Nurse Education Today 79 (2019) 41–47

Contents lists available at ScienceDirect

Nurse Education Today

journal homepage: www.elsevier.com/locate/nedt

The relationship of personality traits and entrepreneurship tendencies with career adaptability of nursing students☆

Öznur İspir[a], Esengül Elibol[b,*], Betül Sönmez[a]

[a] Department of Nursing Management, Istanbul University - Cerrahpasa Florence Nightingale Faculty of Nursing, Abide-i Hürriyet Street, 34381, Sisli, İstanbul, Turkey
[b] Department of Medical Services and Techniques, Istanbul Bilgi University - Vocational School of Health Services, Inonu Street, 34387, Sisli, İstanbul, Turkey

ARTICLE INFO

Keywords:
Nursing
Student
Career adaptability
Personality traits
Entrepreneurship

ABSTRACT

Purpose: This study was performed to reveal the relationship of nursing students' personality traits and entrepreneurship tendency with career adaptability.
Method: This descriptive and correlational study's sample consisted of the junior and senior students in the nursing faculty of a state university in Istanbul (n = 265). The data was collected using the Student Information Questionnaire, Career Adapt-Abilities Scale, Ten Item Personality Inventory, and Scale of University Students Entrepreneurship. Descriptive tests and Pearson's correlation analysis were used for data analysis. Multiple linear regression analysis was used to determine the variables that affect the career adaptability of nursing students.
Results: The mean points on the personality inventory sub-dimensions of nursing students were highest in conscientiousness (5.72, SD 1.29) and lowest in emotional stability (4.46, SD 1.33). The mean on the Scale of University Students Entrepreneurship was 135.2 (SD 19.50) and on the Career Adapt-Abilities Scale was 78.7 (SD 9.05). The significant relationship between the personality traits, entrepreneurship tendency, and career adaptability scores of the students was weak and moderate. The regression model used to determine the variables that affect the career adaptability of nursing students was significant. Of the variables in the model, entrepreneurship tendency and being a fourth-year student significantly influenced the total score on career adaptability.
Conclusion: The results showed a correlation between personality traits and career adaptability. In addition, there is a positive correlation between entrepreneurship tendency and career adaptability. The students with high entrepreneurship tendencies have better career adaptability. The results suggest that nursing education should improve entrepreneurial and intrapreneurial traits by considering the personality traits of students in order to ensure their adaptation to the nursing profession.

1. Introduction

Career adaptability allows an individual to make decisions regarding their career path and solve problems they face in the work place by understanding both themselves and their occupation (Creed et al., 2009). Career adaptability is a coping skill that can be gained through experience. Individuals with high adaptability skills are expected to make more planned and realistic decisions than other individuals (Ebberwein et al., 2004).

In recent years, factors influencing career adaptability were investigated in several business sectors (Rudolph et al., 2017). Medical treatment and the care needs of societies change due to their changing health requirements. Accordingly, nurses are expected to be ready to acquire new skills and adopt new working styles to respond to changes (Pajic et al., 2018). In this regard, determining the career adaptability of nursing students and the factors that affect it will be useful during their transition into professional nursing (Tian and Fan, 2014).

Entrepreneurship "refers to an individual's ability to turn ideas into action. It includes creativity, innovation and risk taking, as well as the ability to plan and manage projects in order to achieve objectives. This supports everyone in day-to-day life at home and in society, makes employees more aware of the context of their work and better able to seize opportunities, and provides a foundation for entrepreneurs establishing a social or commercial activity" (European Commission, 2006, p. 4). Sander and Kingma (2012) defines a nurse entrepreneur as a self-employed nurse providing nursing services of direct care and/or

☆ There is no financial or personal matter that may pose a conflict of interest. No sources of funding were received for this research. All participants gave informed consent for the research, and that their anonymity was preserved.

* Corresponding author.
E-mail addresses: oznurspr15@gmail.com (Ö. İspir), esengulelibol@gmail.com (E. Elibol), betul.sonmez@istanbul.edu.tr (B. Sönmez).

https://doi.org/10.1016/j.nedt.2019.05.017
Received 16 July 2018; Received in revised form 13 March 2019; Accepted 6 May 2019

consultancy or as an organization owner developing and marketing healthcare products and devices, etc. It is stated that, 0.5%–1% of working nurses are nurse entrepreneurs. People who use their creativity to make changes within an organization are defined as intrapreneurs (Sander and Kingma, 2012). In another definition, entrepreneurship in nursing has a wider meaning than business creation. The requirement to provide and maintain quality patient care in ever-changing, chaotic, and complicated health services increases the importance of entrepreneurial skills in nursing. Entrepreneurship in nursing is the development of creative and innovative methods in patient care, as well as the ability to deal with the uncertainty and complexity associated with their job (Boore and Porter, 2011). Accordingly, improving entrepreneurship (also intrapreneurship) skills is one of the aims in nursing education (Boore and Porter, 2011).

An individual's self-recognition, alignment with career goals, and development of knowledge and abilities through the process of occupational education and training occurs throughout one's career. Therefore, it is important to determine the factors that affect career adaptability. This study determined the nursing students' career adaptability skills and personality traits that enable coping ability for the problems faced in their careers. The study aimed to determine the entrepreneurship tendencies such as opportunities evaluation, taking risks, and taking action. It also aimed to examine the relationship between these variables. In the literature, a study that examined the relationship between these variables was not found. Determination of the nursing students' career adaptability skills and the factors affecting it can contribute to activities intended for developing career adaptability during professional education.

