

## The Relationship Between Cognitive Curiosity and Academic Passion Among Nursing Sstudents Considering Some Variables

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### Abstract:

This study aimed to reveal the relationship between cognitive curiosity and academic passion. To achieve the goals of the study, a sample of (1060) male and female nursing students was chosen from the bachelor's stage, from Arab students inside the Green Line, and from Palestinian students in the West Bank, they were selected by using the available sample method, and the cognitive curiosity scale and the academic passion scale were applied to them. The results showed that there were no statistically significant differences in the responses of the study sample members on the scales of cognitive curiosity and academic passion due to the gender variable. The results showed that there were statistically significant differences in the responses of the study sample members on the scales of cognitive curiosity and academic passion due to the academic year, in addition to the presence of a positive relationship. There is a statistically significant difference between cognitive curiosity and the dimensions of academic passion.

**Keywords:** cognitive curiosity, academic passion, nursing students

## العلاقة بين الفضول المعرفي والشغف الأكاديمي لدى طلبة التمريض في ضوء بعض المتغيرات

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### الملخص:

هدفت هذه الدراسة إلى الكشف عن العلاقة بين الفضول المعرفي والشغف الأكاديمي. ولتحقيق أهداف الدراسة، تم اختيار عينة مكونة من (1060) طالبًا وطالبة من طلبة التمريض ضمن مرحلة البكالوريوس، من الطلبة العرب داخل الخط الأخضر، ومن الطلبة الفلسطينيين في الضفة الغربية، وذلك باستخدام طريقة العينة المتيسرة، وطُبق عليهم مقياس الفضول المعرفي، ومقياس الشغف الأكاديمي. أظهرت النتائج عدم وجود فروق ذات دلالة إحصائية في استجابات أفراد عينة الدراسة على مقياس الفضول المعرفي والشغف الأكاديمي تعزى لمتغير الجنس، وأظهرت النتائج وجود فروق ذات دلالة إحصائية في استجابات أفراد عينة الدراسة على مقياس الفضول المعرفي والشغف الأكاديمي تعزى للسنة الدراسية، بالإضافة إلى وجود علاقة موجبة ذات دلالة إحصائية بين الفضول المعرفي وأبعاد الشغف الأكاديمي.

**الكلمات المفتاحية:** الفضول المعرفي، الشغف الأكاديمي، طلبة التمريض.

## Introduction

Educators in all countries try to increase the students' interest of the educational process in various ways including trying to increase their levels of academic passion. This represents an emotional and mental state towards learning and many psychological, cognitive, and emotional factors affect it. Without academic passion, the students' motivation to do schoolwork and academic tasks may decrease and they lose their goals and future orientations, so that it may threaten the outcomes of the educational process.

Despite the importance of academic passion among students in their academic life, it has not received wide attention that romantic Passion has dominated many psychological studies and research especially since it has been combined with the emotions, feelings, and sensations of the individual and this has led to the absence of a clear and acceptable definition of this variable (Luh & Lu, 2012).

Passion represents a strong desire to do something, which means indulging, experiencing, and interacting with it. Within any context, if an individual desires a certain thing and that desire is shrouded in a strong feeling or emotion, then the individual is said to have a passion for the thing (Vallerand et al., 2003).

Passion can generally be defined as individuals' spending a great deal of time and effort to reach their emotional goals (Frijda et al. 1991). It is defined as a strong tendency towards a self-specific activity that an individual likes, finds its importance, and invests a great deal of time and energy in (Vallerand et al., 2003). It is also defined as employing the activity that the individual likes in a positive way by which the individual learns to interact positively with the activity, transfers experience and not compulsively control behaviors (Baum & Locke, 2004).

Liston and Garrison (2004) defined academic passion as a student's love for academic activities and everything related to the elements of the educational environment. Coleman and Guo (2013) defined the concept of a passion for learning or academic passion as a concentrated interest in a particular field, which persists over time, and it is associated with a relative lack of interest in other activities that peers interest of.

In the academic environment, it can be argued that academic passion is a positive variable for a better educational future. It leads students to devote themselves completely to a particular activity and it increases their motivation towards learning and enhances their perseverance despite the presence of difficulties, missteps and various challenges. Furthermore, it also generates high levels of commitment and daily necessary practices to achieve excellence in the academic field (Vallerand, 2008).

