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Relation Between Locus of Control and Academic Achievement of Nursing Students at Damanhour University

Amina Ahmed Mohamed[1], Ahlam Mahmoud Mohammed[2*] & Hend Abo-Elsoud Ahmed[3]

[1]*Assistant Professor of Community Health Nursing, Faculty of Nursing, Alexandria University, Egypt.*
[2] *Lecturer , Community Health Nursing, Faculty of Nursing, Alexandria University, Egypt*
[3] *Lecturer, Nursing Education, Faculty of Nursing, Damanhour University, Egypt*
Corresponding Author: Amina Ahmed Mohamed

Abstract:
Background*: Academic achievement is considered the alarm button that pressed todays in each academic institution. A competent nursing workforce is important for an effective healthcare which intensified by the development of student's internal locus of control (LOC)*
Aims: *this study aimed to 1-assess the locus of control levels among the nursing students at Damanhour University 2- assess the relation between locus of control and academic achievement among the nursing students, 3- determine the effects of Internal LOC Development Program on the student's academic achievement level.*
Design: *A quasi experimental study design was adopted to carry out this study.* ***Setting:*** *the study was conducted at Faculty of Nursing Damanhour University.*
Subjects: *The 4th year students were selected. The total number of the students was 250 divided into two groups (control group and experimental group).*
Tools*: data was collected using two tools;*
Tool (I) *socio-demographic characteristics and health status sheet for the students,*
tool (II) *entitled trice academic LOC scale.*
Results: *The findings of the present study revealed that 75.2% of the experimental group has an internal locus of control pre the training program application, while it increased to 79.2% post the program. There is a significant relation between LOC and the academic achievement among the experimental group.*
Recommendations: *Academic administrators should pay attention to help students to understand how their perceptions about self may affect their academic achievement. Develop policies regarding coaching, mentoring and counseling undergraduates. Develop mind coaching program to increase the internal LOC. Further researches would be extremely valuable.*
Key words: *Academic achievement, Locus of control, Internal locus, and External locus*

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I. Introduction

With growing concern toward quality of care the attention to attain a highly qualified staff endorsed. Academic achievement is considered the alarm button that pressed todays in each academic institution (Izumi, 2012).(1) A competent nursing workforce is important for an effective healthcare system. However, concerns on the poor quality of nursing care and poor competencies among nursing students are increasing and how to improve these competences is a new concern . A locus of control is a person's belief about how much power one has over the events in one's life. According to psychologist Julian Rotter, who formulated the concept in the 1950s, the locus of control is a dimension of personality; it helps explain one's traits and behavior. (Bvumbwe, 2016).(2) The pathway to improve student's academic performance is training to develop the intenral locous of control (Jarrı´n, 2017).(3,4)

LOC as a personality related variable is highlighted in many researches last two decades since 1966 when discussed by Rotter in his social learning theory and until now in different recent researches. LOC is defined as a person's belief that his or her actions affect the special upcoming outcome. Definition of internal locus student believe their success or failure is a result of the effort and hard work they invest in their education, while external locus students believe that their successes or failures result from external factors beyond their control, such as luck, fate, circumstance, injustice, bias, or teachers who are unfair, prejudiced, or unskilled . The issue of internal against external LOC is rotted in social learning theory, introduced by Rotter in 1966. (Rotter, 1966(5)**,** Mashayekhi et al, 2014(6), Drago et al, 2018).(7)

People who have internal locus of control allow their inner voice to influence their self-concept. Such people feel they can exert control over their lives. They take appropriate responsibility for their life experiences and for their responses to them. This enables them to interpret unexpected adverse events in a more positive light. In contrast, people who have an external locus of control attribute control of their situation to external factors, including other people, institutions, and God. They may feel they lack the ability to change what happens to them (Treas and Wilkinson, 2014).[8]

Understanding the level or type of the student's locus of control is important in planning a training session or adopting learning style of these students, since the students with an internal locus of control may be more likely to do well at distance learning situations that require a certain amount of independence from the learner, while the students with an external locus of control will need more encouragement and guidance from the instructor (Barzegar, 2011).[9]

Meanwhile, LOC development program among nursing students not benefit them only but benefit their patients. Qualified nurse with a higher internal locus of control can help their patients in their decision making, can counsel them appropriately and they also have very well defined communication skills and they posse positive energy to all their patients as well as their colleague. Health promotion and changing behavior of the patients may be easier if the individual has an internal locus of control where they feel they have some say in their future health rather than an external locus of control where individuals feel that their health is governed from the outside and would therefore not take responsibility for making changes to improve wellbeing (Chilton et al, 2013).[10]

International guidelines highlight the importance of nurses" role in health promotion. Nursing professionals, particularly those working with school and community health, possess the competencies that are crucial to advancing social, personal and cognitive skills in people ,therefor internal locus of control plays an important role in academic achievement as well as quality of care improvement: (Tomás, C.C., Queirós 2015) [11] So the current study highlights its value.

