Effect of an Educational Module on Nursing Student's Performance in Caring for Hepatitis C Virus Patient

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Abstract: The benefits use of an educational module (EdM) improves the students' chances and opportunities to master a subject. Aim**:** To evaluate the effect of an educational module on nursing student's performance in caring for hepatitis C virus patient. Hypothesis**:** The level of nursing student's knowledge, practice, and attitude about hepatitis C virus will be higher than pre- implementation of EdM. Design: A quasi experimental design was used to conduct this study. Setting: The study was carried out in the Faculty of Nursing affiliated to Ain Shams University. A purposive sample including the nursing students of both sexes (400). Tools**:** 1- Student's characteristics sheet.2- Student's knowledge questionnaire to assess the level of student's knowledge pre/post EdM and follow-up period. 3- Likert scale to assess level of student's attitude pre/post EdM. 4- Observation checklist to assess the level of student's practice pre/post and during follow-up period of EdM5- Student's opinionair to assess student's opinion towards the EdM. Results: There were highly statistically significant differences between nursing students' level of knowledge and practice pre/post EdM and during follow -up period. There were also highly statistically significant differences between total score of students' knowledge, practice and their working in hospital or no pre/ during follow-up and students attitude pre/post EdM. High percentages were found at the end of follow-up period of in relation to students' opinions as regards EdM. Conclusion**:** The level of nursing students' knowledge about hepatitis C virus and their practice as regards safety of drug injection for patient with HCV increased significantly after implementation of the educational module. As well, nursing students' attitude towards patient with hepatitis C virus improved positively. Recommendations:Encouraging nursing faculties to design learning modules to a variety of curricula topics according to students needs and teaching strategies. Further studies are recommended for applying the educational module for student curricula and as a part of students' activities theory and practice.

1.Introduction:

Given the current substantial burden of hepatitis C virus (HCV) infection in Egypt, hepatitis C–related morbidity and mortality are predicted to at least double in the coming 20 years. Worldwide, 130–170 million persons are living with chronic hepatitis C virus (HCV) infection which, if left untreated, can result in cirrhosis and liver cancer **(Sharaf Eldin & Rimlinger, 2010).**

Egypt has the largest burden of HCV infection in the world, with a 10% prevalence of chronic HCV infection among persons aged 15–59 years **(Mohammed, Y. 2011).**

A number of variables impacted on nurses' level of hepatitis C knowledge and their willingness to care for patients with hepatitis C. These variables included nurses' level of experience, and perceptions of personal risk of contracting hepatitis C in the workplace. Amongst the health care, nursing students are an important component of the health care delivery system since they are the one who are responsible for the constant care of in-patients and thus, they come in close contact **(Attia&Wafa, 2011).**

General awareness of health staff about viral hepatitis and its transmission and prevention is too important and can alleviate the spread of the disease in hospitals and societies. Since medical students especially nursing students are in close contact with hepatitis patients, so they may be in danger of acquiring viral hepatitis especially type C. In addition, these diseases groups are responsible for prevention and control of these infectious in societies **(Ansari et al., 2008) and (Monsour et al., 2013).**

The various attitudes of a nurse will help in successful nursing practice. Understanding the attitudes and beliefs towards different medical conditions amongst undergraduate students is a fundamental step in addressing the issue of negative attitudes so often reported in studies. Once these students graduate, they will be expected to treat a wide range of people presenting with various medical conditions without bias throughout their professional careers. It is therefore important to understand these attitudes and the effect their education has on attitudes in order to effectively promote and instill

appropriate attitudes amongst our future healthcare professionals **(Deena 2009) and (Student Attitude, 2013).**

Learning modules address a variety of topics, from cognitive stacking to informatics to managing curricular change. A module on cognitive stacking provides strategies to teach students how to organize and prioritize existing and incoming information in health care settings. Another module explains how to use narrative and reflective pedagogies to help nurses improve their ability to always be present with patients, families and other members of the health care team **(Robert Wood Johnson Foundation, 2011).**