There are many factors that may increase academic passion levels. It can be said that students attend university for various reasons; either because of increasing job opportunities, satisfy their curiosity and their academic passion, develop, and maintain social relationships or simply to experience a new adventure. For those students who pursue to satisfy their curiosity or satisfy their academic passion, they are described as being in a state of constant passion, immersed greatly in academic tasks and activities which attract their attention to all the details of knowledge, pursue to discover the new experience everything that is strange and discover the unknown (Schellenberg & Bailis, 2015).

The university has a great role in increasing the levels of academic passion among students through the university's supportive academic environment for students. For example, the diversity in teaching and assessment methods and different courses

contributes to increasing their levels of academic passion. While not considering the psychological and cognitive characteristics of students in the courses offered by the university in teaching and assessment methods and even the physical environment of the university, it contributes to reducing their levels of academic passion, keeping it at its lowest limits (Zhao et al., 2021).

When students engage in their learning with a clear passion, they become fascinated by their educational environment and the accompanying activities and their responses to this environment and they become very positive. Based on the levels of this passion, the student forms bonds and builds various schemes that help him achieve excellence and success within this environment (Coleman & Guo, 2013).

Increasing students' levels of passion also helps them improve their memory levels by increasing attention and the ability to recall memories related to the specific situation. In general, people remember more positive emotional information than neutral ones, and this is precisely what makes passion a positive emotional effect. Academic passion also helps students to increase their levels of emotional integration, then they control their learning and increase their levels of thinking and learning (Zhao et al., 2021).

One of the most prominent theories of passion is the theory of vallerand, where he proposed two types of passion: harmonious and obsessive (Harmonious and Obsessive). Each type is associated with different experiences, outcomes and manners of integrating an activity into an individual's identity. Individuals who engage in activities within levels of harmonious passion are consistent with their values, the way they understand life and their harmonious passion comes from their self-absorption of the activity and their free involvement in it. Harmonious passion is produced by a strong desire, high motivation and high levels of command and control when practicing academic activity or academic task. It is also described as a voluntary, efficient, and effective performance, then the stress and tensions and negative emotions fade away. Through this, academic activity becomes part of the individual's self, achieving integration, balance, and enjoyment, increasing students' self-knowledge, influencing their decision-making abilities and organizing practices while working (Sheldon et al., 2005).

Regarding obsessive passion, it results from a strong, uncontrollable inner desire and feeling that control the individual's feelings, behaviors and impulses. It also pushes students to practice an activity only without the rest of the other activities and through it, there is a conflict between the individual and the activities he prefers but he becomes unable to perform them because of his obsessive passion for one activity as a consequence the individual is shrouded in negative emotions such as anxiety, tension, frustration, a sense of failure and self-closure and the control is for the task not for self-control. That is to say, the task is the one that controls the individual and not vice versa. Wherein the individual feels pressure and controls from the social environment, he seeks to achieve self-esteem or social acceptance. Obsessive passion is also described as one those motives that cannot be controlled when engaging in various activities. It also leads to maladaptive outcomes for the individual and his feelings are always negative (Vallerand et al., 2003).

It has been confirmed by Sheldon et al (2005) that these types of passion are not constant and may fluctuate for important reasons. One of these reasons is that when individuals become older and increasingly more mature, they use adaptive processes, which means an increase in their levels of harmonious passion. This effort to achieve

the adaptation process results in an independent self-assimilation process that leads to adaptation. Consequently, as individuals grow older, they are more likely to use adaptive self-processes and acquire harmonious passions.

Regarding cognitive curiosity, it can be said that it forms a path that leads the individual to acquire general knowledge. Cognitive curiosity includes researching what things are, how to use them and seeks to acquire knowledge in many different fields of knowledge represented by mathematical relationships, languages, social norms, history and others. It is different from curiosity related to knowing other people's news and secrets. This type of curiosity involves the intervention of the individual in what he does not mean and his knowledge of other people's matters. As for cognitive curiosity, it includes aspects of openness to experience and the need for knowledge (Sternszus et al., 2017).

Litman (2005) has confirmed that cognitive curiosity does not fall below the levels of undirected exploratory behavior, including eye or body movements and the exploration associated with cognitive curiosity is the search for specific knowledge, such as answering a query about a particular object.

Thus, cognitive curiosity can be defined as having a desire to seek and acquire knowledge to experiment, to crystallize and to reapply by harnessing one's behavior towards the search for new information (Collins et al., 2004). It is also defined as the desire for knowledge that motivates individuals to learn new ideas, eliminate information gaps and solve intellectual problems (Litman, 2008). Slater (2009) defines it as the desire to search for knowledge within the environment in which the individual lives to improve and develop various mental processes and fill the cognitive need.