II. Significance Of The Study

In 1966 Julian Rotter defined locus of control as " A set of stable beliefs that predict performance in achievement contexts" which means that those who have an internal locus have a positive believes towards their ability to success, while those with an external locus of control have a negative view towards their abilities; they believes on luck, fate, other external power influence and always blaming others for their own failure. So enhancing ones internal locus will affect positively the student's academic achievements. Moreover, nursing students with an internal locus of control will guide others simply as they can act within group; prefer team work and able to motivate others to do their best in the community.

III. Aims Of The Study

The aims of the study were to:

- Assess the locus of control levels among the nursing students at Damanhour University.
- Assess the relation between locus of control and academic achievement among the nursing students.
- Determine the effects of Internal Locus of Control Development Program on the student's academic achievement level.

IV. Research Hypothesis

- Students with an internal locus of control will have a better academic achievement than who have external locus of control.
- Internal locus of control is related to higher academic achievement.
- External locus of control is related to lower academic achievement.
- Students who received internal locus of control development program will have better academic achievement than they did not received program.

V. Materials And Method

5.1 MATERIALS

5.1.1 Design: Quasi experimental study design was used to carry out the study.

5.1.2 Setting: The study was conducted at Faculty of Nursing Damanhour University.

5.1.3 Subjects: All students at the 4th year whose registered on or complete the course of community health nursing (registered at the academic year 2015-2016) were recruited in the study. The 4thyear students were selected just before graduation to find out their level of internal locus of control . The total number of the students was 250 divided into two groups (control group and experimental group) to develop internal locus of control.

5.1.4 Tools: In order to collect the necessary data for this study, the following tools were used;

5.1.4.1 Tool I: Students' Demographic Characteristics and Health status Questionnaire sheet:

This was developed by the researchers after reviewing the recent literature to collect necessary data from the students. It included the following parts; **the first part**: student's socio-demographic characteristics (age, sex, marital status, and working condition during university study), **the second part**: student's health status (history of medical condition, nutritional disorders, sleeping disorders, BMI and any complaints).

5.1.4.2 Tool II: Trice Academic Locus of Control Scale [12,13]

- It was developed by the **Ashton** Trice in 1985 to assess the academic locus of control among the University students then revised by Nicholas Curtis and Ashton Trice 2013.[13] It composed of twenty eight items. All items gives 0 or 1 according to the student's response; the total score was 28.
- **Scoring system: Trice Academic Locus of Control Scale Scoring System:** Each student was asked to respond to 28 statements by using true or false response format scale. A score of 0 or 1 was given to each response (statements number 10, 11, 15, 17 and 25 were reversed in scoring). Scores will range between 0 – 28. A score of a 14 or above was indicating a more externally oriented student who have external locus of control.

5.2 METHOD

The study was conducted through four phases:

5.2.1 Preparation phase:

- Approval of the dean of the Faculty of Nursing - Damanhour University was obtained through official letter to collect the necessary data from the students.
- After reviewing the recent literature tool I was developed by the researchers. It was validated by juries of five experts in the field of different Nursing specialties. Their suggestions and recommendations were taken into consideration.
- Tool II (Trice Academic Locus of Control Scale) was translated into Arabic by the researchers. It was revised by linguistic expertise to ascertain that it reveals the same meanings after translation. Reliability analysis was performed on the Trice Academic Locus of Control Scale with Cronbach's alpha (0.9025).
- A pilot study was carried out on 25 students from 2nd year who were not included in the present study in order to ascertain the relevance, clarity and applicability of the tools, test wording of the questions and estimate the time required for the questionnaire. Based on the obtained results, the necessary modifications were done.
- Final version of the tools was used to collect the data from all students by using tool I and II.
- Pre-test was done to define the internal and external locus among all the students using Trice Academic Locus of Control Scale (tool II).
- Academic achievement results were determined for both study and control group using the Final exam results' grade of the previous semester (the lower achiever those who have less than 75 %, whereas higher achiever those who have 75% and more).

5.2.2 Developing phase:

- The 4th year nursing students were equally divided into two groups (experimental group and control group) (n=125 students per group). Each student was randomly and blinded selected from the list of students by random number table to be assigned to control or experimental group (each one has an equal chance to be selected in control or experimental group).
- Internal Locus of Control Development Program was carried out for the experimental group according to the following steps:-

Step I- Stating clear objectives;

a- General objective:

At the end of the implementing Internal Locus of Control Development Program, each student will be able to have strong internal locus of control (their score will be less than 14th as a cut of point based on the Trice Academic Locus of Control Scale).

b- Specific objectives:

- Define locus of control.
- Differentiate between internal and external locus of control

- Criticize internal and external locus exhibition videos.
- State the steps to develop internal locus of control.
- List all possible courses of action for problem solving.
- Select better choices as a solution for problem.
- Write done a list of reminders of own control.
- State the consequences of each one of internal and external locus.
- Discuss the different types of personality.
- Define the stress level.
- Evaluate level of stress of oneself.
- Differentiate between negative and positive talk.
- Discuss factors affecting stress level.