1.1. Literature

1.1.1. Career adaptability

In the Career Configuration Model, Savickas (2005) explains career from three perspectives: professional personality, life themes, and career adaptation (Savickas, 2005). Savickas (1997, p. 254) defines career adaptability as “readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions”. Career adaptability consists of four dimensions: concern, curiosity, confidence, and control. The orientation of the individual towards his future career and preparation for this career show concern. Curiosity involves exploring different situations and career opportunities. Confidence is the ability to solve the problems faced and to do what is necessary to overcome obstacles. Control shows that the individual's decision-making is deliberate and the individual takes responsibility for shaping their career (Savickas and Porfeli, 2012). Higher than average (Hou et al., 2012) and high career adaptability scores are found in university students (Tolentino et al., 2014a, 2014b; Siyez and Yusupu, 2015). The mean score for nursing students is also high (Karadaş et al., 2017).

1.1.2. Personality and career adaptability

Personality traits are among the factors that affect the career adaptability of individuals (Eryılmaz and Kara, 2017). Studies assessing these relationships are conducted using the five-factor personality model. The five-factor models consist of five sub-dimensions: extraversion, agreeableness, conscientiousness, emotional stability, and openness (McCrae and Costa, 1998). Research shows that career adaptability decreases as levels of neuroticism increase (Lockenhoff et al., 2009). Adults who are neurotic or perfectionist are not amenable to change and have more difficulty in their career development than adults who have other personality traits (Gati et al., 2010).

There are studies that show the relationship between an individual's career adaptability and the five personality traits (Rudolph et al., 2017). In a meta-analysis assessing 90 study findings (Rudolph et al., 2017), career adaptability variance for the five personality traits was 52%, and when positivity, cognitive ability, and proactive personality were added to the model, variance increased (54–57%). In a study conducted with Hungarian nurses, a positive and significant relationship was found between career adaptability and the primary variables of proactive personality and conscientiousness, and the successive variables of adaptive behaviors of career planning and proactive skill development (Pajic et al., 2018).

1.1.3. Entrepreneurship and career adaptability

Characteristics that affect and increase the entrepreneurial tendencies of individuals have been investigated. Socio-demographic and personal characteristics are related to entrepreneurial intentions and success (Zacher et al., 2012; Tolentino et al., 2014b). Zacher et al. (2012) found that personal traits such as conscientiousness, risk-taking propensity, and socioeconomic characteristics such as age and gender significantly influence the possibility of working in a continuous self-employed job compared to other employment models (part-time, full-time, farmer, etc.).

Proactive individuals with a focus on change and action are expected to explore their career development opportunities and create work environments to meet their career needs. Therefore, a proactive personality, which plays a major role in entrepreneurship, is a critical factor for career adaptability (Tolentino et al., 2014a). In studies with university students, a positive correlation exists between a proactive personality and career adaptability (Öncel, 2014; Tolentino et al., 2014a). Tolentino et al. (2014b) found a positive relationship between career adaptability and entrepreneurship tendency in Serbian business students. In addition, entrepreneurship scores of nursing senior students were above average (Bodur, 2018).

2. Methods

2.1. Objective and design

This study used a descriptive and correlational design to reveal the relationship of personality traits and entrepreneurship tendency of junior and senior nursing students at a nursing faculty in Turkey with their career adaptability. In this study, the following research questions were investigated:

1. What are the career adaptability levels of nursing students?
2. What are the personality trait evaluations of nursing students?
3. What are the entrepreneurship tendency levels of nursing students?
4. Is there a relationship between nursing students' personality traits, entrepreneurship trends, and career compatibility?
5. What are the variables affecting the career adaptability of nursing students?

2.2. Participants

The study universe consisted of third and fourth year nursing students in the nursing faculty of a state university on the European side of Istanbul (N = 538). The nursing faculty is the first nursing faculty established in Turkey, and since it is the only state nursing faculty on the European side, it has more students than other nursing faculties. In order to evaluate the career adaptability of the students, the sample was aimed to be constituted by junior and senior students. In this regard, 265 students who were selected using convenience sampling method in the school environment and voluntarily filled out the data collection form (response rate: 49.3%).

2.3. Measures

The data collection tool used in the research had four parts:

2.3.1. Student Information Questionnaire

The sheet involved questions such as the student's age, gender, class, and GPA (grade point average). In addition, information regarding if they chose to attend the nursing department of their own volition, the intended field of nursing after graduation, (if the answer is no) the intended field of business after graduation, and if they got counseling related to career planning.

2.3.2. Ten Item Personality Inventory (TIPI)

The scale developed by Gosling et al. (2003) to measure five basic personality traits was adapted to Turkish by Atak (2013). TIPI includes two items measuring each of the Big-Five personality dimensions. Within each dimension, one item represents a positive pole and the other a negative pole. The scale has ten items with five sub-dimensions and uses as even-point Likert type scale (1 = disagree strongly, 7 = agree strongly) (https://gosling.psy.utexas.edu/scales-weve-developed/ten-item-personality-measure-tipi/). When the scale is scored, the total score is not taken, but the total score is taken for each sub-dimension. The personality trait belonging to the sub-dimension in which the individual gets the highest score is their primary personality trait. The Cronbach's Alpha reliability coefficient for the sub-dimensions' ranges from 0.81 to 0.86 (Atak, 2013). In this study, the Cronbach's alpha value for TIPI was 0.69.

2.3.3. Scale of University Students Entrepreneurship

Yılmaz and Sünbül (2009) developed this scale to determine the entrepreneurship characteristics of students. It includes 36 items answered using a five-point Likert type scale (1 = never, 7 = very frequently). The Cronbach's alpha reliability coefficient of the scale is 0.90. The cut-off values on this single factor scale are “36-64: very low entrepreneurship; 65-92: low entrepreneurship; 93-123: moderate entrepreneurship; 124-151: high entrepreneurship; and 152-180: very high entrepreneurship” (Yılmaz and Sünbül, 2009). In this study, the Cronbach's alpha for the entrepreneurship scale for university students was 0.95.