Jirot et al (2018) have confirmed that individuals are born with cognitive curiosity depending on how parents react to their children's questions may increase or decrease the level of cognitive curiosity. For example, parents who always react negatively to the questions asked by their children and do not encourage them to ask questions may lead to a decrease in their levels of cognitive curiosity. While parents always react positively to the questions asked by their children by encouraging them to ask questions can lead to an increase in their levels of cognitive curiosity.

Refers to Litman (2008) has also confirmed that cognitive curiosity is divided into two parts; the first is induction which refers to the thought process in which general conclusions or principles are derived from specific observations or examples. It involves drawing broader conclusions based on patterns, trends or evidence collected from specific examples and in the field of logic and philosophy. Induction is often contrasted with deduction as the conclusion involves deriving specific conclusions from general principles or inductive inference that does not guarantee absolute certainty while the conclusions reached by extrapolation may be highly probable. However, they are still subject to the possibility of exceptions or counterexamples. Therefore, the strength of an inductive argument depends on the quality and representativeness of the observations or situations on which it is based.

While the second type represents deprivation (Deprivation) in which an individual may suffer from a state of limitations or deficits in one or more cognitive areas. It also refers to the individual's desire to eliminate the conditions of information deprivation, then this type is stimulated when individuals lack certain pieces of information that they wish to integrate into the existing body of knowledge (McCartney et al., 2018).

Regarding the studies that dealt with the relationship between academic passion and cognitive curiosity, Nouri (2015) conducted a study aimed at measuring cognitive curiosity and its manifestations among university students and identifying the difference in cognitive curiosity and its manifestations in the light of some variables. To achieve the objectives of the study, (200) students were selected from Mustansiriyah university students, and the cognitive curiosity scale was applied to them. The results showed that university students have a high cognitive curiosity. The results also indicated that there were no differences between males and females in the level of cognitive curiosity and in its manifestations except for the curiosity of specific knowledge which was higher in males than females. As for the specialization, the results indicated that there were no differences except for the curiosity of specific knowledge, the arithmetic mean of students of the humanitarian specialization was higher than others.

Ruiz-Alfonso and Leon (2019) conducted a study aimed at revealing the relationship between passion and cognitive curiosity and to achieve the goals of the study, a sample of (1003) male and female students was selected in several secondary schools in Spain. The passion scale, and the cognitive curiosity scale were applied to them. The results showed that harmonious academic passion was positively predicted in cognitive curiosity.

Al-Rabee (2020) conducted a study aimed at revealing the relationship between cognitive curiosity and perceived self-efficacy among Yarmouk University students in the light of some variables. The study sample consisted of (488) male and female students. To achieve the objectives of the study, two scales were used: the scale of cognitive curiosity and the scale of perceived self-efficacy. The results showed that the level of cognitive curiosity was average, and the results also showed that there were statistically significant differences in the level of performance of the respondents on the cognitive curiosity scale attributed to variables, gender, the arithmetic mean for males was higher than others, specialization for those with scientific specialties and the level of achievement for those with excellent achievement.

Al-Jarrah and Al-Rabie (2020) conducted a study aimed at revealing the relationship between academic passion and academic burnout in the light of some variables and to achieve the objectives of the study, a sample of (230) male and female students at Yarmouk University was selected. The academic passion scale and the academic burnout scale were applied to them. The results showed that the level of harmonious passion was high while the level of obsessive passion was average. The results also showed that there were no statistically significant differences in the level of harmonious passion attributed to the sex variable.

Kulathissa (2020) also conducted a study aimed at revealing the impact of academic passion on cognitive curiosity. To achieve the objectives of the study, a sample of (158) individuals working in the fields of science and technology in several institutes in Sri Lanka was selected and the academic passion scale and the cognitive curiosity scale were applied to them. The results showed that obsessive passion negatively affects cognitive curiosity while harmonious passion positively affects cognitive curiosity.

Mansourian (2020) conducted a descriptive-analytical study aimed at reviewing the related literature to passion and cognitive curiosity and to achieve the objectives of the study, a group of published studies in this field were reviewed. The results showed that the individual's passion during the search for new information generates more pursuit and motivation, improves the reconfiguration of his knowledge and develops the

skills of searching, browsing, retrieving, collecting, memorizing, organizing, sharing, evaluating, measuring, analyzing, producing and publishing.