Step II- preparation and organization of the program media;

a- Preparation of media used in the program implementation:

- Handout (brochure) was developed by the researchers in order to enhancing the student's memorization for the internal locus of control development process.
- Select Locus of control videos (Ramos, 2015, CorporateEdge, 2015)[14,15] to differentiate between internal and external locus of control and highlights the consequences of each one.
- Power point presentation was developed by the researchers to facilitate the concepts clarifications.

b- Preparation of the environment for conducting the program:

- Classroom was arranged to conduct face-to-face meeting with the experimental group in order to discuss issues related to locus of control.

5.2.3 Implementation phase:

This phase included the implementation of the planned program's sessions according to the following;

- Firstly, the experimental group was divided into five small groups (25 students per group).
- The researchers were introducing themselves to the students, and ask them to share one little known fact about themselves.
- The Internal Locus of Control Development Program was implemented for each group in the form of three sessions, one session / day , each session takes about 45 minutes and it was including the following:

- **Session1:** Introduction about the concept of locus of control, definition, types of locus, problem solving, and types of personalities.
- **Session2:** Importance of understanding one's locus, stress and its levels, and factors affecting stress management.
- **Session3**: Course of action for problem solving, negative and positive talk and the steps to develop internal locus of control

- The researchers used different teaching methods as modified lecture, discussion, concept map, and brainstorming, learning aids as handouts and videos.

5.2.4 Evaluation phase:

- After the implementation of The Internal Locus of Control Development Program, the evaluation phase was performed.
- At the end of the semester post-test was done to determine the effect of the program on the internal and external locus and the academic achievement of the experimental group using Trice Academic Locus of Control Scale (Tool II).
- Academic achievement results after applying Locus of Control training program of the studied students (study and control group) was determined using the Final exam results' grade.
- Data were collected by the researchers over a period of six months from October to December 2015 and from February 2016 to April 2016.

5.2.5 Ethical considerations:

- Informed oral consent was obtained from all students after providing an appropriate explanation about the purpose of the study and nature of the research.
- The confidentiality and anonymity of individual responses, volunteer participation and right to refuse participating in the study were emphasized to the students.

5.2.6 Statistical analysis

- The collected data were coded and analyzed using PC with the Statistical Package for Social Sciences (SPSS version 20) and tabulated frequency and percentages were calculated.

- Univariate analyses, including: t-test and paired t-test were used to test the significance of results of quantitative variables and to compare the means between two unrelated groups on the same continuous, dependent variable.
- The one-way analysis of variance (ANOVA) is used to determine whether there are any statistically significant differences between the means of two or more independent groups (F Test).
- Chi-Square test, Monte Carlo test and Fisher's exact test were used to test the significance of results of qualitative variables.
- The level of significance selected for this study was p value equal to or less than 0.05.

VI. Results

Table (1) shows that around one third of the studied students aged 20 to 23 years and more, with a mean age 21.3 ± 0.88, 20.7 ± 0.97 years among the experimental group and control group respectively. More than three quarters of the students were female (76% of the experimental group and 80% of the control group). The entire experimental groups were single while 9.6% of the control group were married. Around half of the study and control group stated that their family income wasn't enough (54.4% and 50.4% respectively). Regarding number of teaching hours, around one quarter (24%) of the experimental group stated that they stay more than 6 hours in the classes with a mean of 5.9±1.5hours, while more than two fifths (43.2%) of the control group stay more than 6 hours in the classes with a mean of 6.2±1.8hours.

In relation to the working condition of the studied groups, around two fifths of the study and control group were working (38.4% and 37.6% respectively), among them around three quarters of the experimental group and control group were working more than 6 hours/day (81.2% and 68.1% respectively) with a mean of 10.4±3.8hours for the experimental group and 8.8 ± 2.8hours for the control group. The surprising result revealed that more than sixty percent of the study and control group were working more than one shift per day (60.4% and 68.1% respectively). Finally, more than three quarters of the study and control group were working night shift (79.2% and 74.5% respectively).

Table (2) presents health status of the studied students. More than half of the study and control group have health complaints (56% and 61.65% respectively), among them more than two thirds of the study and control group reported that they are anemic (67.1% and 68.8% respectively), followed by insomnia among around one third of the study and control group (37.1% and 29.9% respectively). Additionally tenth of the experimental group suffering from hypertension and asthma with the same percent, whereas around tenth of the control group suffering from neurological disorders as forgetfulness and goiter as an endocrinal disorder (10.4% and 12.9% respectively). In relation to body mass index according to world health organization classifications, around one third of the study and control group was overweight (36.8% and 28.8% respectively). The minority of the study and control group were underweight or obese class I or morbidly obese (2.4%, 7.2%, 4% and 2.4, 4%, 1.6% respectively).