2.3.4. The Career Adapt-Abilities Scale (CAAS)

Kanten (2012) adapted to the Turkish version of the CAAS scale originally developed by Savickas and Porfeli (2012). The original version of the scale has 24 items. However, the Turkish version removed five items (1,2,4,7, and 18) from the scale due to low factor loads. Students were asked to indicate how strongly they had developed each ability on a five-point Likert-type scale (1 = not strong and 5 = strongest). Sample items are “Thinking about what my future will be like” (career concern); “Counting on myself” (career control); “Looking for opportunities to grow as a person” (career curiosity); and “Working up to my ability” (career confidence).The “concern” sub-dimension of the scale has 3 items, “control” has 5 items, “curiosity” has 5 items, and “confidence” has 6 items. The Cronbach's Alpha values for the sub-dimensions of the scale are 0.61 for concern, 0.77 for control, 0.79 for curiosity, and 0.81 for confidence. In this study, the Cronbach's alpha value of the Career Adapt-Abilities Scale was 0.93.

2.4. Data collection

Data were collected using a written data collection form between 1 and 30 November 2017. All data were collected on paper and uploaded to electronic databases for analysis. Participants were informed on the first page of data collection form that their participation was voluntary. After the required information was given, the written data collection forms were given to all the students by the researchers. When the participants completed the data collection forms, they were told to put them in a box in the classroom. After the researchers handed out the data collection forms, they left the classroom. It took 15–20 min to complete the data collection form.

2.5. Data analysis

SPSS 21.0 software (IBM Corp., Armonk, New York, USA) was used for data analysis. For the descriptive statistics, the number, percentage, mean, and standard deviation were used. In this study, career adaptation abilities of the students were used as a dependent variables, and general characteristics, personality, and entrepreneurship traits of the students were used as an independent variables. The Pearson correlation test was used to define the relationship between variables, whereas multiple linear regression analysis was performed for multivariate analysis. The significance level was set to 0.05.

2.6. Ethical considerations

Institutional approval was obtained from the Faculty of Nursing and ethical approval was obtained from the Human Research Ethics Committee (on 12.05.2017; Decision no: 2017-0016-50). This research was conducted according to the principles of the Declaration of Helsinki (World Medical Association, 2008). The participants were informed using a written data collection form about aim of the study. The requirements of informed consent were adhered to by ensuring voluntary participation and the participants' ability to consent. Information on the written form indicated that the participants' decisions to complete the survey were formal consent for their participation. The participants were informed about their right to withdraw from the study at any time if they wished to do so without giving explanations. Their anonymity was ensured for purposes of publication.

3. Results

3.1. Characteristics of the participants

The mean age of the students was 21.04 (SD 1.29) (19–30) years, 85.3% were female, 62.3% were junior students, 37.7% were senior students, and 45.7% had a GPA of 2.50–3.00. It was determined that 72.1% of the students chose the nursing profession voluntarily, 91.3% did not get counseling on career planning, and 92.8% intended to enter the nursing profession after graduation.

3.2. Mean nursing student scores

When the mean TIPI scores of nursing students were investigated, the highest mean was in the sub-dimension of conscientiousness (5.72, SD 1.29) and the lowest mean was in the sub-dimension of emotional stability (4.46, SD 1.33). The total mean entrepreneurship score was 135.2 (SD 19.50). The total mean CAAS score was 4.15 (SD 0.47); the highest mean was in the sub-dimension of confidence (4.27, SD 0.53) and the lowest mean was in the sub-dimension of curiosity (3.96, SD 0.62) (Table 1).

3.3. Correlation between sub-dimensions and total scores

Results of the correlation between sub-dimensions and total scores are given in Table 2. There was a very weak, significant positive correlation between TIPI extraversion and curiosity. There was a weak, significant positive correlation between TIPI extraversion and concern, control, confidence, and total scores. No significant relationship was found between the TIPI agreeableness scores of the students and career adaptability sub-dimension or total score means (Table 2). A weak positive significant relationship between TIPI conscientiousness and concern, control, confidence, and career adaptability total score was found. The relationship between the TIPI emotional stability scores and the career adaptability total and sub-dimensions were positively correlated and significant at a very weak level. There was a weak but significant positive correlation between the TIPI openness score and career adaptability total and sub-dimension scores (Table 2).

Table 1
Mean scores for TIPI, Scale of University Students Entrepreneurship and CAAS total and sub-scales.

	Mean	SD	Min-Max
Ten Item Personal Inventory (TIPI)			
Extraversion	4.62	1.55	1.00–7.00
Agreeableness	5.46	1.24	1.50–7.00
Conscientiousness	5.72	1.29	1.00–7.00
Emotional stability	4.46	1.33	1.00–7.00
Openness	5.01	1.27	1.00–7.00
Scale of University Students Entrepreneurship	135.2	19.50	36–180
Career Adapt-Ability Scale (CAAS)			
Concern	4.02	0.71	1.00–5.00
Control	4.25	0.53	2.00–5.00
Curiosity	3.96	0.62	1.80–5.00
Confidence	4.27	0.53	2.00–5.00
Total	4.15	0.47	2.00–5.00

CAAS: Career Adapt-Ability Scale.
TIPI: Ten Item Personality Inventory.

When the relationship between entrepreneurship and TIPI scores of the students was examined, a positive weak significant relationship between entrepreneurship and extraversion and openness was found, whereas a very weak relationship was found with conscientiousness and emotional stability ($p<0.01$) (Table 2). There was no statistically significant relationship between agreeableness and entrepreneurship score (Table 2). A moderate positive significant relationship between entrepreneurship and career adaptability and curiosity was found ($p<0.01$) (Table 2).