Gkorezis et al. (2021) conducted a study aimed at modeling the relationship between cognitive curiosity, harmonious passion, and internal motivation. To achieve the goals of the study, a sample consisting of (239) nurses and nurse assistants at the Greek University Hospital was selected. The cognitive curiosity scale, the harmonious passion scale, and the internal motivation scale were applied to them. The results showed that there is an indirect positive relationship between cognitive curiosity and harmonious passion; an increase in cognitive curiosity is followed by an increase in academic passion provided that the internal motivation is within its high levels.

While Mistry and Latulipe (2021) conducted a study aimed at revealing the relationship between academic passion and academic curiosity and to achieve the goals of the study, a group of (419) male and female students at American universities were selected and data were collected using a questionnaire that measures academic passion and academic curiosity. The results showed a positive correlation between harmonious academic passion and academic curiosity.

Schmidt and Rotgans (2021) conducted a study aimed at revealing the levels of cognitive curiosity or situational Passion (Situational Passion) related to the strong tendency of an individual towards a specific activity that disappears while the demise of the situation. To achieve the objectives of the study, a sample of (148) male and female students was selected, and the cognitive curiosity scale and the situational passion scale were used. This measurement was carried out before and after exposing the sample members to a certain problem. The results showed that cognitive curiosity and attitudinal passion are positively correlated as they increase when an individual is exposed to a new problem.

Al-Masri (2022) conducted a study aimed to identify the level of spiritual intelligence and academic passion, verify the correlation between them and reveal differences in spiritual intelligence and academic passion according to the gender variable. To achieve the objectives of the study, a sample of (196) male and female students from Hebron University was selected. The Spiritual Intelligence Scale and the academic passion scale were applied to them. The results showed that harmonious passion came at a high level while obsessive passion came at an average level. The results also showed that there were no differences in the level of academic passion attributed to the gender variant.

Mohammed (2022) conducted a study aimed at revealing the level of mental motivation and academic passion among graduate students at the faculty of education in Hurghada according to some variables. To achieve the goals of the study, a sample of (200) students was selected. The mental motivation scale and the academic passion scale were applied to them. The results showed that the level of academic passion in general was high, and that harmonious passion is the most common among the sample members. The results also showed that there are significant differences in harmonious and obsessive passion attributed to gender. The arithmetic mean of males was higher than others.

### **Study Problem**

The problem of the study emerged from the results of some previous studies (Mansourian, 2020; Gkorezis et al., 2021; Schmidt & Rotgans, 2021), which emphasized the importance of academic passion in the student's life and its impact on cognitive curiosity. However, the relationship between these variables is divergent and

necessary to elaborate. As far as the researchers know, there are only some of these studies that are included in this study. Due to the work of one of the researchers in the medical field and his contact with nursing students in all its branches, he noticed that their levels of academic passion are low and may be affected by their cognitive curiosity in their field of specialization and by the level of their attitudes towards it. The reason for this is that the nursing profession is one of the supporting professions that needs a student with academic passion in which he spends a lot of time and effort and tends towards him with all his energy and creativity because not being passionate about it means not mastering it. Also, this profession needs a cognitive curiosity through which the student keeps alongside of various developments.

Accordingly, this study came to reveal the relationship between cognitive curiosity and academic passion among nursing students in the light of some variables by answering the following questions:

- 1-Does the level of cognitive curiosity and academic passion among nursing students differ according to gender and academic year?
- 2- Is there a statistically significant relationship between cognitive curiosity and academic passion among nursing students?

### **The Importance of Study**

#### **Theoretical Importance**

It can be said that this study is one of the first Arabic studies as far as the researcher knows that dealt with the relationship between the two variables of cognitive curiosity and academic passion for medical students. It will also provide an addition and elaboration related to clarifying the relationship between these two variables and it will provide researchers and graduate students with theoretical literature and metrics for variables. Recommendations will be provided suggesting further studies of these variables.

#### **Applied Importance**

The applied importance of this study is manifested in that it shows how the levels of harmonious academic passion affect students and how it can be increased by increasing their levels of cognitive curiosity as it will provide those in charge of the student learning environment in the medical field with means and methods that increase their levels of academic passion based on the development of cognitive curiosity.

### **Definitions of variables**

**Academic passion:** Al-Jarrah, Al-Rabi' (2020) defined it as a strong inclination towards a certain activity that a student likes, senses its importance and invests time and effort in it. Passion is divided into harmonious passion and obsessive passion.