Figure (1) portrays that less than one fifth (16.8%) of the experimental group had excellent scores, compared to more than one third (36.8%) of the control group, while more than half (58.4%) of the experimental group had very good scores, compared to forty percent of the control group. The minority of the experimental group had average scores or pass with courses (2.4%, 1.6% respectively) the same result was found among the control group (0.8% with the same percentage).

In relation to the academic achievement before and after applying Locus of Control training program of the studied students (study and control group) **figure (2)** illustrates that around half of the experimental group were higher achiever pre and post the program with nearly the same percentages (45.6%, 49.6% respectively), and 53.6% of the control group were higher achiever pre and post the program with the same percentage.

Figure (3) portrays that around three quarters (75.2%) of the experimental group have an internal locus pre the program, while it increased to 79.2% post the program. Furthermore, only 14.4% of the control group had an external locus of control.

Table (3) reveals that there is a significant relation between age of the experimental group and their internal and external locus of control categories pre the program where P value was 0.044, whereas there is no significant relation found between other socio-demographic characteristics and their internal and external locus. On the other hand a significant relation was observed between sex, working condition, number of working hours per day, working more than one shift and working night shift per day of the experimental group and their internal and external locus of control categories post the program implementation where P value was 0.017, 0.007, 0.018, 0.025, and 0.024 respectively.

Table (4) reveals that there is a significant relation between asthma among the experimental group and their internal and external locus of control categories pre the program implementation where P value was 0.009, whereas there is no significant relation between other health complaints, and body mass index classification and their internal and external locus of control. On the other hand a significant relation was observed between presence of health complaints as anemia, and insomnia among the experimental group and their internal and

external locus of control categories post the program implementation where P value was 0.000, 0.017, and 0.009 respectively.

Table (5) shows that there is a significant relation between locus of control and the academic achievement among the experimental group post the locus of control program implementation where P value was 0.026, whereas no significant relation was found between locus of control and academic achievement of the experimental group pre the program implementation and among the control group.

Table (6) presents the regression coefficient of the independent t-test in comparison of academic achievement (as a dependent variable) and locus of control (as an independent variable) among the experimental group pre and post the program implementation which confirm the presence of significant relation where t: 12.839 with P value: 0.031, and the F value of ANOVA test equal 4.759 with the same P value. In contrast no significant relation was found among the control group neither by t-test nor by ANOVA test.

Table (1): Distribution of the Students according to their Socio-demographic Characteristics

Socio-demographic characteristics	experimental group (n 125)		Control group (n 125)	
	No	%	No	%
Age (Year)				
20-	13	10.4	13	10.4
21-	74	59.2	72	57.6
22-	31	24.8	37	29.6
23 and more	7	5.6	3	2.4
Mean ± SD	21.3 ± 0.88		20.7 ± 0.97	
Sex				
Male	30	24.0	25	20.0
Female	95	76.0	100	80.0
Marital status				
Single	125	100	113	90.4
Married	0	0	12	9.6
Family income				
Enough	57	45.6	62	49.6
Didn't enough	68	54.4	63	50.4
Number of teaching hours/day				
Equal to or less than 6 hrs	95	76.0	71	56.8
More than 6 hrs	30	24.0	54	43.2
Mean ± SD	5.9±1.5 hrs.		6.2±1.8 hrs.	
Working condition				
Not- working	77	61.6	78	62.4
Working	48	38.4	47	37.6
Number of working hours /day	n(48)		n(47)	
Equal to or less than 6 hrs	9	18.8	15	31.9
More than 6 hrs	39	81.2	32	68.1
Mean ± SD	10.4±3.8 hrs.		8.8 ±2.8 hrs	
Working more than one shift/day				
No	19	39.6	15	31.9
Yes	29	60.4	32	68.1
Working night shift				
No	10	20.8	12	25.5
Yes	38	79.2	35	74.5

Table (2): Distribution of the Students according to their Health status

Student's Health status	experimental group (n 125)		Control group (n 125)	
	No	%	No	%
Health complaints				
No	55	44.0	48	38.4
Yes	70	56.0	77	61.6
Type of health complaints#	**n(70)**		**n(77)**	
Anemia	47	67.1	53	68.8
Hypertension	7	10.0	4	5.2
Heart disease	0	0.0	2	2.6
Asthma	7	10.0	0	0.0
Neurological disorders				
Insomnia	26	37.1	23	29.9
Forgetfulness	5	7.1	10	12.9
Epilepsy	2	2.9	1	1.3

Student's Health status	experimental group (n 125)		Control group (n 125)	
	No	%	No	%
Musculoskeletal disorders				
Low backache	4	5.7	0	0.0
GIT disorders				
Viral hepatitis (B,C)	2	2.9	0	0.0
Renal disorders				
Renal colic	0	0.0	3	3.9
Endocrinal disorders				
Goiter	5	7.1	8	10.4
Diabetes mellitus	0	0.0	5	6.5
BMI classifications##	**n(125)**		**n(125)**	
Underweight	3	2.4	5	4.0
Average	64	51.2	77	61.6
Overweight	46	36.8	36	28.8
Obese class I	9	7.2	5	4.0
Obese class III or Morbidly obese	3	2.4	2	1.6