Unlike a focus on standardized testing, the use of modules invites a teacher to be creative and fashion lesson plans for her students. At the same time, the modules ensure that all students are being held to the same reasonable standards. The learning modules are designed to be used by faculty teaching in all pre-licensure programs. Faculty can choose which modules to use and when to use them based on their needs and those of their students **(Robert Wood Johnson Foundation, 2011).**

Magnitude of the problem:

On average, over half a million people in Egypt get infected by the hepatitis C virus (HCV) each year, far more than any other country in the world, according to a new study published in the Proceedings of The National Academy of Sciences. Nearly seven out of every 1,000 of Egypt's 77 million people get infected with HCV each year. Around 10% of Egyptians are chronically infected and infectious, creating a large reservoir that supplies the spread of the disease, mainly through hospitals and clinics **(Yahia, 2010).**

Significance of the study:

Application of an educational module through formal plan in the Faculty of Nursing, Ain Shams University, for undergraduate nursing students was not applicable since 1994, this result was reported by the researchers through main library in the faculty. There are many advantages of educational module as a method of teaching for undergraduate nursing students, such as student centered participation, knowledge and training interactions between teacher and students and increases professional satisfaction. Teacher acts as a tutor, guiding and facilitating students. The educational module is giving students chance to problem solving due to small groups of them, where students need to identify a problem, then analyze it, formulate and develop hypothesis and suggest alternatives for its resolution **(Miguel, 2006).**

The Egyptian nursing students are the cornerstone in health and nursing field to fight hepatitis C virus disease through their knowledge about mode of transmission, prevention and treatment so that the level of nursing students and their attitude towards viral hepatitis C were effecting on the spread of disease or restricting of it **(Mostafa& El-Daly, 2010).**

Aim of the study:

The aim of this study was to evaluate the effect of an educational module on nursing students' performance in caring for hepatitis C virus patient, through:
- Assessing nursing student's performance (Knowledge, practice & attitudes) for caring of hepatitis C virus patient.
- Designing and implementing an educational module.
- Evaluating the level of students' performance for caring of a hepatitis C virus patient.

Hypotheses:
- The level of nursing student's knowledge and practice about hepatitis C virus will increase significantly after implementation of educational module.
- The level of nursing student's attitude towards a patient with hepatitis C virus will improve significantly after implementation of educational module.

2. Subjects and Methods:

Design:

A quasi experimental design was used to conduct this study.

Setting:

The study was carried out in the Faculty of Nursing affiliated to Ain Shams University (2nd& 3rd years).

Sample:

A purposive sample was used in this study:

All available nursing undergraduate student in the second and third years from both sexes (400) were categorized under the following criteria; exclusive were the first and fourth years as being unsuitable for the study plan.

Tools for data collection:

Self administered questionnaire and observation checklist were used to collect the data of the current study, they included the following:

1- **Nursing Student's Characteristics Sheet**: It was used to collect data of the studied nursing students about; their age, gender, undergraduate academic grade, qualification, student's working in hospital out of the faculty, and free choice to join nursing field.

2- **Nursing Student's Knowledge Sheet:** It was used to assess the level of nursing student's knowledge of hepatitis C pre/post the application of the educational module and follow-up period (after one month). It was adopted from **Lisa et al. (2013)**. It was

developed by researchers. The questionnaire involved four parts; the first part included information about hepatitis involving; definition, risk factors, mode of transmission, prevention and clinical features of hepatitis C, also included tests and diagnosis, current medical treatment and types of hepatitis C (20 questions). The second part included nursing intervention involving; nursing care plan for patient with hepatitis and nursing management of side effect of disease treatment for patient with hepatitis C (15 questions). The third part included hospice palliative care (5 questions). The fourth part about glossary terms (7 questions). Each student was given about 60 minutes to provide answers to these questions pre/post test.

Scoring system: The quiz scored as: a right answer =1score while the wrong = zero.Short notes questions scored as: a complete answer = 3 score, an incomplete answer = 2, while a wrong answer = zero. The total score ≥ 75% was considered satisfactory level of knowledge, while <75% was considered unsatisfactory level of knowledge.