3.4. Factors influencing career adaptability

The effects of TIPI sub-dimension scores, entrepreneurship tendencies score, and gender, class, grade average, willingness to choose nursing, and thinking about performing the job after graduation were evaluated using linear regression analysis. Using this analysis, the model was statistically significant ($p = 0.000$) and the explanatory coefficient of the model was $R^2 = 0.398$. Being a fourth-year student and having an entrepreneurship tendency influenced the total score of career adaptability at a statistically significant level. An increase of 1 unit in the students' entrepreneurship tendency score resulted in an increase of 0.448 units in the career adaptability score (Table 3).

4. Discussion

In this study, the relationship of personality traits and entrepreneurship tendencies with career adaptability of nursing students was determined. The personality trait scores of the nursing students were above average. When sub-dimensions of the scale were evaluated; the highest mean personality trait point was in the sub-dimension of conscientiousness and the lowest was in emotional stability. Conscientiousness describes being hard working, organized, systematic (Karadaş et al., 2017), motivated toward a purpose, hard-working, and stable (Zhao and Seibert, 2006). Emotional stability includes coping with stress, self-confidence, and self-consciousness (Gosling et al., 2003) and positively influences the individual's career adaptability (Lockenhoff et al., 2009). Emotional instability/neuroticism is defined as the opposite of emotional stability (Atak, 2013) and a negative correlation between neuroticism and career adaptation was found in previous studies (Van Vianen et al., 2012; Li et al., 2015; Nilforooshan and Salimi, 2016).

In the literature, different measurement tools (NEO-Five Factor Inventory, Big Five Inventory, and TIPI) based on the Five Factor Model were used to determine the personality traits of university students. In a study conducted with nursing students (Baldacchino and Galea, 2012), the results were similar to the present study. Conscientiousness (in addition, agreeableness and extraversion) was the highest, whereas emotional stability/neuroticism was the lowest. Fornés-Vives et al. (2016) evaluated the personality traits of nursing students at the beginning and end of their educational process. In this study, the highest mean score was aggreableness in the first year and extraversion in the last year. However, emotional stability/neuroticism was the lowest mean score in both the first and the last year. Students' personality traits changed positively during the education program, and students in the third year were more extroverted and conscientious. Bar et al. (2018) found that the highest score among the personality traits of nursing students was in the aggreableness and the lowest score was in the extraversion sub-dimensions.Similar to the present study, all personality trait scores were higher than average in studies conducted with university student samples other than nursing students (Ehrhart et al., 2009; Nunes et al., 2018). The highest mean score among personality traits was in the conscientiousness sub-dimension (Ehrhart et al., 2009), whereas the lowest mean was in the emotional stability/neuroticism sub-dimension (Van Vianen et al., 2012; Li et al., 2015; Nunes et al., 2018).

Entrepreneurship score, which is the second variable of this study, was high in the nursing students. A few studies investigate the entrepreneurship of nursing students. In a study conducted with senior nursing students in Turkey, entrepreneurship scores were above average (Bodur, 2018). In another study consisting of first year students, the scores were high (Çakır et al., 2016). In a study conducted with business students, the entrepreneurship intentions score was above average (Tolentino et al., 2014b). Boore and Porter (2011) stated the importance of entrepreneurship, which they consider more than establishing a new business, for nursing, and proposed integrating it into

Table 2
Correlation matrix of sub-dimensions and total scores of the scales.

	1	2	3	4	5	6	7	8	9	10	11
1. Extraversion	–	0.16*	0.45**	0.23**	0.35**	0.33**	0.21**	0.34**	0.19**	0.31**	0.32**
2. Agreeableness	0.16*	–	0.38**	0.29**	0.21**	0.02	0.07	0.07	−0.23	0.07	0.05
3. Conscientiousness	0.45**	0.38**	–	0.39**	0.38**	0.14*	0.21**	0.28**	0.06	0.25**	0.24**
4. Emotional stability	0.23**	0.29**	0.39**	–	0.17**	0.14*	0.20**	0.14*	0.15*	0.06	0.16**
5. Openness	0.35**	0.21**	0.38**	0.17**	–	0.39**	0.30**	0.33**	0.23**	0.24**	0.33**
6. Entrepreneurship	0.33**	0.02	0.14*	0.14*	0.39**	–	0.48**	0.49**	0.52**	0.47**	0.60**
7. Concern	0.21**	0.07	0.21**	0.20**	0.30**	0.48**	–	0.50**	0.60**	0.43**	0.74**
8. Control	0.34**	0.07	0.28**	0.14*	0.33**	0.49**	0.50**	–	0.53**	0.69**	0.83**
9. Curiosity	0.19**	−0.02	0.15*	0.06	0.23**	0.52**	0.60**	0.53**	–	0.57**	0.84**
10. Confidence	0.31**	0.07	0.25**	0.06	0.24**	0.47**	0.43**	0.69**	0.57**	–	0.85**
11. CAAS total	0.32**	0.53	0.24**	0.16**	0.33**	0.60**	0.74**	0.83**	0.84**	0.85**	–

CAAS: Career Adapt-Ability Scale.
Pearson correlation test.
* $p<0.05$.
** $p<0.01$.

Table 3
Examining the effect of the variables on total score of CAAS.