 # More than one answer
##WHO, Body Mass Index classifications [16]

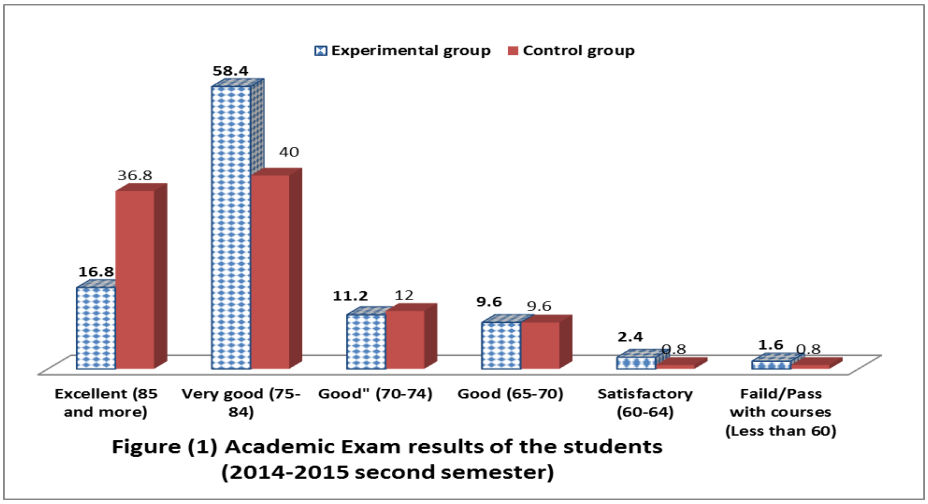

Figure (1) Academic Exam results of the students (2014-2015 second semester)

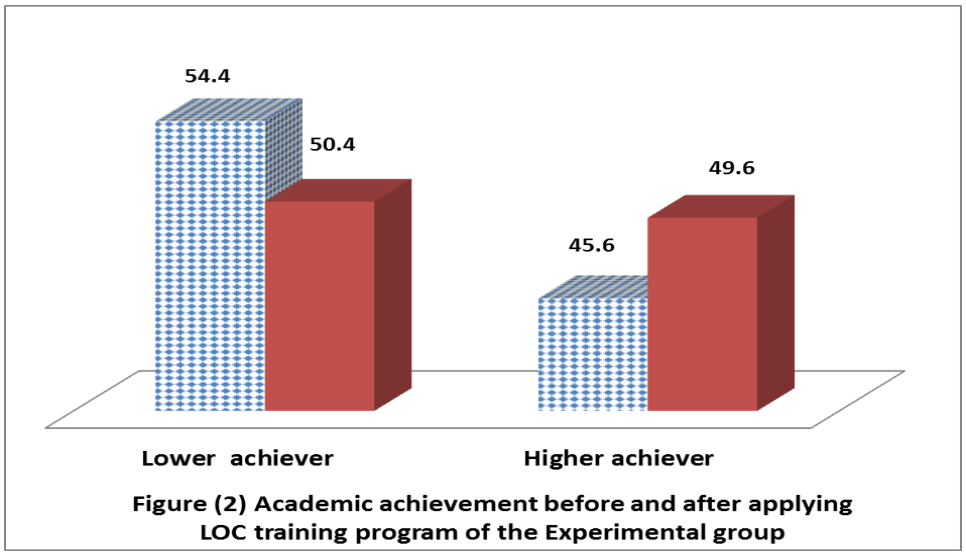

Figure (2) Academic achievement before and after applying LOC training program of the Experimental group

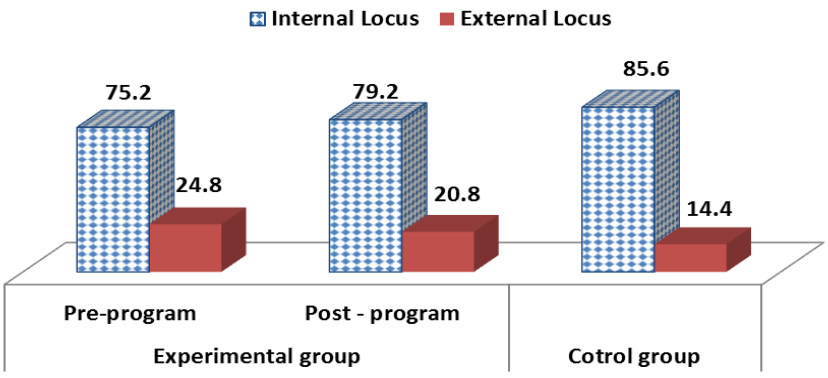

Figure (3) Locus of control categories of the studied students (Experimental and control group)

Table (3): Distribution of the experimental group of the students according to the relation between their Locus of control and their Socio-demographic Characteristics (Pre and Post the program)