**Cognitive curiosity:** Al-Rabi' (2020) defined it as the desire to acquire knowledge, new sensory experience that stimulates exploration, acquaintance, openness to experience through the search for a wide range of new information and interest in learning detailed knowledge. Each of them is defined procedurally by the score that the respondent received on the cognitive curiosity scale used in this study.

### **Study determinants**

The results of this study were determined by the following:

- It is limited to a sample of nursing students inside Palestine and West Bank students in the first semester of the academic year 2022/2023 who were selected in the available sample.
- Using scales of academic passion and cognitive curiosity and their connotations of validity and reliability.

- The academic passion scale does not include an academic position or an academic task through which the student measures his passion as it has been implicitly based on situations and tasks experienced by the students and the form of their experiences and trends.

### **Methodology**

This study was based on the descriptive-associative method.

### **Community**

The study community consists of all nursing students within the Bachelor's degree, from Palestinian students in the Palestinian Interior, and from students in the West Bank, where their number is estimated at (10,500) students.

### **Sample**

The study sample consisted of (1160) male and female students, who were selected using the available sample Method.

### **Study tools**

#### **1. The cognitive curiosity scale**

The researchers used the (Voskuilen, 2010) scale for cognitive curiosity, which (Al-Rabee, 2020) translated, adapted, and modified to adapt to the Arabic environment. The scale may consist of (24) items, and the negative items were reversed before the analysis.

### **Validity and Reliability**

To verify the validity of the scale, it was presented to a number of reviewers who are specialists in the field of educational psychology, measurement and evaluation, and the percentage of agreement among the reviewers regarding the belonging of the items to the scale ranged (eight arbitrators out of nine). The reviewers indicated that linguistic changes were made to some items. Accordingly, the final form of the scale consisted of (24) items.

To verify the homogeneity of the performance of the study sample on the scale items, The correlation coefficient of the item score with the total score, and the corrected correlation coefficient between the item score and the total score of the scale, were calculated. The correlation coefficients between the item score and the overall score of the scale ranged from (0.50 - 0.71) and all of them are statistically significant ( $P < .01$ ), and above the cutoff score (0.35) (Bryman & Cramer, 1997). The coefficients of the corrected correlation between the item score and the total score of the scale also ranged between (0.42 - 0.67) and were all higher than the cutoff score (0.30) (Leech et al., 2011).

The Cronbach alpha reliability coefficient and test-retest reliability were also calculated. The results indicated that the Cronbach alpha reliability coefficient was (0.92) and the test-retest reliability coefficient was (0.90). Which indicates that the scale has a high degree of reliability.

#### **2. The academic passion scale**

The researchers used (Vallerand et al., 2003) scale, which Al-Jarrah and Al-Rabee (2020) translated and adapted to the Jordanian environment, and the scale consists of the original (14) items distributed over two dimensions, harmonious passion (7) items, and obsessive passion (7) items.

### **Validity and Reliability**

To verify the validity of the scale, it was presented to a number of reviewers who are specialists in the field of educational psychology, measurement and evaluation, and the percentage of agreement among the reviewers regarding the belonging of the



items to the scale ranged (eight arbitrators out of nine). The reviewers indicated that linguistic changes were made to some items, and they also pointed out the deletion of a item in obsessive passion. Accordingly, the final form of the scale consisted of (13) items.

The Pearson correlation coefficient was also extracted between the item score and the total score, and the corrected correlation coefficient was extracted between the item score and the total score, where the correlation coefficients between the item score and the total score for the scale ranged between (0.70 - 0.87) for harmonious passion, and between (0.62 - 0.82) for passion. The corrected correlation coefficients between the item score and the total score of the scale ranged between (0.61 - 0.81) for harmonious passion, and between (0.43 - 0.72) for obsessive passion.

The Cronbach Alpha reliability coefficient and test-retest reliability were also calculated for the two domains of the scale. The Cronbach Alpha reliability coefficient was (0.91) for the harmonious passion, and (0.85) for the obsessive passion, and the retest coefficient was (0.89) for the Obsessive passion, and (0.87) for the harmonious passion, which indicates that the scale has an acceptable degree of reliability.

### Results

first question: “Does the level of cognitive curiosity and academic passion among nursing students differ according on gender and academic year?”

Arithmetic means and standard deviations were calculated for the responses of the study sample members on the cognitive curiosity scale according to the variables (gender and academic level), as shown in Table (1).