3- Student's Attitude Likert Scale:

It was used to assess the level of student's attitude towards patient with hepatitis C pre/post educational module. It was adopted from **Likert Scale (2006)** and **Student Attitude(2013)** and modified by the researchers according to the study aim. It involved three main parts; the first, related to feelings of a nursing student towards contact with hepatitis patient (8 items).The second part is related to feelings of a nursing student towards health precautions (7 items) and the third part is related to feelings of a nursing student towards method of treatment of hepatitis C (5 items).Scoring was as follows: agree, (2) I haven't any idea (1) and disagree (0). The level of the positive attitude was considered ≥ 60% while the level of the negative attitude was considered <60%.

4- Drug Injection Observation Checklist:

It was used to assess the level of nursing student's practice as regards safety procedure during drug injection for patient with hepatitis C pre/post and during follow-up period of the educational module. Adopted from **Mohamed and Sharaf Eldin (2009)** and **Samantha (2013),** it uses simulation in the lab. activities to achieve this procedure. The checklist included two phases; hand hygiene performed correctly (5 items), and injected safely (12 items) Scoring system: The total score of the checklist was 17.The items done correctly were given (1) and items not done correctly were given zero. Evaluation of student's practice is considered to be competent level if total scores were ≤90%, while incompetent level if < 90%.

5- Nursing Student's Opinionair:

It was used to assess student's opinion towards the educational module at the end of the follow-up period. It was developed after reviewing the related literatures (**Master Program, 2014)** and guided by other educational modules It included the following items; aim of the educational module, language, content, knowledge gained, practice acquired, time and characteristics. Nursing students responses were" Yes or No".

Content validity and reliability:

Validity for the tools test was done by five experts from Medical Surgical Nursing specialty. The questionnaires' and checklist reliability were also confirmed by Cronbach's alpha coefficient (alpha = 0.8 for Hepatitis C knowledge questionnaires, alpha = 0.9 for procedure checklist and alpha = 0.85 for attitude.

Ethical considerations and human rights:

After approval was taken from Dean of Faculty of Nursing prior to study commencement, the Heads approvals of Nursing Departments were also taken. An informed signed consent was obtained from each student participating in the study. Students were informed to have the right to withdraw from the study at any time without giving any reason. The researchers explained the aim of the study and determined time of beginning and completing this study.

Pilot study:

A pilot study was carried out on 10% of the total study sample to test the clarity and practicability of the tools in addition to the subjects and the setting. Subjects who shared in the pilot study were later included in the main study sample as no radical modifications were needed on the study tools.

Field work:
- The approval was taken by official letter issued from Dean of Faculty of Nursing Ain Shams University, and Heads of Nursing Departments before starting of study application.
- Tools were reviewed for validity by five experts from Medical Surgical Nursing specialty.
- Reliability was done before starting of data collection and the educational module was designed based on analysis of the actual nursing student's needs.

Module Construction: It was adopted from **Module specification(2013) and Master program (2014)** and modified by the researchers according to the aim of the current study and consisted of four phases, as follows:

1- Assessment phase: The nursing students needs were determined during this phase. The researchers classified the study sample into 4 groups (a, b, c d), and explained to each group how to use this module according to the aim of the

study. Duration of this phase was given 30 minutes/each group.

2- **Planning phase**: Designing the plan of the educational module was done according to the actual students needs**.**

3- **Implementation phase**: In this phase, the actual plan was done as regards theoretical, and practical parts. Through this phase each nursing student must answer the questions at the end of each chapter and repeat the same question if he/she can't gain 75% at least of the level of

knowledge after studying its and repeated the procedure skills through self study if he/she can't gain the level of competence 90% at least after demonstration of the procedure, and before the final exam (theory & practice).