	Unstandardized coefficient β	t	p	95% confidence interval for β	
				Lower limit	Upper limit
Constant	2.002	5.762	0.000*	1.318	2.687
Ten Item Personal Inventory (TIPI)					
Openness	0.027	1.225	0.222	−0.017	0.071
Agreeableness	−0.005	−0.254	0.800	−0.047	0.036
Emotional stability	0.007	0.362	0.718	−0.032	0.046
Conscientiousness	0.038	1.610	0.109	−0.008	0.084
Extraversion	0.022	1.213	0.226	−0.014	0.057
Entrepreneurship	0.448	9.136	0.000**	0.352	0.545
Gender (male)	0.102	1.408	0.160	−0.041	0.244
Class (senior students)	0.116	2.363	0.019*	0.019	0.212
GPA (2.00 and higher)	−0.0006	−0.044	0.965	−0.286	0.274
Nursing voluntarily (yes)	0.018	0.336	0.737	−0.088	0.124
Joining nursing profession after graduation (yes)	−0.061	−0.653	0.514	−0.244	0.123
Model	$R^2 = 0.398$, F = 14.995; p = 0.000; $p < 0.01$				

Dependent variable: CAAS (Career Adapt–Abilities Scale).
GPA: grade point average.
* $p < 0.05$.
** $p < 0.01$.

the education curriculum using nursing terms. Olokundun (2017) also found that an entrepreneurship curriculum has an impact on students' critical thinking skills and business ideas. Entrepreneurship teaching methods significantly encourage the interest of students in business initiatives. Backes et al. (2010) stated that many nurses are looking for new business alternatives to move away from bureaucracy and the limits that health institutions impose. In fact, Andrade et al. (2015) determined that there are 196 active companies administered by nurse entrepreneurs and 86.7% of them were established between 2001 and 2011. In this respect, high entrepreneurship tendency can be effective in both performance and career management of nursing students. This relationship should be examined in further research.

In this study, the students had high career adaptability. In other studies conducted with nursing students, the levels of career adaptability were higher than the average (Fang et al., 2018) or high (Tian and Fan, 2014; Karadaş et al., 2017). In the studies conducted with university students other than nursing students, career adaptability scores were higher than average (Hou et al., 2012; Tolentino et al., 2014a; Siyez and Yusupu, 2015) and high (Li et al., 2015; Buyukgoze, 2016). When the sub-dimensions of career adaptability are compared, the highest mean score was in the confidence sub-dimension whereas the lowest mean score was in the curiosity sub-dimension. In a study conducted with nursing students in China, the highest score among the sub-dimensions was in confidence and the lowest score was in concern (Tian and Fan, 2014). In a few studies conducted with students excluding nursing students, the highest score was in confidence (Van Vianen et al., 2012; Kanten, 2012; Tolentino et al., 2014b; Nilforooshan and Salimi, 2016) as in the present study, whereas the lowest score was in concern (Van Vianen et al., 2012; Tolentino et al., 2014b; Li et al., 2015). On the other hand, in some studies, the lowest score was in the curiosity sub-dimension (Kanten, 2012; Hou et al., 2012; Tolentino et al., 2014a; Taber and Blankemeyer, 2015), similar to the present study. In a study conducted with university graduates, career compatibility (with four sub-dimensions) was positively correlated with job search self-efficacy and employment status (Guan et al., 2015). In this respect, the high level of career compatibility of the students may predict if they will continue to work as a nurse. Post-graduation employment status should be examined by prospective research.

A significant positive correlation was found between personality traits (except for the sub-dimension of agreeableness) and career adaptability. Fang et al. (2018) found a moderate correlation between optimism traits of nursing students and career adaptability. Similarly, in studies conducted with students other than nursing, there is a positive correlation between all traits except neuroticism and career compatibility and a negative correlation between neuroticism and career compatibility (Van Vianen et al., 2012; Li et al., 2015; Nilforooshan and Salimi, 2016). In a meta-analysis, the relationship between the five factor personality traits and career compatibility was demonstrated (Rudolph et al., 2017). Eryılmaz and Kara (2017) found that self-perfectionism and constant concern are important predictors of the career plan Uy et al. (2015) identified the partial mediating effect of university students' entrepreneurial alertness to opportunities in the relationship between proactive personality, unlimited career understanding, and career adaptability, but no interaction with self-oriented or variable career attitude was identified.

In the literature, there are results on the factors affecting entrepreneurship intentions of nurses. Shirey (2017, p.235) defined the individual drivers that motivate entrepreneurship practices of nurses as “love of nursing, self-efficacy, desire to make a difference, ability to see opportunities in what others see as obstacles, influence of family”. Marques et al. (2018) found that personal attributes such as motivation and entrepreneurial skills were highly effective on entrepreneurship intentions of nurses. In this respect, the present study evaluated the relationship between the personality traits and entrepreneurship scores of nursing students. The relationship between entrepreneurship scores of the students and the extraversion and openness personality traits was weak and significant. Moreover, there was a very weak significant relationship between entrepreneurship and emotional stability. No study in the literature investigates the relationship between personality and entrepreneurial traits in a sample involving nursing students or other students. In the study of Leutner et al. (2014), among the five factor dimensions, only extraversion and adaptability were important determinants of entrepreneurship success. Zhao and Seibert (2006) found that entrepreneurs have significantly higher conscientiousness and openness scores and lower neuroticism and agreeableness scores than managers. Dehghanzadeh et al. (2016) found that entrepreneurial nurses have higher personality traits such as a tendency to take risks, tolerance for uncertainty, need for success, and innovation. Rauch and Frese (2007) found a proactive personality among the personality traits has a significant correlation with entrepreneurship behavior in their meta-analysis study.

There was a moderate significant relationship between the students' entrepreneurship scale scores and the total score of career adaptability and the curiosity sub-dimension. However, the relationship of entrepreneurship scale scores with the concern, control, and confidence sub-dimensions were weak and significant. Tolentino et al. (2014b)