**Table 1**

*Arithmetic means and standard deviations for the level of cognitive curiosity according to the variables of gender and academic level*

Demographic variable		Arithmetic means	standard deviations
gender	male	4.1	0.47
	female	4.12	0.38
	<b>total</b>	<b>4.12</b>	<b>0.41</b>
academic level	1	4.15	0.45
	2	4.01	0.44
	3	4.16	0.39
	4	4.13	0.38
	<b>total</b>	<b>4.12</b>	<b>0.41</b>

It is noted from Table (1) that there are apparent differences between the arithmetic means of the study sample’s according to the gender and academic level. The arithmetic means of the responses of the study sample members on the academic curiosity scale reached (4.12), with a high degree. To determine the statistical significance of the differences between the arithmetic means of the study sample’s estimates of the level of cognitive curiosity according to the variables (gender and academic level), a two-way analysis of variance (2 way-ANOVA) was used, as shown in Table (2).

**Table 2**

*Results of two-way analysis of variance for the significance of differences in estimates of the level of cognitive curiosity*

Source	Sum of Squares	df	Mean Squares	F	Sig.	eta square
Gender	0.059	1	0.059	0.362	0.548	0.000
Academic level	3.441	3	1.147	7.014	0.000	0.018
Errors	188.886	1155	0.164			

<b>Total</b>	192.383	1159
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It is clear from Table (2) that there is no statistically significant difference between males and females in their estimates of the level of cognitive curiosity.

The results also show in table (2) there is a statistically significant difference between students of the four academic levels in their estimates of the level of cognitive curiosity. To determine the significance of the differences between the arithmetic means of the four groups, the Scheffe test was used, and Table (3) shows the results.

**Table 3**  
*Scheffe test results for the significance of differences in the level of cognitive curiosity for students at the four academic levels*

level	The difference between the two-arithmetic means		
	2	3	4
1	.140*	-0.003	0.021
2	--	-.142*	-.118*
3	--	--	0.024

**Statistically significant at ( $\alpha=.05$ )\***

It turns out that there is a statistically significant difference between the arithmetic means of the estimates of second-year students and first-year students in cognitive curiosity in favor of first-year students. There is a statistically significant difference between the arithmetic means of the estimates of second-year students and third-year students in cognitive curiosity in favor of third-year students. There is a statistically significant difference between the arithmetic means of the estimates of second-year students and fourth-year students in cognitive curiosity in favor of fourth-year students.

Arithmetic means and standard deviations were also calculated for the responses of the study sample on the academic passion scale according to the gender and academic level, as shown in Table (4).

**Table 4**  
*Arithmetic means and standard deviations for estimates of academic passion according to the variables of gender and academic level*

domain	variable Demographic	Categorical variable levels	Arithmetic means	standard deviations
harmonious passion	gender	male	3.99	0.74
		female	3.96	0.68
		<b>total</b>	<b>3.97</b>	<b>0.7</b>
	academic level	1	4.05	0.75
		2	3.8	0.73
		3	4.05	0.68
4		3.98	0.67	
<b>total</b>	<b>3.97</b>	<b>0.7</b>		
Obsessive passion	gender	male	3.53	0.8
		female	3.48	0.72
		<b>total</b>	<b>3.5</b>	<b>0.74</b>
	academic level	1	3.59	0.81
		2	3.36	0.77
		3	3.59	0.72
4		3.49	0.71	
<b>total</b>	<b>3.5</b>	<b>0.74</b>		

It is noted from Table (4) that there are apparent differences between the Arithmetic means of the study sample's estimates of the level of academic passion, according to gender and academic level. To determine the statistical significance of the

differences between the arithmetic means of the estimates of the study sample for the two dimensions of academic passion, according to the gender and the academic level, a multivariate analysis of variance (MANOVA) (without interaction) was used, using the Hotelling's Trace and Wilks' Lambda tests. Since the Pearson correlation coefficient between the two fields of academic passion is (0.62) and less than (0.85); multivariate analysis of variance can be performed (no collinearity between the two domains). Table (5) shows the results.

**Table 5**

*Results of the Hotelling's Trace and Wilks' Lambda tests on the effect of gender and academic year on the study sample's estimates of the level of academic passion*

Independent variable	value	F	df	Error df	Sig.
gender	0.001	0.624	2	1154	0.536
academic level	0.02	3.814	6	2306	0.001

The results of the Hotelling's Trace test showed that there was no statistically significant effect of the gender variable on academic passion, while the results of the Wilks' Lambda test showed that there was a statistically significant effect of the academic year variable on academic passion.