4- **Evaluation phase**: This phase included the formative and the summative evaluation and used written and practice exams for each student according to the plan. The following is the educational module description including the fine details of the four phases:

Educational Module Description	
Module name	Hepatitis C
Level	This module was applied on 2nd & 3rd years
Keywords	Hepatitis C, behavior, attitude, knowledge, & practice.
Aim & Objectives	
Overall aim	To evaluate the effect of an educational module on nursing student performance in caring for hepatitis C virus patient
Intended learning outcomes	**By the end of this module, students should be able to:** - Explain the nursing intervention for patient with hepatitis C - Identify common terms related to hepatitis C disease - Provide nursing care for patient with hepatitis C - Apply safety measures during drug injection - Utilize infection control measure for patient with hepatitis C - Utilize critical thinking approach for analyzing problems of hepatitis - Develop communication skills with patient with hepatitis C
Content	
Sessions content (three sessions)	The module is expected to include sessions addressing the following topics: The first session included: - Definition, risk factors, mode of transmission, prevention, clinical features, diagnostic test, medical treatment and types of hepatitis C The second session included: -Nursing care plan, and nursing management of common side effects of the drug. The third session included: Hospice palliative care and common glossary terms..
Teaching, Learning & Assessment	
Study resources provided	All materials and equipment for the theoretical sessions and practical sessions were provided.
Teaching and learning methods	The module consists of lectures, group discussion and simulation (regards practical part).
Assessment details	Students sit a one hour written examination covering all aspects of the module. The written examination consists of short note questions and quiz questions as a pre/post test. Demonstration is taken 30 minutes/subgroup and re-demonstration of injection of drug is taken10minutes/student.
Time and Mode of Study	
Duration	The module was started from February 2013 to May 2013.
Mode of study	The module was taught face-to-face in the class room and in the lab. activities during drug injection procedure.
Implementation of self learning module and time of learning **(Formative evaluation)**	The pre-test of the study tools questionnaire is done for four groups (a, b, c, &d).Each test took one hour the total pre-test=4 hours, then the total learning time for the module took 24 hours for theoretical part, as follows: Lectures time (theory) for four groups (a, b, c, &d), each group included between 95-105 students for 6 hours /week. Then, the practical part was done in one week for pre/post test, according to of student's time availability.It Included demonstration (drug injection)by using simulation in the lab. activities for 8 sub groups. Each sub group included from 48 to53 students. The total hours of practical part =8 and re-demonstration of injected drug took 10 minutes/student. Then, each student was given chance of self study of the procedure before the final practical exam (during follow-up period).Each one of the study sample was provided a copy of the EdM for 2 weeks to study it. Post test was done for four groups after 2 weeks. Total hours = 4. Then, after one month of follow-up period the final written exam was done for the four groups, one hour/group, total hours =4.
Summative evaluation	- During follow-up period the final exam was done after one month of receiving the educational module (theory &practice exams) and according the level of passing of the current study.

Statistically Design:

Data were entered and analyzed by using the statistical package for social science (SPSS).Number, percentage, chi-square and t-test were used to analyze

the collected data. The observed differences and associations were considered significant at $p<0.05$ and insignificant at $p>0.05$.

Limitations of the study:

° It was difficult to gather the nursing students in subgroups according to the plan of this study.

° Interference between educational module time and students study time.

° Insufficient laboratory time according to the plan of the current study.

° Application one procedure (drug injection) in the current study due to the availability of the lab.

Results:

Table (1) reveals the characteristics of the studied nursing students. All of them (100%) their, age ranged between 19 and 21 years, 77.5 were females, more than half of them (52.5%) were second grade of study, also 85% of them were secondary school certificates, and 66.7% of them were not working in a hospital **(out of the faculty)** while as regards free choice to join nursing field, 67.5 were having free choice.

Table (2) shows that there were highly statistically significant differences between level of study sample pre/post and during follow-up period as regards satisfaction level of students' knowledge involved, information of hepatitis C, nursing intervention, hospice palliative care and the glossary of terms (p<0.001).

Table (3) indicates that there were highly statistically significant differences between total score of study sample knowledge and their working or not in hospital (out the faculty) at pre and during follow-up period (X^2= 99.40 & 385.7 respectively at p<0.001).

