]
24. Ma Y, Yue Y, Hou L. The impact of proactive personality and clinical learning environment on nursing college students' perceived employability. Nurse Educ Pract. 2021;56:103213. [Crossref]
25. Nguyen DT, Nguyen TNH, Luu VB, Bui VK, Nguyen TM. Self-perceived employability of undergraduate students during the covid-19 pandemic: the role of traits, knowledge sharing and trust. J Appl Res High Educ. 2024;16(2):650-661. [Crossref]
26. Alkın S, Öksüz Y. Investigation of the relationship between perceived future employability, psychological well-being and life satisfaction in university students. Turkish Scientific Researches Journal. 2020;5(2):211-219. [Crossref]
27. Beggs RL, Sidwell DK, Rattray ME, Neville GE, Zimmerman, PAP. Undergraduate nursing students' perceptions of the graduate application process: a qualitative exploration. Collegian. 2022;29(2):213-219. [Crossref]
28. World Health Organization (WHO). Global Strategic Directions for Nursing and Midwifery 2021-2025. 2021 [Internet]. Geneva: WHO; 6 Apr 2021 [cited 2025 Feb 15]. [Crossref]
29. Forsber E, Ziegert K, Hult H, Fors U. Clinical reasoning in nursing, a think-aloud study using virtual patients-a base for an innovative assessment. Nurse Educ Today. 2014;34(4):538-452. [Crossref]
30. Cheng CY, Liou SR. Perceptions of clinical competence among nurse pregraduates: do different types of nursing programs make a difference? Journal of Nurse Education in Practice. 2013;3(9):139-147. [Crossref]
31. Sela Y, Grinberg K, Shapiro Y, Nissanholtz-Gannot R. A cross-sectional study on preferred employment settings of final-year nursing students in Israel. Hum Resour Health. 2020;18(53):1-9. [Crossref]
32. Çelik S, Durmaz Y, Karahan E. The relationship of competence status of intern nurses' attitudes towards to their caregiver roles. Journal of Health and Nursing Management. 2020; 7(3):371-383. [Crossref]
33. Özkan ÜF. General self-efficiency and vocational preparation status of international nurse during the covid-19 epidemic. Journal of Social Research and Behavioral Sciences. 2022;8(16):79-92. [Crossref]
34. Utvær BK, Torbergsen H, Paulsby TE, Haugan G. Nursing students' emotional state and perceived competence during the covid-19 pandemic: the vital role of teacher and peer support. Front Psychol. 2022;12:793304. [Crossref]
35. Cakir Ozmen G, Simsek P, Aydin R, Cilingir D. Nursing students' willingness to work in covid-19 pandemic: the role of knowledge and perceived competence: an example from Turkey. Journal of Basic and Clinical Health Sciences. 2022;6(2):354-364. [Crossref]
36. Çapri B, Gündüz B, Akbay SE. Utrecht Work Engagement Scale-Student Forms' (UWES-SF) adaptation to Turkish, validity and reliability studies, and the mediator role of work engagement between academic procrastination and academic responsibility. Educ Sci Theory Pract. 2017;17(2):411-435. [Crossref]
37. Öz Y, Boyacı A. The role of student engagement in student outcomes in higher education: implications from a developing country. Int J Educ Res. 2021;110:101880. [Crossref]
38. Yıldırım G, Sökmen Y, Yasemin TAŞ, Dilekmen M. The adaptation of student engagement scale to Turkish: the validity and reliability study. Trakya University Journal of Education Faculty. 2017;8(1):68-79. [Crossref]

39. Öz Aktepe Ş, İslamoglu G. Gender as a determinant of student engagement for university students. The Journal of Selçuk University Social Sciences Institute. 2020;43:70-82. [Crossref]
40. Hsu LL, Hsieh PI. Development and psychometric evaluation of the competence inventory for nursing students: a learning outcome perspective. Nurse Educ Today. 2013;33(5):492-497. [Crossref]
41. Ülker T. Nursing students' self-assessment of professional competence scale' validity and reliability. Master Thesis, Ankara: Hacettepe University Health Sciences Institute; 2018. [Crossref]
42. Schaufeli WB, Bakker AB. Test manual for the Utrecht work engagement scale. The Netherlands: Utrecht University; 2003. [Crossref]
43. Alkın S, Korkmaz O, Çelik SB. Turkish adaptation of perceived future employability scale. The Journal of Human and Work. 2020;7(1):33-47. [Crossref]