Socio-demographic characteristics	The experimental group's Locus of control Pre-program					The experimental group's Locus of control Post – program				
	Internal Locus n(94)		External Locus n(31)		Test of significance	Internal Locus n(99)		External Locus n(26)		Test of significance
	No	%	No	%		No	%	No	%	
Age (Year)										
20-	9	9.6	4	12.9	X^2: 10.176 *(0.044)	8	8.1	5	19.2	X^2: 5.6981 (0.981)
21-	59	62.8	15	48.4		61	61.6	13	50.0	
22-	23	24.5	8	25.8		26	26.3	5	19.2	
23 and more	3	3.2	4	12.9		4	4.0	3	11.5	
Sex										
Male	20	21.3	10	32.3	X^2: 1.541 (0.159)	19	19.2	11	42.3	X^2:6.032 * (0.017)
Female	74	78.7	21	67.7		80	80.8	15	57.7	
Number of teaching hours/day										
Equal to or less than 6 hrs	70	74.5	25	80.6	X^2: 0.488 (0.331)	74	74.7	21	80.8	X^2:0.409 (0.360)
More than 6 hrs	24	25.5	6	19.4		25	25.3	5	19.2	
Working condition										
Non- working	62	66.0	15	48.4	X^2: 3.092 (0.185)	66	66.7	11	42.3	X^2: 7.466 *(0.007)
Working	63	34	16	51.6		33	33.3	15	57.7	
Number of working hours /day	N (32)		**n (**16)			**n (**33)		**n (**15)		
Equal to or less than 6 hrs	6	18.8	3	18.8	X^2:0.000 (0.642)	3	9.1	6	40.0	X^2: 6.467 * (0.018)
More than 6 hrs	26	81.2	13	81.2		30	90.9	9	60.0	
Working more than shift/day										
No	14	14.9	5	16.1	X^2: 3.873 (0.083)	17	51.5	2	13.3	X^2: 13.364 * (0.025)
Yes	18	19.1	11	35.5		16	48.5	13	86.7	
Working night shift										
No	9	9.6	1	3.2	X^2: 6.730 (0.084)	10	30.3	0	0.0	X^2: 12.653 * (0.024)
Yes	23	24.5	15	48.4		23	69.7	15	100. 0	

*** Sig p value ≤ 0.05**

Table (4): Distribution of the Students according to the relation between their Locus of control and their Health status (Pre and Post the program)

Health history	The experimental group's Locus of control Pre-program					The experimental group's Locus of control Post – program				
	Internal Locus n(94)		External Locus n(31)		Test of significance	Internal Locus n(99)		External Locus n(26)		Test of significance
	No	%	No	%		No	%	No	%	
Health complains										
No	40	42.6	15	48.4	X :0.322 (0.359)	34	34.3	21	80.8	X : 18.013 .*(0.000)
Yes	54	57.4	16	51.6		65	65.7	5	19.2	
Types of health complains#	n(54)		n(16)			n(65)		n(5)		
Anemia	33	61.1	14	87.5	X :1.005 (0.102)	42	64.6	5	100.0	X :4.721 *(0.017)
Insomnia	18	33.3	8	50.0	X :0.627 (0.142)	25	38.5	1	20.0	X :5.728 *(0.009)
HTN	5	9.3	2	12.5	X :0.057 (0.320)	7	10.8	0	0.0	X :1.947 (0.187)
Asthma	2	3.7	5	31.25	X :8.645 *(0.009)	7	10.8	0	0.0	X :1.947 (0.187)
Goiter	2	3.7	3	18.8	X :3.460 (0.084)	5	7.6	0	0.0	X :2.386 (0.305)
Forgetfulness	4	7.4	1	6.25	X :0.064 (0.403)	4	6.2	1	20.0	X :0.002 (0.417)
Low backache	4	7.4	0	0.0	X :1.363 (0.315)	4	6.2	0	0.0	X :1.085 (0.388)
Viral hepatitis (B,C)	2	3.7	0	0.0	X :0.670 (0.564)	2	3.1	0	0.0	X :0.534 (0.626)
Epilepsy	0	0.0	2	12.5	X : 6.163 (0.060)	2	3.1	0	0.0	X :0.534 (0.626)
BMI classifications										
Underweight	2	2.1	1	3.2	X :1.749 (0.077)	3	3.0	0	0.0	X :2.384 (0.080)
Average	46	48.9	18	58.1		49	49.5	15	57.7	
Overweight	36	38.3	10	32.3		36	36.4	10	38.5	
Obese class I	8	8.5	1	3.2		8	8.1	1	3.8	
Obese class III or Morbidely obese	2	2.1	1	3.2		3	3.0	0	0.0	

*** Sig p value ≤ 0.05**

Table (5): Distribution of the Students (study and control group) according to the relation between their Locus of control and their Academic achievement (Pre and Post the program)