Table (4) reveals that there were highly statistically significant differences between pre/post and during follow-up period as regards competent level of students' practice involved,hand hygiene performed correctly, and drug injected safely (t-test= 25.2& 31.8 respectively at p<0.001).

Table (5) indicates that there were highly statistically significant differences between total score of competent level of study the sample's practice as regards drug injection procedure, and their

working in hospital or no pre/ during follow-up period (X^2= 102.5 & 400.7, respectively) at p<0.001).

Table (6) shows that there were highly statistically significant differences as regards level of studied nursing students' attitude towards patient with hepatitis C pre/post educational module involved,contact with hepatitis C patient, health precautions, and method of treatment (X^2 =164.6,131.1& 148.3 respectively at p<0.001).

Table (7) displays the distribution of studied nursing students' opinions as regards educational module at the end of follow-up period. Students' opinions as follows: For all of them (100%), the aim of the module is clear, and the language is simple for 80%. As for content it was comprehensive, organized and integrated as reported by 100%, 87.5% &75.0% respectively. As well, knowledge gained, was reported by 62.5%, 37.5%, and 0.0% as to much, enough, and not enough respectively. However all of them their opinions as regards practice acquired, was good (100%). Characteristics of self learning module was reported by 87.5% to be highly motivated and time of educational module was reported to be suitably by 85%of the studied nursing students.

Table (1): Characteristics of nursing students understudy (n=400)

Items	No	%
Age (years)		
19-21	400	100
Gender		
Female	310	77.5
Male	90	22.5
Undergraduate academic grade		
Second	210	52.5
Third	190	47.5
Qualification		
Secondary school certificate	340	85
Technical institute certificate	60	15
Working in hospital (out of the faculty).		
Yes	100	33.3
No	300	66.7
Free choice to join nursing field		
Yes	270	67.5
No	130	32.5

Table (2): Nursing students' levels of knowledge as regards hepatitis C pre/post educational module and during follow -up period (n=400).

Items	Pre X^2 S	Post X^2 S	Follow- up X^2 S	X^2-test $X^2$1 Pre/post	$X^2$2 pre/follow	$X^2$3 Post/Follow
Information of hepatitis C	50	310	320	85.5	87.5.	0.75
			P<001			
Nursing intervention	70	380	360	81.9	73.6	0.51
			P<001			
Hospice palliative care	20	380	370	162	159.3	0.67
				P<001		
Glossary of terms	10	350	330	146	137	0.52
			P<001			

Highly significant P<**001 S=Satisfactory**

Table (3):Relation between total score of nursing students' knowledge and working in hospital during study years pre/ during follow-up period of educational module (n=400)

Total Knowledge Score				
Response Level= Yes				
Working in hospital (out the faculty)	(n=100)			
	X^2			
	S	U		p value
Pre- Ed M	20	80	99.40	.0.001
Follow-up	90	10		
Response Level=No				
Working in hospital (out the faculty)	(n=300)			
	X^2			
	S	U		p value
Pre- Ed M	40	60	385.7	.0.001
Follow-up	260	40		

Highly significant P<001 S=Satisfactory U=Unsatisfactory

Table (4): Nursing students' level of competent as regards drug injection of hepatitis C patient pre/post and during follow-up period (n=400).

Variables	Competent Level of Drug Injection		t-test	P value
	Pre-Ed M	Post-Ed M		
	X ± SD	X ± SD	25.2	0.001
-Hand hygiene performed correctly -Injected safely	26.3+7.1	49.1+4.2		
Variables	Competent Level of Drug Injection		t-test	P value
	Pre-Ed M	Follow-up		
	X ± SD	X ± SD	31.8	0.001
-Hand hygiene performed correctly -Injected safely	26.3+7.1	48.1+0.2		

Highly significant P<001

Table (5): Relation between total score of nursing student's practice and working in hospital pre/ during follow-up period of educational module (n=400)

Total Practice Score				
Response Level= Yes				
Working in hospital	(n=100)			
	X^2			
	Com	In		p value
Pre- Ed M	0.0	100	102.5	0.001
Follow-up	90	10		
Response Level=No				
Working in hospital	(n=300)			
	X^2			
	Com	In		p value
Pre- Ed M	0.0	100	400.7	0.001
Follow-up	280	20		

Highly significant P<001

Table (6): Level of studied nursing students' attitude towards patient with hepatitis C pre/post educational module.