To determine the statistical significance of the apparent differences between the arithmetic means of the study sample's estimates for the two dimensions of academic passion (single), according to the gender and academic level, (MANOVA) was used, and Table (6) shows this.

**Table 6**

*Results of MANOVA to comparing the arithmetic means of the study sample estimates for the two dimensions of academic passion*

Source	Dependent variable	Sum of Squares	df	Mean Squares	F	Sig.
gender	harmonious	0.174	1	0.174	0.361	0.548
	Obsessive	0.663	1	0.663	1.216	0.27
academic level	harmonious	9.901	3	3.3	6.853	0.00
	Obsessive	8.418	3	2.806	5.142	0.002
Errors	harmonious	556.232	1155	0.482		
	Obsessive	630.302	1155	0.546		
Total	harmonious	566.301	1159			
	Obsessive	639.352	1159			

The results show that there are no statistically significant differences between males and females in the estimates of the two dimensions of academic passion.

The results showed that there were statistically significant differences between the arithmetic means of the responses of the study sample due to the study level variable. To determine the significance of the differences between the arithmetic means of the four groups, the Scheffe test was used for two-dimensional comparisons, and Table (7) shows the results.

**Table 7**

*Scheffe test results for the significance of differences in the level of the two dimensions of academic passion for students at the four academic levels*

domain	levels	difference between the two arithmetic means		
		ثانية	ثالثة	رابعة
harmonious	1	.253*	0.009	0.075
	2	--	-.244*	-.179*
	3	--	--	0.065

	1	0.23	0.003	0.1
Obsessive	2	--	-.227*	-0.13
	3	--	--	-0.097

It is clear from Table (7) that the arithmetic mean for second-year students on the harmonious passion dimension was lower than the rest of the years. This result can be also attributed to the nature of the activities and tasks presented to first-year students. It can be described as general and comprehensive in nature and help them to achieve harmonious passion. The students experience, evaluate and absorb these activities and consequently they become passionate about it.

**second question:** “Is there a statistically significant relationship between cognitive curiosity and academic passion among nursing students?”

To answer this question, the Pearson correlation coefficient was calculated between cognitive curiosity and academic passion, as shown in Table (8).

**Table 8**

*Pearson correlation coefficient between cognitive curiosity and academic passion*

correlation coefficient between cognitive curiosity and academic passion	Pearson	curiosity Cognitive
Harmonious passion		.54**
Obsessive passion		.46**

It is noted that the value of the correlation coefficient between cognitive curiosity and harmonious passion is (0.54), which is a positive, statistically significant relationship. It is also noted that the value of the correlation coefficient between cognitive curiosity and obsessive passion is (0.46), which is a positive, statistically significant relationship.

## Discussion

**Results related to the first question:** that there is no statistically significant difference between males and females in their estimates of the level of cognitive curiosity. This result can be attributed to the fact that both males and females have a love of cognitive curiosity. In the past, societies tended for females to be less curious than males but at the present time, it has become a love of curiosity, satisfying cognitive desires, filling the knowledge gap and alleviating the information gap for both genders. Except for the case that Perry (2001) notes if a female is at a disadvantage biological, her cognitive curiosity may be somewhat more difficult than that of a male.

This result can also be attributed to the fact that male and female nursing students tend to discover what is new in their specialty, prefer unexpected events and possess cognitive curiosity skills that have reached a high level. This result can also be attributed to socialization methods that encourage boys, male and female to learn, discover everything new, be curious, solve puzzles, try different adventures and even travel outside the country to fulfill this requirement after these advantages were in the periods are assigned to males more than females by virtue of religion, belief, customs and traditions.

The results also show there is a statistically significant difference between students of the four academic levels in their estimates of the level of cognitive curiosity.

It turns out that there is a statistically significant difference between the arithmetic means of the estimates of second-year students and first-year students in cognitive curiosity in favor of first-year students. There is a statistically significant difference between the arithmetic means of the estimates of second-year students and

third-year students in cognitive curiosity in favor of third-year students. There is a statistically significant difference between the arithmetic means of the estimates of second-year students and fourth-year students in cognitive curiosity in favor of fourth-year students.