Academic achieve	The experimental group's Locus of control Pre-program		The experimental group's Locus of control Post – program	Control Group Locus of control	

ment	Internal Locus		External Locus		Test of sign.	Internal Locus n(99)		External Locus n(26)		Total n(125)		Test of sign.	Internal Locus n(107)		External Locus n(18)		Test of sign.
	No	%	No	%		No	%	No	%	No	%		No	%	No	%	
Lower achiever	46	48.9	17	54.8	X : 0.325 (0.359)	45	45.5	18	69.2	63	50.4	X :4.657 *(0.026)	41	38.3	9	50.0	X :0.876 (0.131)
Higher achiever	48	51.1	14	45.2		54	54.5	8	30.8	62	49.6		66	61.7	9	50.0	

*** Sig p value ≤ 0.05**

Table (6): Regression Coefficients of the independent t-test in a comparison of academic achievement, and locus of control among the control and experimental group pre and post the locus of control training program

	experimental group					Control Group				
Coefficient										
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta			B	Std. Error	Beta		
Academic achievement	1.783	.139		12.839	*.031	1.734	.150		11.555	.353
Locus of Control	-.238-	.109	-.193-	-2.182-		-.117-	.125	-.084-	-.932-	
ANOVA[a]										
Model	Sum of Squares	df	Mean Square	F	Sig.	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.164	1	1.164	4.759	*.031[b]	.210	1	.210	.868	.353[b]
Residual	30.084	123	.245			29.790	123	.242		
Total	31.248	124				30.000	124			

Dependent Variable: Academic achievement
Predictors: (Constant): Locus of control

*** Sig p value ≤ 0.05** **b: P value of ANOVA test**

VII. Discussion

There is no doubt about the fact that research on academic achievement is an imperative for education and nursing applications (Adeyinka et al, 2011)[(17)]. Higher academic achievement among nursing students is essential, since nursing students who are well qualified will provide high quality care and they will protect their patients later.[(4)]

The current study revealed that the mean age of the experimental group and control group is 21.3 ± 0.88, 20.7 ± 0.97 years respectively. More than three quarters of the students were female (Table 1) the same findings reported by Heidari and Norouzadeh (2015).[(18)] This age is considered as the axis of development in any society and the investment at this age group is highly beneficial (United Nation, 2018).[(19)]

In this regards the current study aims to assess the locus of control levels among the nursing students at Damanhour University, assess the relation between locus of control and academic achievement among the nursing students. finally to determine the effects of Internal Locus of Control Development Program on the student's academic achievement level.

Academic years are a good chance to teach the students and train them. Since most of the students stay at the university the majority of their day either to receive theoretical lectures or to gain clinical practices. Nursing students nearly attend the university every day and build up on their skills through practice. In this regard the current study found that around one quarter of the experimental group stated that they stay more than 6 hours in the classes with a mean of 5.9±1.5hours, while more than two fifths of the control group stay more than 6 hours in the class with a mean of 6.2±1.8hours (Table 1). This findings confirmed by Hasanpour-Dehkordi and Shohani (2016)[(20)] and they also believed that changes must take place in the way internship courses are carried out in order to prepare the intern students to be fit to deal with real cases.

Moreover, today combining academic study with employment is typical for a wide range of students. Work becomes an additional source of knowledge and skills, as well as a motivation to learn (Yanbarisova, 2015).[(21)] This findings confirmed by the current study where, the current study revealed that around two fifths of the study and control group were working, among them around three quarters were working more than 6 hours/day with a mean of 10.4±3.8hours for the experimental group and 8.8 ± 2.8hours for the control group. The surprising result revealed that more than sixty percent of the study and control group

working more than one shift per day. Finally, more than three quarters of the study and control group working night shift (Table 1).

Although working help nursing student to gain more skills, the findings of the current study indicate that the studied students exceed the working hours limits that can affects their academic achievement. In this regards a study done by García-Vargas et al (2016)[22] concluded that a high percentage of nursing students work more than 20 h per week. So when they work more than 20 h per week, this work has a negative impact on their academic performance as they also get lower grades, lose more credits and take longer time to finish the degree.

Furthermore, it is evident from the above that working during academic years may lead to extra load and stress among the students that makes them liable to health complaints since they work for longer hours compared to earlier decades. In this regards more than half of the study and control group in the current study have health complaints, among them more than two thirds of the study and control group reported that they suffering from anemia, followed by insomnia, hypertension , asthma, forgetfulness and goiter (Table 2). The same findings reported in a study done at Mansoura University, Egypt (2017).[23]

All of these findings were ascertained that improving the internal locus of control among the students will affect their academic achievement and equip them with skills that they can transfer to their clients and patients. Locus of control (LOC) refers to a person's perception about the underlying root causes of successes or failures in his or her life .Rinn and Boazman, 2014. in their study found that high ability students often perceive themselves to be cognitively competent. [24]