44. Hayes AF. Model Templates for Process for Spss and Sas. 2013. [Internet]. [cited 2025 Feb 10]. [Crossref]
45. George D, Mallery M. Spss for windows step by step: a simple guide and reference. Boston: Pearson; 2010.
46. Evans JD. Straightforward statistics for the behavioral sciences. Pacific Grove CA; Brooks/Cole Publishing; 1996. [Crossref]
47. Sarstedt M, Ringle CM, Smith D, Reams R, Hair Jr JF. Partial leasts quares structural equation modeling (Pls-SEM): a useful tool for family business researchers. J Fam Bus Strategy. 2014;5(1):105-115. [Crossref]
48. Korkmaz F, Tarakcioglu Celik GH, Kucukkelepce GE, Arslan S, Gul S. First clinical placement: nursing students' views. Mediterr Nurs Midwifery. 2021;1(2):58-67. [Crossref]
49. Orkaizagirre-Gómara A, Sánchez De Miguel M, Ortiz de Elguea J, Ortiz de Elguea A. Testing general self-efficacy, perceived competence, resilience, and stress among nursing students: an integrator evaluation. Nurs Health Sci. 2020;22:529-538. [Crossref]
50. Jang P, Lee H. Changes in core competencies among Korean university students due to remote learning during the covid-19 pandemic. Int J Environ Res Public Health. 2021;18(4):74-76. [Crossref]
51. Kotera Y, Cockerill V, Chircop J, Kaluzeviciute G, Dyson S. Predicting self-compassion in UK nursing students: relationships with resilience, engagement, motivation, and mental wellbeing. Nurse Educ Pract. 2021;51:102989. [Crossref]
52. Liébana-Presa C, Fernández-Martínez ME, Vázquez-Casares AM, López-Alonso AI, Rodríguez-Borrego MA. Burnout and engagement among university nursing students. Enferm Glob. 2018;17(29):142-152. [Crossref]
53. Wang J, Bu L, Li Y, Song J, Li N. The mediating effect of academic engagement between psychological capital and academic burnout among nursing students during the covid-19 pandemic: a cross-sectional study. Nurse Educ Today. 2021;102:104938. [Crossref]
54. Ku´car M, Brajša-Žganec A, Neuberg M. Personality traits as predictors of academic and work engagement in a sample of nursing students and professionals. Nurs Rep. 2025;15(5):174. [Crossref]
55. Qureshi A, Wall H, Humphries J, Balani AB. Can personality traits modulate student engagement with learning and their attitude to employability? Learn Individ Differ. 2016;51:349-358. [Crossref]
56. Natarajan J, Joseph MA. Impact of emergency remote teaching on nursing students' engagement, social presence, and satisfaction during the covid-19 pandemic. Nurs Forum. 2022;57:42-48. [Crossref]
57. Ergün M, Şeşen H.A comprehensive study on university students' perceived employability: comparative effects of personal and contextual factors. SAGE Open. 2021;11(3):1-17. [Crossref]
58. Kim S, Creed PA, Hood M, Bath D. Protean career processes in young adults: relationships with perceived future employability, educational performance, and commitment. Int J Educ Vocat Gui. 2023;1-24. [Crossref]
59. Niu Y, Xu X, Lewis S, Xie L, Reed M. Examining the role of mentoring on perceived employability among university students in China. J. Career Assess. 2025;33(2):239-263. [Crossref]
60. Van den Berg E, Rothmann, S. Self-perceived employability, well-being and institutional embeddedness of accounting students. S. Afr. J. Bus. 2025;56(1):a4729. [Crossref]
61. Pitan OS, Muller C. Students' self-perceived employability (Spe): main effects and interactions of gender and field of study. High Educ Skill Work. 2019;10(2):355-368. [Crossref]
62. Li IW, Duffield C, Doleman G. Overqualification and underemployment for nursing graduates in Australia: a retrospective observational study. International Journal of Nursing Studies. 2022;136:104376. [Crossref]
63. Alan N, Oran Tuna N. Nursing students' employment hope: Türkiye example: cross-sectional descriptive study. J Nurs Sci. 2022;14(3):763-771. [Crossref]
64. Kim HJ, Kim SY, Duffy RD, Nguyen NP, Wang D. A cross-cultural comparison of psychology of working theory among U.S. and Korean college students. J Couns Psychol. 2020;67(5):568e79. [Crossref]
65. Ma Y, You J, Tang Y. Examining predictors and outcomes of decent work perception with chinese nursing college students. Int J Environ Res Public Health. 2020;17(1):254-268. [Crossref]
66. Atay B, Güneri OY. Thriving in the face of youth unemployment: the role of personal and social resources. J Employ Couns. 2023;60:175-190. [Crossref]
67. Li X, Pu R, Phakdeephirot N. The influence of achievement motivation on college students' employability: a chain mediation analysis of self-efficacy and academic performance. Front Psychol. 2022;13:972910. [Crossref]