found a positive relationship between career adaptabilities and entrepreneurship intentions of business students. McKenna et al. (2016) found a positive relationship between career adaptabilities (and all subdimensions) and entrepreneurship intentions of employees in Iran. In summary, the relationship between career adaptability of the students and personality traits was very weak-weak, and to entrepreneurship tendency was weak-medium. In order to determine the factors affecting the career adaptation of nursing students, a model was created using the variables that were related to each other together with demographic characteristics. The explanatory coefficient of the model was 39.8%. It was determined that being a senior student had a statistically significant effect on the total score of career adaptability. Hou et al. (2012) found that first and third-year students (freshmen and juniors) show higher career adaptabilities than second-year students (sophomores). On the other hand, Karadaş et al. (2017) found no significant difference between grade level and the career scores of nursing students. In this study, entrepreneurship tendency scores of the students had the highest significant effect on career adaptability scores. Previous studies showing a positive relationship between entrepreneurship tendency and career adaptability are limited in number (Tolentino et al., 2014b; McKenna et al., 2016). Among the personality traits, openness, agreeableness, emotional stability, conscientiousness, and extraversion were not significant, but they were included in the model. This result is different from a meta-analysis study (Rudolph et al., 2017), which shows the big five personality traits increase the variance of career adaptability by 52%. Van Vianen et al. (2012) found that five-factor personality traits, self-esteem, promotion, and prevention focuses account for 41% of the variance in career adaptability. According to the results obtained from this model, it can be predicted that entrepreneurship and personality traits that increase entrepreneurship will improve career adaptability. The significant effect of being a senior on the career adaptation score and the progress made related to personality over time revealed in previous studies suggests that the positive personality traits, entrepreneurship tendency, and career adaptability of the students can be improved during nursing education.

5. Conclusion

In this study, the relationship of personality traits and entrepreneurship tendencies with career adaptability of nursing students was investigated. The relationship between these three variables has not been previously investigated in nursing students. In this study, among the personality traits of nursing students, the highest mean was found in the 'conscientiousness' sub-dimension and the lowest mean was in 'emotional stability'. Entrepreneurship tendencies and career adaptability skills were at high levels. Positive significant relationships between career adaptability and entrepreneurship tendencies and personality traits, except for agreeableness, were determined.

In the developed regression model, independent variables that included in the model explained 39.8% of the career adaptability of students. The most significant impact on career adaptability skills was the entrepreneurship tendency score, which showed that students with a high entrepreneurship tendency have higher career adaptability skills. However, being in the final year was another variable with a significant impact on the model. According to the regression analysis, there may be other factors that affect the career adaptability of nursing students. These factors (the remaining 60%) should be determined with further research.

The contribution of this study is demonstrating the effect of personality traits such as openness to experience, extraversion, emotional stability, and entrepreneurship tendency to career adaptability, defined as the ability of the student to cope with situations encountered throughout the career. In order to develop entrepreneurship and intrapreneurship in nursing, courses and practices that guide creative and innovative activities, develop coping skills with risk taking, indefinite and complicated situations should be added to the nursing curriculum. The execution of the effect of nurses with higher career adaptability and career satisfaction on nurses outcomes as the patient results, innovative outputs and performance, etc. through the studies conducted will assert the importance of this term in a more understandable way in terms of the nursing education.

Career counseling for individuals can be applied in nursing to improve the career adaptability of students. Professional career counseling would help students to be aware of their personal characteristics and plan their careers while considering their personality characteristics. Such knowledge could be used to develop appropriate skills for their career plan. This awareness will contribute to self-improvement during or after the study period, to job performance by increasing professional satisfaction, to the institution where the nurse eventually works, to the students' profession, and as a productive person in the health community. In the future studies should examine the change in career adaptability of students who get professional career counseling.

In addition, the nursing students' career adaptability skills can be monitored using multiple measures with a prospective research design and can be compared to variables such as coping with transition and work-related issues such as job performance and career satisfaction. On the other hand, the relationship of entrepreneurship training and personal traits with nursing employment, starting a new business, or career adaptability can be evaluated by monitoring.

5.1. Limitations of the study

The fact that the sample was drawn from a single nursing faculty can be considered a limitation of this study since it may limit generalizability. Sample selection using convenience sampling method and the use of a self-reported data collection tool are among the limitations of the study. Because the students in the senior groups were in clinical practice areas due to the internship program, they were difficult to access. Therefore, the level of their participation in the study was limited compared to the junior group.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Acknowledgement

No sources of funding were received for this research.

References

Andrade, A.C., Dal, B.L.W., Sanna, M.C., 2015. Entrepreneurship in nursing: overview of companies in the State of São Paulo. Revista Brasileira de Enfermagem 68 (1), 35–39. https://doi.org/10.1590/0034-7167.2015680106p.

Atak, H., 2013. The Turkish adaptation of the ten-item personality inventory. Archives of Neuropsychiatr 50, 312–319. in Turkish. https://doi.org/10.4274/npa.y6128.

Backes, D.S., Erdmann, A.L., Buscher, A.O., 2010. O cuidado de enfermagemcomo prática empreendedora: oportunidades epossibilidades. Acta Paulista de Enfermagem 23 (3), 341–347. https://doi.org/10.1590/S0103-21002010000300005.

Baldacchino, D.R., Galea, P., 2012. Student nurses' personality traits and the nursing profession: part 1. Br. J. Nurs. 21 (7), 419–425. https://doi.org/10.12968/bjon.2012.21.7.419.

Bar, M.A., Leurer, M.K., Warshawskic, S., Itzhakic, M., 2018. The role of personal resilience and personality traits of healthcare students on their attitudes towards interprofessional collaboration. Nurse Educ. Today 61, 36–42. https://doi.org/10.1016/j.nedt.2017.11.005.

Bodur, G., 2018. The relationship between individual innovativeness and entrepreneurship tendency of nursing students. Journal of Health Science and Profession 5 (2), 139–148. in Turkish. 10.17681/hsp.349105.

Boore, J., Porter, S., 2011. Education for entrepreneurship in nursing. Nurse Educ. Today 31, 184–191. https://doi.org/10.1016/j.nedt.2010.05.016.

Buyukgoze, K.A., 2016. Predicting career adaptability from positive psychological traits. Career Dev. Q. 64, 114–125. https://doi.org/10.1002/cdq.12045.

Çakır, D.I., Dönmez, T.E., Arslan, Ö.H., 2016. Assessment of the entrepreneurial characteristics and some related factors of nursing students. J. Environ. Dev. 11 (2), 294–315. in Turkish. https://doi.org/10.4172/2167-1168.C1.019.