Fini and Zadeh (2011)[25] found that educational achievement, motivation and locus of control are related to each other since high level of achievement ,motivation leads to increasing level of educational achievement and an increase in educational achievement leads to increasing level of achievement motivation. On the other hand internality of the locus of control leads to increasing of achievement motivation and vice versa. The positive links between academic self-efficacy and academic achievement has been reported also by Ogunmakin and Akomolafe in their study (2013).[26]

These findings go in line with the current study findings which reflect the positive effect of the application of the Internal Locus of control level. Meanwhile a study done in Jordan showed that males were more internal and external than females and supporting a positive relationship between Locus of Control and academic achievement (Majzub et al, 2009).[27]

People's beliefs about their abilities in particular domains are thought to be important in motivating them to do what they can do to achieve. This study shows that Locus of Control, Interest in Schooling and Self efficacy when combined together show significant effect on the academic achievement of the respondents. (Adeyinka et al, 2011).[17] In contrast, in California Lavender et al (2010)[28] teaches the Student the Perceived Academic Control and found this activity needs to be intensified.

Moreover, the current study reflects that there is slight improvement of the level of the internal locus noticed among the experimental group after the program application. Additionally, there is a significant relation between age of the experimental group and their internal and external locus of control categories pre the locus of control program training implementation.

There is a significant relation observed between sex, working condition, number of working hours per day, working more than one shift and working night shift per day of the experimental group and their internal and external locus of control categories post the locus of control program implementation (Table 3). These findings are supporting the study by Sarıçam et al (2012)[29]

Hence, The findings of the current study showed no difference between males and females in terms of academic achievement and locus of control (internal or external), but the results showed a significant relationship between internal locus of control and academic achievement in males, which confirmed the assumption that "there is a significant relationship between locus of control and academic achievement in males"

In contrast Hasan and Khalid (2014) [30] explored the gender differences in terms of academic locus of control and the relationship between academic locus of control and academic achievement. Women are significantly high on an internal academic locus of control indicating less internal academic orientation than men.

There is a significant relation between asthma among the experimental group and their internal and external locus of control categories pre the program implementation,. On the other hand there is a significant relation observed between presence of health complaints such as anemia and insomnia among the experimental group and their internal and external locus of control categories post the program implementation (Table 4). These findings indicate the importance of taking into consideration the student's health complaints when applying training on LOC.

To sum up, it is observed that within the gifted population, level of ability may play a role in individual locus of control. The belief of locus of control is related to what reinforcements have happened throughout the individuals' life. The most important factor for internal motivation associated with academic achievement is

self-esteem and locus of control. Locus of control represents a generalized expectation of effective factors that pertain to reward and punishment in life. On one side of the locus of control continuum are those who believe that locus of control can fix their ability to control life events, whereas on the other side there are individuals who believe that life events occur in conjunction with external factors such as accidents, by chance, or destiny (Choudhury and Borooah, 2017).[31]

Fortunately, there is much that college instructors and teachers can do to support student's internal locus of control. Nursing students with internal locus of control have a tendency to choose the activities in which they can display their abilities. They feel that they are responsible for their own decisions, and they perceive that their fate is not affected by the factors out of their control, but by their own decisions (KUTANİS et al, 2011).[32] They use more control in their environment in nursing station and they display a better learning performance. When the information is about their patient's conditions, they actively search for new information. Moreover, they can help junior to do the same. , students use the information better if they are in need of solving a complicated problem especially in critical situation. So we can conclude that possessing internal locus of control can help nursing students to cope with the stress and other difficulties in their clinical settings. Satisfaction of the students with internal locus of control is higher than those with external locus of control (Devin et al, 2012).[33] They can do better in caring for their patients. They tend to improve or progress faster and get more degrees in nursing. They mostly believe that their efforts will end with a good performance. They are more self-confident and they trust their abilities. They have more expectations that their good performances will be awarded and they tend to perceive that their status in nursing is more proper and acknowledged (Zaidi and Mohsin, 2013).[34]

Finally, the current study looking to apply internal locus of control development program and train the nursing students to practice the internal locus to gain a higher academic achievement and provide a high quality care.

VIII. CONCLUSION

The findings of the present study revealed that, around three quarter (75.2%) of the experimental group have an internal locus pre the locus of control program implementation, while it increased to 79.2% post the program application. Furthermore, only 14.4% of the control group had an external locus of control. There is a significant relation between locus of control and the academic achievement among the experimental group this relation was confirmed by the regression coefficient analysis.

Recommendations

Based on the results of the present study, the following are recommended:

1. Academic administrators should pay attention to help students to change their perception toward themselves and also their worldview. Help them to understand how their perceptions about self may affect their academic achievement.
2. Universities governance and administrators should develop policies regarding coaching, mentoring and counseling undergraduates regarding locus of control.
3. Colleges and universities orientation sessions should include presentations and classes on the variables that affect locus of control.
4. Develop a systematic program from specialists as mind coaching to increase the internal locus of control.
5. Further researches which explored the mechanism of intensifying internal locus of control development using a variety of research strategies and data sources would be extremely valuable.

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