Items	Pre –educational Module (n=400)			Post -educational Module -(n=400)		
	Agree	Don't have any idea	Disagree	Agree	Don't have any idea	Disagree
	No	No	No	No	No	No
Students' feeling towards contact with hepatitis c patient (8 items)	20	20	360	380	10	10
	X^2=164.6 P<0.001					
Students' feeling towards health precautions (7 items)	35	35	330	350	25	25
	X^2=131.1 P<0.001					
Students' feeling towards method of hepatitis C treatment (5 items)	40	40	320	370	15	15
	X^2=148.3 P<0.001					

Highly significant P<001

Table (7): Distribution of studied nursing students' opinions as regards educational module at the end of follow-up period (n=400)

Items	Students opinions	
	No	**%**
Aim of the educational module		
Clear	400	100
Unclear	0.00	0.00
Language		
Simple	320	80.0
Complex	80.0	20.0
Content		
Comprehensive	400	100
Organized	350	87.5
Integrated	300	75.0
Knowledge gained		
Too much	250	62.5
Enough	150	37.5
Not enough	0.00	0.00
Practice acquired (drug injection)		
Good	400	100
Poor	0.00	0.00
Characteristics of Self learning module		
High motivation	350	87.5
Moderate motivation	50.0	12.5
Low motivation	0.00	0.00
Time of educational module		
Suitable	340	85.0
Unsuitable	60	15.0

4. Discussion

In the present study, findings related to the characteristics of the studied nursing students revealed that, age ranged in all studied sample between 19 -21 years, more than three quarters of them were females, and have secondary school level. Near percentages representing approximately half of them were distributed between second and third study years, while more than half of them were working in hospitals during their study out the faculty and they were affiliated to nursing field by free choice. These result are the normal characteristics of Egyptian nursing students as regards age in this level of the study, also working in nursing field in Egypt, is common among females than males in all levels of nursing study, according the Egyptian culture. Some of nursing students were working in hospitals during study years, and free choice of nursing field may be due to the need to support their families, or to acquire practical experience, or they are lovely persons and like to help others. In this respect, **Austin (2009) and Royal et al. (2013)** identified that there are a lot of qualities and characteristics that would make an excellent nurse such as being friendly, and empathetic. Men still make up a small percentage of nurses, due to that many find it a stigma of being a male nurse.

One of the important findings the present study revealed was highly statistically significant differences found among the nursing students about their levels of knowledge post application of the educational module and during follow-up period as regards information of hepatitis C, nursing intervention, hospice palliative care, and glossary of terms. **Samantha (2013)** showed that a comprehensive learning module helps nurse faculty teach the knowledge, skills and attitudes that nursing students need to master quality and safety education for nurses competencies. This result may indicate that the content of the educational module succeeded to provide the essential knowledge about HCV for the target group.

On the other hand, the results of this study revealed highly statistically significant relations between the competent level of nursing students practice as regards drug injection pre, post the educational module and during follow-up period this included hand hygiene performed correctly and during injected safely. **According to Morbidity and Mortality Weekly Report (2012),** approximately 280 million injections were administered in Egypt during 2001, of which an estimated 8% (23 million) might have been unsafe. Added that improvements were observed in health-care workers' compliance with standard precautions e.g., hand hygiene, use of personal protective equipment, safe injection practices.