Creed, P.A., Fallon, T., Hood, M., 2009. The relationship between career adaptability, person and situation variables, and career concerns in young adults. J. Vocat. Behav. 74 (2), 219–229. https://doi.org/10.1016/j.jvb.2008.12.004.
Dehghanzadeh, M.R., Kholasehzadeh, G., Birjandi, M., Antikchi, E., Sobhan, M.R., Neamatzadeh, H., 2016. Entrepreneurship psychological characteristics of nurses. Acta Medica Iranica 54 (9), 595–599.
Ebberwein, C.A., Krieshok, T.S., Ulven, J.C., Prosser, E.C., 2004. Voices in transition: lessons on career adaptability. Career Dev. Q. 52 (4), 292–308. https://doi.org/10.1002/j.2161-0045.2004.tb00947.x.
Ehrhart, M.G., Ehrhart, K.H., Roesch, S.C., Chung-Herrera, B.G., Nadler, K., Bradshaw, K., 2009. Testing the latent factor structure and construct validity of the Ten-Item Personality Inventory. Personal. Individ. Differ. 47 (8), 900–905. https://doi.org/10.1016/j.paid.2009.07.012.
Eryılmaz, A., Kara, A., 2017. Individual aspect of career adaptability: its relationship with personality traits and affection. Journal of Mood Disorders 4 (7), 212–218. https://doi.org/10.5455/jmood.20170525041443.
European Commission, 2006. Implementing the Community Lisbon Programme: fostering entrepreneurial mindsets through education and learning. Commission of the European Communities, Brussels. Available at: http://ec.europa.eu/health/ph_determinants/environment/IPP/documents/com_328_en.pdf Accessed date: 05.12.2018.
Fang, W., Zhang, Y., Mei, J., Chai, X., Fan, X., 2018. Relationships between optimism, educational environment, career adaptability and career motivation in nursing undergraduates: a cross-sectional study. Nurse Educ. Today 68, 33–39. https://doi.org/10.1016/j.nedt.2018.05.025.
Fornés-Vives, J., Garcia-Banda, G., Frias-Navarro, D., Rosales-Viladrich, G., 2016. Coping, stress, and personality in Spanish nursing students: a longitudinal study. Nurse Educ. Today 36, 318–323. https://doi.org/10.1016/j.nedt.2015.08.011.
Gati, I., Gadassi, R., Saka, N., Hadadi, Y., Ansenberg, N., Friedmann, R., 2010. Emotional and personality-related aspects of career decision making difficulties: facets of career indecisiveness. Journal of Career Assessment 19, 3–20. https://doi.org/10.1177/1069072710382525.
Gosling, S.D., Rentfrow, P.J., Swann Jr., W.B., 2003. A very brief measure of the Big Five personality domains. Journal Research in Personality 37, 504–528. https://doi.org/10.1016/S0092-6566(03)00046-1.
Guan, Y., Zhoub, W., Ye, L., Jiang, P., Zhou, Y., 2015. Perceived organizational career management and career adaptability as predictors of success and turnover intention among Chinese employees. J. Vocat. Behav. 88, 230–237. https://doi.org/10.1016/j.jvb.2015.04.002.
Hou, Z.-J., Leung, S.A., Li, X., Li, X., Xu, H., 2012. Career adapt-abilities scale-China form: construction and initial validation. J. Vocat. Behav. 80, 686–691. https://doi.org/10.1016/j.jvb.2012.01.006.
Kanten, S., 2012. Career adaptabilities scale: a study of validity and reliability. Journal of Suleyman Demirel University Institute of Social Sciences 2 (16), 191–205 (in Turkish).
Karadaş, A., Duran, S., Kaynak, S., 2017. Determining nursing students' opinions towards career planning. Suleyman Demirel University The Journal of Health Science 8 (1), 1–8. https://doi.org/10.22312/sdusbed.224956.
Leutner, F., Ahmetoglu, G., Akhtar, R., Chamorro-Premuzic, T., 2014. The relationship between the entrepreneurial personality and the big five personality traits. Personal. Individ. Differ. 63, 58–63. https://doi.org/10.1016/j.paid.2014.01.042.
Li, Y., Guan, Y., Wang, F., Zhou, X., Guo, K., Jianga, P., Mo, Z., Li, Y., Fang, Z., 2015. Big-five personality and BIS/BAS traits as predictors of career exploration: the mediation role of career adaptability. J. Vocat. Behav. 89, 39–45. https://doi.org/10.1016/j.jvb.2015.04.006.
Lockenhoff, C.E., Terracciano, A., Costa, P.T., 2009. Five-factor model personality traits and the retirement transition: longitudinal and cross-sectional associations. Psychol. Aging 24 (3), 722–728. https://doi.org/10.1037/a0015121.
Marques, C.S., Valente, S., Lages, M., 2018. The influence of personal and organisational factors on entrepreneurship intention: an application in the health care sector. J. Nurs. Manag. 26, 696–706. https://doi.org/10.1111/jonm.12604.
McCrae, R.R., Costa, P.T., 1998. Validation of the five-factor model of personality across instruments and observers. J. Pers. Soc. Psychol. 52 (1), 81–90. https://doi.org/10.1037/0022-3514.52.1.81.
McKenna, B., Zacher, H., Ardabili, F.S., Mohebbi, H., 2016. Career Adapt-Abilities Scale-Iran Form: psychometric properties and relationships with career satisfaction and entrepreneurial intentions. J. Vocat. Behav. 93, 81–91. https://doi.org/10.1016/j.jvb.2016.01.004.
Nilforooshan, P., Salimi, S., 2016. Career adaptability as a mediator between personality and career engagement. J. Vocat. Behav. 94, 1–10. https://doi.org/10.1016/j.jvb.2016.02.010.