This result can be attributed to the fact that first-year students are motivated by curiosity and cognitive curiosity for a completely different academic environment (the university). They also have greater motivation for this stage and the ability to organize their activities better due to achieving their goals in the secondary stage in addition to that they may expand their perceptions significantly due to their desire to master the basic concepts of the specialization (Baeten et al., 2010). Students of the third and fourth year are at the stage of developing the concepts, principles, knowledge and basic skills of their specialty and they are driven by their cognitive curiosity. These two years begin the stages of actual practical application in different hospital departments, so students notice different medical conditions that prompt them to inquire, research and fill the knowledge gap in them.

The results of the Hotelling's Trace test showed that there was no statistically significant effect of the gender variable on academic passion, while the results of the Wilks' Lambda test showed that there was a statistically significant effect of the academic year variable on academic passion.

The results show that there are no statistically significant differences between males and females in the estimates of the two dimensions of academic passion.

This result can be attributed to the fact that males and females have a strong desire to do something, immerse themselves in it, experience it and interact with it within any context. Investing a large amount of time and energy in a specific activity or task is not relevant for males rather than females or vice versa with different fields of passion. For example, Males may tend to have a passion for professional specializations and works while females have greater passion for artistic and aesthetic specializations.

This result can also be attributed to the fact that both genders have skills within a certain level of academic passion: harmonious and obsessive. They have the skills to participate in various activities, appreciate new things, have unforgettable experiences, and participate in activities that may capture all areas and dimensions of their life and personality. Both genders may like a certain activity but for other circumstances they may be forced to do it.

The results showed that there were statistically significant differences between the arithmetic means of the responses of the study sample due to the study level variable.

It is clear from Table (7) that the arithmetic mean for second-year students on the harmonious passion dimension was lower than the rest of the years. This result can be also attributed to the nature of the activities and tasks presented to first-year students. It can be described as general and comprehensive in nature and help them to achieve harmonious passion. The students experience, evaluate and absorb these activities and consequently they become passionate about it.

This result can also be partially attributed to what was presented by Vallerand et al (2003) that first-year students have high ambition, strong motivation and a desire to start a new stage of education attaching different hopes, ambitions, and goals to this stage. While we find that the harmonious passion was in favor of the third and fourth academic year as the students of these two years have experienced the concepts, knowledge and skills of specialization and deepened them in a way that made them

passionate about it harmoniously, so this passion makes them on the one hand aware of their specialization and its various skills and on the other hand it pushes them to achieve the ultimate goal at the university which is to graduate and join the labor market. Also, the students of the third and fourth year have reached the stage of complete conviction and satisfaction for the nursing specialty, and they loved it so much that they became passionate about it. Although they would have changed their specialty, nursing is a difficult specialty and it needs psychological toughness, resistance, academic and applied efforts. This explains why many nurses do their tasks tirelessly at any time. When someone is asked how to be patient with this specialty, he says that he loves this specialty and does not see himself in others.

**Results related to the second question:** The results showed that the relationship between cognitive curiosity and harmonious emotion is a positive and statistically significant relationship. The results also showed that there is a positive, statistically significant relationship between cognitive curiosity and emotional obsession.

This result can be attributed to the fact that cognitive curiosity generates a great motivation for an individual to reach academic passion. It can be also described as a path to academic passion. When an individual takes the path of cognitive curiosity, he is characterized by the qualities of dedication, adventure, openness and exploration which are all skills that lead to academic passion (Hargittai, 2010).

This finding can also be attributed according to Litman (2008) that cognitive curiosity increases the desire for knowledge that motivates the individual to learn new ideas, eliminate information gaps and solve intellectual problems. Therefore, cognitive curiosity shares with the harmonious passion precisely that both need high levels of motivation, flow, well-being and positive influence while participating in the activity.

It can be said that individuals' efforts to fill their knowledge gap may lead them to activities and tasks that cause high levels of obsessive passion. Students often participate in tasks and activities that they love, but they are forced to do them and immerse themselves in their details because it fills their knowledge deficiency and fills a large information gap. This cognitive deprivation that accompanies them makes obsessive passion have high levels, force them to carry out activities without motivation, indulge in activities without awareness with high levels of pressure, control from the social environment and pursuit self-esteem or social acceptance.

### **Recommendations**

Considering the findings of the study, it recommends the following:

- 1- Maintaining the cognitive curiosity of nursing students that focuses on knowledge itself, creates a state of research and asks questions to form a harmonious academic passion that leads to raising the level of the profession.
- 2- Reducing obsessive passion as much as possible by increasing students' abilities to control and control various academic activities and tasks.
- 3- Conduct a study that includes revealing the relationship between the five major factors of personality and academic passion.

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