In the same issue, there was statistically significant differences between level of nursing students' knowledge and competent level of nursing practice as regards drug injection and their working in hospital out of the faculty during follow- up period. In the similar study, **David et al. (2011)** who recommended that the knowledge should be updated every six months for nurses to maintain knowledge and skills in urgent situations. Updating training is of concern because one must know that the less frequent any one updates knowledge, the lower one's retention of knowledge and skills. Some aspects should be reviewed and updated to ensure improved performance and quality care, especially because updates should be constant, since theoretical knowledge and skills tend to decline over time.

The current study's module involved some methods of teaching such as lectures, group discussion, and use of simulation for practical skills (drug injection) and also include questions and answers at the end of each chapter. This result was supported by **The Effects of a Nurse's Attitude (2013),** who emphasized that a variety of teaching and learning strategies will be employed including lectures, workshops, tutorials and an introduction to action learning. The results of this point revealed that the 30% of the study sample were working in hospitals while 70% of them were not. Meanwhile, there were no statistically significant differences between the level of nursing students knowledge and practice, which indicated that working in hospitals may be due to that students in need for money, or the workplace is depending on these students in hygienic care or to cover the shortage in nursing staff.

As regards the studied nursing students' attitude in relation to care of patient's with HCV pre/post application of the educational module which included; feeling of students towards the following, contact with hepatitis C patient, health precautions, and method of hepatitis C treatment. There was a statistically significant difference found by Deena (2009) which reported that the nurse's attitude towards hepatitis C patient may significantly cause morbidity and mortality rate by indirect way. Therefore, the end of the spectrum, a negative attitude may affect the patient's attitude and recovery in a negative and damaging manner. Experience of the nurse and time spent with a patient may also play a role of the openness with a patient. It is vital that a nurse behave positively around patients in order to aid in attitude and recovery. Nursing strategies and outlooks have and will continue to affect a patient's hepatitis C well being. Therefore, it is a wise idea for a nurse to be conscientious in his/ her outlook and behavior at the workplace.

On the other hand **by Samantha (2013)** added that the nurse is one of the components of medical team that spends most of the time in comparison with other members of the team, he/she should have a good interaction with hepatitis C patients and gives more information to the patients in order to reduce their anxiety and improve the patient s' condition.

In the same line, **Royal et al. (2013)** believed that the education of nurses never stops as they are required to continually master new skills and concepts throughout their career. It was important to consider nurse's opinions in this study, to update the training program, and to identify nursing needs. The result of the study as regards students' attitude indicated that the educational module succeeded to change the nursing student from negative attitude into positive attitude, also the provision by sufficient knowledge for the study sample helped them to change their attitude.

Concerning assessment of the studied nursing students' opinions as regards the educational module at the end of follow-up period, for all of them, their opinions as regards aim of the module, it was clear, the content was comprehensive, and they acquired good level of practice. While the majority of them agreed about high motivation as characteristics of self learning module, as well in relation to, suitable time and language was simple. However, about knowledge gained, more than three fifths of them agreed about too much knowledge gained. These results indicated that the educational module could be suitable according to the level of the study sample and also added that it gave them chance for critical thinking to analyze and criticize one example of teaching course.

In a similar study carried out by **Module specification (2013)** identified that the characteristics of education modules are different from other modules. First, they are general in the sense that they aim at those aspects of knowledge and abilities that any one expects of educated individuals in general, not the knowledge and abilities that are required in the specialization in a particular discipline or profession. Second, they aim at education in the sense that they seek to inculcate higher order qualities of the mind and intellect that make a student educated, as opposed to the practical know - how and abilities that might be useful or contribute to success in career. The results of this point explanation the current study module consisted of knowledgeable and practical component integrated with others which provide the studied sample with competent level of teaching.

Conclusion:

According to the findings of the current study and the researchers' hypotheses, the level of nursing students' knowledge about hepatitis C virus and their practice as regards safety of drug injection for patient with HCV were increasing significantly after implementation of the educational module. As well, the nursing students attitudes towards patient with hepatitis C virus were improving positively.

Recommendation:

The study recommended to encourage nursing faculties to design learning modules to a variety of curricula topics according to students' needs and teaching strategies Further studies are recommended for adding the educational module to students' curricula as a part of students' activities, theory or practice.

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