Nunes, A., Limpo, T., Lima, C.F., Castro, S.L., 2018. Short scales for the assessment of personality traits: development and validation of the Portuguese Ten-Item Personality Inventory (TIPI). Front. Psychol. 5 (9), 461–465. https://doi.org/10.3389/fpsyg.2018.00461.
Olokundun, M.A., 2017. Perceptions of students on entrepreneurship education and entrepreneurial intentions in selected Nigerian Universities. College of Business and Social Sciences, Covenant University, Ota, Ogun State. Available at: http://eprints.covenantuniversity.edu.ng/9506/1/Ayodele.pdf Accessed Date: 08.12.2018.
Öncel, L., 2014. Career adapt-abilities scale: convergent validity of subscale scores. J. Vocat. Behav. 85 (1), 13–17. https://doi.org/10.1016/j.jvb.2014.03.006.
Pajic, S., Keszler, A., Kismihok, G., Mol, S.T., Den Hartog, D., 2018. Antecedents and outcomes of Hungarian nurses' career adaptability. Int. J. Manpow. https://doi.org/10.1108/IJM-10-2018-0334. Accepted article.
Rauch, A., Frese, M., 2007. Let's put the person back into entrepreneurship research: a meta-analysis on the relationship between business owners' personality traits, business creation, and success. European Journal of Work and Organizational Psychology 16 (4), 353–385. https://doi.org/10.1080/13594320701595438.
Rudolph, C.V., Lavignea, K.N., Zacher, H., 2017. Career adaptability: a meta-analysis of relationships with measures of adaptivity, adapting responses, and adaptation results. J. Vocat. Behav. 98, 17–34. https://doi.org/10.1016/j.jvb.2016.09.002.
Sander, E.M., Kingma, M., 2012. Nurses creating opportunities as entrepreneurs and intrapreneurs. Handbook on Entrepreneurial Practice. International Council of Nurses, Geneva.
Savickas, M.L., 1997. Career adaptability: an integrative construct for life-span, life-space theory. Career Dev. Q. 45, 247–259. https://doi.org/10.1002/j.2161-0045.1997.tb00469.x.
Savickas, M.L., 2005. The theory and practice of career construction. In: Brown, S.D., Lent, R.W. (Eds.), Career Development and Counselling: Putting Theory and Research to Work. Wiley, Hoboken, NJ, pp. 42–70.
Savickas, M.L., Porfeli, E.J., 2012. Career Adapt-Abilities Scale: construction, reliability, and measurement equivalence across 13 countries. J. Vocat. Behav. 80 (3), 661–673. https://doi.org/10.1016/j.jvb.2012.01.011.
Shirey, M., 2017. An evidence-based understanding of entrepreneurship in nursing. Clin. Nurse Spec. 21 (5), 234–240. https://doi.org/10.1097/01.NUR.0000289748.00737.ef.
Siyez, D.M., Yusupu, R., 2015. Examination of university students' career adaptability and career optimism according to gender role variable. The Journal of Industrial Relations and Human Resources 17 (1), 78–88. in Turkish. https://doi.org/10.4026/1303-2860.2015.0270.x.
Taber, B.J., Blankemeyer, M., 2015. Future work self and career adaptability in the prediction of proactive career behaviors. J. Vocat. Behav. 86, 20–27. https://doi.org/10.1016/j.jvb.2014.10.005.
Tian, Y., Fan, X., 2014. Adversity quotients, environmental variables and career adaptability in student nurses. J. Vocat. Behav. 85, 251–257. https://doi.org/10.1016/j.jvb.2014.07.006.
Tolentino, L.R., Garcia, P.R.J.M., Lu, V.N., Restubog, S.L.D., Bordia, P., Plewa, C., 2014a. Career adaptation: the relation of adaptability to goal orientation, proactive personality, and career optimism. J. Vocat. Behav. 84 (1), 39–48. https://doi.org/10.1016/j.jvb.2013.11.004.
Tolentino, L.R., Sedoglavich, V., Lu, V.N., Garcia, P.R.J.M., Restubog, S.L.D., 2014b. The role of career adaptability in predicting entrepreneurial intentions: a moderated mediation model. J. Vocat. Behav. 85 (3), 403–412. https://doi.org/10.1016/j.jvb.2014.09.002.
Uy, M.A., Chan, K.-Y., Sam, Y.L. Ho, 2015. M-h.R., Chernyshenko, O.S. Proactivity, adaptability and boundaryless career attitudes: the mediating role of entrepreneurial alertness. Journal of Vocational Behavior 86, 115–123. https://doi.org/10.1016/j.jvb.2014.11.005.
Van Vianen, A.E.M., Klehe, U.-C., Koen, J., Dries, N., 2012. Career adapt-abilities scale - Netherlands form: psychometric properties and relationships to ability, personality, and regulatory focus. J. Vocat. Behav. 80, 716–724. https://doi.org/10.1016/j.jvb.2012.01.002.
World Medical Association. Declaration of Helsinki-ethical principles for medical research involving human subjects. 2008. Available at: http://www.wma.net/en/30publications/10policies/b3/index.html
Yılmaz, E., Sünbül, A.M., 2009. Developing scale of university students entrepreneurship. Selcuk University The Journal Of Institute Of Social Sciences 21, 195–203.
Zacher, H., Biemann, T., Gielnik, M.M., Frese, M., 2012. Patterns of entrepreneurial career development: an optimal matching analysis approach. Int. J. Dev. Sci. 6, 177–187. https://doi.org/10.3233/DEV-2012-12111.
Zhao, H., Seibert, S.E., 2006. The Big Five personality dimensions and entrepreneurial status: a meta-analytical review. J. Appl. Psychol. 91 (2), 259–261. https://doi.org/10.1037/0021-9010.91.2.259.